\*\*Revised Text:\*\*

1 United States Department of the Interior Bureau of Land Management PALEN SOLAR ELECTRIC GENERATING SYSTEM DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT Volume 1 of 2 July 2013 CACA #048810 Publication Index #: BLM/CA/ES-2013/023+1793

2 United States Department of the Interior Bureau of Land Management Draft Supplemental EIS for the Palen Solar Electric Generating System (formerly Palen Solar Power Project) For the Palm Springs - South Coast Field Office Palm Springs, California July 2013 \ lw,~ lTj WI3 Date

3 CACA#48810 Publication Index #: BLM/CAlES-2013/023+1793

4 United States Department or the Interior BUREAU OF LAND MANAGEMENT Palm Springs-South Coast Field Office 1201 Bird Center Drive Palm Springs, CA 92262-8001 (760) 833-7100 Fax (760) 833-7199 Visit us on the Internet at In Reply Refer To: www.hlm.gov/calpalmsprings/ 2800/8100 (P) CAD060.67 CACA-4881O July 19,2013 Dear Reader: I am pleased to announce the availability of the Draft Supplemental Environmental Impact Statement (Draft SEIS) for the Palen Solar Electric Generating System (PSEGS). Palen Solar Holdings, LLC (Applicant) is proposing to develop a 500-megawatt (MW) energy plant in Riverside County, California, using concentrating solar thermal power tower technology. In 2008, the previous project proponent, Palen Solar I, LLC filed a right-of-way (ROW) application for a concentrating solar project that would use solar parabolic trough technology to generate electricity (Palen Solar Power Project or PSPP). The PSPP application was analyzed through a proposed California Desert Conservation Area (CDCA) Plan Amendment/Final Environmental Impact Statement, which is referred to in the Draft SEIS as the PSPP PAlFEIS. In addition to proposing a different technology than the PSPP, the Palen Solar Electric Generating System includes a shift in the location of a portion of the generation tie (gen-tie) line to accommodate the relocation of the Red Bluff Substation and align the transmission line corridor of the Palen Solar Electric Generating System within the Desert Sunlight Solar Farm Project transmission line ROW, and the addition of a natural gas supply line to deliver natural gas to the PSEGS from the existing Southern California Gas distribution system. This Draft Supplemental Environmental Impact Statement supplements and does not replace the May 2011 PSPP PAIFEIS. If the requested ROW grant is authorized, the Bureau of Land Management will rely on the environmental analysis in the PSPP PAlFEIS as supplemented in the Draft SEIS to support the necessary amendment of the CDCA Plan that would identify the site as associated with power generation and transmission. The Draft SEIS analyzes the direct, indirect, and cumulative effects of the Palen Solar Electric Generating System, carries forward two alternatives from the PSPP PAlFEIS (Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A), and analyzes cumulative effects of each of these alternatives relative to an updated cumulative scenario. The Bureau of Land Management also will rely on the analysis of direct and indirect effects of the alternatives in the PSPP PAlFEIS in preparing a new, consolidated Proposed Resource Management Plan Amendment/Final Environmental Impact Statement for the PSEGS following receipt and consideration of comments on the Draft SEIS. Comments on the Draft SEIS will be accepted for 90 calendar days following the Environmental Protection Agency's publication of the Environmental Protection Agency's Notice of Availability in the Federal Register. The Bureau of Land Management can best utilize your comments and resource information submissions if your comments and resource information submissions are received within the review period. To facilitate analysis of comments and information submitted, the Bureau of Land Management strongly encourages you to submit comments in an electronic format. 5 Comments may be sent to Frank McMenimen, Project Manager, by mail: 1201 Bird Center Drive, Palm Springs, CA 92262; phone: (760) 833-7150; or email: fmcmenimen@blm.gov. Public meetings will be held in Blythe and Palm Springs, California, to provide clarification of the Palen Solar Electric Generating System and alternatives, describe the impacts and mitigation measures, and accept written public comments. Please see Bureau of Land Management's web page at http://www.blm.gov/calstlenlfo/palmsprings/solar~rojects/palen\_solar\_electric.htmlfor information about the location, date, and time of these meetings. All substantive issues raised during the comment period will be considered and responded to, and modifications based on these comments may be made in the Final Supplemental Environmental Impact Statement. Your review and comments on the content of this document are critical to the success of this planning effort.If you wish to submit comments on the Draft Supplemental Environmental Impact Statement (Draft SEIS), we request that you make your comments as specific as possible. Comments will be more helpful if the comments include suggested changes, sources, or methodologies, and reference to a section or page number. Comments containing only opinion or preferences will be considered and included as part of the decision-making process, but comments will not receive a formal response from the Bureau of Land Management (BLM). Before including your address, phone number, email address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so. Additional hard copies or CD-ROM versions of the Draft SEIS may be obtained by contacting the Palm Springs-South Coast Field Office. The document also will be available on the Internet at: http://www.blm.gov/caist/enifo/palmsprings/SolarProjects/palensolarelectric.htm!. We are pleased to provide the Palen Solar Electric Generating System (PSEGS) Draft SEIS for your review and extend our appreciation for your cooperation and assistance during this process. We look forward to your continued participation.

Lasell Acting Field Manager, California Desert District

Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement Bureau of Land Management (BLM) Palm Springs-South Coast Field Office (PSSCFO) 1201 Bird Center Drive Palm Springs, CA 92262

Abstract

This Draft Supplemental Environmental Impact Statement (Draft SEIS) is in response to an application for a right-of-way (ROW) grant authorizing the construction, operation, maintenance, and decommissioning of a solar electricity generation facility known as the Palen Solar Electric Generating System (PSEGS) and the transmission of energy generated by the PSEGS to the grid via Southern California Edison's Red Bluff Substation. If the Palen Solar Electric Generating System is approved, amendments to the California Desert Conservation Area (CDCA) Plan of 1980, as amended, would be required to allow power generation at the site and transmission over 161 kV outside of an approved corridor. This Draft SEIS supplements and does not replace the May 2011 Proposed Resource Management Plan Amendment/Final Environmental Impact Statement issued for the Palen Solar Power Project (PSPP PA/FEIS). If the requested ROW grant is authorized, the Bureau of Land Management will rely on the environmental analysis in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement as supplemented by the Draft Supplemental Environmental Impact Statement and revised in response to comments received, all of which will be consolidated in a new Proposed Resource Management Plan Amendment/Final Environmental Impact Statement for the Palen Solar Electric Generating System, to support the necessary amendments of the California Desert Conservation Area Plan to allow power generation at the site and transmission over 161 kV outside of an approved corridor.

Draft Supplemental Environmental Impact Statement Chapter 2 describes the proposal of Palen Solar Holdings, LLC to develop a 500-megawatt (MW) energy plant on 3,896 acres of public land within a 5,200-acre ROW in Riverside County, California, using concentrating solar thermal power tower technology (instead of the solar thermal trough technology analyzed in the Proposed Action/Final Environmental Impact Statement), shift a portion of the generation tie-line from the route analyzed in the Proposed Action/Final Environmental Impact Statement, install a redundant telecommunications cable beneath the generation tie-line access road, and upgrade and extend an existing natural gas distribution line from the main transmission natural gas pipeline located approximately 0.56 miles south of the Palen Solar Electric Generating System site to the Palen Solar Electric Generating System site. Southern California Gas (SoCalGas) would permit, construct, own, and operate the upgraded and extended natural gas line, which would be the subject of an SF 299 ROW application to be filed separately by Southern California Gas. The Bureau of Land Management is analyzing the potential effects of the proposed natural gas line work as a connected action in the Draft Supplemental Environmental Impact Statement. Chapter 2 also describes the two alternatives carried forward from the Proposed Action/Final Environmental Impact Statement (Reconfigured Alternative 2 and No Action Alternative A). Chapter 3 describes existing conditions on and near the requested ROW to the extent the conditions have changed relative to the Proposed Action/Final Environmental Impact Statement. Chapter 4 describes the potential direct and indirect effects of the Palen Solar Electric Generating System and analyzes cumulative effects of all of the alternatives relative to an updated cumulative scenario.

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If you have another section of the document or a more complete piece of text with narrative content, I'd be happy to assist with that! Please provide a different excerpt or passage that includes sentences with pronouns or entities needing resolution.References 8-1 Palen Solar Electric Generating System Draft SEIS ii July 2013

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13 EXECUTIVE SUMMARY ES.1 Introduction The California Desert District, Palm Springs-South Coast Field Office (PSSCFO), of the Bureau of Land Management (BLM) has prepared this Draft Supplemental Environmental Impact Statement (Draft SEIS) for the Palen Solar Electric Generating System (PSEGS). The Draft SEIS addresses a new alternative to be considered by the Bureau of Land Management in the context of the Palen Solar Power Project (PSPP), which was analyzed together with alternatives in the Palen Solar Power Project Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (PSPP PA/FEIS; Bureau of Land Management 2011). The Palen Solar Electric Generating System has been proposed by a new project proponent and would involve a different solar technology than the solar technology analyzed in the Palen Solar Power Project Proposed Resource Management Plan Amendment/Final Environmental Impact Statement, a modified site layout within the previously analyzed project area, and new components in areas that were not analyzed in the Palen Solar Power Project Proposed Resource Management Plan Amendment/Final Environmental Impact Statement, including a portion of the previously analyzed generation tie (gen-tie) transmission line that would be rerouted, a new redundant telecommunications cable, and a natural gas supply pipeline that would be upgraded and extended from existing infrastructure owned and operated by Southern California Gas (SoCal Gas).

ES.2 Background In 2008, the previous project proponent, Palen Solar I, LLC (PSI) a wholly owned subsidiary of Solar Millennium, filed a Right-of-Way (ROW) application for a concentrating solar project that would use solar parabolic trough technology to generate electricity for the Palen Solar Power Project. The Bureau of Land Management, pursuant to the Bureau of Land Management's obligations under the Federal Land Policy and Management Act of 1976 (FLPMA) and National Environmental Policy Act (NEPA), prepared the Palen Solar Power Project Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (and prior to that a Draft Resource Management Plan Amendment/Draft Environmental Impact Statement) and began drafting a Record of Decision (ROD) for the Palen Solar Power Project. However, prior to finalizing the Record of Decision, Palen Solar I, LLC informed the Bureau of Land Management that Palen Solar I, LLC would not likely construct the project as described in the Palen Solar Power Project Proposed Resource Management Plan Amendment/Final Environmental Impact Statement. Therefore, the Bureau of Land Management did not finalize the Record of Decision, did not amend the resource management plan, and did not issue a Right-of-Way for the Palen Solar Power Project. On April 2, 2012, Palen Solar I, LLC along with other Solar Millennium US-based companies petitioned for relief in federal bankruptcy court. On June 21, 2012, the bankruptcy court conducted an auction and determined that BrightSource Energy, Inc. (BSE) was the approved bidder to acquire Palen Solar I, LLC's assets. On June 29, 2012, Palen Solar I, LLC submitted a Standard Form 299 application to the Bureau of Land Management to transfer the existing application (CACA 48810) from Palen Solar I, LLC to Palen Solar Holdings III (PSIII), at the time a wholly owned corporation of Palen Solar I, LLC. On July 19, 2012, the Bureau of Land Management decided to accept the transfer of the application to Palen Solar Holdings III. On June 21, 2012, the bankruptcy court approved the transfer and BrightSource Energy, Inc. acquired all rights to Palen Solar Holdings III. Concurrent with BrightSource Energy, Inc.'s filing of the Standard Form 299 with the Bureau of Land Management, BrightSource Energy, Inc. created a new project company, Palen Solar Holdings, LLC (PSH), which is a joint venture of BrightSource Energy, Inc. and Abengoa and the sole owner of Palen Solar Holdings III. Palen Solar Holdings, LLC is the applicant (Applicant) for the Palen Solar Electric Generating System. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement ES-1 July 2013

14 Executive Summary ES.3 Bureau of Land Management's Purpose and Need The statement of Bureau of Land Management's Purpose and Need for action that is provided in Section 1.1.1 of the Palen Solar Power Project Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (p. 1-2) remains valid, although the discussion of the concurrent amendment of the California Desert Conservation Area (CDCA) Plan of 1980, as amended merits further discussion. The California Desert Conservation Area Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation that are not identified in the California Desert Conservation Area Plan to be added to the California Desert Conservation Area Plan through the land use plan amendment process. Additionally, the California Desert Conservation Area Plan, as amended, requires that transmission lines above 161 kV be placed within designated corridors. The Palen Solar Electric Generating System solar plant site is within the California Desert Conservation Area, but is not identified in the California Desert Conservation Area Plan for solar power generation; the gen-tie line pathway also is within the California Desert Conservation Area, but the route is not fully within a designated corridor identified in the California Desert Conservation Area Plan.Therefore, if the Bureau of Land Management (BLM) decides to approve the issuance of a Right-of-Way (ROW) grant, two California Desert Conservation Area (CDCA) Plan amendments also would be required. One Plan Amendment would allow the solar generation facility; the other Plan Amendment would allow the generation-tie line outside of a designated corridor. To inform the Plan Amendment decisions, the Bureau of Land Management (BLM) will rely on the environmental and other analysis set forth in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) as supplemented by the Draft Supplemental Environmental Impact Statement (SEIS) and revised in response to comments received, all of which will be consolidated in a new Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (EIS) for the Palen Solar Electric Generating System (PSEGS). (No Plan Amendment is required for the proposed natural gas supply line upgrade and extension because the natural gas supply line would be less than 12 inches in diameter).

ES.4 Applicant's Project Objectives The primary objective for the Palen Solar Electric Generating System (PSEGS) is to deliver 500 megawatts (MW) of renewable electrical energy to the regional electrical grid to fulfill the existing approved Power Purchase Agreements (PPAs) for electrical sales from the facility. The specific objectives for the project include development of a site: cent for which some of the permits and other authorizations required for construction of a solar thermal power plant had been completed and/or obtained (e.g., the California Energy Commission (CEC) licensed the Palen Solar Power Project (PSPP) on December 15, 2010, as a 500-megawatt (MW) solar thermal power-generating facility utilizing parabolic trough technology), cent large enough to accommodate BrightSource Energy (BSE) Power Tower Solar Technology, cent included within a Bureau of Land Management (BLM) designated Solar Energy Zone (SEZ), and cent with an executed and approved Large Generator Interconnection Agreement (LGIA) for interconnection to a substation that would be operational in time to meet delivery of electricity under current California Public Utilities Commission (CPUC) Approved Power Purchase Agreements (PPAs). In addition stated objectives for the Palen Solar Electric Generating System (PSEGS) encompass the state and federal goals for development of renewable energy on public land as described in Section 1.1.1 of the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) (pp. 1-2 and 1-3).

Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) ES-2 July 2013 "Executive Summary ES.5 Purpose of this Draft Supplemental Environmental Impact Statement (SEIS) The analysis in this Draft Supplemental Environmental Impact Statement (SEIS) has been prepared in accordance with the National Environmental Policy Act (NEPA) regulations (40 CFR 1502.6(c)). Supplementing is used to meet the purposes of the National Environmental Policy Act (NEPA) as efficiently as possible, avoiding redundancy in the process. Accordingly, this Draft Supplemental Environmental Impact Statement (SEIS) does not repeat or replace the information and analysis presented in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS), but rather adds to the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) with a focus on changed circumstances and project modifications that could result in environmental effects that were not discussed in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS). For example, the environmental context within which the Palen Solar Electric Generating System (PSEGS) would occur, as described in Chapter 3, Affected Environment, has not changed substantially since publication of the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS); therefore, much of that discussion has not been supplemented. Similarly, where environmental consequences previously analyzed and those of the Palen Solar Electric Generating System (PSEGS) would be similar, this Draft Supplemental Environmental Impact Statement (SEIS) cross-references the analysis provided in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) to support the Draft Supplemental Environmental Impact Statement (SEIS) conclusions. For ease in review, a copy of the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) is provided as Appendix B to this document on a CD-ROM (if reviewing a paper copy), or as a separate electronic file if reviewing the Draft Supplemental Environmental Impact Statement (SEIS) document electronically. The Bureau of Land Management (BLM) will rely on the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) as supplemented by the Draft Supplemental Environmental Impact Statement (SEIS) and revised in response to comments received on the Draft Supplemental Environmental Impact Statement (SEIS) to prepare a consolidated Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (EIS) for the Palen Solar Electric Generating System (PSEGS).

ES.6 Public Involvement with the Draft Supplemental Environmental Impact Statement (SEIS) A minimum of 90 days will be provided for commenting on the Draft Supplemental Environmental Impact Statement (SEIS) and Proposed California Desert Conservation Area (CDCA) Plan Amendments. The Bureau of Land Management (BLM) will review and provide responses to all substantive comments based on the Council on Environmental Quality (CEQ) regulations (40 CFR 1503.4.) and guidance found in Bureau of Land Management (BLM) National Environmental Policy Act (NEPA) Handbook H-1790-1. Information about all opportunities for public involvement will be maintained on the following Bureau of Land Management (BLM) website: http://www.blm.gov/ca/st/en/fo/palmsprings/Solar\_Projects/palen\_solar\_electric.html

ES.7 Summary Description of the Palen Solar Electric Generating System (PSEGS) and Alternatives The Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) described and analyzed multiple "action" and "no action" alternatives, including a solar parabolic trough power project consisting of two power plants, each with a nominal capacity of 250 megawatts (MW). The Palen Solar Power Project (PSPP), as proposed, would have resulted in a 500 megawatt (MW) solar thermal trough project within a Right-of-Way (ROW) area of approximately 5,200 acres, of which approximately 3,107 acres would have been disturbed by construction and operation.The PSPP PA/FEIS also evaluated alternatives to the project as proposed, each of which would use solar thermal trough technology to generate the same output as the Palen Solar Power Project (PSPP), but be reconfigured to avoid impacts to sensitive resources. Reconfigured Alternative 2 (Options 1 and 2) involved realignment of the solar fields to reduce impacts to a nearby sand transport corridor, and habitats for sand dune vegetation and the Mojave fringe-toed lizard. Key differences between the two Options centered on the amount of private land required for the layouts of the two Options. Disturbance areas estimated for Option 1 and Option 2 are 4,366 and 4,330 acres, respectively. Reconfigured Alternative 2, including Option 1 and Option 2, is described in the Palen Solar Electric Generating System Draft Severance Environmental Impact Statement (SEIS) ES-3 July 2013 Executive Summary in PSPP PA/FEIS Section 2.4.1 (pp. 2-22 through 2-25). Among the suite of no action alternatives described and analyzed in the PSPP PA/FEIS, No Action Alternative A would result if the Right of Way (ROW) application would be denied, the ROW grant not authorized, and the California Desert Conservation Area (CDCA) Plan not amended for the proposed solar use (see PSPP PA/FEIS, p. 2-26). PSPP PA/FEIS Section 2.4.2 (p. 2-26) identified Reconfigured Alternative 2 as the Bureau of Land Management's (BLM's) Preferred Alternative. For the purposes of this Draft SEIS, the BLM has carried forward for further consideration the Agency Preferred Alternative identified in the PSPP PA/FEIS (Reconfigured Alternative 2, Options 1 and 2) and No Action Alternative A. The remaining alternatives from the PSPP PA/FEIS are being dismissed from further consideration. As described in the Applicant's Revised Plan of Development (POD) (Palen Solar III, 2013), the Palen Solar Electric Generating System (PSEGS) would be developed within the area identified and analyzed in the PSPP PA/FEIS as Reconfigured Alternative 2. Of the 5,200 acres within the requested ROW area, approximately 3,896 acres would be disturbed by the PSEGS. The PSEGS would not include any development of private property that was considered in connection with the PSPP. Key differences between the PSEGS and the action alternatives described and analyzed in the PSPP PA/FEIS include the PSEGS's two proposed 750-foot power towers, each topped by a 10-foot tall lightning rod and Federal Aviation Administration-required lighting and surrounded by 85,000 heliostat assemblies (a total of 170,000 heliostats are proposed); shift in the westernmost portion of the previously analyzed 7-mile long 230 kV generation-tie (gen-tie) line to accommodate the relocation of the Red Bluff Substation and to align the transmission corridors of the PSEGS with the Desert Sunlight Project; installation of a new redundant telecommunications cable beneath the gen-tie line access road that would extend the length of the gen-tie line; and the upgrade and extension of an 8-inch natural gas supply pipeline for a distance of 2,960 linear feet from a new tap station on the main transmission line to the PSEGS site. Total disturbance area of the gas line would be approximately 3.6 acres. The natural gas supply line would be owned and operated by Southern California Gas Company (SoCal Gas) pursuant to a separate ROW grant; the BLM is analyzing this work in the Draft SEIS as a connected action. Other key differences between the PSEGS and the action alternatives described and analyzed in the PSPP PA/FEIS include (relative to those other projects) the PSEGS's reduction in the number of proposed evaporation ponds from four 2-acre ponds to two 2-acre ponds, reduction in water use over the life of the project by approximately 99 acre-feet per year, and reduction in the amount of grading required within the solar plant site. Environmental Impacts Direct and Indirect Effects of the PSEGS The environmental effects of constructing, operating, maintaining, and decommissioning the PSEGS are summarized in Table ES-1. The direct and indirect environmental impacts of Reconfigured Alternative 2 (Option 1 and Option 2) and the No Action Alternative are described in the PSPP PA/FEIS and remain valid. As such, these impacts require no supplement in Table ES-1. A side-by-side comparison of each of these alternatives will be provided in a consolidated Final Environmental Impact Statement (EIS) for the PSEGS following the consideration of comments received regarding this Draft SEIS.Palen Solar Electric Generating System Draft SEIS ES-4 July 2013

17 Executive Summary Cumulative Impacts of all Alternatives The cumulative scenario has been updated in Section 4.1 of this Draft SEIS to reflect changed conditions since issuance of the PSPP PA/FEIS and the cumulative effects analysis for all alternatives has been updated. The Palen Solar Electric Generating System (PSEGS) is expected to cause or contribute to short-term and long-term cumulative effects. Cumulative effects could result from the combination of the incremental effects of the Palen Solar Electric Generating System (e.g., relating to the introduction of bright lights and tall structures into the desert environment, adverse effects to cultural resources and values and to avian and other species and avian and other species' habitat, generation of air emissions, and other resources) and the effects of past, other present, and reasonably foreseeable future projects in a region that has undergone significant development. Based on recent resource management plan decisions that prioritize solar development in eastern Riverside County, significant development is expected to continue in the area.

TABLE ES-1 SUMMARY OF IMPACTS BY ALTERNATIVE

Resource PSEGS Impact Summary Air Resources PSEGS construction could contribute to exceedances of the PM10 standards (24-hour and annual) and could cause exceedances of the 1-hour and 24-hour NAAQSs for NO2 and PM2.5, respectively. Adverse effects related to the creation of ozone resulting from construction of the Palen Solar Electric Generating System would occur. Operation of the Palen Solar Electric Generating System would contribute to existing exceedances of the PM10 standards (24 hour and annual) and the PM2.5 (24-hour) standard. Emissions of other criteria pollutants (with the exception of the ozone precursor NO2) would not adversely affect local or regional air quality. Adverse effects from ozone emissions resulting from operation of the Palen Solar Electric Generating System would occur.

Global Climate PSEGS construction would generate a total of approximately 22,226 tons (20,163 metric tons) of Change CO2e per year. Project operations would emit, directly from primary and secondary emission sources, approximately 107,464 tons (97,490 metric tons) CO2e GHG emissions per year. Overall, when accounting for the loss of carbon sequestration (vegetation removal) and the displacement of fossil fuel-based energy, the Palen Solar Electric Generating System would result in an overall net reduction of GHG emissions of approximately 957,180 tons (868,349 metric tons) of CO2e per year.

Cultural The footprint of the Palen Solar Electric Generating System includes the same or a substantially similar number of sites that are eligible for Resources listing on the NRHP as Reconfigured Alternative 2. The precise number of sites, including how many prehistoric and historical period sites eligible under which criteria, will be disclosed in the Final EIS for the Palen Solar Electric Generating System based on information and studies that are in progress as of the issuance of the Draft SEIS. Final determinations of the number and types of direct, indirect, and cumulative effects of the Palen Solar Electric Generating System are not known at this time.

Environmental No disproportionately adverse air quality, noise, or water impacts could result for minority residents of Justice the primary study area and no disproportionately adverse socioeconomic, traffic, or health and safety impacts could result for minority residents of the secondary study area.

Lands and The Palen Solar Electric Generating System would occupy land within a corridor designated for energy generation and transmission. Realty Once constructed, the land encompassed by the Palen Solar Electric Generating System and facilities, including portions of designated corridors, would not be available for placement of other sites or linear facilities.

Livestock There are no livestock grazing allotments within or adjacent to the proposed Palen Solar Electric Generating System right-of-way application Grazing area. Therefore, no impacts would occur.

Mineral The Palen Solar Electric Generating System is expected to have a negligible and temporary effect on the availability of sand and Resources gravel resources, and no significant impact on the availability of other mineral, gas, or geothermal resources.

Multiple Use The Palen Solar Electric Generating System would convert approximately 1 percent of all MUC-M lands in Eastern Riverside County Classes to a single use for the duration of the project, thereby restricting multiple-use opportunities on the site of the Palen Solar Electric Generating System to a single dominant use for the lifespan of the project. This restriction would be lifted upon closure and decommissioning of the project.

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

Resource Proposed Action Noise PSEGS construction activities would be temporary in nature, and would not generate continuously high noise levels. Applicant proposed measures would reduce periodic increases in noise (e.g., high pressure steam blow) to prevent adverse impacts. Groundborne construction period vibration may be detectable by the nearest sensitive receptor, but not structurally damaging. Operational noise and vibration levels are not expected to be detectable at off-site receptors and therefore would not be considered an adverse effect.Paleontological The PSEGS construction (e.g., grading and excavation) has a probability of encountering resources paleontological resources. To the extent that paleontological resources are discovered in-tact and adequately preserved, the contribution to the science of paleontology would be beneficial. However, if paleontological resources are destroyed in the course of subsurface disturbance, the loss would be permanent. Through proposed resource monitoring and mitigation efforts, the potential for adverse effects would be reduced. Public Health PSEGS construction activities present small risks to public health and safety associated with the use and safety of construction equipment, handling and storage of hazardous materials, the use of explosives during construction and demolition, and encountering unexploded ordinance. Operational activities, including work in the vicinity of a natural gas pipeline, would increase worker safety risks. However, no short- or long-term adverse human health effects are expected in association with transmission line safety and nuisance hazards; traffic and transportation safety, including aviation safety; and worker safety and fire protection impacts; geologic hazards; or site security. Recreation Construction of the PSEGS would render the site unavailable for dispersed recreational opportunities, but construction of the PSEGS would be expected to have only minimal impacts. Construction activities and operations could affect users' perception of solitude, naturalness, and unconfined recreation. Long term visitor areas could be slightly impacted due to an increase in project workforce or displacement due to project visibility. Social and PSEGS construction would employ 998 daily workers (average) and 2,311 workers (peak). Most, if Economic not all, PSEGS construction workers are expected to live within two hours of the site. Any temporary lodging demand would be met by existing housing or lodging. No new housing or motel development would be induced. Construction labor payroll would be approximately $115 million per year. The total economic output would be up to $200 million per year. Operations: Annual employment of 100 workers; most PSEGS construction workers are expected to live within two hours of the site. Any in-migration housing demand would be met by existing housing. No significant housing growth would be induced. Decommissioning and closure activities would induce a temporary spending and employment benefit from deconstruction and site restoration work. Subsequent long term adverse impact from lost project jobs and spending would be expected. Soils Resources PSEGS construction would involve approximately 200,000 cubic yards of grading. With the implementation of Applicant Proposed Measures, the proposed action would cause minimal wind or water erosion generated soil loss. The project has been configured to avoid direct impacts on sand transport areas. Therefore, operations activities would not be expected to have a significant adverse effect on sand transport or dune habitat. Special The PSEGS could have minor impacts on wilderness users' opportunities for solitude and primitive Designations unconfined recreation within the National System of Public Lands, including in wilderness areas under BLM and National Park Service management. Transportation The PSEGS would make unavailable certain off-highway vehicle (OHV) routes, including open and Public washes that traverse the site, displacing OHV users onto other routes. Impacts to traffic on I-10 due Access - Off to construction activities would be temporary and measures would be implemented to minimize the Highway Vehicle potential for traffic hazards, thereby ensuring I-10 levels of service do not degrade to unacceptable Resources levels. No adverse transportation impacts with respect to project operations would be expected. Vegetation PSEGS construction would impact the following upland vegetation communities: 3,386 acres of Resources Sonoran creosote bush scrub; 187 acres of partially stabilized dunes; 375 acres of ephemeral washes; and 206 acres of desert dry wash woodlands. In addition, the project could directly or indirectly impact the following special-status plants: Harwood's Wooly-star, Harwood's Milkvetch, Ribbed Cryptantha, Palen Solar Electric Generating System Draft SEIS ES-6 July 2013

19 Executive Summary TABLE ES-1 (Continued) SUMMARY OF IMPACTS BY ALTERNATIVE Resource Proposed Action Vegetation California Ditaxis, Palen Lake Atriplex, Utah Milkvine. Teddybear, silver cholla, pencil cholla, Resources common fishhook cactus, and possibly one cottontop cactus would also be lost or salvaged from (cont.) disturbed areas. Lastly, construction activities and soil disturbance could introduce new noxious weeds and could further spread weeds already present in the project vicinity. Visual The PSEGS would implement several measures to minimize adverse visual resource effects. With Resources the implementation of these measures, the following adverse effects would be expected to remain: Visual impacts to surrounding viewer groups (all KOPs, except 17A) from the single, strong vertical power tower forms (2 total) that would contrast strongly with the natural forms of the horizon line. Additionally, the white light of the receiver at the top of the tower would present a unique and strong color contrast that generally would be very conspicuous, even at long distances.cent Visual impacts to surrounding viewer groups (all KOPs, except 17A) from sunlight reflected off of the heliostat mirrors (glare). cent Visual impacts due to the general level of visual contrast of the Palen Solar Electric Generating System (PSEGS) in the landscape, and non-conformance with Interim VRM Class III objectives. cent Unavoidable and adverse cumulative impacts for travelers along Interstate 10 (I-10) and dispersed recreational users in the McCoy, Big Maria, and Little Maria Mountains and wilderness. Water PSEGS groundwater pumping/consumption of 400 acre-feet per year (AFY) during construction and 201 AFY during Resources operation could affect nearby wells. Site development would cause minor alteration of stormwater flows and drainage. Project facilities could increase the risk of floods and property damage. Construction and operation could impact water quality through potential erosion and associated increases in sediment loads to adjacent streams and washes and accidental spills of hydrocarbon fuels and greases associated with construction equipment or of solvents, paints, and concrete. No effect on flows in the Colorado River is anticipated. Wildland Fire Reduced vigor of groundwater-dependent plants as a result of PSEGS groundwater pumping could indirectly increase the risk of wildfire hazards. Spread of invasive species resulting from project construction could also indirectly increase wildfire risk. The probability of a wildfire to occur as a result of project construction would be low due to the moderate-risk site conditions, normally extremely patchy fuel distribution, dry climate, and the proposed level of heavy equipment use. However, during extreme weather conditions, a grass fire originating at the site could spread up the slopes of the adjacent McCoy Mountains or spread toward other projects out of control and pose a risk to life and property, and the risk of fire as a result of project construction therefore is considered substantial. Operational fire risks could result from vehicle use, electrical transmission lines, and the use of high-pressured natural gas. These risks would be reduced through implementation of Applicant Proposed Measures related to public health and safety. Wildlife The PSEGS would impact nearly 3,950 acres of habitat for native wildlife communities. Unquantified indirect losses to wildlife habitats and communities would occur adjacent and downwind from the project site, including habitat for desert tortoise, Mojave fringe-toed lizard, golden eagle foraging, American badger, burrowing owl, other special status and migratory birds, and kit fox, and would degrade and fragment adjacent wildlife communities, decreasing regional connectivity and dispersal of resident wildlife. Additionally, the proposed project is likely to promote the spread of invasive non-native plants and to subsidize desert tortoise predators. Construction, operation, or maintenance activities could result in some death, harm, harassment, removal, or capture of wildlife, including eggs and nests and so constitute unavoidable loss of individual animals. Impacts to most wildlife resources could be addressed adequately through the implementation of identified Applicant Proposed Measures (APMs). Wild Horse and There are no Wild Horse and Burro Herd Areas or Herd Management Areas within or adjacent to the Burros PSEGS area or right-of-way application area. Therefore, no impacts to these animals would be expected. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) ES-7 July 2013 20 CHAPTER 1 Introduction and Purpose and Need 1.1 Introduction On February 8, 2013, Palen Solar III, LLC (PSIII), a wholly owned subsidiary of Palen Solar Holdings, LLC (PSH) submitted a Right-of-Way (ROW) application to the Bureau of Land Management (BLM) for a 500 megawatt (MW) concentrating solar technology facility (using power tower technology) and single circuit 230 kilovolt (kV) power overhead transmission line (gen-tie line). In 2008, the previous project proponent, Palen Solar I, LLC (PSI) a wholly owned subsidiary of Solar Millennium, filed a ROW application for a concentrating solar project that would use solar parabolic trough technology to generate electricity (Palen Solar Power Project or PSPP). In general, the Palen Solar Power Project would have involved arrays of parabolic mirrors to collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. An oil-based heat transfer fluid (HTF) contained in the receiver tube would be brought to high temperature (750F) as the oil-based heat transfer fluid circulated through the receiver tubes. The oil-based heat transfer fluid would be piped through a series of heat exchangers in the power block where the oil-based heat transfer fluid would release its stored heat to generate high pressure steam. The steam would then be fed to a traditional steam turbine generator where electricity would be produced.The Bureau of Land Management (BLM), pursuant to the Bureau of Land Management's obligations under the Federal Land Policy and Management Act of 1976 (FLPMA) and National Environmental Policy Act (NEPA), prepared a Proposed Resource Management Plan Amendment/Final Environmental Impact Statement (and prior to that a Draft Resource Management Plan Amendment/Draft EIS) and began drafting a Record of Decision (ROD) for the Palen Solar Power Project (PSPP). However, prior to finalizing the Record of Decision, Palen Solar I, LLC (PSI) informed the Bureau of Land Management that Palen Solar I, LLC would not likely construct the project as described in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement. Therefore, the Bureau of Land Management did not finalize the Record of Decision, did not amend the resource management plan, and did not issue a Right of Way for the Palen Solar Power Project. On April 2, 2012, Palen Solar I, LLC along with other Solar Millennium US-based companies petitioned for relief in federal bankruptcy court. On June 21, 2012, the bankruptcy court conducted an auction and determined that BrightSource Energy, Inc. (BSE) was the approved bidder to acquire Palen Solar I, LLC's assets. On June 29, 2012, Palen Solar I, LLC submitted a Standard Form 299 application to the Bureau of Land Management to transfer the existing application (CACA 48810) from Palen Solar I, LLC to Palen Solar III, at the time a wholly owned corporation of Palen Solar I, LLC. On July 19, 2012, the Bureau of Land Management decided to accept the transfer of the application to Palen Solar III. On June 21, 2012, the bankruptcy court approved the transfer and BrightSource Energy, Inc. acquired all rights to Palen Solar III. The Bureau of Land Management is supplementing the analysis in the Final Environmental Impact Statement for the Palen Solar Power Project in accordance with the National Environmental Policy Act regulations (40 CFR 1502.9(c)) to address the new technology and project configuration Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 1-1 July 2013. Agencies are required to prepare supplements to either draft or final environmental impact statements if: (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or the proposed action's impacts. A supplemental Environmental Impact Statement must provide a basis for rational decision-making and give the public and other agencies an opportunity to review and comment on the analysis of the changes or new information (Bureau of Land Management NEPA Handbook H-1790-1 (2008) at 5.3). Supplementing is used to meet the purposes of the National Environmental Policy Act as efficiently as possible, avoiding redundancy in the process. A supplemental Environmental Impact Statement either may incorporate by reference the relevant portions of the Environmental Impact Statement being supplemented or may circulate the entire Environmental Impact Statement along with the supplemental Environmental Impact Statement. For the Palen Solar Electric Generating System, the entire Palen Solar Power Project Proposed Action/Final Environmental Impact Statement is being circulated along with the Draft Supplemental Environmental Impact Statement; the entire Palen Solar Power Project Proposed Action/Final Environmental Impact Statement is included as Appendix B. When a supplement is prepared after circulation of a Final Environmental Impact Statement (as is the case here), the agency must prepare and circulate a Draft Supplemental Environmental Impact Statement (Draft Supplemental Environmental Impact Statement) and then prepare and circulate a Final Environmental Impact Statement (Final Environmental Impact Statement), unless alternative procedures are approved by the Council on Environmental Quality (CEQ) (40 CFR 1502.9(c)(4); Bureau of Land Management NEPA Handbook H-1790-1 (2008) at 5.3). This Draft Supplemental Environmental Impact Statement supplements and does not replace the May 2011 Palen Solar Power Project Proposed Action/Final Environmental Impact Statement. Following receipt of comments on the Draft Supplemental Environmental Impact Statement, the Bureau of Land Management will prepare a new Final Environmental Impact Statement that consolidates relevant analysis from the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement and the Draft Supplemental Environmental Impact Statement into a single, comprehensive document. 1.2 Bureau of Land Management's Purpose and Need The statement of Bureau of Land Management's Purpose and Need for action that is provided in Section 1.1.1 of the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement (p. 1-2) remains valid, although the discussion of the concurrent amendment of the California Desert Conservation Area (CDCA) Plan of 1980, as amended merits further discussion. The California Desert Conservation Area Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation that are not identified in the California Desert Conservation Area Plan to be added to the California Desert Conservation Area Plan through the land use plan amendment process. Additionally, the California Desert Conservation Area Plan, as amended, requires that transmission lines above 161 kV be placed within designated corridors. The proposed Palen Solar Electric Generating System solar plant site is within the California Desert Conservation Area, but is not identified in the California Desert Conservation Area Plan for solar power generation; the generation-tie line pathway also is within the California Desert Conservation Area, but the route is not fully within a designated corridor identified in the California Desert Conservation Area Plan.Therefore, if the BLM decides to approve the issuance of a ROW grant, two CDCA Plan amendments also would be required. One Plan Amendment would 'allow' the solar generation facility; the other Plan Amendment would 'allow' the gen-tie line outside of a designated corridor. To inform the Plan Amendment decisions, the BLM will rely on the environmental and other analysis set forth in the PSPP PA/FEIS issued by the BLM in May 2011 as supplemented by the Draft SEIS and revised in response to comments received, all of which will be consolidated in a new Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Electric Generating System (PSEGS). Section 4.8.7 of PSPP PA/FEIS includes an analysis of the Plan Amendment to allow the solar generating facility; Section 4.8.7 Palen Solar Electric Generating System Draft SEIS 1-2 July 2013. "1. Introduction and Purpose and Need of the Draft SEIS includes an analysis of the Plan Amendment to allow the gen-tie line outside of a designated corridor. 1.3 Applicant's Project Objectives The primary objective of the Palen Solar Electric Generating System (PSEGS) is to deliver 500 MW of renewable electrical energy to the regional electrical grid to fulfill the existing approved Power Purchase Agreements (PPAs) for electrical sales from the facility. Specifically, PSIII searched for a site that had been permitted for construction of a solar thermal power plant, was large enough to accommodate BSE Power Tower Solar Technology, was included within a BLM designated Solar Energy Zone (SEZ), and had an executed and approved Large Generator Interconnection Agreement (LGIA) for interconnection to a substation that would be operational in time to meet delivery of electricity under current California Public Utilities Commission (CPUC) Approved PPAs. The Palen Solar Electric Generating System (PSEGS) site is included in the BLM designated Riverside East SEZ, has an existing license that was granted by the California Energy Commission (CEC) that includes all state authorizations (this license is currently being considered by the California Energy Commission (CEC) for amendment as part of a process that is independent of the BLM's consideration of the requested ROW), a National Historic Preservation Act (NHPA) Section 106 Programmatic Agreement covering the PSPP, a Biological Opinion issued by the United States Fish and Wildlife Service for the PSPP, and has been the subject of prior environmental analysis under state and federal law, including a Staff Assessment/Draft EIS prepared jointly by the California Energy Commission (CEC) and the Bureau of Land Management (BLM) (California Energy Commission (CEC) and Bureau of Land Management (BLM), 2010) and the PSPP PA/FEIS prepared by the Bureau of Land Management (BLM) in May 2011. The site has an approved Large Generator Interconnection Agreement (LGIA) for 500 MW to interconnect at the Red Bluff Substation which is currently under construction. The Large Generator Interconnection Agreement (LGIA) is particularly important because the Federal Energy Regulatory Commission (FERC) approved "abandoned plant treatment" for the original Palen Solar Power Project (PSPP). The abandoned plant status allowed Southern California Edison (SCE) to begin construction on the Red Bluff Substation and downstream upgrades essential to support the transmission infrastructure to import renewable energy from eastern Riverside County to other parts of Southern California. Abandoned plant treatment status, however, tasks California ratepayers with responsibility to fund these improvements directly in advance of the delivery of electricity from a solar energy generation facility on the site. Successful construction of a 500 MW project will allow the ratepayers to recoup their transmission infrastructure investment. In addition, PSIII's objectives for the Palen Solar Electric Generating System (PSEGS) encompass the state and federal goals for development of renewable energy on public land as described in the PSPP PA/FEIS. The size and surrounding environment of the proposed site is suited to the development of the next generation of BSE's proprietary solar power tower technology. BSE's latest tower design improvements allow for the development of a project that minimizes land consumption on a megawatt-hour (MWH) per acre basis. Providing the economic viability of this innovative design is consistent with national policy, which encourages the development of new or significantly improved technologies to "avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases . . . ." (See, e.g., 42 USC 16513(a). Palen Solar Electric Generating System Draft SEIS 1-3 July 2013. "1. Introduction and Purpose and Need 1.4 Major Authorizing Laws and Regulations The primary agency-specific authorizing laws and regulations summarized in Section 1.2 of the PSPP PA/FEIS (p. 1-4 et seq.) are further described in PSPP PA/FEIS Chapter 5 (p. 5-1 et seq.), and have been updated as appropriate in Chapter 5 of the Draft SEIS.1.5 Relationship of the PSEGS to BLM Policies, Plans, and Programs, and Land Use Plan Conformance Determination The relationship of the Palen Solar Power Project (PSPP) to the Bureau of Land Management's (BLM) existing policies, plans and programs was described in the Final Environmental Impact Statement (EIS) (PSPP PA/FEIS 1.3, p. 1-7) and has been updated as necessary below. 1.5.1 Relationship of the PSEGS to the Solar Programmatic EIS (PEIS) The PSPP PA/FEIS describes the Programmatic EIS for Solar Energy Development in Six Southwestern States (Solar PEIS) on page 5-11. After the issuance of the PSPP PA/FEIS, the BLM issued the Final Programmatic EIS for Solar Energy Development in Six Southwestern States (Arizona, California, Colorado, Nevada, New Mexico, and Utah) in July 2012 and signed the associated Record of Decision (ROD) on October 12, 2012. The Palen Solar Electric Generating System's (PSEGS) application is not subject to the Solar PEIS ROD or the California Desert Conservation Area (CDCA) Plan amendments made as a result of that decision. Appendix B of the Solar PEIS ROD defines "pending" applications as "any applications... filed within Solar Energy Zones (SEZs) before June 30, 2009." The PSPP application (CACA-48810) was filed in 2008, in an area included in the Riverside East Solar Energy Zone. On June 29, 2012, Palen Solar I submitted a Standard Form 299 (SF 299) application to the BLM to transfer the PSPP (CACA 48810) application from Palen Solar I to Palen Solar III, a wholly-owned subsidiary of Palen Solar I. Concurrently, BrightSource Energy created a new project company, Palen Solar Holdings, LLC, which is the sole owner of Palen Solar III. For this reason, the BLM has determined that the PSEGS application has the same filing date as the PSPP application. Section B.1.2 of the Solar PEIS ROD (p. 146) states, "Pending applications are not subject to any of the decisions adopted by this ROD." Consequently, the PSEGS application is not subject to the Solar PEIS ROD or to the CDCA Plan amendments made in that decision; instead, the PSEGS application remains subject to the pre-Solar PEIS ROD requirements of the CDCA Plan. 1.5.2 Relationship of the PSEGS to the California Desert Renewable Energy Conservation Plan (DRECP) The PSPP PA/FEIS summarizes the DRECP on page 5-11 and concludes that "because the DRECP process remains underway, the DRECP process does not govern the BLM's consideration of the [PSPP] and alternatives." As of July 1, 2013, preparation of the Draft DRECP and Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) remain in progress. Issuance of the Draft EIS is expected late summer 2013, and consideration of a ROD is not expected to occur until 2014. Because the DRECP process has not yet been completed, the DRECP process is not expected to govern the BLM's consideration of the PSEGS. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 1-4 July 2013" 24 "1. Introduction and Purpose and Need Nonetheless, even if a DRECP ROD is signed before the PSEGS Final EIS and ROD are completed, the land use allocation decisions made in the DRECP ROD would not affect the PSEGS if the PSEGS meets either of the following criteria: 1. The PSEGS is proposed in a BLM Solar Energy Zone and is considered a "pending project" under the Solar PEIS (i.e., the application was filed before June 30, 2009); or 2. The a Draft EIS has been published for the PSEGS no later than 60 days after release of the Draft EIS for the DRECP provided the Final EIS for the PSEGS includes: a) Analysis using the best available information at the time of publication, including data developed in support of DRECP conservation and recreation strategies, and b) Analysis describing the relationship between the PSEGS and the DRECP conservation and recreation strategies. Because the PSEGS meets both (even though meeting one alone would be enough to exempt the PSEGS from the land use allocation decisions that are expected to be made in the DRECP), the DRECP does not govern the BLM's consideration of the PSEGS.1.5.3 Land Use Plan Conformance and Consistency This section supplements the information and analysis of the Land Use Plan Conformance and Consistency discussion that was provided in Section 1.3.2 of the PSPP PA/FEIS by describing the Palen Solar Electric Generating System's (PSEGS's) relationship to the California Desert Conservation Area (CDCA) Plan and Northern and Eastern Colorado Desert Coordinated Management Plan (NECO Plan). California Desert Conservation Area Plan To accommodate the PSEGS or any of the build alternatives, the CDCA Plan must be amended because sites associated with power generation or transmission not identified in the CDCA Plan will have to be considered through the CDCA Plan Amendment process. Neither the PSEGS solar plant site nor the proposed generation tie-line (gen-tie line) route currently is identified in the CDCA Plan for these intended uses. 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. Two additional amendments are proposed to be added to this section of the CDCA Plan, and would read "The Palen solar energy facility is allowed." And "The Palen solar facility gen-tie is allowed outside of a designated corridor." Plan Amendment Process The Plan Amendment process is outlined in Chapter 7 of the CDCA Plan. In analyzing an applicant's request for amending or changing the CDCA Plan, the Bureau of Land Management (BLM) District Manager, Desert District, will evaluate each of the considerations listed below. For the Amendment that would read "The Palen solar energy facility is allowed," analysis is provided in Section 4.8.7 of the Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 1-5 July 2013. "1. Introduction and Purpose and Need PSPP PA/FEIS, Land Use Plan Amendment Consistency Analysis; for the Amendment that would read "The Palen solar facility gen-tie is allowed outside of a designated corridor," analysis is provided in Section 4.8.7 of the Draft SEIS. Determine if the request has been properly submitted and if any law or regulation prohibits granting the requested amendment; Determine if alternative locations within the CDCA are available that would meet the applicant's needs without requiring a change in the CDCA Plan's classification, or an amendment to any CDCA Plan element; Determine the environmental effects of granting and/or implementing the applicant's request; Consider the economic and social impacts of granting and/or implementing the applicant's request; 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 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. Decision Criteria for Evaluation of a Proposed Plan Amendment The decision criteria to be used for approval or disapproval of the proposed plan amendment require the BLM Desert District Manager to make following determinations: The proposed plan amendment is in accordance with applicable laws and regulations; and The proposed plan amendment 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 by the Federal Land Policy and Management Act (FLPMA). Decision Criteria for Evaluation of Application In addition to defining the required analyses and decision criteria for plan amendments, the CDCA 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 criteria include: Minimize the number of separate rights-of-way by utilizing existing rights-of-way as a basis for planning corridors; Encourage joint-use of corridors for transmission lines, canals, pipelines, and cables; Provide alternative corridors to be considered during processing of applications; Avoid sensitive resources wherever possible; Palen Solar Electric Generating System Draft SEIS 1-6 July 2013. "1. Introduction and Purpose and Need Conform to local plans whenever possible; Consider wilderness values and be consistent with final wilderness recommendations; Complete the delivery systems network; Consider ongoing projects for which decisions have been made; and Consider corridor networks which take into account power needs and alternative fuel resources. Northern and Eastern Colorado Desert Coordinated Management Plan As described in PSPP PA/FEIS Section 1.3.2 (p. 1-12), the BLM's NECO Plan amended the CDCA Plan in 2002 to make the CDCA Plan compatible with desert tortoise conservation and recovery efforts.The NECO Plan is a landscape-scale planning effort that covers most of the California portion of the Sonoran Desert ecosystem, including over five million acres and two desert tortoise recovery units. The Palen Solar Electric Generating System described in Chapter 2 of this Draft Supplemental Environmental Impact Statement and alternatives described in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement are consistent with the NECO Plan, and no NECO Plan amendment is proposed as part of this action. 1.6 Interagency Coordination Interagency coordination is addressed in Palen Solar Power Project Proposed Action/Final Environmental Impact Statement Section 1.4 (p. 1-13). Specifically to consider the Palen Solar Electric Generating System, the Bureau of Land Management has sought comments from, and worked closely with, other regulatory agencies that administer laws, ordinances, regulations and standards that may be applicable to the Palen Solar Electric Generating System. These agencies include the U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Park Service, U.S. Army Corps of Engineers, Federal Aviation Administration, U.S. Marine Corps, U.S. Air Force, California Energy Commission, State Water Resources Control Board/Regional Water Quality Control Board, State Historic Preservation Office, California Department of Fish and Wildlife, California Department of Transportation, and the Mojave Desert Air Quality Management District. Further, the Bureau of Land Management has notified affected Indian tribes regarding the Palen Solar Electric Generating System, has sought their comments, and has invited the affected Indian tribes to consult on the Palen Solar Electric Generating System on a government-to-government basis (see also, Section 1.4.4, Tribal Consultation). 1.7 Issues Analyzed in this Draft Supplemental Environmental Impact Statement This Draft Supplemental Environmental Impact Statement supplements the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement (provided in Appendix B) by analyzing the direct, indirect and cumulative effects of the Palen Solar Electric Generating System and re-analyzing the cumulative effects of all of the alternatives that have been carried forward for detailed analysis (see Chapter 2). All of the issue areas considered in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement have been revisited in the Draft Supplemental Environmental Impact Statement. Agencies and members of the public have expressed Palen Solar Electric Generating System-specific concerns relating to impacts to avian species and other biological resources due to solar flux and other aspects of the proposed use of solar thermal power tower technology; impacts to visual resources and cultural values due to the increased viewshed from which the 760-foot (total height) power towers and high-intensity safety lighting could be seen; and impacts to pilots in the affected airspace and drivers along Interstate 10 due to anticipated glint and glare from facility lighting. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 1-7 July 2013 27 1. Introduction and Purpose and Need 1.8 Organization of the Draft Supplemental Environmental Impact Statement As a document intended to supplement the information in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement, this Draft Supplemental Environmental Impact Statement does not repeat or replace the information and analysis presented in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement. The format for this document generally follows the organization of the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement. A copy of the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement is provided as Appendix B to this document on a CD-ROM (if reviewing a paper copy), or as a separate electronic file if reviewing the Draft Supplemental Environmental Impact Statement document electronically. The specific sections included in the Draft Supplemental Environmental Impact Statement and the type of information to be found in those sections is described below. Chapter 1 - Introduction, Purpose and Need This chapter provides background information for the Palen Solar Electric Generating System and the purpose of and need for the agency action. Chapter 1 also describes the Bureau of Land Management land use plan amendment process. Chapter 2 - Proposed Action and Alternatives This chapter fully describes the proposed Palen Solar Electric Generating System to be analyzed in the Draft Supplemental Environmental Impact Statement. This chapter also describes the alternatives analyzed in the 2011 Palen Solar Power Project Proposed Action/Final Environmental Impact Statement that are being carried forward for consideration and the rationale. Chapter 3 - Affected Environment This chapter describes the affected environment associated with the construction, operation, maintenance, and decommissioning of the Palen Solar Electric Generating System. Where this information has not changed since the issuance of the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement, the Draft Supplemental Environmental Impact Statement provides a cross-reference and does not repeat the information. By contrast, where the affected environment is new or has changed (e.g., in connection with the proposed gen-tie line reroute, natural gas line work, and resource areas such as visual resources), the Draft Supplemental Environmental Impact Statement supplements the data and other information that was provided in the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement. Chapter 4 - Environmental Effects This chapter describes possible environmental consequences of the Palen Solar Electric Generating System. This chapter also updates the cumulative scenario from the Palen Solar Power Project Proposed Action/Final Environmental Impact Statement and evaluates the cumulative effects of the proposed Palen Solar Electric Generating System and the alternatives being carried forward for consideration in the Draft Supplemental Environmental Impact Statement based on the updated cumulative scenario. Chapter 5 - Consultation and Coordination This chapter describes public participation undertaken to date, and additional opportunities that would occur throughout the Draft Supplemental Environmental Impact Statement process. Chapter 5 also lists agencies and organizations that will receive copies of the Draft Supplemental Environmental Impact Statement for review and lists the preparers of the document.Certainly! Here is the revised text with coreference resolution applied:

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On February 8, 2013, Palen Solar III, LLC (PSIII), a wholly owned subsidiary of Palen Solar Holdings, LLC (PSH) (Applicant) submitted a revised Plan of Development (POD) describing a new alternative to be considered by the Bureau of Land Management (BLM) in the context of the Palen Solar Power Project (PSPP) (CACA-48810). Impacts of the Palen Solar Power Project and alternatives to the Palen Solar Power Project were analyzed in the Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Power Project issued in May 2011 (PSPP PA/FEIS). The new alternative is referred to as the Palen Solar Electric Generating System (PSEGS). The Palen Solar Electric Generating System would involve a different solar technology than the one analyzed in the Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Power Project, a modified site layout within the previously analyzed project area, and new components in areas that were not analyzed in the Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Power Project, including a portion of the previously analyzed generation tie (gen-tie) transmission line that would be rerouted, a new redundant telecommunications cable, and a natural gas supply pipeline that would be upgraded and extended from existing infrastructure owned and operated by Southern California Gas (SoCal Gas). The regional location of the site is described on Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Power Project page 2-1 as within the California inland desert, approximately 0.5 mile north of U.S. Interstate-10 (I-10), approximately 35 miles west of Blythe and approximately 10 miles east of Desert Center, in an unincorporated area of eastern Riverside County, California. The boundaries of the 5,200-acre right-of-way requested for the Palen Solar Electric Generating System are substantially the same as for the Palen Solar Electric Generating System, although the Palen Solar Electric Generating System would disturb fewer acres (approximately 3,896 acres) of Bureau of Land Management-administered lands relative to the action alternatives analyzed in the Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Power Project, would shift the westernmost portion of the previously analyzed 7-mile long 230 kV generation tie line to accommodate the relocation of the Red Bluff Substation and to align the transmission corridors of the Palen Solar Electric Generating System with the Desert Sunlight Project, and would involve the upgrade and extension of an 8-inch natural gas supply pipeline for a distance of 2,960 linear feet from a new tap station on the main transmission line to the Palen Solar Electric Generating System site. Total disturbance area of the gas line would be approximately 3.6 acres. In 2008, the previous project proponent, Palen Solar I, LLC (PSI) a wholly owned subsidiary of Solar Millennium, filed a right-of-way application for the Palen Solar Power Project: a concentrating solar project that would use solar parabolic trough technology to generate electricity. On April 2, 2012, Palen Solar I, LLC along with other Solar Millennium US-based companies petitioned for relief in federal bankruptcy court. On June 21, 2012, the bankruptcy court conducted an auction and determined that BrightSource Energy, Inc. (BSE) was the approved bidder to acquire Palen Solar I, LLC's assets. On June 29, 2012, Palen Solar I, LLC submitted a SF 299 application to the Bureau of Land Management to transfer the existing application (CACA 48810) from Palen Solar I, LLC to Palen Solar III, LLC, at the time a wholly owned corporation of Palen Solar I, LLC. On July 19, 2012, the Bureau of Land Management decided to accept the transfer of the application to Palen Solar III, LLC. On June 21, 2012, the bankruptcy court approved the transfer and BrightSource Energy, Inc. acquired all rights to Palen Solar III, LLC. Concurrent with its filing of the SF 299 with the Bureau of Land Management, BrightSource Energy, Inc. created a new project company, Palen Solar Holdings, LLC (PSH), which is the sole owner of Palen Solar III, LLC and a joint venture of BrightSource Energy, Inc. and Abengoa. Palen Solar Holdings, LLC is the applicant (Applicant) for the Palen Solar Electric Generating System. The natural gas supply line would be owned and operated by Southern California Gas pursuant to a separate right-of-way grant; the Bureau of Land Management is analyzing the work in the Draft SEIS as a connected action. Although development of the Palen Solar Power Project would have occurred on approximately 280 acres of private land, the Palen Solar Electric Generating System would involve no development of privately-owned property. Compare, for example, Figure 2-2 (which shows Bureau of Land Management-administered lands in tan and privately-owned property in gray) to Proposed Resource Management Plan Amendment/Final EIS for the Palen Solar Power Project Figures 2-4 and 2-5 (Reconfigured Alternative 2, Options 1 and 2, respectively).

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This text maintains the original intent and structure of the document while resolving the coreferences.Figures in this Draft SEIS are included in Appendix A; figures in the PSPP PA/FEIS are included in Draft SEIS Appendix B. The BLM has determined that, should the requested ROW be authorized, two amendments to the CDCA Plan would be required: one to identify the site as suitable for the proposed energy generation and to allow the proposed solar facility and one to allow transmission outside of a designated corridor. The potential effects of these CDCA Plan Amendment decisions on the human environment were analyzed, in part, in the PSPP PA/FEIS (BLM, 2011) and are further analyzed in this Draft SEIS.

2.1 PSEGS

2.1.1 Right-of-Way Application Area

The Applicant has filed an application for a ROW to construct, operate, maintain, and decommission a 500 MW concentrating solar facility (power tower technology) and single circuit 230 kV overhead transmission (gen-tie) line and telecommunications cable on BLM-administered land. As noted above, the Palen Solar Electric Generating System would be developed on 3,896 acres of public lands that are entirely within the 5,200-acre proposed ROW application area; the Palen Solar Electric Generating System would not include any development of private property that was considered in connection with the PSPP. The Palen Solar Electric Generating System area is shown in Figures 2-1 and 2-2.

2.1.2 Site Selection and Project Design

The Applicant searched for a site where the Applicant could secure control within a reasonable timeframe, using a reasonable effort at a reasonable cost using the following selection criteria. In choosing a location for the project, the Applicant sought a site:

1. for which some of the environmental analyses and regulatory authorizations for construction of a solar thermal power plant had been completed and/or obtained (e.g., Staff Assessment/Draft EIS and CEC License);

2. large enough to accommodate BrightSource technology;

3. within a BLM designated Solar Energy Zone; and

4. with an executed and approved Large Generator Interconnection Agreement (LGIA) for interconnection into a substation that would be operational in time to meet delivery of power.

The PSPP was the subject of a joint Staff Assessment/Draft EIS and a Final EIS for a ROW grant request and proposed CDCA Plan Amendment. While some impacts of the Palen Solar Electric Generating System differ from those of the PSPP, many of the environmental issues (particularly those associated with ground disturbance and water use at the site) are similar and have been evaluated thoroughly in the PSPP PA/FEIS. The Palen Solar Electric Generating System has been sited and designed to address many of the resource conflicts that were disclosed in the PSPP PA/FEIS. For example, the Palen Solar Electric Generating System site boundary was selected to reflect the Agency Preferred Reconfigured Alternative 2 (Option 1 and Option 2), which was developed to reduce direct and indirect impacts to Mojave fringe-toed lizard habitat. Post development drainage was designed to eliminate the large drainage channels, and the site grading plan incorporates methods to reduce ground disturbance during construction and operation. The Applicant also has adopted, with minor revision to reflect changes in technology, many of the applicable CEC Conditions of Certification and Compliance Verifications and BLM-identified mitigation measures which appear in the PSPP PA/FEIS. Such measures are referred to in this document as Applicant Proposed Measures (APMs) for the Palen Solar Electric Generating System. The Applicant Proposed Measures are discussed more fully in Section 2.2.7 and presented in Appendix C.

2.1.3 Major Project Components

The major components of the Palen Solar Electric Generating System, which are described in detail in the sections that follow, include:

1. two solar fields;

2. two power blocks with the electrical generating capacity of 250 MW each for a combined capacity of 500 MW;

3. one project electrical switchyard;

4. one common facilities area that will include an administrative and maintenance building and two 2-acre evaporation ponds;

5. one temporary construction laydown area located within the common facilities area;

6. an internal roadway system consisting of spoke, ring, and perimeter roadways;

7. a new 8-inch diameter, 2,960 linear-foot natural gas pipeline extension;

8. a main access road from the I-10/Corn Springs Road interchange;

9. a secondary access road, which would be constructed within the natural gas pipeline corridor;

10. a single circuit 230 kV generation tie-line electric transmission line and communication cable extending from the project electricity switchyard to the Red Bluff Substation; and

11. a redundant telecommunications cable installed beneath the roadway along the gen-tie route.

The Palen Solar Electric Generating System is proposed to be constructed in two phases.Approximate dimensions of various Project components constructed within each phase are provided in Table 2-1. Palen Solar Electric Generating System Draft SEIS 2-3 July 2013

31 2. Proposed Action and Alternatives TABLE 2-1 GENERAL PROJECT DIMENSIONS PSEGS Rev C-1000 Construction POD Elements Acres Phase I Phase II Main Access Road 0.58 0.58 0. Access Road Main Access Road Shoulders 0.36 0.36 0 Outside of Fenced Area SCE 161kV Corridor Crossing 0.06 0.06 0 Total 1.0 1.0 0 Common Area Facilities 3.83 3.83 0 Evaporation Ponds 4.65 4.65 0 Batch Plant 4.01 4.01 0 Common Area / Visitor Parking 0.78 0.78 0 Construction Laydown Area Natural Gas Metering Yard 0.67 0.67 0 Inside Fenced Area Asphalt Road 4.56 4.56 0 Perimeter Fence (buffer area) 1.47 1.47 0 Construction Laydown Area 28.38 28.38 0 Unused Area 169.69 169.69 0 Total 218.0 218.0 0 Power Block 12.66 12.66 0 Inner Solar Field 130.78 130.78 0 Unit 1 Heliostat Drive Zones 97.73 20.43 77.30 Heliostat Field Area 1,402.48 295.25 1,107.23 Unit 1 Total 1,643.65 459.12 1,184.53 Power Block 12.66 12.66 0 Inner Solar Field 130.16 130.16 0 Unit 2 Heliostat Drive Zones 112.91 0.09 112.82 Solar Field Heliostat Field Area 1,627.51 2.22 1,625.29 Fenced Area Unit 2 Total 1,883.24 145.13 1,738.11 Asphalt Roads 5.94 5.94 0 Access Roads Improved Dirt Roads 30.11 9.43 20.68 Access Road Total 36.05 15.37 20.68 Fenced Yard 2.96 2.96 0 Switch Yard Fence buffer area 0.66 0.66 0 Switch Yard Total 3.62 3.62 0 Perimeter Fence (buffer area) 8.96 1.27 7.69 Total 3,575.5 624.5 2,951.0 Natural Gas Pipeline (including Secondary Access SoCal Gas Corridor 3.56 3.56 0 Road) Gen-Tie PSPP Corridor (Permitted Section) 81.92 81.92 0 120-Foot Wide Corridor (including redundant PSEGS Corridor (Revised Section) 18.94 18.94 0 communications cable) Total 100.9 100.9 0 PSEGS Rev C-1000 TOTAL ACRES 3,898.965 948.06 2,951.0 SOURCE: Palen Solar III, LLC, 2013 (Table 2-3) Palen Solar Electric Generating System Draft SEIS 2-4 July 2013

32 "2. Proposed Action and Alternatives 2.1.4 Power Plant Features The Palen Solar Electric Generating System would use solar tower power technology to generate electricity. With solar tower power technology, arrays of heliostats collect heat energy from the sun and refocus the radiation on a centrally located power tower receiver, or Solar Receiver Steam Generator (SRSG). Photographs of existing power tower receivers are presented in Appendix A (see figure 4.18-2). Energy from the heliostats heats water in the Solar Receiver Steam Generator into superheated steam. The superheated steam then is routed into a steam turbine generator (STG), where the energy in the superheated steam is converted into electricity. After passing through the steam turbine, the exhaust steam is directed to an air-cooled condenser. The main components of the Palen Solar Electric Generating System are the two proposed solar fields. Each solar field would contain heliostats that would surround the power block and power tower. The total acreage for the solar field for Unit 1 would be approximately 1,643 acres and for Unit 2 would be approximately 1,883 acres. Both areas would be irregularly shaped. Preliminary plans for the Palen Solar Electric Generating System solar fields are shown in Figure 2-3.The two power plants each would have a solar field consisting of heliostats mounted on pylons inserted into the ground surface using pre-augering and vibratory techniques. The ground surface within the solar field would not be graded or disturbed except to construct the "spoke" roads from the power block to the outer edge of the solar field. Ring roads would be utilized in the heliostat field to install the heliostat mounting pylons. These roads would not be bladed or graded, but instead would be cleared and grubbed only. Heliostat installation would maintain natural land contours to ensure that the Palen Solar Electric Generating System (PSEGS) does not significantly affect surface drainage patterns or storm runoff. Vegetation in the solar field would be mowed to a height of 12 to 18 inches and be subject to invasive plant and weed management measures. No heliostat would be built closer than 260 feet from the solar power tower location. The arrangement of the heliostats within the solar field is designed for maximum efficiency. The area immediately adjacent to the tower would contain the power block and is designated as a 'heliostat' free zone. Heliostats located closest to the tower and just outside the heliostat free zone would be more densely-packed than the mirrors located farther from the tower to maximize collection of solar energy. In this zone, there would be no concentric roads separating the heliostats for vehicular access; mirror washing in this zone would be performed by a small mirror washing machine. Each of the heliostat assemblies is composed of two mirrors, each approximately 12 feet high by 8.5 feet wide, with a total reflecting surface of 204.7 square feet. Each heliostat assembly would be mounted on a single pylon, along with a computer-programmed aiming control system to direct the motion of the heliostat to track the movement of the sun. Communication between the heliostats and the operations center would be done via surface-mounted anchored cable or wireless remote system. The final layout would be completed during detailed design, but is expected to consist of up to 85,000 heliostats in each solar field.

Palen Solar Electric Generating System Draft SEIS 2-5 July 2013

Proposed Action and Alternatives Power Blocks The Palen Solar Electric Generating System (PSEGS) would consist of two power blocks, each located generally in the center of a solar field to efficiently capture the solar output of that solar field. The power blocks would be identical and would encompass approximately 13 acres each. Each solar plant would include a power block consisting of a solid concrete solar power tower supporting the Solar Receiver Steam Generator (SRSG), one Rankine-cycle non-reheat steam turbine generator (STG), and the supporting auxiliary equipment identified below. The auxiliary equipment would be constructed approximately at the center of each solar plant:

1. boiler feedwater and condensate pumps

2.

3. deaerator

4. condensate polisher

5. wet surface air cooler

6. air-cooled condenser for main process steam

7. transformers

8. emergency diesel generators

9. diesel and motor-driven fire pumps

10. natural gas auxiliary boilers

The height of the Solar Receiver Steam Generator (SRSG) would be 750 feet above grade level; each SRSG would be topped by a lightning rod that is approximately 10 feet tall and has Federal Aviation Administration (FAA)-required lighting. The FAA-required lighting would be mounted to the top of the Solar Receiver Steam Generator (SRSG) and would be less than 10 feet in height. Therefore, the total height for the structure would be 760 feet. Each solar plant would contain a nonreheat, Rankine-cycle, condensing steam turbine generator (STG) with gland steam system, lubricating oil system, hydraulic control system, and steam admission/induction valving. High pressure (HP) steam from the Solar Receiver Steam Generator (SRSG) superheater would enter the HP steam turbine section and expand through multiple stages of the turbine, driving a generator to produce electricity. On exiting the Low Pressure (LP) turbine, the steam would be directed into the air-cooled condenser. The turbine would consist of high/intermediate pressure and low pressure sections. Superheated steam enters the High Pressure (HP) turbine casing at 2,466 pounds per square inch absolute (psia) and 1,085 degrees Fahrenheit (F) at the Normal Continuous Rating. Following expansion through the High Pressure (HP) turbine, the steam would be conveyed to the inlet of the intermediate pressure (IP) turbine. Exhaust steam from the turbine would be directed to the air-cooled condenser. The Palen Solar Electric Generating System (PSEGS) would include two dry-cooling systems, including two 120-foot air-cooled condensers, one for each power tower structure. The air-cooled condenser would blow ambient air across a heat transfer surface area to cool and condense the steam. The condensed steam would be gathered in a condensate tank and returned to the power tower receiver through a series of feedwater heaters and pumps.The air-cooled condenser is expected, under normal operation, to operate at a pressure of 3.25 inches of mercury absolute (approximately 1.6 psia). The power tower superstructure would be a hollow cylinder constructed of reinforced concrete using a slip form, hoists, and cranes. Palen Solar Electric Generating System Draft SEIS 2-6 July 2013 34 Proposed Action and Alternatives Electrical Switchyard The Electrical Switchyard would be located in the northern portion of the project site and encompass approximately 3.62 acres. The onsite 230-kV switchyard would consist of six 230-kV sulfur hexafluoride (SF6) gas-insulated power circuit breakers arranged in a breaker-and-a-half configuration. The switchyard and all associated equipment would be designed for the maximum short-circuit and load-flow design conditions for the installation projected at least 25 years into the future. The switchyard would accept two generation feeds and two 230-kV lines connecting to the electrical grid. The switchyard would have a switchyard control building designed to accommodate all protection and control equipment, alternating current (AC) and direct current (DC) station power equipment and building HVAC equipment. Common Facilities Area The common facilities area would be located in the southwestern portion of the project site immediately south and west of the existing SCE 161 kV transmission line. The common facilities area would accommodate an administrative building, warehouse, maintenance complex, a meter/valve station for incoming natural gas service to the site and parking. The common area also would include groundwater supply wells, water and waste water treatment systems, a gas metering station, and two 2-acre evaporation ponds to serve the solar plants. The administration complex would be served by power from the local 12.47 kV distribution system and water from water supply wells located in the common facilities area. The administration complex would encompass approximately 14 acres and be largely rectangular. See Figure 2-4. Temporary Construction Laydown Area The temporary construction laydown area would encompass approximately 28 acres located north of the common facilities area and west of the existing SCE 161 kV transmission line. The temporary construction laydown area would be used for equipment laydown, construction parking, construction trailers, a tire cleaning station, heliostat assembly, a temporary concrete batch plant and other construction support facilities. The surface areas within the temporary construction laydown area that are to be used frequently would be stabilized and dust suppression would be maximized with a layer of crushed stone in areas subject to heavy daily traffic. The proposed temporary construction laydown area has been sized large enough to allow the staging of deliveries and truck and worker ingress and egress to the site to avoid stacking on the I-10/Corn Springs interchange. Additional construction laydown and temporary use areas would be located near the power block in each plant. Preliminary plans for the temporary construction laydown area are shown in Figure 2-5. Internal Roadway System The internal roadway system would consist of a perimeter road, ring roads, spoke roads and drive zones (see Figure 2-3). Impermeable surfaces for roads only would be used on spoke roads that require heavy haul access to the power block and within the construction logistics area. The PSEGS would construct a permanent unpaved perimeter road inside the security fence along the entire perimeter of the facility. The perimeter road would be approximately 12 feet wide. The road system as a whole is proposed to disturb a total of approximately 36 acres. Palen Solar Electric Generating System Draft SEIS 2-7 July 2013 35 Proposed Action and Alternatives Each solar field would have a road that would be a 20-foot-wide paved or hardscape access road from the entrance of the Project site to the power block, and then around the power block. In addition to the ring roads for each unit, 12-foot wide unpaved spoke roads would radiate from the power block to provide access through the solar field to the ring roads. Within the heliostat fields, 10-foot wide drive zones would be located concentrically in the field to provide access to the heliostat mirrors for maintenance and cleaning. The drive zones would be cleared, grubbed, smoothed, and rolled and located approximately 140-170 feet apart. Main Access Road Main site access would be provided through a new, 1,350-foot long, 24-foot wide, paved road. The access road would be constructed from a point just north of the I-10/Corn Springs Road entrance/exit ramps east to the PSEGS site entrance. The new entrance road would enter the site at the new entrance road's western-most extent, near the temporary construction laydown area. The new entrance road would include a 12-foot wide shoulder with gravel surface for truck staging on one side to preclude traffic interferences.Anticipated and permanent disturbances are based on an estimated 59-foot permanent disturbance (24-foot roadway width, plus a 12-foot wide shoulder on one side and a 3-foot wide shoulder on the other and a 10-foot ditch on either side). Generation Tie-Line and Telecommunication Cable Electricity generated by the Palen Solar Electric Generating System (PSEGS) would be conveyed to the Devers-Palo Verde #2 (DPV2) 500 kV regional transmission line through an electricity generation tie line (gen-tie line) constructed between the PSEGS electrical switchyard and the Red Bluff Substation. The Red Bluff Substation is located adjacent to and on the south side of I-10, west of the PSEGS site. The gen-tie line proposed for the PSEGS is essentially the same as was proposed for the Palen Solar Power Project (PSPP) except for a minor route adjustment near the western end of the route and around the substation. This adjustment would be required to align the PSEGS gen-tie line immediately adjacent to the NextEra Desert Sunlight gen-tie line, minimize crossings over I-10, and ensure easy entry into the Red Bluff Substation nearest the PSEGS breaker position, which was relocated as part of the Red Bluff final design subsequent to publication of the PSPP PA/FEIS. Figure 2-2 shows the proposed gen-tie line alignment. A steel monopole design would be used for the gen-tie line. This analysis assumes the poles' base diameter would be 6 feet and the top diameter would be 3 feet; the poles would be spaced approximately 1,100 feet apart (Galati, 2013). The number of poles required for the PSEGS would be greater than that for the PSPP. No permanent spur roads would be required to maintain the gen-tie line; however, there would be a maintenance access road along the route. Table 2-2 shows the general characteristics of the proposed gen-tie line. Redundant Telecommunications Cable In addition to the telecommunications cable that would be included on the gen-tie line, a redundant fiber optic telecommunications cable would be constructed between the PSEGS site and the Red Bluff Substation. The Palen Solar Power Project (PSPP) proposed to construct the PSPP's redundant telecommunications cable under I-10 just south of the site and then westerly along the south side of I-10 to an existing microwave station. However, after the PSPP PA/FEIS was issued, Southern California Edison (SCE) stated Southern California Edison's preference for a redundant telecommunications cable instead of a microwave tower. Therefore, the PSEGS proposes to install a redundant fiber optic telecommunications cable entirely underground within an approximately 12-inch wide by up-to-12-foot deep trench located in the same right of way (ROW) as the gen-tie line as shown in Figure 2-2. Natural Gas Supply Line Each solar plant for the PSEGS would include two natural gas-fired boilers to assist with daily start-up of the power generation equipment and to preserve energy in the steam cycle overnight. These auxiliary boilers would require a natural gas fuel supply, which would be provided by Southern California Gas Company (SoCal Gas). Southern California Gas Company (SoCal Gas) would construct, own, and operate the new natural gas line, which would be the subject of an SF 299 ROW application to be filed separately by SoCal Gas (Palen Solar III, LLC, 2013). The Bureau of Land Management (BLM) is analyzing the potential effects of the natural gas supply line construction and operation as a connected action in this Draft Supplemental Environmental Impact Statement (SEIS). SoCal Gas would upgrade and extend an existing distribution line from SoCal Gas's main transmission gas pipeline, which is located approximately 1.8 miles west and south of the PSEGS site. Existing distribution facilities would be upgraded from a 4-inch diameter natural gas pipeline to an 8-inch diameter pipeline, and SoCal Gas would permit and construct a new 8-inch natural gas pipeline extension from the current retail meter point to the new PSEGS meter, which would be located on-site within the proposed common area. The natural gas pipeline extension would travel from the new PSEGS natural gas metering station in a southerly direction under I-10 for a total distance of approximately 2,960 feet.A tap station on SoCal Gas's main transmission natural gas pipeline would be installed at this point with a new gas metering station to measure and record gas volumes from the new gas metering station (see Figure 2-2). The natural gas pipeline would be buried approximately 3 to 5 feet deep except where the natural gas pipeline crosses the I-10 corridor. In that location, traditional jack and bore procedures would be employed in accordance with Caltrans requirements until the natural gas pipeline exits the Caltrans right-of-way, where the natural gas pipeline's depth may be as deep as 12 feet. The natural gas pipeline would be constructed within a 50-foot wide ROW and disturb an estimated total area of 4 acres outside of the PSEGS boundary. This disturbance estimate includes approximately 2.7 acres on BLM land and 1 acre within the Palen Solar Electric Generating System Draft SEIS 2-9 July 2013

37 2. Proposed Action and Alternatives Caltrans ROW. Within the latter ROW, an approximately 100 feet by 100 feet jack and boring set and receiving stations would be constructed on each side of I-10. Water Supply and Use Water for use for the PSEGS would be sourced primarily from onsite groundwater wells. The PSEGS groundwater wells would supply both solar plants and the common area. Additional water for use in association with the gen-tie line construction may be obtained from municipal or other sources. The PSEGS water uses include boiler make-up water, mirror wash water, and domestic water, as well as water used during construction for concrete mixing, dust abatement, and soil compaction. The PSEGS would install up to a total of 10 wells, which would be located near the power blocks, common facilities area, and concrete batch plant. The project would require an average of 400 AFY during construction (for a total of 1,130 acre feet during the construction period) and an average of 201 AFY during operation. The proposed primary water treatment systems would include the following components: manganese dioxide iron removal filter, cartridge filters, reverse osmosis, and electrodeionization. Each of the two power blocks would have four tanks, including the following: 1. One 800,000 gallon capacity raw water/fire water storage tank measuring 60-feet in diameter and 46-feet high. A portion of the raw water -- approximately 200,000 gallons -- would be for plant use (e.g., boiler feedwater, providing supplemental cooling for plant auxiliary systems, and mirror washing) while the remainder would be reserved for fire water service; 2. One 95,000 gallon capacity demineralized water storage tank for storing steam-cycle makeup water measuring 26 feet in diameter and 26-feet high; 3. One 75,000 gallon capacity waste water storage tank measuring 25 feet in diameter and 23-feet high; 4. One 70,000 gallon capacity mirror wash water storage tank measuring 25 feet in diameter and 21-feet high; and 5. The common area would contain a combined service water/firewater tank with an approximately 480,000 gallon capacity that measures 52-feet in diameter and 36-feet high. All tanks would be constructed from shop-fabricated plates welded in the field. The proposed service/fire water and waste water storage tanks are epoxy coated carbon steel. The proposed demineralized water and wash water storage tanks are stainless steel. Tank foundations would be concrete with piles if required by the geotechnical report. Fencing and Security Prior to commencement of PSEGS construction, a chain link security fence would be erected around the perimeter of the site or the affected work area, the switchyard, and other areas requiring controlled access. Perimeter fencing would be designed and installed in accordance with requirements of Department of Homeland Security, and perimeter fencing is expected to be 7 feet high, constructed of galvanized posts, a top rail, 2-inch chain link fabric, and constructed directly adjacent to the desert tortoise fence. Galvanized posts would be embedded in concrete. Palen Solar Electric Generating System Draft SEIS 2-10 July 2013

38 2. Proposed Action and Alternatives Swing or rolling type controlled access gates would be located at the entrances to the facility. Access through the main gate would require an electronic swipe card to prevent unaccompanied visitors from accessing the facility. All visitors would be logged in and out of the facility during normal business hours. Visitors and non-employees would be allowed entry only with approval from a staff member at the facility. Visitors would be issued visitor passes to be worn during the visit and returned at the main office when leaving. Personnel would staff the facility 24 hours per day/seven days per week. Even when the solar power plant is not operating, personnel would be present as necessary for maintenance, to prepare the plant for startup, and/or for site security.Lighting The Palen Solar Electric Generating System (PSEGS) would include lighting for normal operations and emergency egress, as well as aviation safety lighting for power tower structures, consistent with Federal Aviation Administration (FAA) and Air Force Aviation Safety requirements. The Applicant is not proposing to light the transmission towers, which would rise to a height of 120 feet. The FAA recommends two or more steady burning (L-810) lights on structures less than 150 feet that are used for transmission lines (FAA, 2007). However, the Bureau of Land Management (BLM) is not recommending transmission tower lighting in this circumstance, given the BLM's night sky considerations. Facilities and operations lighting plans would be developed in consultation with the National Park Service. In general, the Palen Solar Electric Generating System would utilize motion-controlled and downcast lighting, and low-pressure lamps and fixtures that do not create glare. Outdoor roadway lighting would be photo-cell controlled. Tower lighting would be adjusted, as necessary, in response to resource agency consultations regarding avian protection measures and as approved by the FAA.

Fuel Supply and Use The proposed natural gas distribution line described above would supply the anticipated annual maximum demand for natural gas of approximately 742,000 MMBtu (Palen Solar Holdings, LLC., 2012).

Fire Protection The Palen Solar Electric Generating System would fall under the jurisdiction of the Indio Office of the Riverside County Fire Department. Based on the requirements of Riverside County Ordinance No. 787.1, the piping system supplying the fire hydrants would be sized to convey a potential firewater flowrate of 5,000 gallons per minute (gpm). Minimum firewater storage volume in each power block would be 600,000 gallons. Firewater would be supplied from the combined storage tank located at each power block. One electric primary and one diesel-fueled backup firewater pump, each with a capacity of 5,000 gpm, would deliver water to the fire protection piping network. Fire protection for the solar field would not be required because no combustible materials would be present in the solar field area. The fire protection system would be designed in accordance with all applicable laws, ordinances, regulations, and standards to protect personnel and limit property loss and plant downtime in the event of a fire. The primary source of fire protection water would be the service/firewater storage tank located at each power block and the firewater storage tank in the common area. An electric jockey pump and electric-motor-driven main fire pump would be provided for each power block and the common area to maintain the water pressure in the fire main at the level required to serve all firefighting systems. In addition, a back-up 204 horsepower (hp) diesel-engine-driven fire pump would be provided for each power block and the common area to pressurize the fire loop if the power supply to the electric-motor-driven main fire pump fails. A fire pump controller would be provided for each fire pump.

Waste Generation and Management Palen Solar Electric Generating System wastes would be comprised of non-hazardous wastes including solids and liquids and lesser amounts of hazardous wastes and universal wastes.

Non-Hazardous Materials The non-hazardous solid waste primarily would consist of construction and office wastes, as well as liquid and solid wastes from the water treatment system. The non-hazardous solid wastes would be trucked to the nearest Class II or III landfill. Non-hazardous liquid wastes would consist primarily of domestic sewage and process wastewater streams. The latter, such as reverse osmosis (RO) system reject water, boiler blowdown, and auxiliary cooling tower blowdown, generally contain levels of dissolved minerals and silica that are too high for use within the boilers. A septic tank and leach field system would be installed to manage domestic sewage. Most other waste streams would be either recycled or sent to the evaporation ponds. A preliminary analysis of the discharge stream to the evaporation ponds was provided by the Applicant and is provided in Table 2-3, below. However, some water from the recycling process, such as Evaporator System concentrate, would contain detergents, soluble oil, and suspended solids. This concentrated wastewater would be transported off-site for disposal by a certified solid waste treatment facility.\*\*TABLE 2-3 MAXIMUM RESIDUE DISSOLVED CONSTITUENT CONCENTRATIONS FOR DISCHARGE TO EVAPORATION PONDS\*\*

- Arsenic: 0.43 mg/L

- Barium: 3 mg/L

- Chromium: 0.2 mg/L

- Copper: 2 mg/L

- Molybdenum: 2 mg/L

- Nickel: 0.4 mg/L

- Selenium: 0.2 mg/L

- Zinc: 12 mg/L

- Phosphate: 2 mg/L

- Calcium: 3,000 mg/L

- Magnesium: 640 mg/L

- Sodium: 20,500 mg/L

- Potassium: 370 mg/L

- Iron: 11 mg/L

- Manganese: 0.7 mg/L

- Fluoride: 140 mg/L

- Chloride: 25,000 mg/L

- Nitrate, as: 0.15 mg/L

- Sulfate: 15,000 mg/L

- Alkalinity, as: 4,200 mg/L

- Silica: 1,200 mg/L

- pH: 5-7

\*\*SOURCE: Palen Solar Holdings, LLC, 2012 Palen Solar Electric Generating System Draft SEIS 2-12 July 2013\*\*

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\*\*2. Proposed Action and Alternatives\*\*

\*\*Wastewater Treatment\*\*

The primary wastewater collection system would collect and process wastewater from all of the solar plant equipment, including the boilers and water treatment equipment. To the extent practical, processed wastewater would be recycled and reused. Each solar plant and the administration complex would include a septic tank and leach field system for sanitary water streams, including showers and toilets. When needed, septic tank contents would be removed from the site by a sanitary service. Based on the current estimate of 2,800 gallons of sanitary wastewater production per day, a total leach field area of approximately 11,000 square feet would be required, spread out among three or more locations. Plant wastewater streams, as further described below, would be recycled as much as possible before being routed through a thermal evaporation system and a lime softening process. The thermal evaporator would be powered by electricity. The reject from the thermal evaporator would be stored in a storage tank before being transferred to the evaporation ponds. Recycled water would be returned to the raw water tank.

The wastewater system for both power blocks would require two 2-acre evaporation ponds located in the common area. The wastewater from each power block would be transported to the evaporation ponds by truck. One truck trip a day from each power block is anticipated to be sufficient for this purpose.

\*\*Plant Drains and Oil/Water Separator\*\*

The primary wastewater collection system would collect process wastewater from all of the solar plant equipment, including the boilers and water treatment equipment. Plant drains would capture washdown water. This water would be routed through an oil/water separator, temporarily stored in a wastewater collection tank, and then treated by the thermal evaporator system.

\*\*SRSG, WSAC, and Boiler Blowdown\*\*

Blowdown from the solar receiver steam generator (SRSG) and natural-gas-fired boiler would contain dissolved solids and silica. The blowdown would be discharged to flash tanks. Steam from the flash tanks would be recovered back into the steam cycle. Condensate from the flash tanks would be further flashed and recycled to the raw water storage tank. As an alternative, blowdown may be discharged to the wastewater collection tank for treatment.

\*\*Thermal Evaporator System\*\*

Each plant would have an onsite Waste Water Treatment (WWT) system consisting of thermal evaporation with mechanical vapor compression to concentrate the wastes prior to final disposal to evaporation ponds. The wastewater collected in the above-referenced storage tank would be pumped to a thermal evaporation unit. The thermal evaporator would convert the water component in wastewater to clean vapor, leaving a small residue that contains virtually all of the dissolved solids. Distillate collected from the Waste Water Treatment system would be recycled and routed to the treated water storage tank for reuse. Effluent (residues) from the Waste Water Treatment systems would be diverted to the evaporation ponds.

The WSAC (Wet Surface Air Cooler) blowdown stream would pass through a lime clarifier-type water softening system designed to reduce the total dissolved solids level in the wastewater stream. The sludge generated from the lime softening pretreatment system would be dewatered onsite using either a belt filter press or centrifuge. The dewatered lime sludge cake would be collected in truck trailer bins and transported offsite to an approved disposal facility. The filtrate/centrate would be conveyed back to the influent into the lime softening pretreatment process.

\*\*Evaporation Ponds\*\*

The wastewater system for both power blocks would require two 2-acre evaporation ponds located in the common area. The wastewater from each power block would be transported to the evaporation ponds by truck. One truck trip a day from each power block is anticipated to be sufficient for this purpose. The two 2-acre evaporation ponds would be located in the common facilities area and designed with a primary and secondary liner system and an intervening leak collection and recovery system (LCRS).The evaporation ponds would be designated as Class II Surface Impoundments Waste Management Units (WMU) and would meet the requirements of the California Code of Regulations (CCR) (27 CCR 20200 et seq). No import or export of soil would be required to construct the two evaporation ponds. In each case, the evaporation ponds would be designed with a primary and secondary liner to prevent leaching. All evaporation ponds would be equipped with netting to prevent access by wildlife. Hazardous Materials The storage, handling, and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations, and standards. Chemicals would be stored in appropriate chemical storage facilities. Bulk chemicals would be stored in storage tanks, and most other chemicals would be stored in returnable delivery containers. Chemical storage and chemical feed areas would be designed to contain leaks, spills, and stormwater. Concrete containment pits and drain piping design would allow a full tank capacity spill without overflowing the containment. For multiple tanks located within the same containment area, the capacity of the largest single tank would determine the volume of the containment area and drain piping. Drain piping for reactive chemicals would be trapped and isolated from other drains to eliminate noxious or toxic vapors. Safety showers and eyewash stations would be provided adjacent to, or in the vicinity of, chemical storage and use areas. Plant personnel would use approved personal protective equipment during chemical spill containment and cleanup activities. Plant personnel would be properly trained in the handling of these chemicals and instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of absorbent material would be stored onsite for spill cleanup. See Section 3.12 and Section 4.11 for additional details. Construction The construction period for the Palen Solar Electric Generating System (PSEGS) would be approximately 34 months and is proposed to commence during the fourth quarter of 2013 and conclude with commercial operation in June 2016. The facility would be constructed in two overlapping phases. Phase 1 would include construction of the generation tie-line, access road, common facilities area, common facilities, temporary construction laydown area, both power blocks including laydown area, and a portion of solar field 2. Phase 2 would include the remainder of the facility. Palen Solar Electric Generating System Draft SEIS 2-14 July 2013 42 2. Proposed Action and Alternatives Generally, construction activities would occur from 5:00 a.m. to 3:30 p.m. with a swing shift during heliostat assembly (from 6:00 p.m. to 4:00 a.m.) and during tower construction (which may occur in three shifts around the clock until these tasks are completed). Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., tower construction, foundation pouring, or working around time-critical shutdowns and constraints). During some construction periods and during the startup phase of the project, some activities would continue 24 hours per day, 7 days per week. Such activities may include but not be limited to the installation of heliostats and pouring of concrete for power towers. Palen Solar Electric Generating System construction on average would require approximately 998 daily construction workers. During peak construction months, Palen Solar Electric Generating System staffing would increase to approximately 2,311 daily workers. Construction personnel would include boilermakers, carpenters, cement finishers, electricians, iron workers, laborers, millwrights, equipment operators, pipefitters, and others. Temporary construction parking areas would be provided within the project site adjacent to the primary construction laydown area and within each power block's laydown area. The primary construction laydown area would be utilized throughout the build out of the two solar units. Project construction would commence with the building of site roads and the installation of temporary construction facilities including office trailers, parking areas, material laydown areas, a concrete batch plant, and a heliostat assembly facility. The construction of each plant would begin with the excavation and placement of foundations and other underground facilities. Superstructures and equipment then would be placed on the foundations. Once the mechanical equipment is in place, construction would continue with the installation of the piping, electrical equipment, and cables necessary to connect and power the equipment. Upon completion of construction, the checkout, testing, startup and commissioning of the various plant systems would begin, resulting in a fully operational solar plant. During Project construction, the majority of the construction workforce is anticipated to be sourced locally and from the surrounding communities near the Project. Certain non-local specialty trade workers supporting proprietary plant equipment/components and construction processes also may be employed on a short-term basis during construction. Construction access would be from the primary access road via the I-10/Corn Springs Road interchange. Materials and equipment would be delivered by truck.Site Preparation Initial site preparation activities would include constructing exclusionary fencing, internal site roadways; trimming vegetation in the heliostat fields; and installing drainage systems, underground utilities and conduits. Moderate site preparation would be required prior to construction of the array fields, power blocks, control building foundations, support structures, and other project features. The subgrade preparation would include limited areas where the complete removal of all vegetation and topsoil would be done. Palen Solar Electric Generating System Draft SEIS 2-15 July 2013

2. Proposed Action and Alternatives Grading and Erosion Control Heavy to medium grading would be performed within each solar power tower and power block areas, for the switchyard, within the administration complex area, and for the construction laydown area. The deepest excavations would be restricted to foundations and sumps. Within each of these individual areas, earthwork cuts and fills would be balanced to the degree possible. The earthwork cuts and fills for the site would be balanced such that there would be no need for importing or exporting of fill materials. At some washes, limited grading could be required to allow the heliostat installation equipment and mirror washing machines access to the solar fields. Surface rocks and boulders would be relocated to allow proper installation of heliostats and facilities if the surface rocks and boulders cannot be avoided. Grading would be performed immediately prior to commensurate construction activities. To minimize wind and water erosion, open spaces would be preserved and left undisturbed maintaining existing vegetation to the extent possible with respect to site topography and access requirements. Areas compacted during construction activities would be restored, as appropriate, to approximate preconstruction compaction levels to minimize the opportunity for any increase in surface runoff and sediment movement. If needed, stone filters and check dams would be placed strategically throughout the site to provide areas for sediment deposition and to promote the sheet flow of stormwater prior to leaving the site boundary. Where available, native materials (rock and gravel) would be used for the construction of the stone filter and check dams. Diversion berms would be used to redirect stormwater around critical facilities, as required. As necessary, the PSEGS stormwater management system would include diversion channels, bypass channels, or swales to direct run-on flow from up-slope areas and run-off flow through and around each facility. Diversion channels would be designed so that a minimum ground surface slope of 0.5 percent would be provided to allow positive, puddle-free drainage. To reduce erosion, storm drainage channels could be lined with a nonerodible material such as compacted rip-rap, geo-synthetic matting, or engineered vegetation. The design would be developed for sheet flow for all storm events less than or equal to a 100-year, 24-hour storm event. Trenching and Excavation During construction, trenches would be excavated using backhoe and trackhoe construction equipment for the installation of underground systems, equipment and materials including the following: on-site electrical transmission system conductors and on-site natural gas system. While the typical trench would be 2-3 feet wide at the base and 3-6 feet deep, a few trenches may have widths and/or depths up to 12 feet. Areas in which two electrical conductors (one from each solar plant) are proposed to be routed in parallel to the switchyard may require trenches that are slightly wider and/or of greater depth. In addition, buried conductors also would require manholes and underground vaults for cable pulling during construction approximately every 2000 feet. The manholes would be approximately 8-10 feet in depth. Palen Solar Electric Generating System Draft SEIS 2-16 July 2013

2. Proposed Action and Alternatives Heliostat Field Preparation Vegetation clearing, grubbing, and contour smoothing in the heliostat fields would occur where necessary to allow for equipment access and stormwater management. In areas where vegetation clearing, grubbing, and contour smoothing in the heliostat fields are not required for access or construction, the vegetation would not be removed but would be mowed (if needed) to a height of approximately 12 to 18 inches. A linear swath of vegetation along the outer edge of each heliostat field would be cleared, grubbed and smoothed to create a 12-foot wide external perimeter path for installation and maintenance of the tortoise and security fence and associated external perimeter inspection roads. Grading of the roads would be performed in limited areas to afford safe passage of vehicles. Elsewhere, vegetation would be cut (when necessary) to a height that would allow clearance for heliostat function while leaving the root structures intact. Occasional cutting of the vegetation would be performed as needed to permit unobstructed heliostat mirror movement. Installation of Heliostats The heliostats would be installed in two steps.Initially, the support pylons would be installed using vibratory technology to insert the support pylons into the ground (pre-augering prior to the installation of the pylon may be required). Depths are not expected to be greater than 12 feet. Then, the heliostat assembly (mirrors, support structure and aiming system) would be mounted on the pylon. The majority of the site would maintain the original grades and natural drainage features and, therefore, construction will require machines that are maneuverable and can negotiate the terrain. Pylons would be delivered to the locations of the pylons by an all-terrain vehicle. Installation of the heliostat assemblies would be accomplished with a rough terrain crane. The rough terrain crane would be able to mount heliostat assemblies on several pylons before moving to the next location. The heliostats located in closest proximity to the tower would be densely packed to maximize collection of solar energy. In the larger heliostat array outside of this zone, the solar field would include drive zones. The drive zones would be used for installation of the heliostats and then subsequent washing of the mirrors. The drive zones would be located approximately every 140-170 feet in a circumferential fashion surrounding the power blocks. The drive zones would be approximately 10 feet wide and will be cleared, grubbed, smoothed, and rolled to permit safe and efficient installation of the heliostats and washing of the mirrors. The shoulders of washes crossed by the drive zones would be graded as necessary to permit safe passage of vehicles for installation and maintenance activities, while preventing alteration of flow patterns across the ungraded portion of the Project site. Construction of Power Blocks The construction of each power block would begin with the excavation and placement of foundations and other underground facilities. Superstructures and equipment then would be placed on the foundations using cranes. Major items include the 750-foot-tall solar power tower and SRSG construction, the STG pedestal and STG, and construction of the air-cooled condenser. Towers would be sited outside of the potential fall distance relative to the I-10 corridor and outside of other public travel ways. Palen Solar Electric Generating System Draft SEIS 2-17 July 2013 2. Proposed Action and Alternatives Construction Vehicles Vehicles used during PSEGS construction would be similar to those typically used during large scale industrial developments. Construction vehicles would consist almost entirely of diesel powered, heavy-duty, off-road equipment. Examples of construction vehicles include: graders, excavators, bulldozers, cranes, compactors, elevating scrapers, front end loaders, forklifts, and concrete transit mix trucks, among others. Several light-duty, gasoline-fueled pick-up trucks and gators would also be used during construction. A more detailed description of the types, quantities, and frequencies of use for these vehicles is provided in Table 4.1E-5 of Attachment D. Generation Tie-Line and Telecommunication Cable Construction of the gen-tie line would include staging/pulling areas. The staging/ pulling areas would be located within the ROW corridor and could be fenced for security. Access to the ROW and transmission structure sites would be required during construction and for the long term maintenance of the gen-tie line. To limit the amount of disturbance associated with access, the existing road serving the adjacent existing transmission line would be used to the greatest extent possible. Short spur roads from the existing road would be constructed to access each transmission structure location. New access spur roads would be constructed using a bulldozer or grader (if required for safe access to a construction location), and a roller to compact and smooth the ground. Front-end loaders could be used to move soil locally or offsite. Typical 14-foot-wide straight road sections and 16- to 20-foot-wide sections at curves would be required to facilitate the safe movement of equipment and vehicles. The redundant communication cable would be plowed-in or trenched utilizing standard cable installation machinery, or constructed using conventional trenching equipment, if the redundant communication cable is installed underground. The redundant communication cable would be installed in the existing transmission line access roadway. If conventional trenching techniques are used for construction, then the trench would be covered at the end of each shift to avoid wildlife access. A temporary workspace would be used at the 230kV structure sites on BLM lands and may be cleared and graded. Temporary disturbance areas include staging/pulling areas and temporary construction areas and would be minimized to the maximum feasible extent. Because of the generally flat topography along the proposed facility route construction pad grading at transmission structure locations may not be required at all locations. Temporary graded areas would be recontoured to match the original grade after construction. Vegetation clearing and ground disturbance would be required at each structure site to excavate tower holes and pour concrete foundations. Temporary ground disturbance would occur at each structure location. Vegetation in each temporary disturbance would not be cleared apart from the locations directly required to install the structure and structural foundations.Palen Solar Electric Generating System Draft SEIS 2-18 July 2013

46 2. Proposed Action and Alternatives Foundation excavations would be made using mechanized equipment, with the poles requiring one 6 to 12 foot diameter hole. Structure foundations would be excavated with a vehicle-mounted power auger or backhoe. In rocky areas, the foundation holes would be excavated by drilling. The foundation holes would be covered or fenced if practical. Foundations would be installed by placing reinforced steel and transmission structure steel components into each foundation hole, positioning the steel components, and encasing the steel components in concrete. Excess spoil material would be used for fill where suitable. The foundation excavation and installation activities would require access to the site by a power auger or drill, a crane, material trucks, and ready-mix concrete trucks. Water would be used for soil compaction and dust abatement at each structure site and along access roads. Water for footer compaction and dust abatement will be obtained from municipal or other water sources and trucked to each construction location. When solid rock is encountered, blasting, rock-hauling, or the use of a rock anchoring or micro pile system for transmission tower facilities would be implemented subject to approval from the BLM and other applicable federal, state, or local agencies. Steel structure sections would be delivered to structure locations where the steel structure sections would be fastened together to form a complete structure and hoisted into place by crane. At each structure site, leveled areas approximately 30 by 40 feet would be created to safely operate construction cranes and larger equipment. A work area also would be required for the structure footing location, structure assembly, and the crane maneuvers. The work area would be cleared of vegetation only to the extent necessary. Concrete for use in constructing foundations would be dispensed from concrete mixer trucks. After construction, all pads would be restored to natural contours and revegetated where required. After the structures are erected, insulators, hardware, and stringing sheaves would be delivered to each structure site. The structures would be rigged with insulator strings and stringing sheaves at each ground wire and conductor position. Pilot lines would be pulled (strung) from structure to structure and threaded through the stringing sheaves at each structure. Following the pilot lines, a larger diameter, stronger line would be attached to conductors to pull the conductors onto the structures. This process would be repeated until the ground wires or conductors are pulled through all sheaves. The shield wire and conductors would be strung using powered pulling equipment at one end and powered braking or equipment tensioning at the other end of each conductor stringing segment. Sites for tensioning equipment and pulling equipment would be approximately two miles apart. This distance may be increased in certain locations by pulling in two sets of conductors back-to-back. Each tensioning site would be approximately 100 feet wide by 400-600-feet long. Tensioners, line trucks, wire trailers, and tractors needed for stringing and anchoring the ground wire or conductor would be necessary at each tensioning site. Construction Water Construction water would be sourced primarily from onsite groundwater wells. Additional water for use in association with the gen-tie line construction may be obtained from municipal or other Palen Solar Electric Generating System Draft SEIS 2-19 July 2013

47 2. Proposed Action and Alternatives sources. PSEGS construction-related water requirements are estimated to be 400 AFY, or approximately 1,130 acre-feet for the 34-month construction period. Construction water would be used for dust control on roads and construction areas, soil compaction, stockpile sites, building pads, hydrostatic testing for tanks and pipelines, and for concrete pours onsite (CEC, 2013). Concrete Batch Plants A concrete batch plant would be located within the proposed construction logistics area. The PSEGS would require an estimated volume of 30,000 cubic yards of concrete for foundations and associated structures in the power blocks, excluding the towers and foundations. The preliminary concrete estimate for both towers and both towers' foundations is 81,000 cubic yards (Galati, 2013). Concrete-related water requirements are included in the maximum construction water construction estimate of approximately 400 AFY. Unmixed cement would be purchased from commercial suppliers and stored in a designated area adjacent to the mobile batch plant. Aggregate required for concrete manufacturing would be obtained from commercial suppliers and transported to the site. Concrete generated at the concrete batch plant would be transported to the placement area by concrete mixer trucks. Fuel Depot A fuel depot would be constructed to refuel, maintain, and wash construction vehicles, and the fuel depot would occupy an area of approximately 75 feet by 150 feet.Here is the revised text with coreference resolution:

The constructed site would consist of a fuel farm with two 2000-gallon on-road vehicle diesel tanks, two 8,000-gallon off-road vehicle diesel tanks, one 250-gallon gasoline tank, and a wash water holding tank. The fuel farm would include secondary spill containment, a covered maintenance area, also with secondary containment, and a concrete pad for washing vehicles. Construction Power would be provided to the site by one or a combination of three ways. The Palen Solar Power Project (PSPP) proposed to obtain all of the PSPP's construction power from Southern California Edison (SCE) via two alternative sources of construction power. Both sources feed from the 12.47 kV distribution system in Desert Center on Rice Road. The first alternative would be a new 12.47 kV line built within the 161 kV right of way (ROW) from Rice Road to the project site. The second alternative would be a new 12.47 kV line built within the surveyed 230 kV transmission line ROW from Rice Road to the project site. This line would be built as a combination of new 12.47 kV line or hung on the new 230 kV transmission line towers that connect the single circuit 230 kV line to the project site. The PSPP would include construction of a 12.47 kV internal distribution system and step down transformers to provide power as needed to construction operations. The PSPP Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) thoroughly evaluated these options. Alternatively, construction power could be provided through the early construction of the Palen Solar Electric Generating System (PSEGS) gen-tie line and power backfed to the site switchyard. In this case, the gen-tie line would be completed prior to major construction power demands at the site. For the purpose of the environmental analysis for the Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS), all options are being analyzed to allow the Applicant to use all or any combination of these three options. Construction Wastewater Sanitary wastes produced during construction would be held in chemical toilets and transported offsite for disposal by a commercial chemical toilet service. Any other hazardous wastewater produced during construction, such as equipment rinse water, would be collected by the construction contractor in Baker tanks and transported off site for disposal in a manner consistent with applicable regulatory requirements. Operation and Maintenance Management, engineering, administrative staff, skilled workers, and operators would serve both solar plants. The PSEGS is expected to employ up to 100 full-time employees: 30 at Solar Plant 1 (including mirror washing machine operators), 30 at Solar Plant 2 (including mirror washing machine operators), and 40 at the administration complex. The facility would operate 7 days a week. To maintain heliostat performance, heliostat washing is projected to occur up to 24 hours per day, covering the entire solar field weekly. A plant operation and maintenance program, typical of a project this size, would be implemented to control the quality of operations and maintenance. Operations and maintenance procedures would be consistent with industry standard practices to maintain the useful life of plant components. A specific program for the PSEGS would be defined and implemented during initial plant startup. Detailed long-term maintenance schedules would be developed and would include periodic maintenance and overhauls in accordance with manufacturer recommendations. Operation Water Use Primary operational water uses consist of replacing boiler blowdown, providing supplemental cooling for plant auxiliary systems, and water for washing the heliostats to ensure they function at full performance. Regular mirror washing is anticipated to be needed once a week to facilitate dust and contaminant removal using water from the demineralization (Reverse Osmosis) process. Mirror washing would occur during the day and night and involve a mirror washing machine that utilizes water, air, and brushing. Wash water that falls from the mirrors to the ground is expected to soak in with no appreciable runoff due to the small volume. Remaining rinse water from the mirror washing operation is expected to evaporate on the mirror surface. The treated water production facilities would be sized to accommodate the solar mirror washing demand, which would be 71 acre-feet per year (AFY) for PSEGS. Table 2-4 summarizes PSEGS operational water use at full load. Minimal amounts of water are expected to be required for dust control after construction is complete. Palen Solar Electric Generating System Draft SEIS 2-21 July 2013.

Let me know if you need further assistance!Proposed Action and Alternatives TABLE 2-4 TOTAL AVERAGE DAILY OPERATIONAL WATER REQUIREMENTS FOR SOLAR PLANTS 1 AND 2, COMBINED Average Daily Use Annual Average Use Use Gpm Gpd AFY Process Uses 63 90,873 102 Mirror Washing 44 63,408 71 Potable Water 2.1 2,995 3.4 Dust Suppression 15 21,802 24.4 Total 124 179,078 201 NOTES: gpd = gallons per day gpm = gallons per minute AFY = acre-feet per year Average Daily Use is based on annual operating hours of 3,500 hours/year SOURCE: Palen Solar III, LLC, 2013 (Table 2-16) 2.1.6 Closure, Decommissioning and Reclamation Temporary Closure For a temporary facility closure, where there is no release of hazardous materials, security of the facilities would be maintained on a 24-hour basis. The BLM and other responsible agencies would be notified as necessary and appropriate. Depending on the length of shutdown necessary, a contingency plan for the temporary cessation of operations would be implemented. The contingency plan would be conducted to ensure conformance with all applicable requirements and the protection of public health, safety, and the environment. The contingency plan, depending on the expected duration of the shutdown, could include the draining of all chemicals from storage tanks and other equipment and the safe shutdown of all equipment. All wastes would be disposed of according to applicable requirements. Where the temporary closure includes damage to the facility, and there is a release or threatened release of regulated substances or other hazardous materials into the environment, procedures would be followed as set forth in the Risk Management Plan and Hazardous Materials Business Plan. These procedures would include methods to control releases, notification of applicable authorities and the public, emergency response, and training for plant personnel in responding to and controlling releases of hazardous materials. Once the immediate problem is solved, and the regulated substance/hazardous material release is contained and cleaned up, the temporary closure would proceed as described above for a closure where there is no release of hazardous materials.2 2 Palen Solar Holdings, LLC, 2012. Palen Solar Electric Generating System Draft SEIS 2-22 July 2013

50 2. Proposed Action and Alternatives Permanent Closure The PSEGS would be required to prepare a Decommissioning and Reclamation Plan to ensure compliance with applicable laws, and to ensure public health and safety and protection of the environment. The Decommissioning and Reclamation Plan would include a cost estimate for implementing the proposed decommissioning and reclamation activities and be submitted to the BLM, USFWS, CDFW, and CEC for review and approval prior to a planned closure. Decommissioning and Reclamation It is assumed that decommissioning and reclamation of the permanent plant facilities would begin 30-50 years after the commercial operation date of the solar plant. Decommissioning of temporary facilities, including, but not limited to, temporary septic systems, temporary underground conduit, temporary power poles, temporary concrete pads, and similar items would be completed during the plant commissioning timeframe or within the first 6 months of facility operation following completion. Site decommissioning and reclamation activities would include, among other activities the following: 1. Removal of above-ground structures unless converted to other uses; 2. Re-contouring of lines and grades in the disturbed area of the site to match the natural gradients and functions of the site; 3. Re-establishment of native vegetation in the disturbed areas; 4. Removal of all residual materials and chemicals from the site prior to demolition for reuse at other facilities or for proper disposal at licensed facilities; 5. Demolition of the above-ground structures (dismantling and removal of improvements and materials) in a phased approach while still using some items until close to the end of the project. For instance, the water supply, administrative building and some electrical power components would be modified to be used until very late in the decommissioning project; 6. Demolition and removal of below-ground facilities (e.g., floor slabs, footings, and underground utilities) as needed to meet the decommissioning goals; 7. Soils cleanup, if needed, with special attention to hazardous materials use/storage areas to ensure that clean closure is achieved; and 8. Disposal of materials in appropriate facilities for treatment/ disposal or recycling. Although various types of decommissioning and demolition equipment would be utilized to dismantle each type of structure or equipment, dismantling would proceed according to the following general staging process. The first stage would consist of dismantling and demolition of above-ground structures to be removed.The second stage would consist of concrete removal as needed to ensure that no concrete structure remains within 3 feet of final grade (i.e., floor slabs, below-ground walls, and footings) as appropriate. The third stage would consist of removal/ dismantling of underground utilities within 3 feet of final grade. The fourth stage would include Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) July 2013 excavation and removal of soils, and final site contouring to return the originally disturbed area of the site to near original conditions while disturbing as little of the other site areas as is practical. Above-ground demolition would entail breakdown and removal of above-ground structures and facilities. Residual materials from these activities would be transported via heavy haul dump truck to a central recycling/ staging area where the debris would be processed for transport to an offsite recycler. A project recycle center (either at each power unit as the work progresses or at the central admin area) would be established to: 1. Size reduce and stage metals and mirrors for transport to an offsite recycler: 2. Crush concrete and remove rebar; 3. Stockpile concrete for later use at the site; 4. Stage rebar for transport to an offsite recycler; and 5. Temporarily store and act as a shipping point for any hazardous materials to an approved treatment, storage, and disposal facility. The proposed strategy for demolition consists of use of mechanized equipment and trained personnel in the safe dismantling and removal of the following above-ground structures: 1. Heliostats and related equipment: using low environmental impact equipment; 2. Towers: using explosives to put the towers on the ground, then conventional heavy equipment to size reduce and transport for recycling (this is the industry standard for safe demolition of large towers and massive concrete structures); 3. Turbine generators, condensers and related equipment, transmission lines and towers, and above-ground pipelines: using conventional demolition equipment and techniques; and 4. Near the very end of the Palen Solar Electric Generating System (PSEGS), the removal of site-related fencing. Unless otherwise approved by Bureau of Land Management (BLM) at the time of decommissioning, all PSEGS facilities would be removed. It is anticipated that any and all site-related concrete slabs and footings; piping and utilities, including water lines; below ground electric/ control/ communication lines, and gas lines would be completely removed, regardless of the depth below final grade. These materials would be excavated and transported to the recycling area(s) for processing and ultimate recycling. The resulting trenches would be backfilled with suitable material of similar consistency and permeability as the surrounding native materials and compacted to 85 percent relative compaction. The need for, depth, and extent of contaminated soil excavation would be based on observation of conditions and analysis of soil samples after removal of the evaporation pond and hazardous materials storage areas, and upon closure of the recycling center(s) and waste storage areas used during decommissioning. At this time, removal of contaminated soil is assumed not to be needed. When required, contaminated soil removal would be conducted to the extent feasible and as required to meet regulatory cleanup criteria for the protection of groundwater and the environment. When contaminated soil removal is required, the resulting excavations would be backfilled with native soil of similar permeability and consistency as the surrounding materials and compacted to 85 percent relative compaction. Re-contouring of the site would be conducted using standard grading equipment to return the land to match within reason the previously existing surface and surrounding grade and function. Grading activities would be limited to previously disturbed areas that require re-contouring. Efforts would be made to disturb as little of the natural drainage and vegetation as possible. Concrete rubble, crushed to approximately 2-inch minus size, would be placed in the lower portions of fills, at depths at least 3 feet below final grade. Fills would be compacted to approximately 85 percent relative compaction by wheel or track rolling to avoid over-compaction of the soils. To the extent feasible, efforts would be made to place a layer of coarser native materials at the ground surface to add stability. After re-contouring, the site would be revegetated using native plants where appropriate. Revegetation would be conducted with a native seed collection company. The Applicant would develop, and submit for approval by the BLM, a Site Restoration Plan. The Site Restoration Plan would outline the protocol for the re-vegetation of the portions of the project area that are classified as temporarily impacted. The Site Restoration Plan also would define success criteria in accordance with agency guidance and outline mitigation measures to be implemented when the success criteria are not met.2.1.7 Applicant Proposed Measures The Applicant has proposed the measures provided in Appendix C (Applicant Proposed Measures, or APMs) to reduce or avoid potential impacts that could result from the Palen Solar Electric Generating System (PSEGS). The Applicant Proposed Measures would be implemented like other elements of the Palen Solar Electric Generating System. The analysis of impacts of the Palen Solar Electric Generating System in the Draft Supplemental Environmental Impact Statement (SEIS) assumes that the Applicant Proposed Measures would be implemented.

2.2 Alternatives

2.2.1 Alternatives Considered in Palen Solar Power Project (PSPP) Plan Amendment/Final Environmental Impact Statement (PA/FEIS) The Bureau of Land Management (BLM) analyzed the following alternatives as part of the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement: Reconfigured Alternative 1, Reconfigured Alternative 2 (Options 1 and 2), and a Reduced Acreage Alternative. Three "no project" alternatives also were evaluated, including: No Action Alternative A, California Desert Conservation Area (CDCA) Plan Amendment/ No Project Alternative B, and CDCA Plan Amendment/ No Project Alternative C. Within this range, the Bureau of Land Management is carrying forward the Agency Preferred Alternative identified in the Palen Solar Power Project Plan Amendment/Final Environmental Impact StatementAs part of the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement, the Bureau of Land Management declared Reconfigured Alternative 2 Options 1 and 2 as the Agency Preferred Alternative because Reconfigured Alternative 2 is the alternative that would best fulfill the Bureau of Land Management's statutory mission and responsibilities under Federal Land Policy and Management Act (FLPMA), Bureau of Land Management Right-of-Way (ROW) regulations, and the other applicable Federal laws and policies giving consideration to the economic, environmental, technical and other factors analyzed in Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement Chapter 4, Environmental Consequences.Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 2-25 July 2013.

2. Proposed Action and Alternatives The remaining alternatives considered in the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement are not being carried forward for consideration in a Final EIS for the Palen Solar Electric Generating System. For example, in light of changed circumstances since the issuance of the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement (such as the California Desert Conservation Area Plan Amendments resulting from the Solar Programmatic Environmental Impact Statement Record of Decision that prioritize solar development within the Riverside East Solar Energy Zone, which includes the requested Palen Solar Electric Generating System Right-of-Way area and would govern this land if the Palen Solar Electric Generating System Right-of-Way grant were denied) it no longer makes sense to consider California Desert Conservation Area Plan Amendment/ No Project Alternative B or California Desert Conservation Area Plan Amendment/ No Project Alternative C. Also, for all of the reasons that the Bureau of Land Management determined Reconfigured Alternative 2 (Options 1 and 2) to be the Agency Preferred Alternative in the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement, the other action alternatives described and analyzed in the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement have been set aside for purposes of the Palen Solar Electric Generating System.

2.2.2 Alternatives Carried Forward in the Draft Supplemental Environmental Impact Statement Reconfigured Alternative 2 Options 1 and 2 Reconfigured Alternative 2 (Options 1 and 2) would be a solar thermal trough project (unlike the Palen Solar Electric Generating System, which would use solar thermal power tower technology) and have a nominal output of 500 Megawatts. Reconfigured Alternative 2 would consist of two independent 250 Megawatts power plants (Units 1 and 2). The components of Reconfigured Alternative 2 Options 1 and 2 are described in Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement Section 2.4.1 (p. 2-22 et seq.). Reconfigured Alternative 2 includes two possible layouts referred to as Option 1 and Option 2. A key difference between Option 1 and Option 2 is that Option 1 would include the use of 240 acres of private land near the southeast corner of the proposed site; by contrast, Option 2 would not use this privately-owned property and instead would rely (like the Palen Solar Electric Generating System) primarily on Bureau of Land Management-administered lands. Option 1 would disturb approximately 4,366 acres within the Right-of-Way; by comparison, Option 2 would disturb approximately 4,330 acres. Reconfigured Alternative 2 Options 1 and 2 would include a California Desert Conservation Area Plan amendment as described in Section 1.2 of this Draft Supplemental Environmental Impact Statement.

No Action Alternative A Under No Action Alternative A, Right-of-Way application CACA-48810 would be denied, and the Right-of-Way grant would not be authorized. The California Desert Conservation Area Plan would not be amended. Since this application area is located within the Riverside East Solar Energy Zone, the Solar Programmatic Environmental Impact Statement Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the Solar Energy Zone.

2.2.3 Agency Preferred Alternative The selection of the Agency Preferred Alternative involves difficult judgments, requiring one environmental value to be balanced against another.In Section 2.4.2 of the PSPP PA/FEIS (p. 2-26), the BLM determined that Reconfigured Alternative 2 was the Agency Preferred Alternative among the alternatives considered in the PSPP PA/FEIS because Reconfigured Alternative 2 would have best fulfilled the BLM's statutory mission and responsibilities under FLPMA, BLM ROW regulations, and other applicable Federal laws and policies giving consideration to the economic, environmental, technical and other factors analyzed in the PSPP PA/FEIS. In light of the changed circumstances that have occurred since the PSPP PA/FEIS was issued, as described and analyzed in this Draft SEIS for the Palen Solar Electric Generating System (PSEGS), the BLM preliminarily has determined that the PSEGS now is the Agency Preferred Alternative because the PSEGS would better fulfill the BLM's statutory mission and responsibilities than Reconfigured Alternative 2.

2.2.4 Alternatives Considered but Eliminated From Detailed Analysis

Alternatives Considered but Eliminated from Detailed Analysis in the PSPP PA/FEIS In the PSPP PA/FEIS, the BLM rejected five alternative sites because the five alternative sites would not avoid or substantially reduce the adverse impacts of the PSPP or because the five alternative sites would not meet PSPP objectives, the BLM's purpose and need for the project, or otherwise were not reasonable alternatives (see PSPP PA/FEIS Section 2.4.3, p. 2-27 et seq.). The same rationale applies to eliminate these potential alternatives from consideration relative to the PSEGS. The rejected alternative sites included:

1. North of Desert Center Alternative

2. Cibola Alternative

3. Palen Pass Alternative

4. Desert Center Alternative

5. Palo Verde Mesa Alternative

The PSPP PA/FEIS also screened and rejected five alternative technologies from detailed analysis, including:

1. Stirling Dish Technology

2. Solar Power Tower Technology

3. Linear Fresnel Technology

4. Utility scale Solar Photovoltaic (PV) Technology

5. Distributed Solar Technology

Specifically, with respect to solar power tower technology, the PSPP PA/FEIS concluded that the environmental impacts would not be substantially lower than those associated with the solar parabolic trough technology then under consideration. While grading requirements for power tower technology were noted as being less than the grading requirements for parabolic trough technology, the PSPP PA/FEIS cites the potential for greater impacts of solar tower technology than parabolic trough technology on Desert Center Airport. For these reasons, a solar power tower technology alternative was not carried forward for detailed analysis in the PSPP PA/FEIS.

Palen Solar Electric Generating System Draft SEIS 2-27 July 2013

Additional Alternatives Considered but Eliminated from Detailed Analysis

As described in Section 1.3 of this Draft SEIS, the PSEGS's objectives are to deliver 500 MW of renewable electrical energy to the regional electrical grid to fulfill the existing approved Power Purchase Agreements (PPAs) for electrical sales from the facility. The PSEGS has two PPAs that consequently will require two sets of generation facilities. The proposed site also has an approved LGIA for 500 MWs to interconnect at the Red Bluff Substation, which is currently under construction. Because FERC approved "abandoned plant treatment" for the PSPP, successful construction of a 500 MW project will allow the ratepayers to recoup their transmission infrastructure investment related to the PSPP. While PSIII has determined that the proposed site is well positioned and suited for the generation of clean, renewable, competitively priced solar-generated electricity in accordance with the stated PSEGS objectives, PSIII's initial project design and optimization process for the site contemplated a number of alternatives including:

1. Alternative Tower Heights

2. Alternative Number of Towers

These potential alternatives were determined not to warrant further analysis, however, due to the inability of the potential alternatives to comply with PSIII's identified Project objectives, which are described in Section 1.4 of this Draft SEIS and summarized above.

Alternative Tower Heights

The amount of electricity that can be produced by the PSEGS correlates directly to the amount of reflective surface area of the heliostats. The relationship can be summarized as follows: "As the height of the tower increases, the reflective surface of any given heliostat is increased." Thus, as the height of the tower increases, the efficiency of the solar field also increases. Two significant factors that affect heliostat field efficiency are the effects of blocking and shading. Blocking occurs when a heliostat in front of another blocks the reflected solar energy on its way to the tower. Thus, as the height of the tower increases, it is possible to bunch more heliostats closer to the tower thus maximizing the efficiency of the solar field.Shading is likely to 3 In accordance with the Bureau of Land Management (BLM) Instruction Memorandum 2011-059 (February 7, 2011), the purpose and need statement as a whole describes the problem or opportunity to which the BLM is responding and what the BLM hopes to accomplish by the action. The purpose and need statement in a National Environmental Policy Act (NEPA) document for a renewable energy Right-of-Way (ROW) application must describe the BLM's purpose and need for action, not the applicant's interests and objectives (BLM NEPA Handbook Section 6.2). Nonetheless, the applicant's interests and objectives, including any constraints or flexibility with respect to the applicant's proposal, help to inform the BLM's decision and cannot be ignored in the NEPA process. The applicant's interests and objectives should be described in the NEPA document (e.g., in the project description). This information will help determine which alternatives are analyzed in detail through the NEPA process and also may provide a basis for eliminating some alternatives from detailed analysis. The BLM may eliminate an alternative from detailed analysis for a variety of reasons, including, for example, if the alternative does not respond to the BLM's purpose and need, if the alternative is not technically or economically feasible (as informed by the applicant's interests and objectives), or if the alternative is inconsistent with the existing management prescriptions for the area as set forth in the governing land use plan. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 2-28 July 2013.

2. Proposed Action and Alternatives occur at low sun angles when a heliostat casts the heliostat's shadow on another heliostat behind the first heliostat. Thus, the higher the tower, the later in the day the project can operate thus maximizing output over a calendar year. The negative effects of both blocking and shading are reduced when the heliostats can be aimed at a taller tower thus leading to a direct improvement in overall project efficiency and cost-effectiveness. The inverse relationship also holds true: any alternative contemplating a shorter tower height also contemplates a less efficient solar field and, thus, a project with output inconsistent with the stated Palen Solar Electric Generating System (PSEGS) objectives. The PSEGS, as proposed, would minimize land consumption on a megawatt-hour (MWH) per acre basis. A taller tower would have fewer impacts on environmental resources by virtue of the fact that a taller tower requires less land to generate the same megawatts (MWs). At the same time, despite the potential loss of efficiency, a shorter tower would have a smaller viewshed, contrast less with the shorter tower's surroundings, and ultimately impact a smaller number of sensitive receptors.

Alternative Number of Towers – Though it is logical to believe that a single, higher tower may be a viable alternative, there are two variables that provide a counterbalance to tower height and thus limit the ability to execute on a single tower layout: distance of the heliostat from the boiler, and structural constraints of the tower. Both variables effectively limit the ability for a single tower to be a viable alternative to a two-tower layout. The efficiency of a heliostat to direct solar energy onto the boiler decreases with the heliostat's distance from the tower due to the effects of atmospheric attenuation and spillage. Atmospheric attenuation describes how the constituents in the atmosphere (such as water vapor) reduce the amount of reflected energy between the heliostat field and receiver. The negative effects of atmospheric attenuation increase with increasing distance between the heliostat and boiler. Spillage describes the potential loss of reflected energy as the beam of reflected light from the heliostat diverges over a distance (as with a flashlight beam). With greater distance from the tower, there is an increase in the potential for some of the reflected light to diverge and "miss" the receiver. The combined effects of these two relationships limit the efficiency of heliostats furthest from the tower. Thus, any single tower system, regardless of the tower height, is limited in the single tower system's maximum output capacity. A single tower alternative that also satisfies an output capacity of 500 MWs would require two major changes that would exceed the structural limitations of conventional construction.

Section 2.2.1 of the Revised Plan of Development (POD) states the Applicant's purpose and need for the Palen Solar Electric Generating System (PSEGS) as follows: "The primary purpose of the PSEGS is to deliver 500 MW of renewable electrical energy to the regional electrical grid in accordance with the existing approved Power Purchase Agreements for electrical sales from the facility." Accordingly, although the BLM regularly considers projects that would generate less output capacity than requested in ROW grant applications, to do so here would have the same environmental consequences as No Project Alternative A because a project approved with less than 500 MW capacity would not fulfill the Applicant's contractual obligations. Palen Solar Electric Generating System Draft SEIS 2-29 July 2013.

Methodologies – Essentially, a doubling of the size of the boiler would exceed the "lifting" limitations of high angle cranes.Though alternative specialized construction methodologies could be employed to overcome this limitation, the alternative specialized construction methodologies are exceedingly expensive and can be quite difficult to procure within a limited timeframe. A single tower design is not a viable alternative due to the negative impact of attenuation and spillage combined with the structural limitations of increasing boiler capacity due to lifting constraints. The economics and engineering for a single 500 MW tower would be prohibitive. Depending on the height being proposed as an alternative, the alternative furthermore might not reduce visual impacts in most settings, as many viewpoints would be impacted by both towers. The construction of two towers would also allow the Applicant to fulfill the two existing PPAs (i.e., construct two sets of generation facilities). Palen Solar Electric Generating System Draft SEIS 2-30 July 2013.

CHAPTER 3 Affected Environment 3.1 Introduction This chapter describes the affected environment for evaluating the PSEGS and other alternatives described in Chapter 2. The "affected environment" consists of the environmental and other conditions in the area that could be affected by the alternatives described in Chapter 2. Chapter 3 of the PSPP PA/FEIS describes the affected environment for the PSPP and alternatives considered in that document. Much of that discussion remains relevant to the PSEGS because: (1) the PSEGS utilizes the same primary site and therefore could impact substantially the same range of resources and resource uses; and (2) environmental conditions have not changed since publication of the PSPP PA/FEIS for many of the resources and resource uses that could be affected. As such, much of Chapter 3 of the PSPP PA/FEIS does not require supplementation or revision in this Draft SEIS. However, some elements of the PSEGS differ from elements considered in the PSPP PA/FEIS and some environmental conditions have changed since the PSPP PA/FEIS was published. Accordingly, this chapter includes, with respect to the PSPP PA/FEIS, the following: (1) verification of the environmental and other conditions that have not changed; (2) revisions to discussions of conditions that have changed; and (3) descriptions of resources and resource uses not identified in the PSPP PA/FEIS that could be affected by the PSEGS, such as those in the vicinity of the proposed gen-tie line reroute and the natural gas line. Palen Solar Electric Generating System Draft SEIS 3.1-1 July 2013.

3. Affected Environment 3.1 Introduction This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.1-2 July 2013.

3. Affected Environment 3.2 Air Resources Section 3.2 of the PSPP PA/FEIS describes air quality conditions for criteria pollutants and the federal and state ambient air quality standards. For purposes of air quality analysis, the PSEGS study area would generally be the same as that evaluated in the PSPP PA/FEIS, as would be the topographic, climatic, and regulatory influences on air resources. As such, much of that discussion is relevant to the PSEGS. The following sections describe changes to standards that have occurred since publication of the PSPP PA/FEIS and present the most current representative ambient pollutant concentrations for the project area. A discussion regarding global climate change and greenhouse gas emissions can be found in Section 3.3, Global Climate Change. 3.2.1 Ambient Air Quality The Federal Clean Air Act and the California Clean Air Act both require the establishment of standards for ambient concentrations of criteria air pollutants for ozone, nitrogen dioxide (NO2), carbon monoxide (CO), sulfur dioxide (SO2), inhalable particulate matter (PM10), fine particulate matter (PM2.5), and lead, called Ambient Air Quality Standards (AAQS). Federal and state air quality standards are listed in Table 3.2-1. Since publication of the PSPP PA/FEIS, the U.S. Environmental Protection Agency (USEPA) strengthened the annual National AAQS for PM2.5 from 15.0 micrograms per cubic meter (1/2g/m3) to 12.0 1/2g/m3. USEPA anticipates making initial attainment/nonattainment designations for the revised standard by December 2014, with those designations likely becoming effective in early 2015 (USEPA, 2013a). In addition, at the time the PSPP PA/FEIS was issued, USEPA was considering revising the 8-hour ozone standard to 0.070 ppm. However, in September 2011, USEPA withdrew its draft revisions to the standard pending review of new scientific data, which is scheduled to be completed in 2013 (USEPA, 2013b).The Palen Solar Electric Generating System (PSEGS) is within the Mojave Desert Air Basin (MDAB), which includes portions of Kern, Los Angeles, San Bernardino, and Riverside Counties. The Mojave Desert Air Basin is governed by four air districts, including the Kern County Air Pollution Control District, the Antelope Valley Air Quality Management District (AQMD), the Mojave Desert AQMD, and the South Coast AQMD (SCAQMD). The project site is within the jurisdiction of the South Coast AQMD. As described in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS), the eastern Riverside County portion of the Mojave Desert Air Basin is designated as non-attainment for the state ozone and PM10 standards. The Mojave Desert Air Basin is designated as attainment or unclassified for all federal criteria pollutant ambient air quality standards and for the state carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), and fine particulate matter (PM2.5) standards. The state ozone standard is exceeded in the Mojave Desert Air Basin due to long distance transport of pollutants from the Los Angeles Basin, while the PM10 exceedances tend to be a result of natural sources found in a desert environment and various land uses. These uses include off-highway vehicle (OHV) use, mining, and livestock grazing. Ambient air quality in the project area is best represented by data from the nearest monitoring station, which is in Blythe; however, ozone is the only pollutant monitored at the Blythe monitoring station. The closest monitoring stations that monitor PM10 and PM2.5 are in Indio and Palm Springs. PM10 and PM2.5 data from the Indio and Palm Springs stations are used to represent ambient conditions in the project area; however, use of PM10 and PM2.5 data is considered conservative because the Indio and Palm Springs stations are in the Salton Sea Air Basin, which is a federal non-attainment area for PM10 and PM2.5. The Palm Springs monitoring station also monitors concentrations of carbon monoxide and nitrogen dioxide. Data from the Magnolia and Rubidoux monitoring stations in Riverside were used to supplement representative carbon monoxide concentrations, and data from Rubidoux were used for representative sulfur dioxide concentrations, respectively. Monitoring data from the station in Banning were used to supplement the representative nitrogen dioxide concentrations.Data from the Magnolia, Rubidoux, and Banning monitoring stations are also considered conservative for representation of ambient air pollutant concentrations in the project area because the Magnolia, Rubidoux, and Banning monitoring stations are located in urban areas of the South Coast Air Basin as opposed to the remote desert area of the MDAB, where the Project is located. The ambient air quality data presented in the PSPP PA/FEIS are outdated; therefore, Table 3.2-2 presents the monitoring data for the Magnolia, Rubidoux, and Banning monitoring stations for the most recent 3-year period (2009 through 2012) and includes the most restrictive applicable standards. Palen Solar Electric Generating System Draft SEIS 3.2-2 July 2013

62 3. Affected Environment 3.2 Air Resources TABLE 3.2-2 CRITERIA POLLUTANT MAXIMUM AMBIENT CONCENTRATIONS Limiting Pollutant Site Averaging Period Units 2010 2011 2012 AAQSa 1-hour State 0.072 0.073 0.084 0.09 Ozone Blythe 8-hour State ppm 0.068 0.068 0.077 0.07 Indio 108.0 106.0b 125.0 PM10 Palm Springs 24-hour State mu g/m3 144.8 86.1b 143.4 50 Indio 29.7 35.9 33.4 PM10 Palm Springs Annual State mu g/m3 18.3 18.1 16.1 20 Indio 16.0 35.4 18.4 PM2.5 Palm Springs 24-hour Fed mu g/m3 12.8 26.3 15.5 35 Indio 6.8 7.1 7.6 PM2.5 Palm Springs Annual Fed mu g/m3 5.9 6.0 6.4 12 Palm Springs 0.56 0.65 0.45 CO Riverside Magnolia 8-hour State ppm 1.73 1.49 1.46 9.0 Banning 0.066 0.061 0.055 NO2 Palm Springs 1-hour State ppm 0.046 0.045 0.045 0.18 Banning 0.012 0.010 --- NO2 Palm Springs Annual ppm 0.009 0.008 --- 0.030 SO2 Rubidoux 24-hour Fed ppm 0.005 0.001 0.001 0.04 NOTES: a The limiting AAQS is the most stringent of the CAAQS or NAAQS for that pollutant and averaging period. b The first and second highest 24 hour PM10 measurements in 2011 for Indio are considered to be a result of an exceptional event. Similarly, the two highest 24 hour PM10 measurements in 2011 for Palm Springs (i.e., 396.9 mu g/m3 and 265.7 mu g/m3) are considered to be a result of an exceptional event. The two highest 24 hour PM10 measurements in 2011 are not representative of average ambient conditions in Indio and Palm Springs; therefore, the next highest concentrations are provided in the table. SOURCE: CARB, 2013. As indicated in Table 3.2-2, the maximum 8-hour ozone concentrations measured in Blythe exceeded the state standard in 2011. With regard to PM10, the maximum 24-hour concentrations measured in Indio and Palm Springs and the annual average at Indio exceeded the state standards during each of the three years during the study period. There were no other exceedances of the AAQSs during the 3-year study period. Palen Solar Electric Generating System Draft SEIS 3.2-3 July 2013

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64 3. Affected Environment 3.3 Climate Change Section 3.3 of the PSPP PA/FEIS (p. 3.3-1 et seq.) provides an introduction to greenhouse gas (GHG) emissions and climate change, describes factors affecting GHG emissions, summarizes federal and state initiatives to address GHG emissions and associated climate impacts, discusses the potential effects of climate change, provides an inventory of GHG emissions, and discusses the existing GHG emissions that occur at the project site. Given the proximity of the project site and the scale of influences on the global climate, many of these factors are relevant to the PSEGS.Accordingly, with the exception of the following discussion of GHG sources, emissions inventory update, and supplemental state regulatory authorities, information contained in PSPP PA/FEIS Section 3.3 is relied upon and has not been supplemented. 3.3.1 Existing Greenhouse Gas Emissions Greenhouse Gas Sources Anthropogenic GHG emissions in the United States derive mostly from the combustion of fossil fuels for transportation and power production. Energy-related carbon dioxide (CO2) emissions, resulting from fossil fuel exploration and use, account for approximately three-quarters of the human-generated GHG emissions in the United States, primarily in the form of carbon dioxide emissions from burning fossil fuels. More than half of the energy-related emissions come from large stationary sources such as power plants; approximately one-third derive from transportation; industrial processes, agriculture, forestry, other land uses, and waste management comprise a majority of the remaining sources (USEPA, 2012). Statewide GHG Emission Inventory Statewide emissions of greenhouse gases from relevant source categories for 2004 through 2010 are summarized in Table 3.3-1. Specific contributions from individual air basins such as the Mojave Desert Air Basin (MDAB) are included in the emissions inventory, but are not itemized by air basin. In 2010, California produced 451.6 million gross metric tons of CO2 equivalent (CO2e) emissions. Transportation was the source of 38 percent of California's greenhouse gas emissions, followed by electricity generation at 21 percent, industrial sources at 19 percent, residential sources at 10 percent, and other sources comprising the remaining 12 percent (CARB, 2013). TABLE 3.3-1 CALIFORNIA GREENHOUSE GAS EMISSIONS (million metric tons CO2E) Emission Inventory Category 2004 2005 2006 2007 2008 2009 2010 Transportation 183.5 186.3 187.0 187.4 178.2 173.3 173.2 Electric Power 116.3 108.9 105.6 115.0 121.2 103.6 93.3 Commercial and Residential 42.8 41.2 41.9 42.1 42.4 42.6 43.9 Industrial 97.0 96.0 94.3 91.9 94.3 83.6 86.0 Recycling and Waste 6.3 6.7 6.8 6.7 6.9 6.9 7.0 High Global Warming Potential 13.3 13.9 14.3 14.3 14.4 14.8 15.7 Palen Solar Electric Generating System Draft SEIS 3.3-1 July 2013 65 3. Affected Environment 3.3 Climate Change TABLE 3.3-1 (Continued) CALIFORNIA GREENHOUSE GAS EMISSIONS (million metric tons CO2E) Emission Inventory Category 2004 2005 2006 2007 2008 2009 2010 Agriculture 33.2 33.5 34.6 33.44 34.3 32.8 32.5 Forestry 0.2 0.2 0.2 0.2 0.2 0.2 0.2 Total Gross Emissions 492.6 486.7 484.4 490.9 491.9 457.8 451.6 SOURCE: California Air Resources Board (CARB), 2013. 3.3.2 Applicable Regulations, Plans, and Policies/Management Goals State There are a variety of statewide standards and regulations that have been implemented in California related to greenhouse gases that may be applicable to the Palen Solar Electric Generating System (PSEGS), including the following: Renewables Portfolio Standard California's Renewables Portfolio Standard (RPS) was established in 2002 by Senate Bill 1078, and the initial standard has since been accelerated through a number of executive and legislative actions, the most recent of which, Executive Order S-14-08, is described below. The Renewables Portfolio Standard program currently requires investor-owned utilities, electric service providers, and community choice aggregators to procure 33 percent of electricity from eligible renewable energy resources by 2020. The Renewables Portfolio Standard program is jointly implemented by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC). Executive Order S-14-08 Executive Order S-14-08 was established by Governor Arnold Schwarzenegger in November 2008.Executive Order S-14-08 improves processes for licensing renewable projects by directing state agencies to create comprehensive plans to prioritize regional renewable projects based on an area's renewable resource potential and the level of protection for plant and animal habitat. To implement and track the progress of Executive Order S-14-08, the California Energy Commission (CEC) and California Department of Fish and Wildlife (CDFW) signed a Memorandum of Understanding formalizing a Renewable Energy Action Team to concurrently review permit applications filed at the state level to streamline the application process for renewable energy development. The specifics of Executive Order S-14-08 include the following: 1. Requires retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020; 2. Requires various state agencies to streamline processes for the approval of new renewable energy facilities and determine priority renewable energy zones; and 3. Establishes the requirement for the creation and adoption of the Desert Renewable Energy Conservation Plan (DRECP) process for the Mojave and Colorado Desert regions. Palen Solar Electric Generating System (PSEGS) Draft Supplemental Environmental Impact Statement (SEIS) 3.3-2 July 2013. The Executive Order does not include any specific requirements that pertain directly to the Palen Solar Electric Generating System. However, the Palen Solar Electric Generating System, as a renewable energy project, would help the utility contracting the power that the Palen Solar Electric Generating System generates to meet the established Renewable Portfolio Standard (RPS) standard. Senate Bill 2, enacted in 2011, codifies the requirement of 33 percent renewable electricity sources by 2020. Sections 95350 to 95359, Title 17, California Code of Regulations. The purpose of this regulation is to achieve greenhouse gas (GHG) emission reductions by reducing sulfur hexafluoride (SF6) emissions from gas-insulated switchgears, such as circuit breakers, that would be required at the switchyard proposed for the Palen Solar Electric Generating System. Owners of such switchgear must not exceed maximum allowable annual emissions rates, which are reduced each year until 2020, after which annual emissions must not exceed 1.0 percent. Owners must regularly inventory gas-insulated switchgear equipment, measure quantities of sulfur hexafluoride, and maintain the records for at least 3 years. Additionally, the regulation requires that by June 1 of each year, each owner of gas-insulated switchgears must submit an annual report to the California Air Resources Board's (CARB) Executive Officer for emissions that occurred during the previous calendar year. Palen Solar Electric Generating System Draft SEIS 3.3-3 July 2013. This page intentionally left blank. Palen Solar Electric Generating System Draft SEIS 3.3-4 July 2013. Section 3.4 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) establishes the environmental context for analyzing the potential impacts of the alternatives analyzed in that document on cultural resources. Section 3.4 categorizes cultural resources as buildings, sites, structures, objects, and districts for the purposes of complying with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA). The kinds of cultural resources considered include prehistoric and historic-era archaeological, ethnographic, and built historic resources. Given the location of the Palen Solar Electric Generating System, which is substantially the same as the location evaluated in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement, the cultural resource discussion in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement as it pertains to the Palen Solar Electric Generating System solar field remains valid. However, the Palen Solar Electric Generating System proposes a generation tie-line route that deviates from the one analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement, the construction of two 760-foot (total height) solar power towers, and the extension of a natural gas line. The proposed secondary access road would be constructed within the natural gas line right-of-way (ROW) corridor and the proposed redundant telecommunications line would be buried within the generation tie-line right-of-way corridor. Additionally, approximately 110 acres of the Palen Solar Electric Generating System right-of-way was not subject to archaeological survey for the Palen Solar Power Project. These elements were not considered in Section 3.4 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement. Accordingly, the following sections contain supplemental cultural resource inventory data for the generation tie-line, solar power towers, and natural gas line proposed as part of the Palen Solar Electric Generating System. The environmental setting, including geology and geoarchaeology, the prehistoric setting, the ethnographic setting, and the historic-era setting of the project area are described fully in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement, as is a discussion of the types of resources that are often found in the Mojave and Colorado Desert regions. The environmental setting is applicable to the Palen Solar Electric Generating System. The Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement provides the results of cultural resource inventories for the Palen Solar Power Project, including literature and records searches (California Historical Resources Information System (CHRIS) and local records), archival research, Native American consultation, and field investigations.A full discussion of the cultural resources that have been recorded within the PSPP area may be found in the PSPP PA/FEIS. While the cultural resource descriptions in the PSPP PA/FEIS that pertain to the PSEGS solar field remain valid, the BLM is collecting new information for those components of the PSEGS that were not previously analyzed. The proposed natural gas line was included within the survey area for the PSPP. The proposed gen-tie line reroute was included in the Class III Survey for the Desert Sunlight project in 2009 and 2010. The BLM is conducting supplemental cultural resource inventory studies necessary to determine whether and what types of cultural resources could be affected by the PSEGS's power tower construction and the PSEGS's slight project boundary change. These studies include: 1) Updated Class I Survey (archaeological archival records search) for the PSEGS ROW and a 15-mile radius; Palen Solar Electric Generating System Draft SEIS 3.4-1 July 2013 Affected Environment 3.4 Cultural Resources 2) Class II archaeological sample survey of part of the PSEGS where there is a high possibility that new archaeological resources may be exposed due to changing surface conditions, including the re-evaluation/re-recordation of all historic and prehistoric sites within the PSEGS direct Area of Potential Effects (APE); 3) Class III archaeological inventory of the previously unsurveyed 100 acres within the PSEGS footprint; 4) Subsurface testing at the two PSEGS power tower locations; 5) Update for the built environment prepared for PSPP, expanding the study area up to 15 miles from the PSEGS ROW; 6) Ethnographic literature review; and 7) Evaluation of indirect effects (visual) for the solar towers. A portion of the Class I Study has been completed (Contreras et al., 2013); however, the other studies remain in progress. Upon completion of these studies by the Applicant, this section and the corresponding discussion of environmental consequences in Chapter 4 will be updated and made available for review in the Final EIS. Native American Consultation The PSPP PA/FEIS provides the results of Native American consultation for the PSPP through May 2011. The BLM is engaged in ongoing consultation with Indian Tribes regarding the changes to the solar project proposal that have occurred since May 2011. Tribal consultation is an ongoing process that will continue through the permit processing, through any decision, and through implementation should one of the action alternatives be approved. The tribal consultation will not be completed prior to the Final EIS. Tribal Consultation is described more fully in Chapter 5, Consultation, Coordination and Public Involvement. Impacts to cultural resources of importance to Indian tribes have yet to be fully identified. The BLM is awaiting the results of an ethnographic literature review and indirect effects analysis. Once completed, these studies, in conjunction with ongoing consultation with Indian tribes, will provide information regarding potential effects of the PSEGS on such resources. Based on the request and recommendation of tribes, the BLM is evaluating impacts related to views of the PSEGS from new Key Observation Points (KOP) that were not considered in the PSPP PA/FEIS. See Section 4.18, Impacts to Visual Resources, regarding the new KOPs. As described and analyzed in Section 4.18, the PSEGS would be visible from some of these KOPs; however, specific impacts to cultural resources or tribal values as a result of this visibility have yet to be identified. Input regarding these potential effects is invited from reviewers of the Draft SEIS. Archaeological Resources The PSPP PA/FEIS provides the results of archaeological resource inventories for the PSPP, including literature and records searches and field investigations. A full discussion of the archaeological resources that have been recorded within the PSPP area may be found in the PSPP PA/FEIS. The proposed extension of the natural gas line was included within the survey area for the PSPP. No archaeological sites were identified within the ROW corridor for the natural gas line extension. The proposed gen-tie line reroute was included in the Class III Survey for the Desert Sunlight project in 2009 and 2010. No archaeological sites were identified within the portion of the ROW where the gen-tie line rerouting is proposed. The BLM is awaiting the results and conclusions of supplemental archaeological resource inventory studies necessary to determine whether and what types of archaeological resources could be affected by the PSEGS.Upon completion of these studies by the Applicant, this section and the corresponding discussion of environmental consequences in Chapter 4 will be updated and made available for review in the Final Environmental Impact Statement (EIS). A draft of the Class I Study, which consists of an archival records search for the Palen Solar Electric Generating System (PSEGS) area and a 15-mile radius, has been completed and is summarized here (Contreras et al., 2013). It should be noted that this Class I Study identifies previously recorded archaeological resources within the PSEGS site and adjacent areas, and does not represent a full inventory of cultural resources that could be affected. The Class II and Class III studies, once completed, will provide a more complete inventory of archaeological resources that could be affected by the PSEGS. A records search for the proposed PSEGS site and a 15-mile buffer zone was conducted on May 29 and 30, and June 5 and 19, 2013, at the Eastern Information Center, located at the University of California, Riverside. The records and literature search results indicated 1,129 previously recorded cultural resources (600 archaeological sites and 529 isolates) within the proposed PSEGS right of way (ROW) and 15-mile radius. Of the 600 sites, 347 are historic-era, 214 are prehistoric, 6 are multi-component (containing both historic-era and prehistoric components) sites, and 33 are of an unknown age. Of the 529 isolates, 240 are historic-era, 285 are prehistoric, and 4 are of an unknown age. One study has been completed and several more are in progress to identify the potential for the PSEGS to affect buried (subsurface) archaeological resources. A geoarchaeological assessment of the PSEGS area (Nials, 2013) was prepared and is based on a review of available literature regarding the Chuckwalla Valley and Palen Dry Lake sub-basin, examination of high-resolution satellite and traditional imagery, and in-field examination of the project area and selected parts of Chuckwalla Valley and adjacent areas. The geoarchaeological assessment identified the former presence of pluvial lakes that may have existed prior to the late Pleistocene; however, no lakes were identified that would coincide with human occupation of the area. Most land surfaces within the footprint area are younger than 5,000 years old, and most are younger than 3,000 years old. The PSEGS area is situated on an alluvial fan that contains few flora or faunal, or water resources. Most prehistoric sites in and near the PSEGS ROW are situated on alluvial fan surfaces, which have been modified by channel shift, channel erosion, and deposition, aeolian deflation and deposition, bioturbation, and pedogenic processes, resulting in sites with low spatial or stratigraphic integrity. Because of surface and subsurface flow, relatively thick sands and numerous niche environments (the most likely area for the presence of prehistoric archaeological resources) are located on the eastern/northern side of the drainage between Palen basin and Ford Dry Lake basin and located more than 1 mile outside the proposed PSEGS ROW. The geoarchaeological report concluded that the overall likelihood of encountering buried cultural deposits within the PSEGS area was low, but was most likely within distal alluvial fan segments that overlap with aeolian sand transport corridors. The two proposed power towers are located within middle alluvial fan segments, which the geoarchaeological report identified as having a "highly improbable" likelihood of producing buried archaeological deposits. Nevertheless, this possibility could not be entirely discounted, and so subsurface testing will occur within the two power tower locations. Based on the lack of prior subsurface testing and the degree of proposed construction disturbance at this location, it was identified that subsurface testing in the tower base areas could provide information regarding the possibility of buried archaeological sites, features, or artifacts in this area. Subsurface testing is currently underway. Upon completion of these tests by the Applicant, this section and the corresponding discussion of environmental consequences in Chapter 4 will be updated and made available for review in the Final EIS. Built Environment Resources The Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) provides the results of built environment resource inventories for the PSPP. An archival records search for the PSEGS ROW and a 15-mile radius has indicated that there are 17 recorded built environment resources within a 15-mile radius of the ROW (Contreras et al., 2013). The Bureau of Land Management (BLM) is awaiting supplemental built environment resource inventory studies necessary to determine whether and what types of built environment resources could be affected by the PSEGS. Upon completion of these studies by the Applicant, this section and the corresponding discussion of environmental consequences in Chapter 4 will be updated and made available for review in the Final EIS.Palen Solar Electric Generating System Draft SEIS 3.4-4 July 2013"

72 "3. Affected Environment 3.5 Environmental Justice Section 3.5 of the PSPP PA/FEIS establishes the context for examining impacts of the PSPP and alternatives upon minority and low-income populations. The PSPP PA/FEIS document summarizes federal laws, policies, and guidelines pertinent to a NEPA analysis, including the Civil Rights Act of 1964, Executive Order 12898, and the CEQ's Environmental Justice Guidance. Each document remains applicable to the PSEGS and does not require supplement. The PSPP PA/FEIS also discusses the distribution of minority and low-income populations that could be affected by such development. Described more fully below, these discussions have been revised in this Draft SEIS to reflect updated demographic data. 3.5.1 Minority Populations According to the CEQ, minority individuals are defined as members of the following groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. A minority population, for the purposes of environmental justice considerations, is identified when the minority population of the potentially affected area is greater than 50 percent or meaningfully greater than the percentage of the minority population in the general population or other appropriate unit of geographical analysis (CEQ, 1997).1 Table 3.5-1 presents the minority population composition of planning areas in the vicinity of the proposed project site, based on the 2007-2011 American Community Survey (ACS). The populated area nearest the proposed project site is the community of Desert Center, represented in the ACS as ZIP Code Tabulation Area (ZCTA) 92239. The minority population represents 50 percent of the community of Desert Center. In addition to Desert Center, information is shown for the nearby city of Blythe and for Riverside County as a whole. Both the city of Blythe and Riverside County have minority population greater than 50 percent. Thus, in all planning areas around the proposed project site, minority populations meet or exceed 50 percent of the total population. 3.5.2 Low Income Populations Unlike the CEQ (1997) guidance on minority populations, none of the environmental justice guidance documents contain a quantitative definition of what proportion of low-income individuals defines a low-income population. In the absence of guidance, this analysis relies on the density used to identify a minority population as "meaningfully greater" than the general population also to identify low-income populations. Thus, if the proportion of individuals living under the poverty line is 150 percent or more than that of the general population, this analysis considers that community to be a low-income population. 1 According to the CEQ guidelines, "Minority" is defined as all persons except non-Hispanic whites. In other words, minority is defined as all racial groups other than white, and all persons of Hispanic origin, regardless of race. Palen Solar Electric Generating System Draft SEIS 3.5-1 July 2013"

73 3. Affected Environment 3.5 Environmental Justice TABLE 3.5-1 RACIAL AND INCOME CHARACTERISTICS FOR RESIDENTS WITHIN THE ENVIRONMENTAL JUSTICE STUDY AREA Proportion of the Population Living Total (Percent) Minority Median Below the Poverty (Other Than Non-Hispanic Household Level (Percentage Geographic Area Total Population White) Income Low-Income) Desert Centera 284 142 (50.0%) $57,083 0.0% Blythe 21,202 14,358 (68.0%) $46,235 11.3% Riverside County 2,154,844 1,317,315 (61.0%) $58,365 10.8% NOTE: a ZCTA 92239 SOURCE: U.S. Census Bureau, 2013. As shown in Table 3.5-1, the 2007-2011 ACS reported that the median household income for Riverside County was $58,365, with 10.8 percent of households reporting incomes below the poverty level. The City of Blythe reported both a lower median income and a slightly higher (11.3 percent) proportion of households with incomes below the poverty level. The community of Desert Center had a similar median income to Riverside County, but reported no households with incomes below the poverty level. Because neither the City of Blythe nor the community of Desert Center meets the definition of a meaningfully greater low-income population than Riverside County as a whole, neither the City of Blythe nor the community of Desert Center is considered to be a low-income population for the purposes of this analysis. Palen Solar Electric Generating System Draft SEIS 3.5-2 July 2013

74 "3. Affected Environment 3.6 Lands and Realty Section 3.6 of the PSPP PA/FEIS (p. 3.6-1 et seq.)This text summarizes the Bureau of Land Management's (BLM) land management activities on BLM lands, with a focus on activities pertinent to solar development. The document describes the Solar Programmatic Environmental Impact Statement (PEIS) and the Solar Programmatic Environmental Impact Statement’s associated land use designations applicable to utility-scale solar energy development on lands administered by the Bureau of Land Management (BLM). The Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) was signed on October 12, 2012, after the publication of the Palen Solar Power Project (PSPP) Preliminary Administrative/Final Environmental Impact Statement (PA/FEIS). Accordingly, this section includes an updated description of the land use decisions applicable to the Palen Solar Electric Generating System (PSEGS) area that were made through the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD). The Palen Solar Power Project (PSPP) Preliminary Administrative/Final Environmental Impact Statement (PA/FEIS) describes the establishment, pursuant to Federal Land Policy and Management Act (FLPMA) Section 503 and Energy Policy Act Section 368, of corridors designated for energy transmission infrastructure. Because these documents also apply to the Palen Solar Electric Generating System (PSEGS), that discussion does not require supplement. The Palen Solar Power Project (PSPP) Preliminary Administrative/Final Environmental Impact Statement (PA/FEIS) also describes the components of the Palen Solar Power Project (PSPP) and alternatives as they relate to the underlying land use designations. As the Palen Solar Electric Generating System (PSEGS) components and extent are different from those of the Palen Solar Power Project (PSPP), this Draft Supplemental Environmental Impact Statement (SEIS) includes a revised discussion of existing land use conditions.

3.6.1 Background

Section 503 of the Federal Land Policy and Management Act (FLPMA) authorizes the establishment of corridors, to the extent practical, to minimize adverse environmental impacts and the proliferation of separate rights-of-way (ROWs). Through its planning efforts, the Palm Springs/South Coast Field Office (PSSCFO) has designated corridors throughout the Field Office boundaries that are generically identified as "locally-designated corridors" and specifically identified by an alphabetical reference. Section 368 of the Energy Policy Act directs the Secretary of the Departments of the Interior, Defense, Energy, Agriculture, and Commerce to designate corridors for oil, gas, hydrogen pipelines, and electric transmission lines on federal land in the 11 western states, perform necessary reviews, and incorporate those designations into land use, land management, or equivalent plans. Implementing this section, the Approved Resource Management Plan/Record of Decision for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States signed January 14, 2009, established corridors (generically identified as "368 corridors" and specifically identified by a numerical reference) pursuant to Section 368 of the Energy Policy Act of 2005. The Bureau of Land Management (BLM) signed the Record of Decision (ROD) for the Solar Programmatic Environmental Impact Statement (PEIS) on October 12, 2012. The land use plan amendments established through the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) include the designation of exclusion areas for utility-scale solar energy development, priority areas that are well-suited for utility-scale production of solar energy (i.e., Solar Energy Zones (SEZs)), and areas potentially available for utility-scale solar energy development outside of Solar Energy Zones (SEZs) in the six-state study area (i.e., variance areas). The Palen Solar Power Project (PSPP) application (CACA-48810) was filed in 2008 in an area that now is designated the Riverside East Solar Energy Zone (SEZ). The Palen Solar Power Project (PSPP) application, however, is not subject to the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) or the California Desert Conservation Area (CDCA) Plan amendments made as a result of that decision. See Section 1.5.1 of this Draft Supplemental Environmental Impact Statement (SEIS), which describes the relationship of the Palen Solar Electric Generating System (PSEGS) to the Solar Programmatic Environmental Impact Statement (PEIS). Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 3.6-1 July 2013

3. Affected Environment

3.6 Lands and Realty

3.6.2 Existing Condition

Interstate-10 lies within a corridor identified as "Corridor 30-52, 2 miles in width" that overlies locally-designated Corridor K (2 miles in width). These corridors lie south of the proposed site on a generally east-west heading. Numerous other linear rights-of-way (ROWs) also lie within and to the north and south of these two designated overlapping corridors. The southern portion of the Palen Solar Electric Generating System (PSEGS) site would lie within the northern portion of both designated corridors. A portion of the generation-tie (gen-tie) line and redundant telecommunications line also would overlap Corridors K and 30-52. Construction power would be provided to the site by one or a combination of three ways. The Palen Solar Power Project (PSPP) proposed to obtain all of the Palen Solar Power Project (PSPP)'s construction power from Southern California Edison (SCE) via two alternative sources of construction power. Both sources would feed from the 12.47 kV distribution system in Desert Center on Rice Road. The first alternative for Palen Solar Power Project (PSPP) construction power would be a new 12.47 kV line built within the 161 kV rights-of-way (ROW) from Rice Road to the project site. The second alternative would be a new 12.47 kV line built within the surveyed 230 kV transmission line rights-of-way (ROW) from Rice Road to the project site. This line would be built as a combination of new 12.47 kV line or hung on the new 230 kV transmission line towers that connects the single circuit 230 kV line to the project site.The project would include construction of a 12.47 kV internal distribution system and step down transformers to provide power as needed for construction operations. The PSPP PA/FEIS thoroughly evaluated these options. For the PSEGS, construction power also could be provided through the early construction of the proposed gen-tie line and backfeeding of power to the site switchyard. In that case, the gen-tie line would be completed before major construction power demands at the site. As an alternative, the PSEGS could employ the use of diesel-fired generators for the PSEGS construction power. The effects of all options are evaluated in this analysis. As described in the Revised POD for the PSEGS (Palen Solar III, LLC, 2013), primary site access would be provided from the I-10/Corn Springs Road interchange. The road would be a 1,350-foot long, 24-foot wide, paved road constructed from a point just north of the I-10/Corn Springs Road entrance/exit ramps east to the site entrance. The road would include a 12-foot wide shoulder with gravel surface to allow for truck staging on one side without interfering with traffic. The road would lie within the northern portion of Corridors K and 30-52. The BLM is awaiting information regarding the location and dimensions of emergency ingress/egress for the PSEGS. Pending receipt of PSEGS-specific details, the location of the secondary (emergency) accessway is assumed to be similar to that analyzed in the PSPP PA/FEIS. This section and the corresponding discussion of environmental consequences in Chapter 4 will be updated in the Final SEIS when PSEGS-specific emergency ingress/egress information is provided. Several transmission line projects are, or are planned to be, within the designated corridors. These include the Devers-Palo Verde No. 1 (DPV1) Transmission Line, Devers-Palo Verde 2 (DPV2) Palen Solar Electric Generating System Draft SEIS 3.6-2 July 2013, and the Blythe Energy Project Transmission Line. The Devers-Palo Verde No. 1 (DPV1) is an existing 500 kV transmission line which spans approximately 128 miles of land within California paralleling I-10. The DPV1 is located within Corridors K and 30-52. The Devers-Palo Verde 2 (DPV2) is a 500 kV transmission line that parallels the Devers-Palo Verde No. 1 (DPV1) and is located along the south side of I-10. The Desert Southwest Transmission Line is an approximately 18 mile 500 kV transmission line that parallels the Devers-Palo Verde No. 1 (DPV1). The transmission line runs from a new substation/switching station near the Blythe Energy Project to the existing Devers Substation. The Blythe Energy Project Transmission Line includes modification to 67.4 miles of new 230 kV transmission line between Buck Substation and Julian Hinds Substation, upgrades to the Julian Hinds Substation, and the installation of 6.7 miles of 230 kV transmission lines between Buck Substation and the Devers-Palo Verde No. 1 (DPV1). The Blythe Energy Project Transmission Line is located within the existing federally-designated utility corridors along I-10. SCE's existing 161 kV Eagle Mountain-Blythe power line runs in a northwesterly direction across the southwest portion of the proposed site, and a portion of the Eagle Mountain FERC project's transmission withdrawal also runs through this area. The gen-tie line proposed for the PSEGS would involve a minor route adjustment near the western end of the route and around the substation to align the PSEGS gen-tie line immediately adjacent to the NextEra Desert Sunlight gen-tie line, which would minimize crossings over I-10 and ensure easy entry into the Red Bluff Substation nearest the PSEGS breaker position, which was relocated as part of the Red Bluff final design subsequent to publication of the PSPP PA/FEIS. Palen Solar Electric Generating System Draft SEIS 3.6-3 July 2013

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As described in Section 3.7 of the PSPP PA/FEIS, and shown on Map 2-8 of the NECO Plan (BLM CDD, 2002), there are no livestock grazing allotments within or adjacent to the PSPP ROW application area. This also is true for the PSEGS."3. Affected Environment 3.8 Mineral Resources Section 3.8 of the PSPP PA/FEIS describes the geologic environment and the mineral resource potential of the PSPP ROW application area. The site is situated on an alluvial fan within the northwest-trending Chuckwalla Valley, between the Chuckwalla Mountains to the southwest and the Palen Mountains to the northeast. The site is underlain by alluvial and eolian deposits1 that are between 11,000 and 1.6 million years old. Depth to groundwater is approximately 180 feet below ground surface (bgs). The site is not underlain by known faults or active faults designated by the State of California as Alquist-Priolo Earthquake Fault Zones. According to the BLM's LR 2000 records, Sections 28, 29, 31, 32, & 33, T.5S., R17E., were under lease for geothermal resources and oil and gas at one time. Although there are no active mining claims or mineral leases within the site, the area is classified as ""prospectively valuable for geothermal resources,"" which means that the area has moderate potential for the occurrence of geothermal resources and prospecting is still a viable potential use. The proposed use of minerals from the site, to the extent necessary, would be limited to the use of sand and gravel for project-related construction needs and possibly prospecting for geothermal resources. The PSEGS, including the proposed gen-tie line reroute and new natural gas line, would be constructed atop the same geologic formations as are described in the PSPP PA/FEIS. As a result, the project study area for purposes of mineral resources analysis is the same as that presented in the PSPP PA/FEIS. Accordingly, that discussion also is valid for the PSEGS and does not require supplementation. As a possible mechanism to support the establishment of priority areas for utility-scale solar energy development, the Secretary of the Interior may decide to withdraw the public lands encompassed by SEZs (such as the Riverside East SEZ, which includes the PSEGS site) from potentially conflicting uses through the issuance of a Public Land Order. If approved, the public lands in SEZs would be withdrawn, subject to valid existing rights, from settlement, sale, location, or entry under the general land laws, including the mining law. On June 30, 2009, the BLM sought and received permission from the Secretary of the Interior to issue a notice of proposed withdrawal for the original 24 identified Solar Energy Study Areas. This Federal Register notice (Volume 74, page 31308) segregated the public lands encompassed in the 24 Solar Energy Study Areas (approximately 676,000 acres) for up to 2 years from surface entry and mining, while various studies and analyses were conducted to support a final decision on withdrawing the land from conflicting uses. On April 21, 2011, the BLM amended the proposed withdrawal through a notice in the Federal Register (Volume 76, page 22414) to reflect acreage adjustments for the SEZs. The BLM's temporary segregation expired on June 29, 2011. On June 30, 2011, the BLM applied a new interim temporary final rule to the 24 proposed SEZs to avoid a lapse in the existing segregation. On the basis of the application of the interim temporary final rule, the terms of the segregation for the 24 proposed SEZs remain unchanged 1 Alluvial deposits are unconsolidated layers of rocks, sand, mud, and other earth materials deposited on land by the movement of water. Eolian deposits are sand, silt, and other earth materials deposited on land by the wind. Palen Solar Electric Generating System Draft SEIS 3.8-1 July 2013"

3. Affected Environment 3.8 Mineral Resources (and continue to include the Riverside East SEZ, and therefore the PSEGS site). The rule was set to expire June 30, 2013; however, on June 27, 2013, DOI Assistant Secretary for Policy, Management and Budget signed Public Land Order No. 7818 withdrawing the 17 SEZs that were carried beyond the Draft Solar PEIS stage from location and entry under the United States mining laws, subject to valid existing rights, for a period of 20 years in order to protect the SEZs for future solar energy development.

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79 3. Affected Environment 3.7 Livestock Grazing This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.7-2 July 2013"The lands have been and will remain open to mineral and geothermal leasing, and mineral materials sales. Palen Solar Electric Generating System Draft SEIS 3.8-2 July 2013

3. Affected Environment 3.9 Multiple Use Classes Section 3.9 of the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement describes the Bureau of Land Management's California Desert Conservation Area Plan of 1980, as amended; the classification system; and the multiple-use class designations assigned to California Desert Conservation Area lands in East Riverside County. As the Palen Solar Electric Generating System would occur on lands with the same designation as the lands addressed in the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement (Multiple Use Class-M), the discussion does not require supplement. For a more detailed description of land use and resource management guidelines within the designated Multiple Use Class-M (MUC-M) areas, see Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement Table 3.9-2. Palen Solar Electric Generating System Draft SEIS 3.9-1 July 2013

3. Affected Environment 3.9 Multiple Use Classes This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.9-2 July 2013

3. Affected Environment 3.10 Noise Section 3.10 of the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement establishes the basis for the noise impact analysis of the Palen Solar Power Project and alternatives to the Palen Solar Power Project. The Palen Solar Electric Generating System location and nearby sensitive receptors, for purposes of noise analysis, remain essentially the same as those identified in the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement. The rerouted gen-tie line and new gas line extension would not be routed in the vicinity of any sensitive receptors. Accordingly, the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement's discussions of baseline noise levels and applicable regulatory standards (i.e., Chapter 9.52, Noise Regulation, of the Riverside County Code) are valid and are not supplemented for the Palen Solar Electric Generating System. As identified for the Palen Solar Power Project, the sensitive receptors in the project vicinity include two residences and sensitive wildlife habitat areas. The nearest residence is located approximately 25 feet from the proposed site's northwestern boundary, while the other residence is located approximately 3,500 feet northwest of the site boundary. Although the nearest residence is 25 feet from the project's northwestern boundary, the nearest residence is approximately 1 mile from the closest proposed Palen Solar Electric Generating System power block (Unit 1). The bighorn sheep Wildlife Habitat Management Area, approximately 2.5 miles northeast of the site, is a sensitive noise receptor due to the presence of breeding Nelson's bighorn sheep. Furthermore, sensitive bird nesting habitat also occurs in the adjacent creosote scrub and desert dry wash woodland. The existing ambient noise levels at the two residences and the applicable noise standards for the Palen Solar Electric Generating System site are depicted in Tables 3.10-1 and 3.10-3, respectively, of Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement Section 3.10. Palen Solar Electric Generating System Draft SEIS 3.10-1 July 2013

3. Affected Environment 3.10 Noise This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.10-2 July 2013

"3. Affected Environment 3.11 Paleontological Resources Section 3.11 of the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement describes the geologic environment and the paleontological resources potential of the Palen Solar Power Project area. For purposes of paleontological analysis, the Palen Solar Electric Generating System study area is generally the same as that described for the Palen Solar Power Project and alternatives to the Palen Solar Power Project. As such, the Palen Solar Power Project Programmatic Agreement / Final Environmental Impact Statement descriptions remain valid and do not require extensive supplement. The Palen Solar Electric Generating System site is located entirely on mostly undisturbed, Bureau of Land Management-administered federal land. The Paleontological Resources Preservation Act of 2009 requires the Bureau of Land Management to manage and protect paleontological resources on Federal land using scientific principles and expertise. The term "paleontological resource" means any fossilized remains, traces, or imprints of organisms, reserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth, except that the term does not include: (A) any materials associated with an archaeological resource (as defined in section 3(1) of the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470bb(1)); or (B) any cultural item (as defined in section 2 of the Native American Graves Protection and Repatriation Act (25 U.S.C. 3001). The near-surface geology beneath the Palen Solar Power Project site consists primarily of Quaternary-aged (up to 1.8 million years old) eolian and lacustrine sediments (i.e.dune sands, alluvium and lake deposits), which range in age from Holocene (up to 10,000 years old) at the surface to Pleistocene (between 10,000 and 1.8 million years old) and older at depth. Pleistocene age alluvium exposed along the southwestern boundary of the site underlies younger alluvium and lacustrine sediments. Coarse-grained alluvial sediments grade laterally and are interbedded with ancient lakebed deposits of similar ages. A paleontological resource assessment was prepared to support the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) (SWCA, 2009, in PSPP PA/FEIS Appendix F). The paleontological resource assessment included review of museum records regarding known fossil localities and stratigraphic unit sensitivity within the proposed project area and a field survey. 1 All research was conducted in accordance with accepted assessment protocols of the Society for Vertebrate Paleontology to determine whether any known paleontological resources exist in the general area. The museum records reviewed indicate there are no recorded fossil collection sites within the requested Right of Way (ROW) application area or within a 1-mile radius. However, three vertebrate fossil collection areas have been documented outside the ROW boundary within similar Quaternary alluvium units and the Quaternary-aged Pinto formation underlying the site (SWCA, 2009). Fossil remains have included a pocket mouse located east-southeast of the site, and tortoise, horse, and camel in the northern Chuckwalla Valley. Five non-significant fossil occurrences were recorded during the comprehensive field survey of the PSPP PA/FEIS Project Area. Four specimens were petrified wood and the fifth specimen was 1 Paleontological information for the PSPP PA/FEIS was provided through the Natural History Museum of Los Angeles County, University of California Berkeley Museum of Paleontology, and the Riverside County Land Information System. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 3.11-1 July 2013. 3. Affected Environment 3.11 Paleontological Resources a potential mammal jaw fragment. These specimens were discovered in Quaternary younger alluvium and Quaternary intermediate alluvium ex situ (removed from their original place of fossilization) (SWCA, 2009). Considering the geology of the site and the identification of fossil remains in similar geologic units outside the project site, the probability that paleontological resources will be encountered during grading and excavation of the alluvial sediments anywhere within the Palen Solar Electric Generating System (PSEGS) site varies from low to high as the depth of disturbance increases. In addition, within some areas of the proposed natural gas-line corridor, the paleontological resource assessment report indicates the probability of such an encounter at the surface is high. Palen Solar Electric Generating System Draft SEIS 3.11-2 July 2013. "3. Affected Environment 3.12 Public Health and Safety Section 3.12 of the PSPP PA/FEIS describes a range of public health and safety considerations pertinent to the PSPP site, the PSPP, and alternatives to the PSPP. These include hazardous materials/hazardous waste management, unexploded ordnance (UXO), undocumented immigrants (UDI), transmission line safety and nuisance, traffic and transportation (including aviation) safety, worker safety and fire protection, and geologic hazards. As the PSEGS location and components are similar to those of the PSPP, much of the information applies equally to the Palen Solar Electric Generating System (PSEGS). As such, with the exception of the following discussions, the information contained in PSPP PA/FEIS Section 3.12 (p. 3.12-1 et seq.) is valid and is not supplemented. 3.12.1 Hazardous Materials As explained in PSPP PA/FEIS Section 3.12.2 (p. 3.12-1 et seq.), several factors associated with the project location affect the potential for an accidental release of hazardous materials that could cause public health impacts. The meteorological conditions, terrain characteristics, and existing public health concerns at the site have not changed since the PSPP PA/FEIS was issued. However, the existing discussions of the location and characteristics of nearby population centers (PSPP PA/FEIS, p. 3.12-1) and the existing environmental site contamination (PSPP PA/FEIS, p. 3.12-2) do require supplement. Discussions of these two factors follow. Location of Exposed Populations and Sensitive Receptors The general population includes many sensitive subgroups that could be at risk from exposure to emitted pollutants.\*\*Sensitive receptors\*\* are people who are particularly susceptible to illness, such as \*\*the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise\*\*, or locations or institutions that may be occupied predominantly by one or more of these sensitive subgroups, such as residences, schools, hospitals, and hospices. \*\*The location of the population in the area surrounding a project site\*\* may have a major bearing on health risk. \*\*The nearest housing units\*\* are over 1.5 miles to the northwest of \*\*the proposed gen-tie realignment (U.S. Census, 2013)\*\*. \*\*The nearest housing units\*\* are more than 4.5 miles from the nearest portion of \*\*the proposed solar field\*\*. Otherwise, there are no sensitive receptors within a 3-mile radius of \*\*the project site\*\*. Approximately 197 people live within a 6-mile radius of \*\*the site\*\*. \*\*The nearest school (Eagle Mountain Elementary School)\*\* is about 10 miles west of \*\*the site\*\*. Existing Environmental Site Contamination The Phase I Environmental Site Assessment conducted for the PSPP site in 2009 found no "Recognized Environmental Conditions" per the American Society for Testing and Materials Standards (ASTM) definition. That is, there was no evidence or record of any use, spillage, or disposal of hazardous substances on \*\*the site\*\*, nor was there any other environmental concern that would require remedial action (AECOM, 2009). The updated records search conducted for the PSEGS confirmed no listings (EDR, 2013). According to the databases of the California Department of Toxic Substances Control and the California State Water Resources Control Palen Solar Electric Generating System Draft SEIS 3.12-1 July 2013 3. Affected Environment 3.12 Public Health and Safety Board, there are no records of any use, spillage, or disposal of hazardous materials on land crossed by \*\*the proposed gen-tie line reroute or the new natural gas pipeline\*\*. Waste Management The Riverside County Waste Management Department operates six landfills, has a contract agreement for waste disposal with an additional private landfill, and administers several transfer station leases (see Table 3.12-1, Solid Waste Disposal Facilities, for the capacities of landfills that are available to receive solid waste generated by the PSEGS). The California Integrated Waste Management Act requires that each jurisdiction reuse, recycle, compost, or otherwise divert 50 percent of its annual waste away from landfills or show a good faith effort to reach this goal. The unincorporated areas of Riverside County currently meet their diversion goal, in addition to adopting the necessary plans and policies to comply with the act (CalRecycle, 2011). The combined remaining capacity of \*\*these nine landfills that could receive project waste (this excludes the Desert Center Landfill)\*\* is more than 189 million cubic yards. Desert Center Landfill is only open to receive Class III waste on the first Thursday of February and August each year (RCWMD, 2013b), and, as a result, \*\*Desert Center Landfill\*\* is not expected to be a reliable repository for solid waste generated by the PSEGS. TABLE 3.12-1 SOLID WASTE DISPOSAL FACILITIES Maximum Current Remaining Permitted Operating Capacity Estimated Title 23 Capacity Capacity (Cubic Closure Waste Disposal Site Class (Cubic Yards) (Tons/Day) Yards) Date Badlands Sanitary Landfill Class III 33,560,993 4,000 14,730,025 2024 Lamb Canyon Sanitary Landfill Class III 34,292,000 3,000 18,955,000 2021 Oasis Sanitary Landfill Class III 494,822 400 149,597 2021 Blythe Sanitary Landfill Class III 6,034,148 400 4,159,388 2047 El Sobrante Landfill Class III 184,930,000 16,054 145,530,000 2045 Monofill Facility Class II 1,729,800 750 1,058,252 2025 Chiquita Canyon Sanitary Landfill Class II, III 63,900,000 6,000 29,300,000 2019 Kettleman Hills Landfill Class I 10,700,000 8,000 50,000 Clean Harbors Buttonwillow Landfill Class I 14,293,760 10,482 8,884,000 2043 Class I landfill - A landfill that accepts for disposal 20 tons or more of municipal solid waste daily (based on an annual average) including permitted hazardous wastes.Class II landfill - A landfill that (1) accepts less than 20 tons daily of municipal solid waste (based on an annual average); (2) is located on a site where there is no evidence of groundwater pollution caused or contributed by the landfill; (3) is not connected by road to a Class I municipal solid waste landfill, or, if connected by road, is located more than 50 miles from a Class I municipal solid waste landfill; and (4) serves a community that experiences (for at least 3 months each year) an interruption in access to surface transportation, preventing access to a Class I landfill, or a community with no practicable waste management alternative.

3. Affected Environment 3.12 Public Health and Safety The USEPA currently is reviewing the permits of the Kettleman Hills Landfill B-18, the Class I facility at Kettleman (USEPA, 2012). Remaining capacity of the Kettleman Hills Landfill B-18 listed in Table 3.12-1 reflects the status of the Kettleman Hills Landfill B-18 in December 2012. If the permits for Kettleman Hills Landfill B-18 expansion are approved, an additional 4.9 million cubic yards would be available and would increase the remaining capacity to 4.95 million cubic yards.

3.12.3 Transmission Line and Power Tower Aviation Safety As discussed in PSPP PA/FEIS Section 3.12.6 (p. 3.12-4), the project site is not located near a major commercial aviation center. The closest airfield to the project site is the privately-operated Desert Center Airport, which is located at the end of an unnamed road, 1 mile (1.6 km) east of State Route 177 (Desert Center - Rice Road) and 5 miles (8.0 km) northeast of the town of Desert Center; Desert Center Airport is approximately 5 miles northwest of the proposed solar field and approximately 2 miles from the proposed gen-tie line realignment. Riverside County sold the Desert Center Airport to Chuckwalla Valley Associates, LLC, in 2004. The most recent information available from the Federal Aviation Administration (FAA) indicates 150 aircraft operations per year are performed at Desert Center Airport (FAA, 2013; AirNav, 2013). The next closest airport (Blythe Airport) is located about 30 miles east of the project site.

Airspace Protection The purpose of airspace protection policies is to avoid the development of land use conditions, which, by posing hazards to flight, can increase the risk of an aircraft accident occurring. The foundation of airspace protection policies is rooted in Title 14, Code of Federal Regulations (CFR) Part 77 regarding safe, efficient use, and preservation of the navigable airspace (14 CFR Part 77). 14 CFR Part 77 establishes a set of imaginary surfaces that extend outwards and upwards away from the runway surface in a bowl-like pattern. Both man-made and natural objects such as buildings, antennas, and trees that penetrate these imaginary surfaces are considered potential obstructions to aircraft in flight (FAA, 2011). 14 CFR Part 77 identifies criteria that govern which projects require notice to be filed with the FAA as well as identifying standards for determining whether a proposed project would represent an obstruction "that may affect safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities." Objects that are identified as obstructions based on these standards are presumed to be hazards until an aeronautical study conducted by the FAA determines otherwise. 14 CFR Part 77.9, which governs the types of construction or alteration requiring notice, indicates that notice must be filed with the FAA for any construction or alteration of objects within 20,000 feet of a public use airport runway when the height of the objects exceeds (i.e., is taller than) an imaginary surface with a 100:1 (1 foot upward per 100 feet horizontally) slope from the nearest point of the nearest runway. This requirement applies when the airport has at least one runway that exceeds 3,200 feet in length; for shorter runways, the notification surface has a 50:1 slope and extends 10,000 feet from the runway.The FAA also requires filing of notice with the FAA for any construction or alteration of objects that are more than 200 feet above ground level (AGL) at the site. There are no public use airport runways within 20,000 feet of the project site; however, the height of the two power towers will exceed 200 feet AGL. Based on the height of the proposed power towers, compliance with FAA Advisory Circular No. AC 70/7460-1K (regarding obstruction marking and lighting) would require aviation lighting to be provided on the power towers. Wildlife that is hazardous to aircraft in operation, and the types of land uses that attract hazardous wildlife, have become an increasing focus of the FAA and airport operators over the last few years. FAA guidance documents, such as AC 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports, ask airport operators, local planners, and developers to consider whether a proposed land use will increase wildlife hazards. A variety of land use types and activities, including certain energy and industrial uses, have been identified by the FAA as potential hazardous wildlife attractants. The FAA definition of wildlife attractants includes human-made or natural areas, such as poorly drained areas, retention ponds, agricultural activities, and wetlands. The proposed evaporation ponds are also a potential wildlife attractant. According to the FAA, communication systems interference can be caused by solar technologies that cause a negative impact on radar, NAVAIDS, and infrared instruments. Radar interference occurs when objects are placed too close to a radar sail (or antenna) and reflect or block the transmission of signals between the radar antenna and the receiver (either a plane or a remote location). NAVAIDS can be impacted similarly to radar, but NAVAIDS include passive systems with no transmitting signals. Impacts on infrared communications can occur because the solar panels continue to retain heat into the first part of dusk and the heat the solar panels release can be picked up by infrared communications in aircraft causing an unexpected signal. Although communication system interference can be caused by other communication signals, such communication system interference is less common. Transmission line related radio frequency interference is produced by the physical interactions of line electric fields and is a potential indirect effect of transmission line operation. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge, but the process is referred to as spark gap electric discharge when corona discharge occurs within gaps between the conductor and insulators or metal fittings. Because of the power loss from such corona discharges, employing design, construction, and maintenance plans that minimize such corona discharges is in the interest of each line proponent. When generated, such corona noise manifests itself as perceivable interference with radio or television signal reception or interference with other forms of radio communication when the signal is amplitude modulated (AM). Such radio interference is the buzzing and crackling noise one might hear from the speaker of an AM broadcast receiver when near a transmission line. The potential for corona-related interference generally becomes a concern for lines with voltage of 345 kV and above, and corona-related interference is less of a concern for lines such as the proposed 230 kV transmission line. Frequency modulated (FM) signals normally are unaffected as are modern digital signals such as signals involved in cellular telephone communication or modern airport and other types of radio communication. Maximum interference levels are not specified as design criteria for modern transmission lines because the level of the AM interference in any given case would depend on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration, and weather conditions. The level of any such AM interference usually depends on the magnitude of the electric fields involved and the distance from the line. The potential for such impacts is therefore minimized by reducing the line electric fields and locating the line away from inhabited areas. The Federal Communications Commission (FCC) requires the line's owner to mitigate such interference in any specific case. Reflectivity refers to light reflected off of surfaces that could cause a brief episode of a loss of vision (also known as flash blindness) on pilots or air traffic controllers. Potential impacts of reflectivity include glint and glare. The term glint refers to a momentary flash of bright light; by comparison, glare is a continuous source of bright light. Flash blindness is defined in FAA Order 7400.2f as "a temporary visual interference effect that persists after the source of illumination has ceased."For facilities placed in the desert, far from most ground-based receptors, potential impacts would be limited to aircraft passing overhead (FAA, 2010a). The amount of light reflected off of a solar panel surface depends on the amount of sunlight hitting the surface as well as the surface reflectivity. The amount of sunlight interacting with the solar panel will vary based on geographic location, time of year, cloud cover, and solar panel orientation. Frequently, 1,000 watts per square meter (W/m2) is used in calculations as an estimate of the solar energy interacting with a panel. According to researchers at Sandia National Lab, flash blindness for a period of 4-12 seconds (i.e., time to recovery of vision) occurs when 7-11 W/m2 (or 650-1,100 lumens/m2) reaches the eye (FAA, 2010a). Reflectivity from solar projects varies depending on the type of solar technology, the solar project materials, and the solar project design. Concentrated solar power systems such as the project use mirrors to maximize reflection and focus the reflected sunlight and associated heat on a design point to produce steam that generates electricity. Concentrated solar power systems tend to be highly reflective: the percent of sunlight reflected is about 90 percent, translating to 900 W/m2 reflected (FAA, 2010a). The character of reflected light, i.e., whether the reflected light is "specular" or "diffuse," also is important in evaluating reflectivity. Specular reflection occurs when the surface in question is smooth and polished; specular reflection results in a more concentrated type of light. Diffuse reflection occurs from rough surfaces such as pavement or vegetation; diffuse reflection produces a less concentrated light. Flash blindness generally occurs only from specular reflections. Distance between a solar field and potential reflectivity receptors also factors into an analysis of potential impacts because the intensity of the light reflected from the solar panel decreases as the distance from the solar panel increases. The distance necessary to avoid flash blindness is directly proportional to the size of the array in question (FAA, 2010a). Palen Solar Electric Generating System Draft SEIS 3.12-5 July 2013. Accordingly, under certain circumstances, reflected light and glare could affect the vision of pilots flying within view of the proposed solar field.

Industrial Thermal Plumes In January 2006, the FAA conducted a Safety Risk Analysis (SRA) of industrial plumes (FAA, 2006). Based on this analysis, the FAA concluded that turbulence associated with thermal plumes could result in the following: 1. Possible airframe damage or negative effects on aircraft stability in flight or both; 2. Adverse effects on aircraft due to high levels of water vapor, engine and aircraft contaminants, icing, and restricted visibilities; and 3. Loss of the aircraft or fatal injury to the crew as well as substantial damage to ground facilities. As a result, the FAA recommended that FAA Order JO 7400.2 be amended to consider a plume-generating facility as a hazard to navigation when expected flight paths pass less than 1,000 feet above the top of the object. In addition, the FAA included in the FAA's 2006 Safety Risk Analysis three other recommendations concerning plumes: 1. Amend the Aeronautical Information Manual (AIM), Chapter 7, Section 5, with wording that overflights at less than 1,000 feet vertically above plume-generating industrial sites should be avoided; 2. Where operationally feasible, make permanent the temporary flight restriction (TFR) that pertains to the overflight of power plants; and 3. Amend Advisory Circular 70/7460-2K, Proposed Construction of Objects that May Affect Navigable Airspace, by changing Instructions to completing FAA Form 7460-1, Notice of Proposed Construction or Alteration, Item #21 by adding "For structures such as power plants or any industrial facility where exhaust plume discharge could reasonably be expected and reportable under the provisions of Part 77, thoroughly explain the nature of the discharge." According to the FAA, these actions would serve to further enhance aviation safety within the National Airspace System.

In the FAA Solar Guide, the FAA explains that thermal plume-related hazards vary depending on the solar technology employed. While conventional solar thermal and photovoltaic solar energy systems can be used reliably and safely even on airport property, concentrated solar power systems with dry cooling systems can produce upward-moving air columns into navigable airspace that raise concerns about hazards to safe air navigation (FAA, 2010a). A research paper prepared by the Airport Cooperative Research Program (ACRP) notes that for one "power tower" project, the CEC determined that the effects of thermal turbulence could be a hazard to aircraft up to 1,350 feet above ground level (ACRP, 2011).Certainly, here is the revised text with coreference resolution:

1. The Federal Aviation Administration (FAA) has cancelled this Advisory Circular. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 3.12-6 July 2013

3. Affected Environment 3.12 Public Health and Safety 3.12.4 Traffic and Transportation Safety The construction of the two 750-foot towers that are part of the Palen Solar Electric Generating System (PSEGS) could affect traffic and transportation safety. The relevant supplemental setting information is discussed in Section 3.12.3 above. The remaining transportation setting information from Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) Section 3.12.7 (p. 3.12-7 et seq.) does not require supplement. 3.12.5 Geologic Hazards As noted in Section 3.8, Mineral Resources, the Palen Solar Electric Generating System (PSEGS) is proposed for the same geologic setting as was analyzed in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS). Thus, the analysis of potential geologic hazards in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) Section 3.12.9 (p. 3.12-9) does not require supplement. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 3.12-7 July 2013

3. Affected Environment 3.12 Public Health and Safety This page intentionally left blank Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 3.12-8 July 2013

3. Affected Environment 3.13 Recreation Section 3.13 of the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) describes public lands suitable for recreational opportunities generally occurring within 20 miles of the Palen Solar Power Project (PSPP) site. The document further describes the planning context for recreation on Bureau of Land Management (BLM) lands, including the California Desert Conservation Area (CDCA) and Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) Plans, and the allowable uses within the site's Multiple Use Class-M (Moderate Use; MUC-M) designation. More generally, the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) describes regional recreational uses and opportunities, including those available within the Palo Verde and Coachella valleys; and federally managed lands providing recreational opportunities, such as national parks, designated wilderness areas, areas of critical environmental concern (ACECs), campgrounds and long-term visitor areas (LTVAs). As the Palen Solar Electric Generating System (PSEGS) would occur in the same general location as that of the Palen Solar Power Project (PSPP), much of the description of such lands and opportunities remains valid. However, changes to project configuration, namely the addition of the two proposed power towers, necessitate consideration of views of the site from areas beyond 20 miles. As the affected environment for visual resources describes more fully in Section 3.18, the towers would be visible from areas up to approximately 30 miles from the site. In addition to those federally managed recreational lands described in the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS), there are five additional special designated areas within this expanded study area that were not previously identified, including one Area of Critical Environmental Concern (ACEC) which is in the viewshed of the Palen Solar Electric Generating System (PSEGS). Therefore, this section of the Draft Supplemental Environmental Impact Statement (SEIS) provides supplemental information regarding changes to previously described recreational lands and opportunities, and identifies the additional special designated areas located beyond the original recreational lands study area. 3.13.1 On-Site Recreation Uses Section 3.13.1 of the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) describes the allowable recreational uses of the Palen Solar Electric Generating System (PSEGS) site. The primary activities observed on the site include off-highway vehicle (OHV) touring and sightseeing, photography, rockhounding, hiking and hunting. It further states there are no recreational facilities or specific recreation attractions on the sites and that visitor use is assumed to be very low due to the limited availability of recreation opportunities in the immediate surrounding areas. As the Palen Solar Electric Generating System (PSEGS) would occur on the same general location as that of the Palen Solar Power Project (PSPP), the discussion of on-site recreation uses remains valid. 3.13.2 Regional Recreation Areas and Opportunities Regionally, the Palo Verde Valley, which is 38 miles to the east of the site and the Coachella Valley and 60 miles to the west, offers myriad outdoor recreational opportunities for boating, water skiing, jet skiing, swimming, fishing, canoeing, camping, rock hounding, hiking, archery, hunting, horseback riding, trapping, trap and skeet shooting, and off-highway vehicle (OHV) use. Section 3.13.2 of the Palen Solar Power Project (PSPP) Proposed Action/Final Environmental Impact Statement (PA/FEIS) provides a thorough discussion of the public and private recreation facilities and opportunities in the cities of Blythe and Indio, California. The unincorporated community of Desert Center is the closest community to the site, located approximately 10 miles to the west. There are no community parks in Desert Center, and no regional parks or open space areas or state parks in the Chuckwalla Valley. Lake Tamarisk Desert Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 3.13-1 July 2013Affected Environment 3.13 Recreation Resort, located 2 miles north of Desert Center, is a member-owned community for seniors and provides the only local recreational amenities in the Desert Center area. The resort offers 150 mobile homes spaces, mobile home rentals, access to OHV areas, a campground, overnight RV camping, a golf course, a heated pool, and a club house (Lake Tamarisk Desert Resort, 2013a, 2013b). There are no community parks in Desert Center, and no regional parks or state parks within a 30-mile radius of the PSEGS site. The remainder of developed recreation sites and dispersed areas utilized for recreation activities within the expanded 30-mile Visual Impact Threshold Distance (See Figure 3.19-3) are managed by BLM and NPS. Tables 3.13-1 and 3.13-3 in Section 3.12.2 of the PSPP PA/FEIS provided details about these areas. The following paragraphs summarize this information.

The BLM administers wilderness areas, campgrounds (including LTVAs), trails, interpretive sites, and an extensive network of backcountry approved travel and OHV routes in the vicinity of the site. ACECs also provide dispersed recreation opportunities in the region. Overall, recreation use on BLM lands in the California Desert generally is limited to the cooler months of September through May, with little use in the summer. Popular recreation activities include car and RV camping, OHV riding and touring, hiking, photography, hunting (e.g., dove, quail, and deer), sightseeing, and visiting cultural sites. Outside of fee collection sites, the BLM has no accurate estimates of visitor use; however, staff observations and Law Enforcement Ranger patrols indicate the area described in this section received approximately 2,000 to 3,000 visitors per year.

BLM camping facilities include Corn Springs Campground (6.5 miles southwest), Mule Mountain LTVA (25 miles east), and Midland LTVA (36 miles east). Wiley Well and Coon Hollow Campgrounds are components of Mule Mountain LTVA. Campgrounds limit visitors to a 14-day stay limit, while LTVAs allow long-term camping within the system of seven LTVAs within Arizona and California. Camping in undeveloped areas on BLM-administered lands also is limited to 14 days in any 30-day period.

BLM ACECs, while not designated for the recreational use, usually provide interpretive signage to inform visitors of the special values of the areas and associated protection measures. These ACECs are Chuckwalla Desert Wildlife Management Area (DWMA) (0.25 mile southwest), Palen Dry Lakes (0.5 mile northeast), Corn Springs (4.5 miles southwest), Alligator Rock (5.0 miles west), Desert Lily Preserve (5.0 miles northwest), and Chuckwalla Valley Dune Thicket (15.5 miles southeast). In addition to the ACECs described in Section 3.13.2 of the PSPP PA/FEIS, the 4,092-acre Mule Mountains ACEC, located approximately 21 miles southeast of the site, would be within the viewshed of the PSEGS. This ACEC bears dual MUC designations, M and L, and was established to manage prehistoric resources. Like other ACECs in the vicinity, the Mule Mountains ACEC does not have recreation use facilities but has signage to inform visitors of the special values of the areas and associated protection measures. The BLM has no visitor counts for these sites, but observations and patrols indicate very low use, in the hundreds per year.

Also now included in the expanded Study Area and in the viewshed of the PSEGS is a small segment of the Bradshaw Trail National Back Country Byway, as the byway passes over the Mule Mountains. While discussed as a recreation resource in the PSPP PA/FEIS, no part of the 70-mile route would be within the viewshed of PSPP. See Section 4.18, Impacts on Visual Resources for additional details. The PSEGS would be within the viewshed of several BLM-managed wilderness areas, including Palen-McCoy (1.25 mile northeast), Chuckwalla Mountains, and Little Chuckwalla Mountains (14 miles southeast). Also included in the expanded 30-mile Visual Impact Threshold Distance (See Figure 3.19-3) are four additional BLM-managed wilderness areas: Ornocopia Mountains, Palo Verde Mountains, Rice Valley, and Sheephole Valley; however, the PSEGS would not actually be visible from these wilderness areas and are not discussed further.In addition to these BLM managed areas, the National Park Service administers the Joshua Tree National Park, the southeast end of which is located approximately 7.5 miles northwest of the Palen Solar Electric Generating System (PSEGS) site. Joshua Tree National Park contains over 800,000 acres of land and is used for hiking, mountain biking and rock climbing, and camping. Joshua Tree Wilderness is designated in the portion of Joshua Tree National Park closest to the PSEGS. Other recreational opportunities within Joshua Tree National Park include wildflower viewing and birdwatching (NPS, 2013a, 2013b). Joshua Tree National Park is open year-round, with peak visitation occurring in April. There were approximately 1.4 million recreational visits to Joshua Tree National Park in 2012 (NPS, 2013c). No additional NPS units would be within the expanded Study Area for recreation. Palen Solar Electric Generating System Draft SEIS 3.13-3 July 2013

99 3. Affected Environment 3.13 Recreation This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.13-4 July 2013

100 3. Affected Environment 3.14 Social and Economic Setting Section 3.14 of the Palen Solar Power Project Preliminary Administrative (PSPP PA)/ Final Environmental Impact Statement (FEIS) describes the existing social and economic conditions in the PSPP Right of Way (ROW) application area, which, for purposes of socioeconomic analysis, is essentially the same as that of the PSEGS. The PSPP PA/FEIS also summarizes applicable plans, policies, and regulations that represent the social aspirations, community characteristics, and desired lifestyle, values, and goals of the local stakeholders. These include the Riverside County General Plan, Desert Center Area Plan, Blythe General Plan and Redevelopment Implementation Plan, and the Coachella General Plan and Indio General Plan. The PSEGS is not subject to these local and regional plans and policies; the plans and policies are provided for informational purposes only. Because these documents have not changed since publication of the PSPP PA/FEIS, no supplementation is required here. The regional socioeconomic analysis covered in the PSPP PA/FEIS includes communities within a 2-hour commute of the PSPP site. The local analysis covers the major communities located within a 1-hour commute, which includes: the City of Blythe (approximately 40 miles east of the PSPP site); the community of Desert Center; the City of Ehrenburg, Arizona (approximately 45 miles east of the PSPP site); and the Town of Quartzsite, Arizona (approximately 57 miles east of the PSPP site). Population, housing, and economics statistics have not changed substantially since publication of the PSPP PA/FEIS. To the extent that more current data are available, the data are presented here. 3.14.1 Social Conditions Social conditions are the same as described in PSPP PA/FEIS Section 3.14.1, with the potential exception of affected parties' attitudes toward the PSEGS. It is expected that the attitudes of environmental groups, recreational users, and local private landowners and residents toward the solar power technology proposed for the PSEGS may differ from attitudes toward other solar technologies, including the solar thermal trough technology proposed for the PSPP, particularly with respect to differences in impacts to biological and cultural resources as well as to visual and other considerations as described throughout this document. 3.14.2 Economic Employment by Industry Group Employment statistics by industry sector and county for 2011 are summarized in Table 3.14-1. Government is Riverside County's largest employment sector, accounting for over 20 percent of the total jobs in Riverside County. Additional important industries in Riverside County are construction, manufacturing, retail trade, and services (e.g., professional, business, educational, health, and hospitality). San Bernardino County has an industry employment profile similar to Riverside County, and in La Paz County, key employment sectors include mining and logging, government, and retail trade. Labor Force and Unemployment Table 3.14-2 presents the labor force, unemployed workers, and unemployment rates of the study area counties from 2007 to 2012 (the last year of data currently available). In 2012, Riverside Palen Solar Electric Generating System Draft SEIS 3.14-1 July 2013

101 3.Affected Environment 3.14 Social and Economic Setting TABLE 3.14-1 EMPLOYMENT BY INDUSTRY GROUP - 2011 Riverside County San Bernardino County La Paz County NAICS Percent of Percent of Percent of Code Industry Group Persons Total Persons Total Persons Total 11-000000 Total Farm 12,800 2.33 2,100 0.35 241 3.23 10-000000 Mining and Logging 400 0.07 600 0.10 771 10.33 20-000000 Construction 34,300 6.25 24,500 4.11 190 2.55 30-000000 Manufacturing 39,000 7.11 46,800 7.85 203 2.72 41-000000 Wholesale Trade 19,900 3.63 29,500 4.95 91 1.22 42-000000 Retail Trade 79,400 14.47 77,800 13.06 1,198 16.05 43-000000 Transportation, Warehousing & Utilities 20,300 3.70 48,200 8.09 -- -- 50-000000 Information 9,600 1.75 5,300 0.89 54 0.72 55-000000 Financial Activities 18,300 3.33 20,900 3.51 443 5.94 60-000000 Professional & Business Services 52,700 9.60 73,400 12.32 489 6.55 65-000000 Educational & Health Services 61,600 11.22 76,300 12.81 372 4.98 70-000000 Leisure & Hospitality 69,300 12.63 55,000 9.23 -- -- 80-000000 Other Services 19,000 3.46 20,300 3.41 -- -- 90-000000 Government 112,200 20.44 115,100 19.32 2,298 30.79 Total 548,800 100 595,800 100 7,463 100 NOTE: Estimates for certain items are included in the total to avoid disclosure of confidential information. SOURCE: California EDD, 2013b, 2013c; Bureau of Economic Analysis, 2012.

TABLE 3.14-2 LABOR FORCE AND UNEMPLOYMENT IN THE STUDY AREA 2007 2008 2009 2010 2011 2012 Riverside-San Bernardino-Ontario, CA MSA Labor force 1,766,900 1,776,400 1,775,700 1,799,900 1,795,000 1,805,400 Employed 1,664,000 1,629,800 1,541,900 1,541,700 1,551,500 1,586,800 Unemployed 102,900 146,600 233,800 258,200 243,500 218,600 Unemployment rate 5.8% 8.3% 13.2% 14.3% 13.6% 12.1% Riverside County, CA Labor force 903,400 912,900 917,000 938,400 939,600 944,500 Employed 849,900 835,200 794,300 802,300 810,400 828,800 Unemployed 54,500 77,800 122,700 136,200 129,200 115,600 Unemployment rate 6.0% 8.5% 13.4% 14.5% 13.7% 12.2% La Paz County, AZ Labor force 7,590 7,529 7,700 7,668 7,519 7,687 Employed 7,215 6,965 6,947 6,858 6,763 6,982 Unemployed 375 564 753 810 756 705 Unemployment rate 4.9% 7.5% 9.8% 10.6% 10.1% 9.2% SOURCE: EDD, 2013d, 2013e; Arizona Department of Administration, 2013 Palen Solar Electric Generating System Draft SEIS 3.14-2 July 2013 102.

Note: This text primarily presents data and doesn't contain pronouns or narrative content where coreference resolution typically applies. Therefore, any changes made are more about maintaining clarity rather than replacing pronouns, as the structure doesn't provide typical instances for coreference.Affected Environment 3.14 Social and Economic Setting County had a labor force of 944,500 workers, with an unemployment rate of 12.2 percent, which was higher than the statewide unemployment rate of 10.5 percent in 2012 (EDD, 2013a), but lower than the County unemployment rates from 2009 to 2011, showing an increase in employment since the recession. The San Bernardino-Riverside-Ontario Metropolitan Statistical Area (MSA), which includes both Riverside and San Bernardino counties, has a similar current and historic unemployment rate to that of Riverside County alone. In Arizona, La Paz County had an estimated average labor force of 7,687 workers in 2012, with unemployment at 9.2 percent, giving an unemployed labor force of just 705 workers. Labor Force Growth Projections Table 3.14-3 presents labor force estimates and projections in the San Bernardino-Riverside- Ontario MSA for those skilled workers (by craft) required for construction and operation of the Palen Solar Electric Generating System (PSEGS) as estimated by the Applicant. The California Employment Development Department (EDD) does not provide County-specific projections. Employment figures for 2010 are provided, as well as employment projections for the selected occupations for 2020. As of 2010, there were moderately high numbers of skilled workers in Riverside and San Bernardino Counties, including metal workers (13,530), carpenters (10,140), and construction laborers (11,870). Relevant specialized positions generally were fewer in number, including paving, surfacing, and tamping equipment operators, power plant operators, and construction trade helpers. Employment figures for all occupations presented are anticipated to increase by 2020. The two occupations with the largest anticipated future job growth by 2020 are construction laborers (1,510 new jobs) and metal workers and plastic workers (1,610 new jobs). The highest rate of job growth by occupation in Riverside and San Bernardino Counties is paving, surface, and tamping equipment operators (22.5 percent) (EDD, 2012). No County-level employment projections for La Paz County are available. Given the small size of the available Arizona labor force within the regional study area, any future growth to the La Paz labor force would have a very minor change in future employment for construction occupations. 3.14.3 Fiscal Resources A summary of Riverside County's expenses and revenues for the 2010-2011 fiscal year is provided in Table 3.14-4. As the Palen Solar Electric Generating System (PSEGS) would be constructed in Riverside County, Riverside County would be the local agency with taxing power and could be expected to receive the majority of the direct impacts from the project in the form of additional expenses or revenues (from business and sales taxes, permits, and other sources). For the fiscal year 2010-2011, revenues for Riverside County totaled approximately $2.6 billion, and expenditures totaled $2.7 billion. Riverside County's key expenditures were on public protection, public assistance, and health. Riverside County's primary revenue sources were other government agencies, property taxes, and charges for County-provided services. Palen Solar Electric Generating System Draft SEIS 3.14-3 July 2013

103 3.Affected Environment 3.14 Social and Economic Setting TABLE 3.14-3 LOCAL LABOR POOL BY CRAFT - RIVERSIDE AND SAN BERNARDINO COUNTIES Annual Average Employment Employment Change Average Annual Job Openings Net Occupational Title 2010 2020 Number Percent New Jobs Replacements Total Construction Construction Managers 5,000 5,490 490 9.8 49 32 81 Carpenters 10,140 10,450 310 3.1 30 215 245 Cement Masons and Concrete Finishers 2,420 2,570 150 6.2 15 38 53 Construction Laborers 11,870 13,380 1,510 12.7 151 95 246 Paving, Surfacing, and Tamping Equipment Operators 400 490 90 22.5 8 8 16 Operating Engineers and Other Construction Equipment Operators 2,510 3,030 520 20.7 52 58 110 Electricians 4,000 4,520 520 13.0 52 108 160 Plumbers, Pipefitters, and Steamfitters 3,160 3,570 410 13.0 41 91 132 Metal Workers and Plastic Workers 13,530 15,140 1,610 11.9 166 255 421 Helpers - Construction Trades 2,000 2,280 280 14.0 34 53 87 Welders, Cutters, Solderers, and Brazers 2,650 3,090 440 16.6 44 71 115 Architects, Surveyors, and Cartographers 1,070 1,280 210 19.6 20 23 43 Engineering Managers 1,180 1,340 160 13.6 16 23 39 Supervisors of Construction and Extraction Workers 4,540 5,240 700 15.4 70 105 175 Machinists 2,440 2,830 390 16.0 40 45 85 Structural Iron and Steel Workers 700 670 -30 -4.3 0 14 14 Construction Total 67,610 75,370 7,760 11.5 788 1,234 2,022 Operation Plant and System Operators 1,770 1,910 140 7.9 15 50 65 Maintenance and Repair Workers, General 9,140 10,360 1,220 13.3 123 168 291 Operation Total 10,910 12,270 1,360 12.5 138 218 356 SOURCE: EDD, 2012. Palen Solar Electric Generating System Draft SEIS 3.14-4 July 2013 104 3. Affected Environment 3.14 Social and Economic Setting TABLE 3.14-4 RIVERSIDE COUNTY EXPENSES AND REVENUES FOR FY 2010-2011 Amount (Dollars) Percent of Total Expenses (Total) 2,662,570,257 100 General Government 182,365,482 6.8 Public Protection 1,040,282,249 39.1 Public Ways and Facilities 166,639,057 6.3 Health 350,804,051 13.2 Public Assistance 811,224,131 30.5 Education 19,605,628 0.7 Recreation & Cultural Services 411,911 0.0 Debt Service 86,292,475 3.2 Transfers Out 4,945,273 0.2 Revenue Sources (Total) 2,593,155,749 100 Property Taxes 419,297,189 16.2 Other Taxes 46,694,507 1.8 Licenses, Permits, Franchises 28,491,140 1.1 Fines, Forfeitures and Penalties 96,079,643 3.7 From Use of Money and Property 20,989,701 0.8 From Other Governmental Agencies 1,508,962,163 58.2 Charges for Current Services 426,952,421 16.5 Miscellaneous Revenue 24,775,902 1.0 Other Financing Sources 7,311,330 0.3 Transfers In 13,601,753 0.5 SOURCE: California State Controller's Office, 2012. Palen Solar Electric Generating System Draft SEIS 3.14-5 July 2013 105 3.Affected Environment 3.14 Social and Economic Setting This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.14-6 July 2013

3. Affected Environment 3.15 Soils Resources Section 3.15 of the Palen Solar Power Project (PSPP) Plan Amendment/Final Environmental Impact Statement (FEIS) describes soil resources in the Palen Solar Power Project Right-of-Way (ROW) application area, including an overview of regional topography, geology, climate, and weather. At the time of Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement publication, Natural Resources Conservation Service (NRCS) soil mapping at the site was underway but not complete, which is still the case at the time of publication of this Draft Supplemental Environmental Impact Statement (SEIS). Consequently, the regional soils data available in the United States General Soil Map and the 2010 field observations used to characterize baseline soils information in the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement remain the best available sources. Therefore, this document summarizes but does not supplement the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement soil resources setting.

3.15.1 Representative Soil Types As described in the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement, the representative soil types at the Project site are the Rositas-Dune land-Carsitas unit and the Vaiva-Quilotosa-Hyder-Cipriano-Cherioni unit (Figure 3.15-1, Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement, p. A-13). The new gen-tie route and the natural gas line associated with the Palen Solar Electric Generating System fall within the Valva-Quilotosa-Hyder-Cipriano-Cherioni unit. Rositas-Dune land-Carsitas soils occur on 54 percent of the site and are characterized by soils with a very high sand percentage (greater than 95 percent) and a high susceptibility to wind erosion. The remaining 46 percent of the site contains Vaiva-Quilotosa-Hyder-Cipriano-Cherioni soils, which are characterized by soils with high percentage (greater than 65 percent) of sand and a moderate susceptibility to wind erosion.

3.15.2 Sand Migration and Dunes The Palen Solar Electric Generating System site is located within the Chuckwalla Valley, a region of active aeolian (wind-blown) sand migration and deposition. Active aeolian sand migration occurs in migration corridors in the northeastern section of the project site and to the northeast of the site. Aeolian processes play a major role in the creation and establishment of sand dune formations and habitat in the Chuckwalla Valley and those within the Palen Solar Electric Generating System area, which covers several different land units (Figure 3.15-2, Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement, p. A-14) including (from southwest to northeast) a currently stable coarse gravel alluvial fan surface with some relict sand dunes that have largely deflated (blown away), a more active wind-blown sand area with relatively shallow sand deposits, and an area of deeper and more active vegetated sand dunes that is Mojave Fringe Toed Lizard (MFTL) habitat (see Section 3.23 and Section 4.21 regarding Mojave Fringe Toed Lizard). The Palen Solar Electric Generating System area lies within the Palen-Ford sand migration corridor. Nearly half of the project disturbance area would be located in stabilized and partially stabilized sand dunes, wash habitat, and other areas with soils characteristic of active aeolian sand migration and deposition.

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3. Affected Environment 3.15 Soils Resources This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.15-2 July 2013

3. Affected Environment 3.16 Special Designations Section 3.16 of the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement describes lands with special designations in the vicinity of the Palen Solar Power Project site and within the project's viewshed. These fall into two primary categories. The first consists of lands within the Bureau of Land Management (BLM)-managed National System of Public Lands, including designated wilderness areas, lands with wilderness characteristics, areas of critical environmental concern (ACECs), and back country byways. The second consists of lands within the National Park Service-managed National Park System, which, for the Palen Solar Power Project site, includes Joshua Tree National Park and the Joshua Tree Wilderness. Because the Palen Solar Electric Generating System would be located on primarily the same lands as the Palen Solar Power Project, and because the viewshed of the Palen Solar Electric Generating System encompasses all of the Palen Solar Power Project, these descriptions remain relevant to the Palen Solar Electric Generating System. Since publication of the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement, no changes have been made to the existing lands with special designations. As described more fully in Section 3.19, Visual Resources, the Palen Solar Electric Generating System viewshed would encompass a larger area than that of the Palen Solar Power Project (see Figure 3.19-3).In addition to the six Areas of Critical Environmental Concern (ACECs) previously described, the Mule Mountains ACEC also would be within the Palen Solar Electric Generating System (PSEGS) viewshed. The 4,092-acre Mule Mountains ACEC is located approximately 21 miles southeast of the site. The Mule Mountains ACEC bears dual MUC designations, M and L, and the Mule Mountains ACEC was established to manage prehistoric resources. Also included in the 30-mile visual impact threshold distance are portions of four additional Bureau of Land Management (BLM)-managed wilderness areas. The portions of four additional BLM-managed wilderness areas are: Ornocopia Mountains, Palo Verde Mountains, Rice Valley, and Sheephole Valley Wilderness Areas. Although within the 30-mile distance, none of the portions of the four additional BLM-managed wilderness areas are within the PSEGS viewshed, and so none of the portions of the four additional BLM-managed wilderness areas are discussed further. Palen Solar Electric Generating System Draft SEIS 3.16-1 July 2013

3. Affected Environment 3.16 Special Designations This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.16-2 July 2013

3. Affected Environment 3.17 Transportation and Public Access - Off Highway Vehicle Resources Section 3.17 of the Palen Solar Power Project (PSPP) Preliminary Assessment/Final Environmental Impact Statement (PA/FEIS) describes on- and off-road transportation and public access regulations, routes, and conditions in the general PSPP vicinity. The PSPP PA/FEIS describes the laws, regulations, and planning documents governing BLM lands access and transportation management, including the California Desert Conservation Area (CDCA) Plan, Executive Orders 11644 (1972) and 11989 (1974), the Federal Land Policy and Management Act (FLPMA), and the BLM planning regulations (43 CFR 1600) and Planning Handbook H-1601-1. More specifically, the document describes the application of these laws, policies, and plans to off highway vehicle (OHV) use on BLM lands in the project vicinity. Major access routes (i.e., U.S. I-10, Corn Springs Road, and Chuckwalla Valley Road) and public transportation options (i.e., rail, bus, and bicycle) also are discussed. With the exception of the below revisions which update area traffic volumes, the information presented in Section 3.17 of the PSPP PA/FEIS remains valid and applicable to the PSEGS.

3.17.1 Transportation Existing Traffic Volumes The level of service (LOS) is defined as a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. LOS indicators for the highway and roadway system are based on specific characteristics of traffic flow on designated sections of roadway during a typical day. For mainline freeway and road segments, these include overall traffic volume, speed, and density. Several physical and operational characteristics of the roadway, such as lane configuration, flow speed (typical speed between intersections), and number of intersections per mile, are used to determine the vehicular capacity of the roadway segment. When these two sets of data are compared, a volume-to-capacity ratio is calculated. These factors are then converted to a letter grade identifying operating conditions and expressed as LOS A through F. The Highway Capacity Manual 2000, published by the Transportation Research Board, Committee on Highway Capacity and Quality of Service, includes six levels of service for roadways or intersections ranging from LOS A (best operating conditions characterized by free-flow traffic, low volumes, and little or no restrictions on maneuverability)—the best operating conditions—to LOS F (forced traffic flow with high traffic densities, slow travel speeds, and often stop-and-go conditions)—the worst. This manual is a common guide used for computing the capacity and quality of service of various highway facilities, including highways, arterial roads, signalized and unsignalized intersections and the effects of mass transit, pedestrians, and bicycles on the performance of these systems. Palen Solar Electric Generating System Draft SEIS 3.17-1 July 2013

3. Affected Environment 3.17 Transportation and Public Access - Off Highway Vehicle Resources Table 3.17-1 provides existing traffic volumes and LOS for I-10 that likely would be used for indirect access to the PSEGS site. As indicated below, I-10 currently operates at LOS A, and Corn Springs Road operates at LOS A in the PSEGS area. TABLE 3.17-1 EXISTING TRAFFIC VOLUMES AND LEVEL OF SERVICE Existing Conditions Travel Roadway/Segment Lanes Volume Capacitya LOS I-10 West of Project Site 4 2,650 8,000 A I-10 East of Project Site 4 2,650 8,000 A Corn Springs Road 2 Negligible A NOTE: a Capacity represents approximate two-way capacity in vehicles per hour. Volume represents the number of vehicles crossing a section of road per unit time at any selected period.SOURCES: Caltrans, 2012; ESA, 2013. Palen Solar Electric Generating System Draft SEIS 3.17-2 July 2013 112 3. Affected Environment 3.18 Vegetation Resources Section 3.18 of the PSPP PA/FEIS describes the vegetation resources that occur within the PSPP Biological Resources Study Area (BRSA). The 14,771 acre PSPP Biological Resources Study Area encompasses the approximately 3,898.96 acre Project Disturbance Area (including the transmission and natural gas pipeline disturbance area) and a surrounding buffer area. The section examines the presence and distribution of natural vegetation communities, as well as the occurrence of special-status plants and jurisdictional waters in the PSPP Biological Resources Study Area. A discussion of invasive noxious weeds also is presented. Most of the Palen Solar Electric Generating System would occur within the PSPP Project Disturbance Area described in the PSPP PA/FEIS and, as a result, there is considerable overlap in the PSPP Biological Resources Study Areas of the two projects. Accordingly, the PSPP PA/FEIS descriptions of regional climate and vegetation resources are valid and relevant for the Palen Solar Electric Generating System. The PSPP Biological Resources Study Area encompassed a 14,771 acre area for which vegetation resources were described in PSPP PA/FEIS Section 3.18. For these resources, unless otherwise specified, no additional discussion is provided here. Rather, this section supplements PSPP PA/FEIS Section 3.18 to reflect vegetative resource considerations that may have changed with Palen Solar Electric Generating System configurations, rerouting of the gen-tie line, and addition of the natural gas line. This section also includes revisions stemming from more current information regarding the types and distributions of those resources described in the PSPP PA/FEIS that also would occur within the Palen Solar Electric Generating System Biological Resources Study Area. The Palen Solar Electric Generating System site is almost entirely within the area analyzed in the PSPP PA/FEIS. In addition, the gen-tie line corridor for the two projects is the same for most of its length and the site access road is identical. With respect to development beyond the previously analyzed area, the Palen Solar Electric Generating System differs in two regards from the PSPP: (1) the gen-tie line route extends to the west by approximately 1.3 miles, resulting in an associated 18.9-acre new disturbance area; and (2) a natural gas line extension and distribution yard are proposed to the south, resulting in an associated 3.53-acre disturbance area. The Palen Solar Electric Generating System gen-tie line route was surveyed on March 30, 2013 (Karl, 2013a); the area also has been surveyed in past years for the Desert Sunlight Project and the Eagle Mountain Pumped Storage Project (Palen Solar Electric Generating System PTA, 2012; page 5.1-1). Spring season rare plant surveys were performed for the natural gas line corridor and distribution yard on March 30, 2013; the findings are incorporated into this Draft SEIS. Vegetation communities were not described for the new disturbance areas, so vegetation communities have been determined using aerial imagery. 3.18.1 Overview of Natural Vegetation Communities Vegetation communities described in the PSPP PA/FEIS are the same as vegetation communities present within the Palen Solar Electric Generating System Biological Resources Study Area. Vegetation communities in the Palen Solar Electric Generating System area are characterized in PSPP PA/FEIS Section 3.18.1 (p. 3.18-2). No new communities have been identified in the gen-tie line reroute, redundant telecommunication line to be installed within the gen-tie line corridor, natural gas line corridor or secondary access road to be installed in the natural gas line corridor (Karl, 2013a). Table 3.18-1 summarizes the area associated with each vegetation community within the Palen Solar Electric Generating System Biological Resources Study Area. Palen Solar Electric Generating System Draft SEIS 3.18-1 July 2013 113.

This text replaces pronouns with specific noun phrases to clarify the entities each pronoun refers to.Affected Environment 3.18 Vegetation Resources TABLE 3.18-1 NATURAL COMMUNITIES/COVER TYPES Natural Communities and Cover Types in the Disturbance One Mile Buffer Resources Study PSEGS Vicinitya Area Area Area Ephemeral Drainages "Riparian" Desert dry wash woodland 206.4 639.6 846 Unvegetated ephemeral dry wash 168.16 56.84 225 Total Ephemeral Drainages "Riparian" 374.56 696 1,071 Upland Active desert dunes 0 684 684 Desert sink scrub 0 9 9 Dry lake bed 0 270 270 Sonoran creosote bush scrub 3,335.16 7,510 10,845 Stabilized and partially stabilized desert dunes 723 910 186.90 (permitted) Total Upland 3522.06 9195.94 12,718 Other Cover Types Agricultural Land 0 833 833 Developed 2.34 146.66 149 Total Other Cover Types 2.34 979.66 982 Total Acres 3,898.96 10,872 14,771 a The Project Disturbance Area encompasses the disturbance resulting from the proposed construction of the PSEGS, including solar fields, transmission facilities, office and maintenance buildings, lay down area, leach fields, and other components. The Project Disturbance Area includes the impact acreage of the gen-tie line and the natural gas line corridor and switch yard (3.53 acres). SOURCE: Karl, 2013b. The 3,898.96-acre area that would be disturbed to construct, operate and maintain the PSEGS consists almost entirely of native habitats, including 206.4 acres of desert dry wash woodland, 168.16 acres of unvegetated ephemeral dry wash, 186.9 acres of stabilized and partially stabilized desert dunes (Palen Solar III, 2013), and 3,335.16 acres of Sonoran creosote bush scrub. 3.18.2 Ephemeral Drainages "Riparian" Communities Desert Dry Wash Woodland Desert dry wash woodland (also known as microphyll woodland) is a sensitive vegetation community recognized by the California Natural Diversity Database (CNDDB) and the BLM. As described in supporting documentation for the PSPP PA/FEIS (BLM, 2011; BLM, 2002), CDFW designates the desert dry wash woodland habitat as State waters. This vegetation community occupies the major washes that traverse the Project Disturbance Area for the PSEGS and supports groundwater-dependent desert phreatophytes. 1 Desert dry wash woodland is prevalent in the 1 A deep-rooted plant that obtains water from a permanent ground supply or from the water table. Palen Solar Electric Generating System Draft SEIS 3.18-2 July 2013" 114 "3. Affected Environment 3.18 Vegetation Resources primary wash near I-10 where channel development is most pronounced and water supply more abundant. The natural gas line corridor, distribution yard, and revised gen-tie corridor are located within this primary wash accounting for 7.44 acres of desert dry wash woodland vegetation community. Unvegetated Ephemeral Dry Wash Within the PSEGS BRSA, unvegetated ephemeral dry wash habitat includes smaller channels without a continuous cover of desert dry wash woodland and a sparse to intermittent cover of shrubs and perennial herbs. Unvegetated ephemeral dry wash habitats are recognized and regulated as State waters and termed "Unvegetated Ephemeral Dry Wash." 3.18.3 Upland Communities Active Desert Dunes No active desert dunes occur within the Project Disturbance Area. Active desert dunes are considered sensitive by the BLM (see, e.g., the NECO Plan) and by the CNDDB (PSPP PA/FEIS, p. 3.18-4). Active desert dunes occur in the northeastern portion of the PSEGS BRSA and northeast of Palen Dry Lake, only in the buffer area within the most active part of the wind transport corridor as described in the PSPP PA/FEIS. The acreage of active desert dunes has not changed since the publication of the PSPP PA/FEIS. Dry Lake Bed (Playa) This community does not occur in the PSEGS BRSA. The northeastern portion of the PSPP BRSA lies within Palen Dry Lake and was described in the PSPP PA/FEIS (p. 3.18-5). Sonoran Creosote Bush Scrub Sonoran creosote bush scrub habitat characterizes most of the PSPP BRSA and was described in the PSPP PA/FEIS (p. 3.18-5).Under the Palen Solar Electric Generating System (PSEGS), the acreage of Sonoran creosote bush scrub within the Project Disturbance Area would decrease by 86.42 acres (Table 3.18-1). Stabilized and Partially Stabilized Desert Dunes stabilized and partially stabilized desert dunes occupy the margins of Palen Dry Lake and extend as a few discrete patches within the northern and eastern portion of the Project Disturbance Area. Based on review of the aerial photos and mapping provided in the Preliminary Geomorphic Aeolian and Ancient Lake Shoreline Report prepared in support of the Palen Solar Power Project (PSPP) (PSPP PA/FEIS, p. 3.18-6), the mapping of the stabilized and partially stabilized desert dunes in the California Energy Commission Application for Certification of the PSPP may have under-represented the extent of the stabilized and partially stabilized desert dunes community type (PSPP PA/FEIS, p. 3.18-6). Both studies, which focus on sand transport, provide aerial photos that depict an extensive area of active sand dune building that occupies much of the northeastern portion of the Project Disturbance Area. In light of existing uncertainty about the precise number of acres of stabilized and partially stabilized desert dunes, the Bureau of Land Management uses the 186.9-acre figure in this Draft Supplemental Environmental Impact Statement (SEIS). 3.18.4 Other Cover Types Areas of non-native vegetation within the PSPP Biological Resources Study Area (BRSA) include agricultural and developed areas and are limited to approximately 5 acres within the Project Disturbance Area, as described in the PSPP PA/FEIS (p. 3.18-6). The acreage of agricultural and developed areas has not changed since publication of the PSPP PA/FEIS and applies equally to the PSEGS. Agriculture areas of active and fallow agricultural fields occur within the buffer of the PSPP BRSA and not within the Project Disturbance Area. The majority of the lands mapped as agriculture within the BRSA are palm tree plantations. See PSPP PA/FEIS, p. 3.18-6. Agricultural acreages in the BRSA have not changed since publication of the PSPP PA/FEIS and apply equally to the PSEGS. Developed areas consist of roadways (Interstate 10 and Corn Springs Road) and cleared land in the southern portion of the PSPP BRSA. See PSPP PA/FEIS, p. 3.18-7. Developed acreages in the BRSA have not changed since publication of the PSPP PA/FEIS and apply equally to the PSEGS. 3.18.5 Sensitive Natural Communities and Jurisdictional Waters Sensitive natural communities occurring in or adjacent to the Project Disturbance Area and potentially affected by the PSEGS include desert sink scrub (off-site), active dunes (off-site), stabilized and partially stabilized dunes, desert dry wash woodland (waters of the State), and unvegetated ephemeral wash (waters of the State). These communities are described in PSPP PA/FEIS Section 3.18.5 (p. 3.18-7) for the PSPP and apply equally to the PSEGS. Groundwater-Dependent Vegetation Communities groundwater levels around Palen Dry Lake are within the known rooting depths for most of the phreatophyte communities present within the zone potentially affected by the project wells, including mesquite woodlands, alkali sink scrublands, dune communities along the margins of the playa, and ironwood-palo verde woodlands (PSPP PA/FEIS, p. 3.18-7 et seq.). Documented communities around Palen Dry Lake were also confirmed through aerial photo interpretation and other methods. The following groundwater-dependent plant communities that occur in the PSPP BRSA are sensitive communities recognized by the Bureau of Land Management (NECO Plan) and/or California Natural Diversity Database (PSPP PA/FEIS, p. 3.18-8): honey mesquite woodlands, microphyll woodlands, alkali (desert) sink scrubs, sparsely vegetated playa lake beds, and jackass clover unique stands. Groundwater-dependent vegetation communities are described in the PSPP PA/FEIS (p. 3.18-7 et seq.). Palen Solar Electric Generating System Draft SEIS 3.18-4 July 2013 116 "3. Affected Environment 3.18 Vegetation Resources Honey Mesquite "Bosques" Shrubby "bosques" (groves) of honey mesquite occur around the open, unvegetated playa along the northwest and southwest margins of Palen Dry Lake on small coppice dunes.The area of honey mesquite bosque has not changed in the Project Disturbance Area since publication of the PSPP PA/FEIS and applies equally to the PSEGS. Most of the microphyllus woodlands occur along the many desert washes in the Project Disturbance Area. The best examples of the microphyllus woodlands are described above under "Desert Dry Wash Woodland." Under the PSEGS, the acreage of Desert Dry Wash Woodland in the Project Disturbance Area would increase from 148 acres to 206.4 acres relative to the PSPP as proposed. This increase partly is attributable to the modified gen-tie line and new natural gas line extension. Other known phreatophytes form pure stands over large areas around the playa margins, occurring in the northern portion of the BRSA and around Palen Dry Lake. Alkali sink scrubs were described in the PSPP PA/FEIS (p. 3.18-9). The acreages of alkali sink scrubs have not changed since publication of the PSPP PA/FEIS and apply equally to the PSEGS. Special-status plant species have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species have relatively limited distributions and typically require unique habitat conditions. Since publication of the PSPP PA/FEIS, CDFW and the California Native Plant Society (CNPS) have transitioned from a CNPS List designation to a California Rare Plant Rank (CRPR) ranking system, and CDFW and CNPS have expanded the definition of plants considered to be special-status (CDFW, 2013). Special Plant taxa are species, subspecies, or varieties that fall into one or more of the following categories: 1. Officially listed by California or the Federal Government as Endangered, Threatened, or Rare; 2. A candidate for state or federal listing as Endangered, Threatened, or Rare; 3. Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines; these taxa may indicate "None" under listing status, but all CNPS List 1 and 2 and some CNPS List 3 and 4 plants (now known as California Rare Plant Ranks1 1A, 1B, 2, 3 and 4) may fall under Section 15380 of CEQA. 4. A BLM, USFWS, or U.S. Forest Service Sensitive Species; 5. Taxa listed in the California Native Plant Society's Inventory of Rare and Endangered Plants of California; 6. Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation; Palen Solar Electric Generating System Draft SEIS 3.18-5 July 2013 3. Affected Environment 3.18 Vegetation Resources 7. Population(s) in California that may be peripheral to the major portion of a taxon's range but population(s) are threatened with extirpation in California; and 8. Taxa closely associated with a habitat that is declining in California at a significant rate (e.g., wetlands, riparian, vernal pools, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats). Table 3.18-2 lists all special-status plant species that are known to occur or could potentially occur in the PSEGS BRSA (Karl, 2013a; BLM, 2011). Table 3.18-2 has been updated to incorporate the transition to CRPR designations and is reflective of the most current listing statuses for rare plants. Table 3.18-2 also has been updated to incorporate results from past surveys performed in support of the Desert Sunlight Project and Eagle Mountain Pumped Storage Project for an area encompassing the 18.9-acre gen-tie line proposed for the PSEGS (Karl, 2013a), and March 2013 surveys of the gen-tie line corridor as well as the natural gas line extension and distribution yard (Karl, 2013a). Special-status plant species observed during field surveys are indicated by boldface type (Karl, 2013a; Solar Millennium, 2009; AECOM, 2010; BLM, 2011). The special-status plants found in the PSPP BRSA during the 2009 and 2010 spring surveys, and during October 2010 fall surveys, were described in the PSPP PA/FEIS (see, e.g., p. 3.18-10 et seq.). Species considered to have some potential for occurrence in the BRSA based on the presence of suitable habitat and known occurrences in the region were also described in the PSPP PA/FEIS.CRPR and Heritage Program (HP) status changes and 2013 survey results are described below for all species described in the FEIS. No new species were encountered during 2013 surveys. Additionally, no special-status plants were observed during focused 2013 surveys of the natural gas corridor, distribution yard, and revised gen-tie corridor (Karl, 2013a). Note that late-season rare plant surveys have yet to be completed in these areas. Harwood's Milkvetch Harwood's milkvetch has a CRPR of 2.2, meaning that Harwood's milkvetch is fairly threatened in California, but more common elsewhere. The Heritage Program (HP) Global (G) and State (S) ranks of Harwood's milkvetch have not changed since publication of the PSPP PA/FEIS. A total of 146 Harwood's milkvetch plants were documented at multiple locations in the BRSA during the 2009 and 2010 surveys (PSPP PA/FEIS, p. 3.18-14). Seven of these Harwood's milkvetch plants occur within the Project Disturbance Area. Harwood's milkvetch was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Ribbed Cryptantha Ribbed cryptantha has a CRPR of 4.3, meaning that ribbed cryptantha has limited distribution in California but ribbed cryptantha is not very threatened in California. The CRPR and HP G and S ranks of ribbed cryptantha have not changed since publication of the PSPP PA/FEIS. As described in the PSPP PA/FEIS, a large local population of ribbed cryptantha was found during the 2010 surveys for the PSPP (PSPP PA/FEIS, p. 3.18-15) in which the presence of ribbed cryptantha in the Project Disturbance Area was estimated using density sub-sampling methods, and an estimate of 8,903 ribbed cryptantha plants per acre was used to calculate total plant numbers. Approximately 1.4 X 107 ribbed cryptantha plants on 1,593 acres of occupied ribbed cryptantha acreage Palen Solar Electric Generating System Draft SEIS 3.18-6 July 2013

118 3. Affected Environment 3.18 Vegetation Resources TABLE 3.18-2 SPECIAL-STATUS SPECIES KNOWN\* OR POTENTIALLY OCCURRING IN THE BIOLOGICAL RESOURCES STUDY AREA Status State/Fed/CRPR/BLM/ Common Name Scientific Name Global Rank/State Rank PLANTS Chaparral sand verbena Abronia villosa var. aurita \_\_/\_\_/1B.1/BLM Sensitive\_/G5T3T4/S2 Angel trumpets Acleisanthes longiflora \_\_/\_\_/2.3/\_\_/G5/S1 Desert sand parsley Ammoselinum giganteum \_\_/\_\_/2.3/\_\_/G2G3/SH Small-flowered androstephium Androstephium breviflorum \_\_/\_\_/2.2/\_\_/G5/S2S3 Harwood's milkvetch Astragalus insularis var. harwoodii \_\_/\_\_/2.2/\_\_/G5T3/S2 Coachella Valley milkvetch Astragalus lentiginosus var. coachellae \_\_/FE/1B.2./ BLM Sensitive / G5T2/S2 California ayenia Ayenia compacta \_\_/\_\_/2.3/\_\_/G4/S3 Pink fairy duster Calliandra eriophylla \_\_/\_\_/2.3/\_\_/G5/S2S3 Sand evening-primrose Camissonia arenaria \_\_/\_\_/2.2/\_\_/G4/S2 Crucifixion thorn Castela emoryi \_\_/\_\_/2.3/\_\_/G4/S2S3 Abram's spurge Chamaesyce abramsiana \_\_/\_\_/2.2/\_\_/G4/S2S3 Arizona spurge Chamaesyce arizonica \_\_/\_\_/2.3/\_\_/G5/S2 Flat-seeded spurge Chamaesyce platysperma \_\_/\_\_/1B.2/ BLM Sensitive / G3/S1 Las Animas colubrina Colubrina californica \_\_/\_\_/2.3/\_\_/G4/S2S3.3 Spiny abrojo/Bitter snakeweed Condalia globosa var.pubescens \_\_/\_\_/4.2/\_\_/G5T3T4/S3.2 Foxtail cactus Coryphantha alversonii \_\_/\_\_/4.3/\_\_/G3/S3.2 Ribbed cryptantha Cryptantha costata \_\_/\_\_/4.3/\_\_/G4G5/S3.3 Winged cryptantha Cryptantha holoptera \_\_/\_\_/4.3/\_\_/G3G4/S3 Wiggins' cholla Cylindropuntia wigginsii (syn=Opuntia \_\_/\_\_/3.3/\_\_/G3?Q/S1 wigginsii) Utah milkvine Cynanchum utahense (syn=Funastrum \_\_/\_\_/4.2/\_\_/G4/S3.2 utahense) Glandular ditaxis Ditaxis claryana \_\_/\_\_/2.2/\_\_/G4G5/S1 California ditaxis Ditaxis serrata var. californica \_\_/\_\_/3.2/\_\_/G5T2T3/S2 Cottontop cactus Echinocactus polycephalus var. \_\_/\_\_/ CBR /\_\_/\_\_/\_\_ polycephalus Harwood's Eriastrum Eriastrum harwoodii \_\_/\_\_/1B.2/BLM Sensitive\_/G3/S3 California satintail Imperata brevifolia \_\_/\_\_/2.1\_\_/G2/S2.1 Pink velvet mallow Horsfordia alata \_\_/\_\_/4.3/\_\_/G4/S3.3 Bitter hymenoxys Hymenoxys odorata \_\_/\_\_/2.1/\_\_/G5/S2 Spearleaf Matelea parvifolia \_\_/\_\_/2.3/\_\_/G5/S2.2 Argus blazing star Mentzelia puberula \_\_/\_\_/2.2/\_\_/G4/S2 Slender woolly-heads Nemacaulis denudata var. gracilis \_\_/\_\_/2.2/\_\_/G3G4T3/S2 Lobed cherry Physalis lobata \_\_/\_\_/2.3/\_\_/G5/S2 Desert portulaca Portulaca halimoides \_\_/\_\_/4.2/\_\_/G5/S3 Desert unicorn plant Proboscidea althaeifolia \_\_/\_\_/4.3/\_\_/G5/S3.3 Orocopia sage Salvia greatae \_\_/\_\_/1B.3./ BLM Sensitive /G2/S2 Desert spikemoss Selaginella eremophila \_\_/\_\_/2.2./\_\_/G4/S2.2 Cove's cassia Senna covesii \_\_/\_\_/2.2/\_\_/G5/S2 Mesquite nest straw Stylocline sonorensis \_\_/\_\_/1A/\_\_/G3G5/SX Palen Solar Electric Generating System Draft SEIS 3.18-7 July 2013

119 "3. Affected Environment 3.18 Vegetation Resources TABLE 3.18-2 (Continued) SPECIAL-STATUS SPECIES KNOWN\* OR POTENTIALLY OCCURRING IN THE BIOLOGICAL RESOURCES STUDY AREA Status State/Fed/CRPR/BLM/ Common Name Scientific Name Global Rank/State Rank PLANTS Dwarf germander Teucrium cubense ssp. depressum \_\_/\_\_/2.2/\_\_/G4G5T3T4/S2 Jackass clover Wislizenia refracta ssp. refracta \_\_/\_\_/2.2/\_\_/G5T5/S1 Palmer's jackass clover Wislizenia refracta ssp. palmeri \_\_/\_\_/2.2/\_\_/G5T2T4/S1 "Palen Lake atriplex"a Atriplex sp. nov. J. Andre (Atriplex \_\_/\_ / \_/BLM Sensitive/\_\_/\_\_ canescens ssp.) NOTES: \* Species in bolded type were found in the Biological Resources Study Area during 2010 botanical surveys a Proposed new taxon (PSPP PA/FEIS, p. 3.18-13).BLM may consider proposed new taxa as BLM Sensitive (PSPP PA/FEIS, p. 3.18-13) Status Codes: Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of their range FT = Federally listed, threatened: species likely to become endangered within the foreseeable future California Rare Plant Rank (CRPR) CRPR 1A = Presumed extinct CRPR 1B = Rare, threatened, or endangered in California and elsewhere CRPR 2 = Rare, threatened, or endangered in California but more common elsewhere CRPR 3 = Plants which need more information CRPR 4 = Limited distribution - a watch list CBR = Considered But Rejected .1 = Seriously endangered in California (high degree/immediacy of threat; over 80% of occurrences threatened) .2 = Fairly endangered in California (moderate degree/immediacy of threat; 20%-80% of occurrences threatened) .3 = Not very endangered in California (low degree/immediacy of threats or no current threats known); 6840 defines sensitive species as "...those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary; or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats" (BLM, 2001). Global Rank/State Rank Global rank (G-rank) is a reflection of the overall condition of an element throughout its global range. Subspecies are denoted by a T-Rank; multiple rankings indicate a range of values: G1 = Critically Imperiled. G2 = Imperiled. G3 = Vulnerable. G4 = Apparently secure. This rank is clearly lower than G3, but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat. G5 = Secure. Population or stand is demonstrably secure to ineradicable due to being commonly found in the world. State rank (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. An H-rank indicates that all sites are historical. SX = Presumed Extirpated SH = Possibly Extirpated S1 = Critically Imperiled S2 = Imperiled S3 = Vulnerable .1 = undefined in new classification system; under the old system, this meant very threatened in California .2 = undefined in new classification system; under the old system, this meant threatened in California .3 = undefined in new classification system; under the old system, this meant no current threats known in California SOURCE: CNPS, 2013; BLM, 2001 Palen Solar Electric Generating System Draft SEIS 3.18-8 July 2013

120 "3. Affected Environment 3.18 Vegetation Resources were estimated within the PSPP BRSA. Ribbed cryptantha was not observed during a March 30, 2013 survey of the Palen Solar Electric Generating System's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). California Ditaxis The California ditaxis has a CRPR of 3.2, meaning that the California ditaxis's ranking status was not resolved during the California ditaxis's last review, but occurrences in California are fairly threatened. The California ditaxis's HP G rank has not changed since publication of the PSPP PA/FEIS and remains G5T2T3; however, the California ditaxis's HP S rank has changed from S2.2 to S2. A total of 22 plants were documented in the PSPP BRSA during the 2010 surveys; half of which (11) occur within the Project Disturbance Area along the gen-tie line (PSPP PA/FEIS, p. 3.18-16). The California ditaxis was not observed during a March 30, 2013 survey of the Palen Solar Electric Generating System's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Harwood's Eriastrum Harwood's eriastrum, also known as Harwood's phlox or Harwood's woollystar, is a BLM Sensitive spring annual currently known from only 14 documented locations worldwide. Harwood's eriastrum has a Rare CNPS of 1B.2, which indicates Harwood's eriastrum is rare, threatened, or endangered throughout Harwood's eriastrum's range. Since publication of the PSPP PA/FEIS, Harwood's eriastrum's HP G and S ranks have changed from G2/S2 to G3/S3, indicating that Harwood's eriastrum's HP status was downgraded from Imperiled to Vulnerable during the last status review. All stabilized and partially stabilized dunes are considered to be suitable habitats for Harwood's eriastrum in the BRSA.This species, Harwood's eriastrum, was not observed during 2009 field surveys; however, a total of two Harwood's eriastrum plants were observed in one area of the partially-stabilized dunes in the northeast corner of the PSPP BRSA during spring 2010 field surveys (PSPP PA/FEIS, p. 3.18-15). No Harwood's eriastrum were found within the Project Disturbance Area (Id.). Harwood's eriastrum was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a).

Utah Milkvine has a CRPR of 4.2, meaning that Utah Milkvine has limited distribution in California and that some of the occurrences are threatened. Utah Milkvine's CRPR and HP G and S ranks have not changed since publication of the PSPP PA/FEIS. Until discovered growing on the Palo Verde Mesa (PSPP PA/FEIS, p. 3.18-16), it was believed that the project was outside of the range of Utah Milkvine. Utah Milkvine was not found during 2009 field surveys; however, Utah Milkvine was observed incidentally at a single location outside of the BRSA, east of Palen Lake (PSPP PA/FEIS, p. 3.18-16). No Utah Milkvine were observed within the BRSA during 2009 or 2010 field surveys for the PSPP (Id.). Utah Milkvine was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a).

As described in the PSPP PA/FEIS (p. 4.17-10), a potentially new and undescribed taxon of saltbush (Atriplex), referred to as "Palen Lake atriplex," was discovered on the saline playa margins of Palen Dry Lake in 2009 by a botanist with the U.C. Reserve System. This potentially new and undescribed taxon of saltbush resembles the common four-wing saltbush (Atriplex canescens), a common plant of dunes which has very linear leaves, but the undescribed taxon has obovate leaves that distinguish this undescribed taxon from all other Atriplex canescens subspecies (PSPP PA/FEIS, p. 3.18-16). At the time the PSPP PA/FEIS was published, the Applicant's botanical consultant tentatively was treating the undescribed taxon as a new variety of the common four-wing saltbush and the Applicant's botanical consultant continues to treat the undescribed taxon as such in this Draft SEIS. Several plants of the new four-wing saltbush were found in the PSPP BRSA during spring 2010 field surveys (PSPP PA/FEIS, p. 3.18-17). None occurred within the Project Disturbance Area (Id.). The undescribed Atriplex sp. was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a).

Desert Unicorn Plant has a CRPR of 4.3, meaning Desert Unicorn Plant has limited distribution in California and Desert Unicorn Plant's susceptibility to threat is presently low. Desert Unicorn Plant is also a covered species under the NECO Plan. Desert Unicorn Plant's CRPR and HP G and S ranks have not changed since publication of the PSPP PA/FEIS. Desert Unicorn Plant was not observed during Spring 2009 or 2010 field surveys performed for the PSPP (PSPP PA/FEIS, p. 3.18-17). Desert Unicorn Plant was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a).

Abram's Spurge has a CRPR of 2.2, meaning Abram's Spurge is fairly rare in California but more common elsewhere. Abram's Spurge's HP G rank has not changed since publication of the PSPP PA/FEIS but Abram's Spurge's S status has downgraded from S1.2 (Critically Imperiled) to S2S3 (Vulnerable/Imperiled).As described in the PSPP PA/FEIS (p. 3.18-17), regional botanical experts have concluded that this species may be missed if surveys are only conducted within a mid-March through mid-April window, and that a full inventory at multiple temporal windows are necessary in order to capture all appropriate growing conditions (typically following 12 to 18 mm rain events) (PSPP PA/FEIS, p. 3.18-18). Abram's spurge was not identified during spring 2009 or 2010 botanical surveys, and fall surveys completed in October 2010 did not detect Abram's spurge in the PSPP BRSA (Id.). Abram's spurge was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Flat-seeded Spurge Flat-seeded spurge has a CRPR of 1B.2, meaning flat-seeded spurge is rare, threatened, or endangered in California and elsewhere and some of the occurrences face known threats. Flat-seeded spurge's HP S rank has not changed since publication of the PSPP PA/FEIS. The project occurs within flat-seeded spurge's range, suitable habitat is present, and as an ephemeral summer annual flat-seeded spurge may be under-surveyed and flat-seeded spurge's potential to occur cannot be dismissed (PSPP PA/FEIS, p. 3.18-19). This species was not observed during spring 2009 or 2010 botanical surveys for the PSPP (Id.) or during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Palen Solar Electric Generating System Draft SEIS 3.18-10 July 2013

3. Affected Environment 3.18 Vegetation Resources Glandular Ditaxis Glandular ditaxis has a CRPR of 2.2, meaning that glandular ditaxis is rare, threatened, or endangered in California but more common elsewhere, and some of the California occurrences face known threats. Since publication of the PSPP PA/FEIS, glandular ditaxis's HP S status has changed from S1S2 to S1 indicating that glandular ditaxis's sensitivity has increased to Critically Imperiled. As described in the PSPP PA/FEIS (p. 3.18-19), glandular ditaxis can be detected during spring surveys but is more reliably detected in fall after the start of the rainy season. This species was not observed during spring 2009 or 2010 botanical surveys or during fall surveys completed in October, 2010 for the PSPP (Id.). Glandular ditaxis was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a Lobed Ground Cherry Lobed ground cherry is a late season perennial that blooms September to January. Lobed ground cherry has a CRPR of 2.3, meaning that lobed ground cherry is rare in California, but more common elsewhere. Since publication of the PSPP PA/FEIS, lobed ground cherry's HP S rank has downgraded from S1.2 (Critically Imperiled) to S2 (Imperiled). This species was not observed during spring 2009 or 2010 botanical surveys, or during fall surveys completed in October, 2010 for the PSPP (PSPP PA/FEIS, pp. 3.18-19, 3.18-20). Lobed ground cherry was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Dwarf Germander Dwarf germander has a Rare Plant Rank of 2.2, meaning that dwarf germander is rare, threatened, or endangered in California, but more common elsewhere, and fairly endangered in California. Dwarf germander's CRPR, HP G and S ranks have not changed since publication of the PSPP PA/FEIS. This species typically blooms from March to May but may also bloom from September through November. Dwarf germander was not observed during spring 2009 or 2010 botanical surveys, or during fall surveys completed in October, 2010 (PSPP PA/FEIS, p. 3.18-20). Dwarf germander was not observed during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Jackass Clover Jackass clover has a CRPR of 2.2 and is considered fairly endangered in California but more common outside California.Its CRPR and HP G and S ranks have not changed since publication of the PSPP PA/FEIS. As described in the PSPP PA/FEIS (p. 3.18-20), the populations of jackass clover at Palen Lake are considered to be unique stands and are included in this analysis as a sensitive natural community. The populations of jackass clover at Palen Lake were not observed during spring 2009 or 2010 botanical surveys performed for the PSPP, or during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute. Palmer's Jackass Clover Around the time the PSPP PA/FEIS was published, jackass clover was a proposed new addition to the CNPS inventory system, proposed for listing as a CNPS 1B species. Jackass clover eventually was Palen Solar Electric Generating System Draft SEIS 3.18-11 July 2013 listed as a 2.2 species and retains the status under the new CRPR system. Since publication of the PSPP PA/FEIS, Palmer's jackass clover has been assigned a HP G rank of G5T2T4, indicating global populations of Wislizenia refracta are secure, but Wislizenia refracta ssp. palmeri varies from imperiled to apparently secure based on location. Palmer's jackass clover was assigned an HP S rank of S1, indicating Palmer's jackass clover is critically imperiled in California. Palmer's jackass clover was not observed during spring 2009 or 2010 botanical surveys performed for the PSPP or during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute. Winged Cryptantha Winged cryptantha has a CRPR of 4.3, meaning that winged cryptantha has a limited distribution in California but is not very endangered. The CRPR and HP G and S ranks of winged cryptantha have not changed since publication of the PSPP PA/FEIS. Winged cryptantha was not observed during spring 2009 or 2010 botanical surveys performed for the PSPP or during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute. Las Animas Colubrina Las Animas colubrina has a CRPR of 2.3, indicating Las Animas colubrina is not very endangered in California and is more common elsewhere. The CRPR and HP G and S ranks of Las Animas colubrina have not changed since publication of the PSPP PA/FEIS. Las Animas colubrina is a covered species under the NECO Plan. Las Animas colubrina was not identified during spring 2009 or 2010 botanical surveys performed for the PSPP or during a March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute. Other Special Status Plant Species Table 3.18-3 shows special-status plant species that could occur in the PSEGS BRSA but were not detected during spring and fall surveys in 2009 and 2010, or during a March 2013 spring survey. Special-status plant species could be encountered in the PSEGS BRSA, but special-status plant species are not expected to occur due to a low to moderate probability of occurrence. Jurisdictional Waters As described in the PSPP PA/FEIS (p. 3.18-22 et seq.), a formal jurisdictional delineation for regulated waters was conducted by the PSPP Applicant in 2009 to determine the extent of potential jurisdictional waters of the U.S. and/or waters of the State within the site. Additional surveys for waters of the State were performed in 2013 for the proposed natural gas corridor, distribution yard, and revised gen-tie corridor. Surveys included waters (and/or wetlands) regulated under the federal Clean Water Act and/or streams and associated habitat regulated under the California Fish and Game Code. The Applicant requested a jurisdictional determination of isolated waters (non-jurisdictional waters of the U.S.) from the U.S. Army Corps of Engineers and U.S. Environmental Protection Agency.Certainly, here is the revised text with coreference resolution applied:

124 3. Affected Environment 3.18 Vegetation Resources TABLE 3.18-3 SPECIAL-STATUS PLANT SPECIES WITH LOW TO MODERATE POTENTIAL TO OCCUR IN THE PROJECT STUDY AREA Species Habitat Requirements and Geographic Range Potential to Occur or Presence On Site Plants Angel trumpets Angel trumpets occur in Sonoran desert scrub on carbonate soils from approximately 200 Angel trumpets have a low potential to occur since the elevation range of the Acleisanthes longiflora to 300 feet above MSL. There are two records from the Consortium of California project site is appropriate for Angel trumpets although the BRSA does not Herbaria from the Colorado Desert, Palo Verde area (CCH, 2013). support carbonate/limestone derived soils in mountainous areas. Argus (=Darlington's) blazing star Argus blazing star occurs in desert scrub and desert woodlands with limestone and granitic Argus blazing star is not expected to occur in the BRSA due to lack of limestone Mentzelia puberula slopes above 2,000 feet in elevation. Based on 33 Consortium of California Herbaria and granitic slopes, which are soil types preferred by Argus blazing star that are database records, Argus blazing star has been collected from Riverside, San Bernardino, and absent from the BRSA. The project site is located at approximately 130 Imperial Counties from the Little and Big Maria Mountains and Coxcomb Mountain in to 200 feet above MSL, which is well below the typical elevation where Riverside County. Argus blazing star typically occurs. Arizona spurge Arizona spurge occupies sandy areas in Sonoran desert scrub and has been reported from Arizona spurge has a low potential to occur within the BRSA due to the Chamaesyce arizonica Imperial, Riverside, and San Diego Counties and portions of Arizona and Baja California presence of suitable habitat and appropriate elevation range of the (CNPS, 2013) from approximately 150 feet to 1,200 feet above MSL. There are seven project site. database records from the Consortium of California Herbaria primarily from San Diego County but also from Riverside County often from sandy areas and transition areas between chaparral and desert habitats. The two records from Riverside County are near Palm Springs from Andreas Canyon (CCH, 2013). Bitter hymenoxys Bitter hymenoxys grows riparian scrub and Sonoran desert scrub from 150 feet to Bitter hymenoxys was not observed during 2009 or 2010 spring and 2010 fall Hymenoxys odorata 500 feet above MSL. Bitter hymenoxys blooms from February through November (CNPS, surveys of the PSPP BRSA, or during a March 2013 survey of the new 2013). Based on 15 records from the Consortium of California Herbaria, Bitter hymenoxys has gen-tie corridor, natural gas corridor, and natural gas distribution yard. Bitter hymenoxys has a potential to occur within desert dry wash woodland, been collected from Riverside, San Bernardino, and Imperial Counties. Riverside unvegetated washes, and Sonoran creosote bush scrub habitats within records are from the Palo Verde Valley, and from locales surrounding Blythe (CCH, the project area. 2013).There are six CNDDB records for Bitter hymenoxys for the entire State of California, two of which occur in Riverside County; the nearest CNDDB occurrence is a historical record approximately 28.7 miles southeast of the Project Area from sandy slope, low bottom lands and overflow flats (CDFW, 2013). Bitter snakewood Another common name for Condalia globosa var. pubescens is spiny abrojo. Bitter snakewood occurs in This species was not observed during 2009 or 2010 spring and 2010 fall Condalia globosa var. Sonoran desert scrub from approximately 400 feet to 3,000 feet above MSL. Bitter surveys of the PSPP BRSA, or during a March 2013 survey of the new pubescens snakewood blooms from March through May (CNPS, 2013). Based on 58 records gen-tie corridor, natural gas corridor, and natural gas distribution yard. Consortium of California Herbaria database, all records are from Imperial and Riverside The Project site occurs below the elevation where Bitter snakewood typically Counties, with 7 records from Riverside. Most of these specimens were collected from occurs. the Chuckwalla Mountains approximately 10 miles south of Interstate 10, with one collected north of Bradshaw Stage Road/east of Imperial Gas Line Road (CCH, 2013). There are no CNDDB records for Bitter snakewood for California (CDFW, 2013).California ayenia occurs in Mojavean and Sonoran desert scrub from approximately 500 to 3,300 feet above MSL. California ayenia blooms from March through April. California ayenia was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard. There are 56 records from the Consortium of California Herbaria database from the Anza-Borrego area alone, and one from Riverside County from a sandy wash in the Santa Rosa Mountains. California ayenia has a potential to occur within Sonoran creosote bush scrub off Martinez Canyon (CCH, 2013). The nearest CNDDB occurrence is a historical record from 1976 approximately 7.4 miles southwest of the project area in the Chuckwalla Mountains (CDFW, 2013).

California ditaxis occupies Sonoran desert scrub and California ditaxis has been reported as occurring from San Bernardino, Riverside, Imperial, San Diego, and Sonora, Mexico (CNPS, 2013) from approximately 100 to 3,000 feet above MSL. There are 31 records from the Consortium of California Herbaria database primarily from Riverside County from sandy, open alluvial fans (CCH, 2013). There are 20 extant records in the CNDDB, all from Riverside County (CDFW, 2013). California ditaxis has a low potential to occur within the PSEGS BRSA due to the presence of suitable habitat and records from the Chuckwalla Valley and Desert Center areas. A total of 22 plants were documented in the PSPP BRSA during the 2010 surveys; half of which (11) occur within the Project Disturbance Area along the gen-tie line (PSPP PA/FEIS, p. 3.18-16). California ditaxis was not observed during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard.

California satintail occurs in grassy areas found near chaparral, desert scrub, riparian scrubs, coastal scrub, wet springs, meadows, stream sides, and floodplains from sea level to approximately 1,500 feet above MSL. There are no CNDDB records for California satintail within a 30-mile radius of the project (CDFW, 2013), but there are 71 records from the Consortium of California Herbaria database from many northern and southern California counties. Records from Riverside County are from the Palm Springs, San Jacinto Mountains, and San Bernardino Mountains area along irrigation ditches or streams (CCH, 2013). California satintail has a low potential to occur within the PSEGS BRSA due to the presence of suitable habitat, although lack of occurrences from the project area. California satintail was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard.

Chaparral sand verbena occupies sandy soil areas of chaparral, coastal sage scrub, and sandy desert dunes (CNPS, 2013) from approximately 240 feet to approximately 4,800 feet above MSL. The nearest CNDDB occurrence of chaparral sand verbena is located approximately 5.4 miles north of the project, where approximately 100 chaparral sand verbena plants were observed in 2012 in stabilized sand dune habitat (CDFW, 2013). Chaparral sand verbena was collected in 2012 from the Palen sand dunes in the vicinity of the Desert Lily Sanctuary located on the southwest side of the Palen Mountains and at the south end of Palen Valley (CCH, 2013). Chaparral sand verbena was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA.There are 188 records in the Consortium of California surveys of the PSPP BRSA, or during a March 2013 survey of the new Herbaria database, many of which are from Riverside County in the San Jacinto gen-tie corridor, natural gas corridor, and natural gas distribution yard. Mountains area. There were nine 2012 herbarium additions from Riverside County in 2012, and nine in 2011. Most of these specimens were collected from the north Palm Springs Mecca Hills and Temescal Canyon Road areas, with one collection from the Palen sand dunes (CCH, 2013). The 2012 Palen sand dunes specimen collection is likely the 2012 CNDDB occurrence record. Coachella Valley milkvetch is stated in the Coachella Valley Multiple Species Habitat Conservation Plan. This milkvetch was not observed during 2009 or 2010 spring and 2010 fall Astragalus lentiginosus var. occurs on "dunes and sandy flats, along the disturbed margins of sandy washes, and in surveys of the PSPP BRSA, or during a March 2013 survey of the new coachellae sandy soils along roadsides and in areas formerly occupied by undisturbed sand dunes. gen-tie corridor, natural gas corridor, and natural gas distribution yard. Within the sand dunes and sand fields, Coachella Valley milkvetch tends to occur in the coarser sands and is not expected to occur in the project area. The distribution of Coachella Valley milkvetch is restricted to the Coachella Valley in affiliated with sandy substrates, it may occur in localized pockets where sand has been Riverside County, between Cabazon and Indio. CVAG identifies six deposited by wind or by active washes. Coachella Valley milkvetch may also occur in sandy substrates in creosote bush scrub, not directly associated with sand dune habitat (PSPP PA/FEIS, p. 3.18-24). This plant species blooms from February to May, producing pink to deep magenta-colored flowers. Coachella Valley milkvetch occurs on aeolian deposits with fewer than 25 occurrences in the Coachella Valley. Coachella Valley milkvetch depends on natural disturbances from fluvial and aeolian processes for seedling establishment (BLM, 2002).

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126 3. Affected Environment 3.18 Vegetation Resources TABLE 3.18-3 (Continued) SPECIAL-STATUS PLANT SPECIES WITH LOW TO MODERATE POTENTIAL TO OCCUR IN THE PROJECT STUDY AREA

Species Habitat Requirements and Geographic Range Potential to Occur or Presence On Site Plants (cont.) Cove's cassia, Senna covesii, occurs on dry, sandy desert washes and slopes of the Sonoran Desert between 1,600 to 2,000 feet above MSL. Cove's cassia has a low potential to occur within the PSEGS BRSA due to the presence of suitable habitat and the project site being located below the typical elevation range where Cove's cassia is known from. Cove's cassia was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard.

Crucifixion thorn, Castela emoryi, occurs in Sonoran Desert and Mojavean Desert in scrub and playas with dry, gravelly washes, slopes, and plains from approximately 300 to 2,100 feet above MSL. Crucifixion thorn has a low potential to occur within the PSEGS BRSA due to the presence of suitable habitat and appropriate elevation range of the project site.This species of desert portulaca was not observed during 2009 or 2010 spring in Riverside, San Bernardino, Imperial Counties among others (CCH, 2013) and this and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey. Desert portulaca species often grows in grassy or hayfield habitats. Six specimens were added to the Consortium of California Herbaria database in 2012, from San Bernardino, Imperial, and Santa Barbara Counties. In 2010 and 2011, seven specimens were added from Riverside County from the Desert Center and Coxcomb Mountains area (CCH, 2013). There is a record from a hayfield in Chuckwalla Valley. The CNDDB contains 50 records for desert portulaca species, many in Riverside County west of the project area and some scattered northeast and southeast of the project (CDFW, 2013); the nearest CNDDB occurrence was recorded in 2011 and is located 0.8 mile north of the project's gen-tie corridor. Desert portulaca occurs in Joshua tree woodlands and has been reported from Riverside, desert portulaca is not expected to occur within the PSEGS BRSA due to lack of typical habitat associations and the project site being located from 3,000 feet to 3,600 feet above MSL (CNPS, 2013). There are no CNDDB records for desert portulaca species outside of the elevation range. Desert portulaca was not observed during (CDFW, 2013). There are 37 records in the Consortium of California Herbaria database from San Bernardino and Riverside Counties. A new specimen was added in 2012, collected from San Bernardino County (CCH, 2013).

Desert sand parsley occupies Sonoran creosote bush scrub and has been reported from Riverside County, California and portions of Arizona (CNPS, 2013) at approximately 1,200 feet elevation. There is only one CNDDB record for desert sand parsley in California (CDFW, 2013), and there are 2 historic records from the Consortium of California Herbaria database from Riverside County from the Chuckwalla Valley where desert sand parsley was observed growing in dry basins at 500 feet above MSL (CCH, 2013). Desert sand parsley has a low potential to occur within the PSEGS BRSA due to presence of suitable habitat and reported occurrences from the Chuckwalla Valley. Desert sand parsley was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard.

Desert spike moss is a dense, mat-forming, non-flowering plant. Desert spike moss occurs in Sonoran creosote bush scrub in gravelly or rocky soils from approximately 600 to 2,700 feet above MSL. There are 40 records in the CNDDB, with 2 from Riverside County south and southwest of the project area from 1922 and 1964; the nearest occurrence is the 1922 record located approximately 4.2 miles south of the project (CDFW, 2013). There are 94 records in the Consortium of California Herbaria database from mostly Riverside and San Diego Counties with several records from Anza-Borrego Desert State Park, Palm Springs, Palm Canyon, and San Jacinto Mountain Range. Desert spike moss was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard. Desert spike moss has a low potential to occur within the PSEGS BRSA given the presence of suitable desert scrub habitat and historic collections from the project area, although the project site is located below the typical elevation range of desert spike moss.One collection from Riverside County is from the vicinity of the Chocolate-Chuckwalla Mountain region near the north side of the Orocopia Mountains from sloped rocky, shady surfaces in gravelly soils (CCH, 2013); additions to the database since 2009 were collected from Riverside County from the Coachella Valley and the Little San Bernardino Mountains. Dwarf germander occurs in desert dune, playa margins, and Sonoran desert scrub and has a low potential to occur due to the presence of suitable habitat approximately 100 feet to 1,200 feet above MSL. Dwarf germander typically blooms from March to May but may also bloom from September through November. Dwarf germander typically occurs in sandy soils and wash habitats and is known from fewer than 10 natural occurrences in California (CNPS, 2013). There are 15 records from Consortium of California Herbaria database from Riverside and Imperial Counties, with no new additions since 1986 (CCH, 2013); there are records from the Chuckwalla Valley in the Hayfield area and Palo Verde Valley. There is a 1979 CNDDB record from Wiley's Well Road (400 feet elevation) (CDFW, 2013) approximately 16.5 miles southeast of the project; the nearest CNDDB occurrence is a 2001 record from subsaline flat habitat along the Colorado River aqueduct, located approximately 15.6 miles southwest of the project (CDFW, 2013). Foxtail cactus occurs on rocky, granitic soils in Sonoran and Mojavean desert scrub and has a low potential to occur within the PSEGS BRSA due to the presence of suitable desert scrub habitat and appropriate elevation range although there is a lack of rocky, granitic soils. Prior to conducting spring 2009 field surveys, a reference population of foxtail cactus was observed on April 9, 2009 at a gravel pit northwest of Blythe along State Route 95 and several individuals were observed in relatively undisturbed Sonoran creosote bush scrub on granitic rock, a preferred habitat type of foxtail cactus (CNPS, 2013). Foxtail cactus was not found during surveys performed in the PSPP BRSA. There are 37 records of foxtail cactus from the Consortium of California Herbaria database from Riverside, Imperial, and San Bernardino Counties, including from the Chuckwalla Valley from rocky, granitic slopes (CCH, 2013). There were 4 additions to the database since 2010, with 1 from Riverside County from the Cottonwood Mountains area (CCH, 2013). The CNDDB contains 55 records for foxtail cactus, most of them from Riverside County (CDFW, 2013). The nearest occurrence was documented in 1982, located 1.3 miles west of the project's gen-tie corridor along Interstate 10 (CDFW, 2013). Palen Solar Electric Generating System Draft SEIS 3.18-16 July 2013.

Mesquite nest straw occupies Sonoran desert scrub around 1,300 feet elevation and has been reported from Riverside County and portions of Arizona and Sonora, Mexico (CNPS, 2013).Mesquite nest straw was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard.There are 2 records from the Consortium of California Herbaria database from Riverside County Mesquite nest straw. Mesquite nest straw has a low potential to occur within the PSEGS both from the Chuckwalla Mountains, Hayfields region from 1930 (CCH, 2013). The BRSA due to suitable habitat is present within the project site. Orocopia sage occurs in the southeastern Sonoran Desert and is associated with the Orocopia and Chocolate Mountains on alluvial slopes between 100 and 800 feet above surveys. Orocopia sage was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new MSL. There are 62 records from the Consortium of California Herbaria database, several from the Chocolate, Chuckwalla, and Orocopia mountain areas (CCH, 2013). Two Riverside County occurrences were added to the database in 2011, both from the Chocolate Mountains area (CCH, 2013). There are 25 records in the CNDDB, many from southwestern Riverside County (CDFW, 2013); the nearest documented occurrence is located approximately 21.8 miles southwest of the project. Pink fairyduster occurs in the Sonoran Desert in sandy washes, slopes, and mesas from 350 to 5,000 feet above MSL. Pink fairyduster was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard. Pink fairyduster has a low potential to occur within the PSEGS BRSA due to suitable habitats, appropriate elevation range of the site, and reported records from the project area. Pink velvet mallow occurs in the Sonoran Desert in California, Arizona, and Mexico. Pink velvet mallow occurs in Sonoran desert scrub from approximately 300 to 1,500 feet above MSL. There are no CNDDB records for Pink velvet mallow for the entire state of California (CDFW, 2013). The Consortium of California Herbaria database contains 27 records from Riverside, Imperial, and San Diego Counties (CDFW, 2013), with no new additions since 2006 (CCH, 2013). The most recent collections (2005, 2006) have been from the Chocolate, Chuckwalla, and Cargo Muchacho Mountains approximately 50 miles south of the project area and are believed to be extant. Sand evening-primrose occupies sandy and gravelly areas of Sonoran desert scrub and has been reported from Imperial and Riverside Counties and areas of Arizona and Mexico from 200 feet to 2,700 feet above MSL (CNPS, 2013). There are 22 records of sand evening-primrose in the Consortium of California Herbaria database, several from the Chocolate-Chuckwalla Mountains, Palo Verde Valley, and Ogilby Pass area (CCH, 2013). Two specimens were added to the database in 2011, one from Riverside County in the Canyon Springs area (CCH, 2013). There are no CNDDB records for sand evening-primrose (CDFW, 2013).Palen Solar Electric Generating System Draft SEIS 3.18-17 July 2013 129 3. Affected Environment 3.18 Vegetation Resources TABLE 3.18-3 (Continued) SPECIAL-STATUS PLANT SPECIES WITH LOW TO MODERATE POTENTIAL TO OCCUR IN THE PROJECT STUDY AREA Species Habitat Requirements and Geographic Range Potential to Occur or Presence On Site Plants (cont.) Slender woolly-heads This species occupies desert sand dunes, coastal dunes, and Sonoran desert scrub. Slender woolly-heads has a low potential to occur within the PSEGS Nemacaulis denudata var. (CNPS, 2013) from 150 to 1,200 feet above MSL. There are 45 records in the Consortium BRSA due to suitable habitat and appropriate elevation range of the site. Slender woolly-heads was not observed during 2009 or 2010 spring and 2010 fall surveys of the PSPP BRSA, or during a March 2013 survey of the new gen-tie corridor, natural gas corridor, and natural gas distribution yard. There are 23 records in the CNDDB, with a few in western Riverside County (CDFW, 2013); the nearest CNDDB record is located approximately 26.4 miles southwest of the project. Small-flowered androstephium This species occurs in desert dune and Mojavean desert scrub from approximately 700 feet to 2,000 feet above MSL (CNPS, 2013). Small-flowered androstephium blooms from March through April and often occurs on desert bajadas. The nearest CNDDB record for small-flowered androstephium is from Cadiz Valley from Riverside and San Bernardino Counties approximately one mile north of Highway 62 during 1995 from a sandy, Mojavean Desert shrub-land bajada (CDFW, 2013) located approximately 24.2 miles north of the project. There are 27 records in the Consortium of California Herbaria database from Riverside, San Bernardino, and Inyo Counties. Eight specimens of small-flowered androstephium were added to the database between 2009 and present, with two from Riverside County in the Arica Mountains area (CCH, 2013). Spearleaf This species occurs in Mojavean and Sonoran desert scrub from 1,320 feet to approximately 3,300 feet above MSL. Spearleaf blooms from March through May (CNPS, 2013). The nearest extant CNDDB record for spearleaf is from the Chuckwalla Bench area during 1986 from desert dry wash woodland and creosote bush scrub habitats (CDFW, 2013) located approximately 14.5 miles southwest of the project; the most proximate record is historic, from 1922, located approximately 4.2 miles south of the project. There are 23 records in the Consortium of California Herbaria database, from Riverside, San Diego, Imperial, and San Bernardino Counties. Riverside County collections of spearleaf are from Joshua Tree National Park, the Orocopia Mountains, and Chuckwalla Bench (CCH, 2013). Wiggins' cholla Wiggins' cholla is not recognized as a species, but is considered a hybrid of silver cholla (C. Wiggins' cholla is not expected to occur in the project area.Wiggins' cholla is not found wigginsii as a separate species in The Jepson Manual (1993) nor in Munz et al A California Flora and Supplement (1973); however, the BLM's Proposed Northern and Eastern Colorado Desert Coordinated Management Plan identifies Wiggins' cholla as a special-status species (BLM, 2002). CDFW and CNPS recognizes Wiggins' cholla as a CRPR 3.3 species meaning more information is needed about Wiggins' cholla and Wiggins' cholla is not considered very endangered in California. CNPS also considers Wiggins' cholla a sporadic hybrid of the two Cylindropuntia species mentioned above, and identifies occurrences in Riverside, Imperial, San Bernardino, and San Diego Counties (CNPS, 2013). There are 2 records in the Consortium of California Herbaria database, from Imperial and San Bernardino Counties (CCH, 2013). Palen Solar Electric Generating System Draft SEIS 3.18-18 July 2013 130 "3. Affected Environment 3.18 Vegetation Resources the U.S. within the Project Disturbance Area based on the fact that features occur in a closed basin with no identifiable outlet and have no direct hydrologic connection to any navigable waters. A revised jurisdictional delineation report was submitted as part of the Streambed Alteration Agreement application to CDFG on November 25, 2009, which included all delineated aquatic features, including desert washes which lack a continuous component of desert wash woodland but provide other wildlife habitat function and values (PSPP PA/FEIS, p. 3.18-22). The revised delineation also included areas of waters and wash-dependent vegetation downstream of the PSPP BRSA that were likely to be indirectly affected by the diversion of waters at the upstream side of the Project into a perimeter stormwater conveyance channel. That area of potential indirect effect included the full extent of the downstream washes that would be deprived of flows. Additionally, the delineation was revised to include the full floodplain width of compound features of multiple small channels with variable flow pathways, including the interfluves of mixed upland and wash-dependent vegetation. Presently, the extent of jurisdictional waters of the State occurring in those portions of the PSEGS BRSA that coincide with the PSPP BRSA is identified as 373.06 acres throughout the fenced project site, natural gas corridor, and the gen-tie line corridor (Karl, 2013a; Karl, 2013b). The total area of waters of the State estimated within the Project Disturbance Area includes 204.37 acres of desert dry wash woodland and 168.69 acres of unvegetated ephemeral dry washes. The 0.54 acre of off-site waters includes: 0.03 acre of desert dry wash woodland and 0.51 acre of unvegetated ephemeral dry wash. The revised delineation also included waters associated with a proposed new substation south of I-10 and the interconnecting transmission line. However, the impacts and mitigation measures associated with the substation have been analyzed in the context of the Desert Sunlight Project, and are not attributable to the PSEGS. Accordingly, the acreages itemized above include features that cross the interconnecting transmission line alignment but do not include waters contained within the footprint of the proposed substation. Hydrology PSEGS site waters occur within the Chuckwalla-Palen hydrologic unit, or "watershed" of the Colorado River Hydrologic Basin Planning Area (PSPP PA/FEIS, p. 3.18-28) and are described in detail in the PSPP PA/FEIS. Desert streams contract and expand dramatically in size due to extreme variations in flow, which can range from high-discharge floods to periods when surface flow is absent; this spatial variation in habitat or ecosystem size is a fundamental, defining feature of these streams (PSPP PA/FEIS, p. 3.18-30). Within this fundamental variation, the hydrology of the site has not changed significantly since publication of the PSPP PA/FEIS. 3.18.6 Sand Dune Transport System As described in PSPP PA/FEIS Section 3.18.6 (p. 3.18-30 et seq. ), the BRSA encompasses several different land units that vary along a southwest to northeast gradient in the degree of aeolian sand transport they experience. The majority of the PSEGS facilities (approximately 85 percent) would be constructed within the least sandy land unit, which is almost entirely a stable, Palen Solar Electric Generating System Draft SEIS 3.18-19 July 2013"The vegetation cover is largely sparse creosote bush scrub with ironwood trees in the larger washes. The northeast dune area is a slightly more active wind-blown sand area with relatively shallow sand deposits (Zone III), where approximately 15 percent of Palen Solar Electric Generating System (PSEGS) facilities would be constructed. The northeast dune area is an area of shallow vegetated sand dunes with a transition from creosote bushes to grasses. The dunes are in relative equilibrium. At the northeastern portion of the project site within the lower alluvial fan is an area of deeper and more active vegetated sand dunes (Zone II), where less than one percent of PSEGS facilities would be constructed. This zone lies within the Palen Dry Lake - Chuckwalla sand transport corridor, a regionally significant geomorphic feature that provides sand build and supports sand dune habitat. The Palen Dry Lake - Chuckwalla sand transport corridor stretches down the Chuckwalla Valley to Blythe and the Colorado River. The most active area of sand transport is Zone I, northeast of the project boundary. Two sand transport corridors come together just to the east of the project: the Palen Valley corridor which runs from north to south along the eastern edge of the project and the Palen Dry Lake - Chuckwalla Valley corridor which runs northwest to southeast through the northeastern half of the project site. Invasive and Noxious Weeds As described in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 3.18.7, noxious and invasive weeds are species of non-native (exotic) plants included on the weed lists of the California Department of Food and Agriculture (CDFA), the California Invasive Plant Council (Cal-IPC), or those weeds of special concern identified by the Bureau of Land Management (BLM). Noxious and invasive weeds are of particular concern in wild lands because of their potential to degrade habitat and disrupt the ecological functions of an area. Non-native plant species recorded as part of project botanical surveys during 2009 and 2010 are located especially in the southern portion of the Biological Resources Study Area (BRSA); these non-native plant species are Sahara mustard, Russian thistle, saltcedar, and Mediterranean grass, and these non-native plant species were described in detail in the PSPP PA/FEIS. Each of these species is identified on a list of the region's worst weeds compiled by the Natural Resource Conservation Service for the Low Desert Weed Management Area. Changes to invasive statuses that have occurred since publication of the PSPP PA/FEIS are noted below. No significant stands of exotic weeds were observed during a March 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute. Sahara Mustard Sahara mustard (Brassica tournefortii), also called African mustard, was found in disturbed areas throughout Sonoran creosote bush scrub habitat. Sahara mustard continues to be a BLM weed species of concern and has a Cal-IPC inventory rating of Highly invasive. Sahara mustard is not listed by the California Department of Food and Agriculture (CDFA). Russian Thistle Russian thistle (Salsola sp.), also called tumbleweed, was found in several habitat types in the Project Disturbance Area, including dune, desert scrub, desert dry wash woodland, and Sonoran creosote bush scrub. Russian thistle is not a BLM weed species of concern. Cal-IPC has determined that this genus' invasiveness rating varies from limited to limited-to-moderate in California based on species. The California Department of Food and Agriculture (CDFA) rating for Russian thistle also varies from a "C" to an "A" based on species. A C rating means that the pest is of known economic or environmental detriment and, if present in California, the pest is usually widespread, while an A rating means it is either not known to be established in California or is present in a limited distribution that allows for the possibility of eradication or successful containment. Tamarisk or Saltcedar Tamarisk or saltcedar (Tamarix ramosissima) was observed interspersed throughout desert dry wash woodland within the BRSA.This species continues to be a BLM weed species of concern, to have a Cal-IPC inventory rating of High[ly invasive], and a CDFA "B" rated species, meaning this species is a pest of known economic or environmental detriment of limited distribution. Mediterranean grass (Schismus spp.) is prevalent throughout Sonoran creosote bush scrub within the BRSA. BLM and other agencies recognize that because of the widespread distribution of Mediterranean grass, Mediterranean grass is not considered feasible to eradicate. Mediterranean grass continues to be a BLM weed species of concern and has a Cal-IPC rating of Limited invasiveness. Mediterranean grass is not listed by the CDFA. (PSPP PA/FEIS, p. 3.18-33) 3.18.8 Cacti, Yucca, and Native Trees As described in the PSPP PA/FEIS (p. 3.18-33 et seq.), 2009 and 2010 surveys also included an inventory of native cacti, succulents and native trees that are not considered rare (e.g., they are not tracked by CNDDB or included on the CNPS special-status plant lists) but the harvesting of these native plants is regulated under the California Native Plant Protection Act (Fish and Game Code 1900-1913) and the California Desert Native Plant Act of 1981 (Food and Agricultural Code 80001 et seq.; Fish & Game Code 1925-1926), which prohibit unlawful harvesting of non-listed native desert plants of the state (PSPP PA/FEIS, p. 3.18-33). A total of four species in the Cactaceae family were observed during 2009 field surveys, including teddybear cholla (Cylindropuntia bigelovii), silver cholla (C. echinocarpa), pencil cholla (C. ramosissima), and common fishhook cactus (Mammilaria tetrancistra). Additionally, native trees that were found during 2009 field surveys include smoke tree (Psorothamnus spinosus), ironwood (Olneya tesota), blue palo verde (Parkinsonia florida), ocotillo (Fouquieria splendens ssp. splendens), and honey mesquite (Prosopsis glandulosa var. torreyana). Additional mapping of cacti species was performed during 2010, and California barrel cacti (Ferocactus cylindraceus), cottontop cactus (Echinocactus polycephalus), and hedgehog cactus (Echinocactus engelmannii) were found. A single location with five barrel cacti was observed within the buffer BRSA and south of I-10, and a single location of cottontop cactus was found in the eastern portion of the Project Disturbance Area. No additional cacti, yucca, or native trees were observed during the March 30, 2013 survey of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Palen Solar Electric Generating System Draft SEIS 3.18-22 July 2013

3. Affected Environment 3.19 Visual Resources Section 3.19 of the PSPP PA/FEIS describes the PSPP study area in terms of the existing value of the PSPP study area as a visual resource, and summarizes the applicable regulatory framework for managing and protecting scenic values. The regulatory framework and methodology for managing and protecting scenic resources have not changed since publication of the PSPP PA/FEIS and remain applicable to the PSEGS, and therefore are not supplemented in this section. However, because the PSEGS dimensions and extent would differ from those identified in the PSPP PA/FEIS, the range of potential effects on visual resources also would be different. Accordingly, a revised visual resources study area is described below. 3.19.1 Project Study Area The PSEGS site is located in the Mojave Desert geomorphic province of California, also referred to as the Sonoran Desert section of the Basin and Range physiographic region of the United States. More specifically, the project site lies in the Chuckwalla Valley, which measures approximately 40 miles east-west and 15 miles north-south. Numerous isolated mountain ranges surround the Chuckwalla Valley, including from the north clockwise, the Coxcomb, Granite, Palen, McCoy, Mule, Little Chuckwalla, Chuckwalla, and Eagle Mountain ranges. These ranges are separated by expanses of internally-drained, sparsely vegetated desert plains.The Chuckwalla Valley floor is mantled by scattered patchworks, or clumps, of Sonoran creosote bush, giving the Chuckwalla Valley floor a coarse, dark green texture, against the smoother tan sandy soil. Trees are scarce about the valley, occurring mainly among developed areas. Bajadas, or converging alluvial fans, drain the surrounding mountains and add color variety and a braided texture to the valley. The bajadas give way to dry desert washes which terminate at dry lakes. Figure 3.19-1 provides a view of the PSEGS area, as seen from a dirt road immediately north of I-10. As is evident from the photograph, the gently sloping, relatively uniform valley floor contrasts sharply with the dark desert varnish of the rocky and jagged peaks of the surrounding mountain ranges, some of which rise to a height of 4,000 feet. In the photo, the PSEGS would be located in the immediate foreground, and the PSEGS would extend into the middleground of the photo occupied by the dry lake bed. Figure 3.19-2 provides a number of context photographs illustrating common visual features of the desert environment, and the characteristic landscape of the Chuckwalla Valley area. As Figure 3.19-2 illustrates, the valley floor is characterized by lightly tan colored, sandy soils, mottled with dark-green shrubby vegetation and intermittent clumps of low-growing grasses. The views are panoramic, inhibited only by the occasional tree or built structure, and the views extend to the mountain ranges that frame the horizon. The study area for visual resources is defined as all land areas from which any element of the PSEGS would be visible (i.e., the PSEGS's viewshed). The project viewshed comprises the visual portion of the affected environment and is the basis for the visual impact analysis provided in Section 4.18, Impacts on Visual Resources. The viewshed map is shown in Figure 3.19-3, and the map was generated via computer-generated viewshed tools. The visual impact threshold distance (VITD) boundary for purposes of this analysis includes those areas within a 30-mile radius of the project site, which encompasses an area of approximately 2,827 square miles. The map also depicts the status of various public lands within the viewshed. These public lands include the National Park Service-managed Joshua Tree National Park and Wilderness; the BLM-managed Joshua Tree Wilderness, Palen/McCoy Wilderness, Little Chuckwalla Mountains Wilderness, and Chuckwalla Mountains Wilderness; and several BLM Areas of Critical Environmental Concern (ACEC), including those of Palen Dry Lake, Chuckwalla Valley Dune Thicket, Corn Springs, Chuckwalla, Alligator Springs, and Desert Lily. The project's visual intrusion upon these areas varies based upon observer location and terrain. For example, the PSEGS would be visible from approximately 4.9 percent of Joshua Tree National Park (JTNP), approximately 10 percent of the JTNP Wilderness Area (3DScape, 2013), and from the four BLM wilderness areas and five ACECs. While mostly undeveloped, several cultural modifications are apparent within the project viewshed. The Interstate 10 corridor bisects the viewshed, passing to the north of the Chuckwalla Mountains and to the immediate south of the project site. The uniform rectilinear green patches of agricultural operations to the northwest of the project site and north of Desert Center contrast with the surrounding dry, sparsely vegetated, and sinuous alluvial fans and rugged mountain faces. The Colorado River Aqueduct (CRA) also features prominently in the Chuckwalla Valley viewshed, comprising a conspicuous linear network of pipes, canals, and service roads that wind around and tunnel through the Coxcomb and Eagle Mountains. Other large-scale man-made features including mining operations, such as the Eagle Mountain Mine and surrounding settlement, are located within the northwestern portion of the viewshed. Residential developments within the viewshed have a less distinct impact on the landscape than those previously discussed and range from individual ranges and rural residences to the small communities of Lake Tamarisk and Eagle Mountain, and the largest, Desert Center, with a population of 284 (U.S. Census Bureau, 2013). The primary user groups that could have views of the PSEGS would be motorists along I-10 and State Route 177.Described more fully in Section 3.17, Transportation and Public Access - Off Highway Vehicle Resources, on average, the Palen Solar Electric Generating System (PSEGS) would be visible by approximately 5,300 motorists during peak hour weekday travel on I-10 (i.e., by approximately 2,650 eastbound travelers and 2,650 westbound travelers during the period when traffic volume is at its highest). Other groups likely to be affected include visitors to the Desert Lily Preserve and the Palen Dry Lake area, which are located north of the Palen Solar Electric Generating System site; motorists accessing the Corn Springs Campground and Chuckwalla Mountains Wilderness via Chuckwalla Valley and Corn Springs Roads; dispersed recreational users; and users seeking opportunities for solitude and unconfined recreation in the surrounding wilderness areas. The Palen/McCoy Wilderness is immediately northeast of the site, but the area with views of the Palen Solar Electric Generating System is not used for recreation and features neither trails nor trailheads. However, since the wilderness area is physically accessible, the wilderness area may be visited on rare occasions by backcountry hikers and overnight campers. The portion of Joshua Tree National Park where the Palen Solar Electric Generating System could be visible does not contain visitor-serving facilities such as hiking trails, campgrounds, or picnic areas—these occur in the central and western portions of the Park, in areas located over 15 miles east of the Palen Solar Electric Generating System site that are unlikely to have views of the solar fields and structures. Even though the bright light of the two power tower receivers could be visible, the bright light of the two power tower receivers would be small in size and possibly diffused in atmospheric haze. However, the Palen Solar Electric Generating System could be visible from elevated vantage points within the Coxcomb Mountains, which is the eastern-most part of the park.

BLM's Visual Resource Management (VRM) Policy is the agency's implementation of legal requirements for managing scenic resources, established through NEPA and FLPMA. Under FLPMA, BLM has developed and applied a standard visual assessment methodology to inventory and manage scenic values on lands under BLM's jurisdiction. The BLM manual M-8400-Visual Resource Management, Handbook H-8410-Visual Resource Inventory, and Handbook H-8431-Visual Resource Contrast Rating, set forth the policies and procedures for determining visual resource values, establishing management objectives, and evaluating proposed actions for conformance to the established objectives for BLM administered public lands. As discussed more fully in the PSPP PA/FEIS (pp. 3.19-2 through 3.19-6), VRM classes typically are assigned by the BLM through the BLM's RMPs; however, in the case of the CDCA Plan VRM classes have not been established. Instead, BLM land managers must establish "Interim VRM Classes" for individual projects on a case-by-case basis. The DPV 2 EIR/EIS established Interim VRM Classes that cover the Palen Solar Electric Generating System site, which were mapped by the consultants and approved by the BLM. In accordance, the DPV 2 EIR/EIS established Interim VRM Classes are used for this Project. The entire Palen Solar Electric Generating System site, including the areas encompassing the heliostats, power blocks, and transmission line corridor, is classified as Interim VRM Class III. Wilderness Areas within the viewshed were identified as Interim VRM Class I. As shown in Figure 3.19-4, the three predominant classes of BLM-administered land within the Palen Solar Electric Generating System viewshed include VRM Class I in the Palen/McCoy and Chuckwalla Mountain wilderness areas; VRM Class II in BLM lands south and southeast of I-10 and the Palen Solar Electric Generating System site, and VRM Class III along the I-10 corridor and the Chuckwalla Valley north of I-10. Table 3.19-1 displays the BLM's four visual resource management classes and the objective of each class. The Palen Solar Electric Generating System would be managed in accordance with Interim VRM Class III objectives. The Interim VRM Class III management objective reflects and is consistent with the land use decisions within the existing plans because the area is also under Multiple-Use Class M (Moderate Use), which is based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. The objective of Interim VRM Class III is to partially retain the existing character of the landscape.Affected Environment 3.19 Visual Resources TABLE 3.19-1 VISUAL RESOURCE MANAGEMENT CLASSES VRM Class Objective The objective of Visual Resource Management Class I is to preserve the existing character of the landscape. Visual Resource Management Class I provides for natural ecological changes; however, Visual Resource Management Class I does not preclude very limited management activity. The level of change to the characteristic landscape in Visual Resource Management Class I should be very low and must not attract attention. The objective of Visual Resource Management Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape in Visual Resource Management Class II should be low. Management activities in Visual Resource Management Class II may be seen but should not attract the attention of the casual observer. Any changes in Visual Resource Management Class II must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The objective of Visual Resource Management Class III is to partially retain the existing character of the landscape. The level of change to the characteristic landscape in Visual Resource Management Class III should be moderate. Management activities in Visual Resource Management Class III may attract attention but should not dominate the view of the casual observer. Changes in Visual Resource Management Class III should repeat the basic elements found in the predominant natural features of the characteristic landscape. The objective of Visual Resource Management Class IV is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape in Visual Resource Management Class IV can be high. Management activities in Visual Resource Management Class IV may dominate the view and be the major focus of viewer attention. However, every attempt in Visual Resource Management Class IV should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements. Palen Solar Electric Generating System Draft SEIS 3.19-4 July 2013

3. Affected Environment 3.20 Water Resources Section 3.20 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement describes the water-related features and characteristics of the Palen Solar Power Project site and broader region, including characteristics of regional climate and precipitation, groundwater, and surface water hydrology. The Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement describes subsurface water budgets, flow, and quality, along with geologic composition of the Chuckwalla Valley Groundwater Basin. For surface water hydrology, the section identifies washes, springs, seeps, and playa lakes in the vicinity of the Palen Solar Power Project. Beneficial uses, as identified in the Colorado River Basin Regional Water Quality Control Board's water quality control plan ("Basin Plan") for surface and groundwater also are summarized. The Palen Solar Electric Generating System would occur entirely within the Chuckwalla Valley Groundwater Basin and be located almost entirely within the area described and analyzed for the Palen Solar Power Project. The water resources setting information, as presented in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 3.20 remains valid and pertinent to the Palen Solar Electric Generating System. Hence, the water resources setting information is not supplemented in this section. The new 50-foot natural gas supply pipeline corridor traversing south of the Palen Solar Electric Generating System site and the portion of the generation-tie line that would be shifted would be located outside the area specifically evaluated as part of the Palen Solar Power Project; however, both proposed routes lie in sufficiently close proximity to the Palen Solar Power Project area that the water resources setting information provided in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement applies equally to the natural gas pipeline and generation-tie line shift proposed as part of the Palen Solar Electric Generating System, and so is not supplemented in this section. Palen Solar Electric Generating System Draft SEIS 3.2-1 July 2013

3. Affected Environment 3.20 Water Resources This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.2-2 July 2013

3. Affected Environment 3.21 Wild Horse and Burros As described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 3.21 shown on Map 2-26 of the approved Northern and Eastern Colorado Desert Coordinated Management Plan, there are no Wild Horse and Burro Herd Areas or Herd Management Areas within or adjacent to the Palen Solar Power Project Right-of-Way application area. This remains true for the Palen Solar Electric Generating System. Palen Solar Electric Generating System Draft SEIS 3.21-1 July 2013

3. Affected Environment 3.21 Wild Horse and Burros This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.21-2 July 2013Affected Environment 3.22 Wildland Fire Ecology

Section 3.22 of the PSPP PA/FEIS describes wildland fire ecology and management in the PSPP study area. Section 3.22 identifies the major native habitat types in the project vicinity, including Sonoran creosote bush scrub, desert dry wash woodland, unvegetated ephemeral dry wash, desert sink scrub, and desert dunes, and the more fire-prone exotic plant communities occurring within nearby developed and agricultural lands. This discussion remains valid and applicable to the PSEGS study area. No new vegetation communities were identified for the PSEGS. The new natural gas corridor and distribution yard, and revised gen-tie line route associated with the PSEGS collectively support 22.43 acres of Sonoran creosote bush scrub, desert dry wash woodland, and unvegetated ephemeral dry wash. This minor addition represents about 0.6 percent of the total 3,896-acre PSEGS area. As described in PSPP PA/FEIS Section 3.22 (p. 3.22-1), wildland fires in the project area occur less frequently and are generally smaller than in other parts of the state, and wildland fires are caused mainly by lightning or vehicles. The Fire Management Activity Plan (FMAP) 1996 for the California Desert is identified as the primary fire management plan for BLM and NPS-managed lands in the project vicinity. The dominant plant communities in the project area, such as Sonoran Desert Scrub, are not fire-adapted; meaning repeated wildfire is detrimental to the dominant plant communities long-term. Because disturbed areas are most likely to support or carry wildfires, fire suppression techniques seek to minimize surface disturbance to the extent practical in all habitats. The description in PSPP PA/FEIS Section 3.22 (p. 3.22-1) of conditions contributing to increased wildlife fire potential (e.g., soil disturbance and the related colonization by exotic and invasive weedy annual plants), wildland fire suppression methods, and post-fire suppression rehabilitation methods all are applicable to the PSEGS and provide an adequate baseline for wildland fire ecology for the PSEGS.

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3. Affected Environment 3.22 Wildland Fire Ecology This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 3.22-2 July 2013

3. Affected Environment 3.23 Wildlife Resources

Section 3.23 of the PSPP PA/FEIS describes wildlife resources of the PSPP Biological Resources Study Area (BRSA), which consists of a 14,771 acre area that encompasses the approximately 3,899-acre Project Disturbance Area (including the transmission disturbance area and a surrounding buffer area). In addition, the PSPP PA/FEIS provides detailed summaries of special status bird, reptile, and mammal species that are known to occur, or could potentially occur in the Biological Resource Study Area and vicinity. A list of these species is provided in PSPP PA/FEIS, Table 3.23-1. As much of the PSEGS would occur within the previously described PSPP disturbance area, there is considerable overlap in the BRSA's of the two projects. Accordingly, PSPP PA/FEIS discussions of wildlife area planning and management, and the known or potential presence of special status species, are valid and relevant for the PSEGS BRSA. For these resources, unless otherwise specified, no additional discussion is provided here. Rather, this section supplements PSPP PA/FEIS Section 3.23 to reflect biological resource considerations that may have changed as a result of the proposed configuration of the PSEGS, shift in the gen-tie line alignment, and extension of the natural gas line. This section also includes revisions stemming from more current information regarding the types and distribution of those resources described in the PSPP PA/FEIS that would also occur within the PSEGS Biological Resource Study Area. This section draws from the PSPP PA/FEIS and the following surveys that were provided by the Applicant: 1. Summary of Spring Wildlife and Plant Surveys (Karl, 2013a) 2. Summary of Survey for Jurisdictional State Waters (Karl, 2013b) 3. PSEGS Spring 2013 Golden Eagle Nest Survey Results Interim Report (Bloom Biological, Inc., 2013a) 4. PSEGS Winter 2013 Golden Eagle Survey Results (Bloom Biological, Inc., 2013b)PSEGS Preliminary Spring 2013 Pre-construction Avian Field Survey Results (Bloom Biological, Inc., 2013c) As described in Section 3.18, the PSEGS Disturbance Area is entirely within the PSPP BRSA, the gen-tie line route is the same for most of the gen-tie line route's length, and the access road is the same. The PSEGS BRSA differs in two regards: (1) the gen-tie line route is shifted to the west by approximately 1.3 miles (resulting in an associated 18.9 acres of new disturbance area); and (2) a natural gas line and distribution yard are added to the south (resulting in an associated 3.53 acres of new disturbance area). The new gen-tie line corridor disturbance area was surveyed in spring 2013 for the PSEGS (Karl, 2013a), and surveyed in past years for the Desert Sunlight Project and the Eagle Mountain Pumped Storage Project (PSEGS PTA, 2012). Biological surveys also were performed for the natural gas line extension and distribution yard in spring 2013 (Bloom Biological, 2013a; 2013c). The results of 2013 surveys have been incorporated into this Draft SEIS. Palen Solar Electric Generating System Draft SEIS 3.23-1 July 2013 145 3. Affected Environment 3.23 Wildlife Resources As described in the PSPP PA/FEIS, the project site is located within two areas designated in the NECO plan as wildlife habitat management areas (WHMA): Palen-Ford WHMA and Desert Wildlife Management Area (DWMA) Connectivity WHMA. Management emphasis for the Palen-Ford WHMA is on the management of the dunes and playas within the Palen-Ford dune system. Management emphasis for the DWMA Connectivity WHMA is on the geographic connectivity for the desert tortoise for the conservation areas east of Desert Center (i.e., connectivity between the Chuckwalla DWMA and the wilderness area north of I-10). The Palen- McCoy Wilderness is approximately 3 miles to the northeast of the project site, the Chuckwalla DWMA is located approximately 2 miles to the south, and the Palen Dry Lake ACEC borders the project site to the east. 3.23.1 Special Status Wildlife Special-status wildlife species are those that have been afforded special recognition by federal, State, or local resource agencies or organizations, are often of relatively limited distribution, and typically require unique habitat conditions. Special-status wildlife criteria have not changed since publication of the PSPP PA/FEIS, and like the PSPP PA/FEIS, all BLM Sensitive species are analyzed as special-status species for the purposes of this document. Table 3.23-1 identifies those special-status wildlife species that are known to occur, or could potentially occur in the study area and vicinity, along with status updates that have occurred since publication of the PSPP PA/FEIS. Special-status species observed during the 2009 or 2013 field surveys are indicated by bold-face type (Karl, 2013a; Bloom Biological, 2013a; 2013c; Solar Millennium, 2009; AECOM, 2010). Desert Tortoise The desert tortoise was fully described in PSPP PA/FEIS Section 3.23 (pp. 3.23-2 to 3.23-7), and the desert tortoise's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. As described in the PSPP PA/FEIS and summarized here, the project site is located within the Colorado Desert Recovery Unit. Within this recovery unit, desert tortoise are found primarily in well-developed washes, desert pavements, piedmonts, and rocky slopes characterized by relatively species-rich succulent scrub, creosote bush scrub, and blue palo verde-ironwood-smoke tree communities. The highest desert tortoise densities within this recovery unit occur in the nearby Chuckwalla DWMA located south of the project site. The majority of threats to the desert tortoise and the desert tortoise's habitat are associated with human land uses. Protocol-level surveys of the PSPP BRSA were conducted between March 17 and May 22, 2009 and October 24 to 25, 2009 (substation site and buffer). Survey results of the PSPP Project Disturbance Area included 17 burrows (Class 3-5), 15 pallets (Class 4 or 5), and 19 tortoise shell remains (Class 5). Survey results identified seven tortoises (adult and juvenile) in the BRSA and four along the gen-tie line route; only one of these occurrences (along the gen-tie line) was within the PSPP Project Disturbance Area.Additional observations from project area buffers were noted in the Applicant's 2010 Revised Desert Tortoise Technical Report, as described in the PSPP PA/FEIS (p. 3.23-7). During spring 2013 surveys, two recent burrows were found within buffer zones along the gen-tie line reroute. The Palen Solar Electric Generating System Draft SEIS 3.23-2 July 2013 Affected Environment 3.23 Wildlife Resources TABLE 3.23-1 SPECIAL-STATUS WILDLIFE KNOWN OR WITH POTENTIAL TO OCCUR IN THE BIOLOGICAL RESOURCES STUDY AREA WILDLIFE Status Common Name Scientific Name State/Federal/BLM Reptiles/Amphibians Desert tortoise Gopherus agassizii ST/FT/\_ Couch's spadefoot toad Scaphiopus couchii CSC/\_\_/BLM Sensitive Mojave fringe-toed lizard Uma scoparia CSC/\_\_/BLM Sensitive Birds Western burrowing owl Athene cunicularia hypugaea CSC/BCC/BLM Sensitive Golden eagle Aquila chrysaetos CFP/BCC/BLM Sensitive Short-eared owl Asio flammeus CSC/\_\_/\_\_ Ferruginous hawk Buteo regalis WL/BCC/BLM Sensitive Swainson's hawk Buteo swainsoni ST/BCC/\_\_ Prairie falcon Falco mexicanus WL/BCC/\_\_ American peregrine falcon Falco peregrinus anatum CFP/BCC/\_\_ Vaux's swift Chaetura vauxi CSC/\_\_/\_\_ Mountain plover Charadrius montanus CSC/FCT, BCC/BLM Sensitive Northern harrier Circus cyaneus CSC/\_\_/\_\_ Gilded flicker Colaptes chrysoides SE/BCC/\_\_ Yellow warbler Dendroica petechia sonorana CSC/BCC/\_\_ California horned lark Eremophila alpestris actia WL/\_\_/\_\_ Yellow-breasted chat Icteria virens CSC/\_\_/\_\_ Loggerhead shrike Lanius ludovicianus CSC/BCC/\_\_ Gila woodpecker Melanerpes uropygialis SE/BCC/\_\_ Black-tailed gnatcatcher Polioptila melanura \_\_/\_\_/\_\_ Purple martin Progne subis CSC/\_\_/\_\_ Vermilion flycatcher Pyrocephalus rubinus CSC/\_\_/\_\_ Yuma clapper rail Rallus longirostris yumanensis ST & FP/FE/\_\_ Bendire's thrasher Toxostoma bendirei CSC/BCC/BLM Sensitive Crissal thrasher Toxostoma crissale CSC/\_\_/\_\_ Le Conte's thrasher Toxostoma lecontei WL/BCC/\_\_ Mammals Pallid bat Antrozous pallidus CSC/\_\_/BLM Sensitive Townsend's big-eared bat Corynorhinus townsendii CSC/\_\_/BLM Sensitive Spotted bat Euderma maculatum CSC/\_\_/BLM Sensitive Western mastiff bat Eumops perotis californicus CSC/\_\_/BLM Sensitive Hoary bat Lasiurus cinereus \_\_/\_\_/\_\_ California leaf-nosed bat Macrotus californicus CSC/\_\_/BLM Sensitive Arizona myotis Myotis occultus CSC/\_\_/\_\_ Cave myotis Myotis velifer CSC/\_\_/BLM Sensitive Yuma myotis Myotis yumanensisSure, here's the text with some coreference resolution applied:

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Pocketed free-tailed bat Nyctinomops femorosaccus CSC/\_\_/BLM Sensitive Big free-tailed bat Nyctinomops macrotis CSC/\_\_/\_\_ Burro deer Odocoileus hemionus eremicus CPGS\_\_/\_\_ Nelson's bighorn sheep Ovis canadensis nelson \_\_/BLM Sensitive Yuma mountain lion Puma concolor browni CSC/\_\_/\_\_ American badger Taxidea taxus CSC/\_\_/\_\_ Desert kit fox Vulpes macrotis arsipus CPF/\_\_/\_\_ Status Codes: Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range FT = Federally listed, threatened: species likely to become endangered within the foreseeable future FCT = Proposed for federal listing as a threatened species BCC = Fish and Wildlife Service: Birds of Conservation Concern: Identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities, www.fws.gov/migratorybirds/reports/BCC2002.pdf State CSC = California Species of Special Concern Species of concern to CDFG because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. CFP = California Fully Protected SE = State listed as endangered ST = State listed as threatened WL = State watch list CPF = California Protected Furbearing Mammal CPGS = California Protected Game Species Bureau of Land Management BLM Sensitive = Species that require special management consideration to avoid potential future listing under the FESA and that have been identified in accordance with procedures set forth in BLM Manual 6840, the Special Status Species Management Manual for the Bureau of Land Management (Dec. 12, 2008). SOURCE: CDFG, 2011 and one north of I-10 (Karl, 2013a). Under the PSEGS, an additional 4.6 acres of desert tortoise critical habitat are within the PSEGS BRSA and the Project Disturbance Area (Karl, 2013a). All habitats excluding developed, agriculture, and stabilized and partially stabilized desert dunes provide habitat for desert tortoise. Evidence from 2009, 2010 and 2013 surveys shows that few desert tortoise occupy the PSEGS site. Six live desert tortoises were found in the study area in spring, 2010, and other signs that indicate live desert tortoises were scarce. During Spring 2013 surveys, two recent burrows were found within buffer zones along the proposed gen-tie line reroute and one north of I-10 (Karl, 2013a). Mojave Fringe-toed Lizard Mojave fringe-toed lizard was fully described in PSPP PA/FEIS Section 3.23 (pp. 3.23-7 to 3.23-9), and Mojave fringe-toed lizard's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, the Mojave fringe-toed lizard is found in arid, sandy, sparsely vegetated habitats and is associated with creosote scrub throughout Palen Solar Electric Generating System Draft SEIS 3.23-4 July 2013 148 3. Affected Environment 3.23 Wildlife Resources much of Mojave fringe-toed lizard's range. Mojave fringe-toed lizard is totally restricted to habitats of fine, loose, aeolian sand. Many local populations of the Mojave fringe-toed lizard are small, with patches of sand supporting small populations of lizards. This fragmented pattern of distribution leaves the Mojave fringe-toed lizard vulnerable to local extirpation from additional habitat disturbance and fragmentation. Environmental changes that stabilize sand, affect sand sources, or block sand movement corridors will affect the Mojave fringe-toed lizard. Numerous Mojave fringe-toed lizards were found in the northeastern half of the PSPP BRSA during spring 2009 and 2010 surveys. A total of 117 individuals were observed within the Project Disturbance Area for the PSPP from 2009 and 2010, with an additional 62 observed within the buffer area. Nearly half of the Project Disturbance Area for the PSEGS contains suitable Mojave fringe-toed lizard habitat, including stabilized and partially stabilized sand dunes, some wash habitat, and other areas within Sonoran creosote bush scrub habitat with appropriate soils. There were no observations of Mojave fringe-toed lizard in the spring 2013 biological survey results of the PSEGS gen-tie line reroute and natural gas pipeline corridor. The natural gas pipeline corridor and gen-tie line reroute will not impact Mojave fringe-toed lizard habitat (Karl, 2013a). Couch's Spadefoot Toad Couch's spadefoot toad was fully described in PSPP PA/FEIS Section 3.23 (pp.

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The pronouns have been replaced with the corresponding noun phrases they refer to, ensuring the revised text maintains the intended meaning by providing clarity on the entities being discussed.---

Couch's spadefoot toad was described in the PSPP PA/FEIS (pp. 3.23-9 to 3.23-10), and the legal status and occurrence of Couch's spadefoot toad in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, Couch's spadefoot toad is found in a variety of plant communities, including desert dry wash woodland, shortgrass plains, creosote bush scrub, and alkali sink scrub with a substrate capable of sustaining temporary breeding pools for at least nine days, and loose enough to permit burial in subterranean burrows. Breeding habitat for Couch's spadefoot toad includes temporary impoundments at the base of dunes as well as road or railroad embankments, temporary pools in washes or channels, pools that form at the downstream end of culverts, and playas. No Couch's spadefoot toads were observed during 2009 and 2010 surveys discussed in the PSPP PA/FEIS. Potential breeding habitat for Couch's spadefoot toad was not observed in spring 2013 biological survey results of the PSEGS gen-tie line reroute and natural gas pipeline corridor (Karl, 2013a) and presumably was not observed in the area affected by the gen-tie line reroute, natural gas pipeline corridor. However, as discussed in the PSPP PA/FEIS, because of the short time Couch's spadefoot toad is above ground, and because the surveys were not conducted during the proper season (i.e., after summer rains), the lack of observations does not suggest Couch's spadefoot toad is absent from the project site. Couch's spadefoot toads could potentially occur wherever friable soils occur, and breeding habitat could occur wherever there is the potential for sustained ponding. Breeding ponds may occur off-site (such as the Palen Lake area) within adult dispersal distance (adult dispersal distances are unknown). The PA/FEIS determined that there is very limited potential for Couch's spadefoot toad breeding habitat on the project site.

Western Burrowing Owl was fully described in the PSPP PA/FEIS Section 3.23 (pp. 3.23-10 to 3.23-11), and the legal status and occurrence of Western Burrowing Owl in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, Western Burrowing Owl inhabits arid lands throughout much of the western United States and is typically a year-round resident in much of California. Western Burrowing Owls nest and roost in abandoned burrows, especially those created by California ground squirrels, kit fox, desert tortoise, and other wildlife. Western Burrowing Owls have a strong affinity for previously occupied nesting and wintering habitats. In the Colorado Desert, Western Burrowing Owls generally occur at low densities in scattered populations. Phase I through III protocol-level surveys of the PSPP Project Disturbance Area were conducted in spring and summer 2009, and a habitat assessment was completed in fall 2009. Most of the Project Disturbance Area was characterized as suitable Western Burrowing Owl habitat. Two pairs with juveniles and four active burrows with sign were identified in the BRSA during 2009 and/or 2010 protocol surveys; of these, a total of four resident Western Burrowing Owls were observed within the Project Disturbance Area. Spring 2013 surveys of the PSEGS BRSA were conducted according to 2012 burrowing owl survey guidelines (CDFG, 2012), and identified one adult Western Burrowing Owl within the gen-tie line reroute buffer zone; preliminary 2013 survey findings report 10 Western Burrowing Owl detections on the site (Bloom Biological, 2013c).

Golden Eagle was fully described in PSPP PA/FEIS Section 3.23 (pp. 3.23-11 to 3.23-12), and the occurrence of Golden Eagle in the project area has not changed since publication of the PSPP PA/FEIS (Bloom Biological, 2013a). Golden Eagle has, however, become a federal bird species of conservation concern (CDFG, 2011). As stated in the PSPP PA/FEIS and summarized here, Golden Eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668a - d, as amended). The USFWS issued in November 2009 an Environmental Assessment (EA) and Implementation Guidance for take permits under the Bald Eagle and Golden Eagle Protection Act. Golden Eagles are typically year-round residents throughout most of their western United States range. Golden Eagles breed from late January through August, and Golden Eagles are generally considered to be more common in southern California.

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I have replaced pronouns with their respective noun phrases to resolve coreferences throughout the text.Habitats include deserts, and golden eagles prefer to nest in rugged, open habitats with canyons and escarpments. In spring 2010 and 2013, golden eagle nest surveys were conducted according to the USFWS's February 2010 Interim Golden Eagle Inventory and Monitoring Protocols, covering the PSPP BRSA and a 10-mile radius (Bloom Biological, 2013a). The surveys found two active golden eagle nests within one territory, approximately 7 miles southwest of the project site in the Chuckwalla Mountains. Additionally, three inactive nests were located approximately 6 miles southwest of the site in the Chuckwalla Mountains; two of the three inactive nests were associated with the territory discussed above, the other is likely associated with a territory located further south of the proposed site. Golden eagle nest surveys were performed in winter and spring 2013 (Palen Solar Holdings, LLC, 2013b). Winter 2013 Surveys Winter Surveys involving the use of six baiting stations were performed in February 2013. A single sub adult golden eagle was present all five weeks at Bait Station 6 located in the Palen Mountains north of the site, feeding on the carcass 2-3 days each week. No other golden eagles were observed during any of the six full-length survey sessions (Bloom Biological, Inc., 2013b). Palen Solar Electric Generating System Draft SEIS 3.23-6 July 2013 150 3. Affected Environment 3.23 Wildlife Resources Spring 2013 Surveys No golden eagle nests were known from within the 10-mile radius of the PSEGS and also located within the Palen Mountains (Galati, 2013, citing BLM files). Surveys of the Palen Mountains from approximately 500 feet above ground level (agl) located three potential golden eagle nests. Two of the three potential golden eagle nests were inactive while the third was recently-active and over the decades probably has alternated usage between red-tailed hawks (RTHAs) and golden eagles (most recently by RTHAs). Several active and inactive RTHA territories were identified, all in cliffs (Bloom Biological, 2013a)). The Chuckwalla Mountains were flown at greater than 1,500 feet agl (to avoid disturbing bighorn sheep during lambing season) for the purpose of viewing nest locations, locating eagles, and identifying and establishing a ground route that could be revisited by foot to verify the status of known nests and known nest cliffs. No physical signs of active golden eagle nesting activity (e.g., eagles, eagle white wash, fresh nest material, etc.) was observed at any of these sites (Id.). However, 1,500 feet agl is too great a height to provide any measure of certainty. No other potential eagle nest locations were examined in the Chuckwallas. One golden eagle nest slightly outside the 10-mile radius and on a prominent isolated cliff was determined to be inactive by direct visual observation from the helicopter. After several hours of morning observations in early April 2013, all other historic eagle nests appeared to be inactive, as verified by later ground surveys. Some of these historic eagle nests were occupied by other avian species. No eagle nests are known from the south end of the Coxcomb Mountains and also within the 10-mile radius buffer of the PSEGS (Id.). The portion of the Coxcomb Mountains (southern most end) within the 10-mile radius of the Project site and within Joshua Tree National Park was not surveyed by helicopter, but the portion was examined from the ground. No golden eagle nests were detected. The entire approximately 22-mile length of east-west trending DPV2 power lines within the Palen 10-mile radius survey area were surveyed by helicopter from less than 200 feet agl. While no golden eagle nests were found, nests of active RTHAs were abundant (Id.). There is no suitable bald or golden eagle nesting habitat on the PSEGS site. The entire site is suitable golden eagle foraging habitat year-around, and bald eagles may fly over the area or may forage on the site during winter or migration seasons. The area covered during 2010 and 2013 surveys encompassed the PSEGS BRSA, and, because golden eagles often return to prior nesting locations, the surveys are adequate to identify and characterize golden eagle occurrences relative to the PSEGS. Loggerhead Shrike Loggerhead shrike was fully described in PSPP PA/FEIS Section 3.23 (pp. 3.23-12 to 3.23-13), and loggerhead shrike's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, loggerhead shrikes are uncommon residents throughout southern California but loggerhead shrikes are more common in interior desert regions than along the coast.This species can be found within lowland, open habitat types, including creosote scrub and other desert habitats where fences, posts, or other potential perches are typically present. The entire PSEGS Project Disturbance Area contains habitat for loggerhead shrike. Loggerhead shrike, including an adult loggerhead shrike with fledglings, was observed on the PSPP site during 2009 and 2010 surveys. The loggerhead shrike also was observed during spring 2013 avian field survey of the PSEGS, including along the gen-tie line route during burrowing owl surveys (Bloom Biological, 2013c; Galati, 2013). Le Conte's Thrasher was fully described in PSPP PA/FEIS Section 3.23 (p. 3.23-13), and Le Conte's thrasher's occurrence in the project area has not changed since publication of the PSPP PA/FEIS. Le Conte's thrasher is, however, no longer a BLM Sensitive species (CDFG, 2011). As stated in the PSPP PA/FEIS and summarized here, Le Conte's thrasher is a resident in the Mojave Desert, occurring in desert flats, washes and alluvial fans with sandy and/or alkaline soil and scattered shrubs. Le Conte's thrasher rarely occurs in monotypic creosote scrub habitat, because creosote bush is unable to support a nest; preferred nest substrate includes thorny shrubs and small desert trees. Le Conte's thrasher was observed in the PSPP BRSA during 2009 avian surveys, and during spring 2013 avian field surveys of the PSEGS (Bloom Biological, 2013c). Habitat for Le Conte's thrasher in the Project Disturbance Area is confined to desert dry wash woodland. California horned lark was described in PSPP PA/FEIS Section 3.23 (p. 3.23-13), and California horned lark's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. The California horned lark is found throughout most of California, preferring open areas that are barren or with short vegetation including deserts, brushy flats, and agricultural areas. California horned lark was observed frequently in the Project Disturbance Area during 2009 and 2010 surveys and during spring 2013 avian field surveys of the PSEGS, including within the gen-tie line corridor and natural gas line alignment (Bloom Biological, 2013c; Blek, 2013). The project site contains habitat for California horned lark, especially in creosote bush scrub. Prairie Falcon was described in PSPP PA/FEIS Section 3.23 (pp. 3.23-13 to 3.23-14), and prairie falcon's occurrence in the project area has not changed since publication of the PSPP PA/FEIS. Prairie falcon has, however, become a federal bird species of conservation concern (CDFG, 2011). As stated in the PSPP PA/FEIS and summarized here, prairie falcon inhabits dry, open environments in the North American and is associated primarily with desert scrub areas, among other preferred habitat types. Prairie falcons require cliffs or bluffs for nesting though prairie falcons will sometimes nest in trees or on power line structures. Suitable nesting habitat may occur in surrounding mountains, but the BRSA does not provide suitable nesting habitat; however, the entire Project Disturbance Area contains suitable foraging habitat for prairie falcon. During 2009 and 2010 PSPP surveys, prairie falcons were observed several times both as flyovers and as perchers. During 2010 nest surveys, a pair of prairie falcons was documented in the Palen Mountains. Prior PSPP surveys are adequate to evaluate and characterize the PSEGS relative to the habitat needs of prairie falcon. American badger was described in PSPP PA/FEIS Section 3.23 (p. 3.23-14), and American badger's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, badgers are an uncommon permanent resident of cold desert areas. The entire BRSA provides suitable foraging and denning habitat for badgers. Badger sign was found throughout the BRSA and five badger dens were found within the Project Disturbance Area during spring 2009 field surveys. No badgers were observed during 2013 surveys.Desert Kit Fox Desert kit fox was described in PSPP PA/FEIS Section 3.23 (pp. 3.23-14 to 3.23-15), and the desert kit fox's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, desert kit fox is an uncommon to rare permanent resident of arid regions of the southern California deserts. Kit fox dens are used as shelter, escape, cover, and reproduction, and dens are vital to the survival of the species. Desert kit fox burrows, burrow complexes, and scat were observed throughout the Study Area within desert wash and upland scrub habitats during spring 2009. Approximately 71 kit fox burrows and burrow complexes have been recorded on lands within the PSPP BRSA, mostly in the Project Disturbance Area, and during spring 2010 field surveys two kit fox complexes were found in the Project Disturbance Area and four more complexes in the buffer area. No kit fox dens were observed during spring 2013 surveys of the PSEGS BRSA (Karl, 2013a). The entire PSEGS BRSA provides habitat for desert kit fox. In late 2011, the first known cases of canine distemper virus (CDV) were observed in desert kit foxes about 20 miles west of Blythe on public lands managed by the BLM and leased to Genesis Solar LLC for construction of the Genesis Solar Energy Project. At the time, CDFW believed that the outbreak originated from an infected host animal entering the site, possibly a wild or domestic dog, American badger, or other carnivore. The rapid spread of CDV within the kit fox population was facilitated by the project-related displacement of infected animals from the Genesis site into new kit fox territories. Subsequently, desert kit foxes were captured for disease testing at the First Solar Desert Sunlight, Solar Millennium Palen, Genesis Ford Dry Lake, and at SCE's Colorado River Substation. CDV was identified at the two later sites, which span a distance of about 40 miles on the I-10 corridor within the Chuckwalla Valley (BLM, 2012, p. 4.4-15). The CDFW Wildlife Investigations Lab continues to monitor the health of desert kit foxes and is attempting to characterize the spread and significance of the disease on regional kit fox populations. To date, there has been no effort to test desert kit foxes in the PSEGS area for distemper. Nelson's Bighorn Sheep Nelson's bighorn sheep was described in PSPP PA/FEIS Section 3.23 (pp. 3.23-15 to 3.23-16), and Nelson's bighorn sheep's legal status and occurrence in the project area has not changed since publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, Nelson's bighorn sheep includes bighorns from the Transverse Ranges through most of the desert mountain ranges of California, Palen Solar Electric Generating System Draft SEIS 3.23-9 July 2013 3. Affected Environment 3.23 Wildlife Resources Nevada, northern Arizona to Utah. Essential habitat for bighorn sheep includes steep, rocky slopes of desert mountains, termed "escape terrain." Surface water is another element of desert bighorn habitat considered essential to population health. In the spring when annual plants are available, bighorn tend to disperse downhill to bajadas and alluvial fans to forage. Desert bighorn have a long lambing season that can begin in December and end in June in the Mojave Desert, and a small percentage of births commonly occur in summer. Over the past 140 years, bighorn sheep have suffered considerable population declines. Two metapopulations and nine demes of bighorn sheep occur within the NECO planning area, bighorn sheep disperse whenever forage and water conditions are suitable. No sign or evidence of Nelson's bighorn sheep were found during field surveys performed within the BRSA, but Nelson's bighorn sheep have been documented in mountain ranges to the north, west, southwest, and east of the site. Six rams were observed in the Coxcomb Mountains during Phase 2 golden eagle surveys in 2010. The BRSA does not occur in a known movement corridor, as identified in the NECO Plan, and Nelson's bighorn sheep was not observed during spring 2013 surveys of the PSEGS BRSA (Karl, 2013a). The NECO Plan also identifies I-10 as a barrier to bighorn sheep movement (BLM CDD, 2002).The PSEGS site is not currently an important movement corridor because of the presence of I-10 and the width of the valley between suitable bighorn sheep habitat. All vegetation communities within the PSEGS BRSA are considered suitable to support bighorn sheep. Burro Deer Burro deer was described in PSPP PA/FEIS Section 3.23 (p. 3.23-16), and the legal status and occurrence in the project area have not changed since the publication of the PSPP PA/FEIS. As stated in the PSPP PA/FEIS and summarized here, burro deer is a subspecies of mule deer (Odocoileus hemionus) found within desert dry wash woodland communities in response to increases in water and forage. During spring 2009 and December 2009 field surveys, burro deer scat and tracks were observed in rocky substrate and deep washes including the western, central, and eastern desert washes that transect the project site. Burro deer sign was found within the washes and 150 foot-wide box culverts that convey the washes underneath I-10. Burro deer are known to use a culvert associated with the western-most project area wash to access a water source at a nearby orchard. Burro deer scat and tracks were observed in washes east of the PSEGS proposed gen-tie alignment and adjacent to I-10, and tracks were observed in the natural gas line extension buffer zone (Karl, 2013a). The entire PSEGS site provides habitat for burro deer. Bats The PSEGS site supports foraging and roosting habitat for several special-status bat species. Roosting opportunities for bats are available in tree cavities, soil crevices, and rock outcroppings primarily within dry desert wash woodland habitats. Bat roosts are known to occur in the area, including sites in the McCoy Mountains, Eagles Nest Mine (Little Maria Mountains), and Paymaster Mine. Bats likely utilize habitats throughout the study area for foraging, but bats forage more commonly in areas such as desert washes where water and insects are more abundant. Palen Solar Electric Generating System Draft SEIS 3.23-10 July 2013.

3. Affected Environment 3.23 Wildlife Resources Other Special Status Wildlife Table 3.23-2 lists other special status wildlife that were not detected and are not expected to occur in the PSEGS BRSA. These additional species were considered to have a lower potential for occurrence on the PSEGS site than the species discussed above because the general or micro-habitats known to support these additional species were not found on the site, and/or because there are no known occurrences in the project vicinity. Palen Solar Electric Generating System Draft SEIS 3.23-11 July 2013.

3. Affected Environment 3.23 Wildlife Resources TABLE 3.23-2 SPECIAL-STATUS WILDLIFE WITH LOW TO MODERATE POTENTIAL TO OCCUR IN THE PROJECT STUDY AREA Species Habitat Requirements and Geographic Range Potential to Occur or Presence On Site Birds Bendire's Thrasher Bendire's thrashers are known in California from scattered locations in Kern, Inyo, the desert dry wash vegetation community provides potential Toxostoma bendirei San Bernardino, and Riverside Counties. Bendire's thrasher is a summer resident in habitat for Bendire's thrashers (141 acres), although Bendire’s thrasher was not observed during surveys. There are seven CNDDB (CDFW, 2013) within 30 miles of the project area, with two 2004 records from near Desert Center, approximately 3.0 miles west of the project site. The status of populations of Bendire's thrashers is poorly understood, but threats are believed to be loss of habitat due to urbanization, harvesting of yucca and Joshua trees, overgrazing, and off-road vehicle activity. In parts of the range, grazing may increase habitat suitability by increasing the area with scattered junipers. Black-tailed Gnatcatcher A year-round resident in southwestern United States and central and northern Based on a review of the vegetation community descriptions Polioptila melanura Mexico, in California the black-tailed gnatcatcher is found in the southeast desert provided by the Applicant, the project site contains little, if any, wash habitat from Palm Springs and Joshua Tree National Park south, and along of the dense scrub habitat preferred by the black-tailed gnatcatcher.It is now rare in eastern Mojave Desert north to the Amargosa known from the area, including from McCoy Spring, Palen River, Inyo County. This species nests primarily in wooded desert wash habitat, Valley, and Chuckwalla Well (Fitton, 2008). The closest occurrence but also occurs in creosote scrub habitat during the non-breeding season. The occurrence based on the CNDDB (CDFW, 2013) is from 1977 and is approximately 14.2 miles east of the project site. The Crissal thrasher Crissal thrashers are non-migratory residents ranging from southern Nevada and based on a review of the vegetation community descriptions Toxostoma crissale southeastern California to western Texas and central Mexico. This species prefers habitat provided by the Applicant. The project site contains little, if any, habitats characterized by dense, low scrubby vegetation, which, at lower elevations, includes desert and foothill scrub and riparian brush. Nests of the Crissal thrasher species typically consist of an open cup of twigs, lined with finer vegetation, and are placed in the middle of a dense shrub. These nests are known from the area, including from McCoy Spring, Palen Valley, and Chuckwalla Well (Fitton, 2008). The closest occurrence based on the CNDDB (CDFW, 2013) is from 1977 and is approximately 14.2 miles south of the project site. The Ferruginous hawk Ferruginous hawks do not breed in California, but are winter residents and in the project site contains suitable wintering habitat for this Buteo regalis species. There are ten CNDDB (CDFW, 2013) records for the Ferruginous hawk species in western Riverside County, and the nearest Ferruginous hawk occurrence is more than 90 miles west of the project area (CDFW, 2013). The Gila woodpecker's range is limited to a small area of southwestern United States and northwestern Mexico. In California, the Gila woodpecker species is known only from the Colorado River; therefore the Gila woodpecker species is not expected in the project site. The project site does not contain suitable nesting habitat for the Gila woodpecker species. The closest CNDDB (CDFW, 2013) record for the Gila woodpecker species is a 1986 record east of the project site at the Colorado River. Another Gila woodpecker was documented by the USFWS at the Rio Mesa project site in 2012. The Palen Solar Electric Generating System Draft SEIS 3.23-12 July 2013 156 3. Affected Environment 3.23 Wildlife Resources TABLE 3.23-2 (Continued) SPECIAL-STATUS WILDLIFE WITH LOW TO MODERATE POTENTIAL TO OCCUR IN THE PROJECT STUDY AREA. The gilded flicker species is not expected to regularly use the project site due to lack of suitable habitat. The closest CNDDB (CDFW, 2013) records for the gilded flicker species are along the Colorado River. The gilded flicker species is known from the southeast; habitat includes stands of giant cactus, Joshua tree, and riparian groves of cottonwoods and tree willows in warm desert lowlands and foothills. Until the mid-1990's, the gilded flicker species was considered a subspecies of northern flicker (C. atratus). The gilded flicker species nests primarily in cactus, but also will use cottonwoods and willows of riparian woodlands. The gilded flicker species may be nearly extinct in California. The mountain plover species may use the dry lakebed and nearby agricultural areas as winter habitat. The closest CNDDB (CDFW, 2013) record for the mountain plover species is in Imperial County at the southern end of the Salton Sea. Mountain plovers do not breed in California, but are winter visitors primarily from September to mid-March. In California, the mountain plover species is found in the Central Valley, Antelope Valley, San Jacinto Valley, Imperial Valley, and Palo Verde Valley. The mountain plover habitat includes short-grass prairie or their equivalents, and in southern California.Deserts are associated primarily with agricultural areas, though use of these agricultural areas is suspected to be because of loss of native grassland and playa habitats. In western North America, the northern harrier breeds from northern Alaska south to Baja California, Mexico. The project site contains suitable wintering habitat for the northern harrier, and the northern harrier was observed during project site surveys (Solar Millennium, 2009). There are California Natural Diversity Database (CNDDB) (California Department of Fish and Wildlife (CDFW), 2013) nesting records for the northern harrier in eastern Riverside County.

The peregrine falcon's year-round range includes coastal and northwestern California and the Sierra Nevada and other California mountains. The peregrine falcon may forage on the project site and nest in nearby mountains, but the peregrine falcon was not observed on the project site during project surveys. There are no CNDDB (CDFW, 2013) records for the peregrine falcon in Riverside County. Peregrine falcons require open habitat for foraging and prefer breeding sites near water. The peregrine falcon's nesting habitat includes cliffs, steep banks, dunes, mounds, and some human-made structures.

The historical breeding range of the purple martin includes southern California, though purple martin populations have shrunk dramatically. Neither the historical nor current breeding range of the purple martin, however, includes the Colorado Desert. The purple martin's habitat requirements include adequate nest sites and availability of large aerial insects, and therefore the purple martin is most abundant near wetlands and other water sources. Threats to the purple martin include loss of large trees and snags, and competition from European starlings. The purple martin was observed migrating through the project site, but the purple martin is not expected to extensively use the project site. There are six CNDDB (CDFW, 2013) records for the purple martin from western Riverside County, the most recent of which include nesting records from 1984 and 1993.

Short-eared owls breed through much of northern North America and are year-round residents in some areas of California. Historically, short-eared owls occurred throughout much of California, west of the southern deserts, in low numbers. Currently, small populations of short-eared owls breed regularly in the Great Basin and in the Sacramento/San Joaquin River Delta area, but sporadically in other parts of the short-eared owl's former range. The project site contains suitable wintering habitat for the short-eared owl. Although the short-eared owl was not observed during surveys for the project, the short-eared owl was observed during surveys for a nearby proposed energy facility immediately west of the McCoy Mountains. There are no Riverside County CNDDB (CDFW, 2013) records for the short-eared owl. Short-eared owls require open country that supports small mammal populations and that also provides adequate vegetation to provide cover for nests. This includes salt- and freshwater marshes, irrigated alfalfa or grain fields, and ungrazed grasslands and old pastures.

Swainson's hawks require large areas of open landscape for foraging, including grasslands and agricultural lands that provide low-growing vegetation for hunting and high rodent prey populations. Swainson's hawks typically nest in large native trees such as valley oak, cottonwood, walnut, and willow, and occasionally in nonnative trees such as eucalyptus within riparian woodlands, roadside trees, trees along field borders, isolated trees, small groves, and on the edges of remnant oak woodlands. While there are historical breeding records of Swainson's hawks from the Colorado Desert, Swainson's hawks now are known from southern California only as spring and fall migrants. The project site may provide foraging habitat for migrating Swainson's hawks, and Swainson's hawks were observed in the project site during surveys. There are no CNDDB (CDFW, 2013) records for nesting Swainson's hawks in Riverside County.This reduction in breeding range for Vaux's swift is believed to be from loss of nesting habitat. Vaux's swift is not known to breed in Riverside County or elsewhere in southern California. Vaux's swift was observed during surveys, but occurrences are expected to be of migrants only. Very few nests have been found, so Vaux's swift's breeding range has been inferred from sightings of birds flying over potential nesting areas during their nesting season, in June and July. Vaux's swifts prefer to nest in the hollows formed naturally inside of large old conifer trees, especially snags, which are entirely lacking from the project site.

Vermilion flycatchers are rare breeders or residents in localized areas of southern California, including along the Colorado River. Vermilion flycatchers are usually found near water in arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodlands; nesting substrate includes cottonwood, willow, and mesquite. Within the project vicinity, occurrences of Vermilion flycatchers are limited to the Colorado River. Vermilion flycatchers are not expected in the project site. The closest CNDDB (CDFG, 2013) records include a 1983 record from the Blythe golf course.

Yellow warblers historically bred throughout much of California except for high elevations, the Colorado Desert, and most of the Mojave Desert. Breeding abundance for yellow warblers has declined in much of California, as has the breeding range, especially in the Central Valley and parts of Owens Valley. In southeastern California, yellow warblers are known only from the lower Colorado River Valley from the middle of San Bernardino County through Riverside and Imperial Counties. Currently, yellow warblers no longer breed in much of the Riverside County segment of the lower Colorado River Valley. Yellow warblers commonly use wet, deciduous thickets for breeding, and seek a variety of wooded, scrubby habitats in winter. Yellow warblers were not observed during surveys, and are not expected to nest in the project site due to lack of suitable habitat. The closest extant CNDDB (CDFW, 2013) records for yellow warblers are two 1986 records east of the project site at the Colorado River.

The yellow-breasted chat occurs as a summer resident and migrant in California. In the southeastern California, the yellow-breasted chat breeds primarily in scattered locations in Owen's Valley and the Mojave, from the Salton Sea, and from the lower Colorado River Valley. The yellow-breasted chat occupies shrubby riparian habitat with an open canopy, and will nest in non-native species, including tamarisk. Threats to the yellow-breasted chat include loss of riparian habitat, and, it is suspected, pressure from cowbird parasitism. In this region, the yellow-breasted chat is associated with the Colorado River only. The project site does not contain suitable habitat for the yellow-breasted chat. CNDDB (CDFW, 2013) records in the region are associated with the Salton Sea or the Colorado River. The closest CNDDB records for the yellow-breasted chat are two 1986 records east of the project site at the Colorado River.

The Yuma clapper rail occurs in inland areas in the southwestern United States. This subspecies is partially migratory, with many Yuma clapper rails wintering in brackish marshes along the Gulf of California. Some Yuma clapper rails remain on their breeding grounds throughout the year; for example, the Salton Sea (south) Christmas Bird Count frequently records the Yuma clapper rail in the fresh-water marshes in and around the Imperial Wildlife Area (Wister Unit). The Yuma clapper rail is unique among the clapper rails in being the only one that occupies fresh-water marshes during the breeding seasons yet largely winters in brackish marshes south of the United States. Nesting and foraging habitat for the Yuma clapper rail occurs only along the Lower Colorado River (from Topock Marsh southward) and around the Salton Sea. A Yuma clapper rail was detected at the Desert Sunlight Solar Farm, and Yuma clapper rails may occasionally migrate though the project area.

The Arizona myotis has been found from southeastern California through Arizona, New Mexico, and south into Chihuahua, Mexico. The Arizona myotis is not expected to occur due to lack of coniferous habitat.Arizona myotis is most commonly found in forests and low elevations of the Study Area. The closest known records of Arizona myotis are from conifer forests ranging from 6,000 to 9,000 feet in elevation, although a maternity record is a historical occurrence from 1945. Approximately ten roosts of Arizona myotis are known from much lower elevations, including areas along the Colorado River miles south of the Study Area near the town of Ripley (PSPP PA/FEIS, p. 3.23-21). Arizona myotis has been found from southeastern California through Arizona, New Mexico, and south into Chihuahua, Mexico. Myotis occultus, which is the Arizona myotis, is not expected to occur in the Study Area due to a lack of coniferous forests and low elevation.

The big-free tailed bat, also known as Nyctinomops macrotis, ranges from most of South America northward to include Mexico, Arizona, New Mexico, southern and western Texas, southern California, southeastern Nevada, southern Utah, and north and western Colorado, generally from sea level to 8,000 feet in elevation. The big-free tailed bat occurs in desert shrub, woodlands, and coniferous forests. It roosts mostly in the crevices of rocks although big free-tailed bats may roost in buildings, caves, and tree cavities. The big-free tailed bat has the potential to roost and forage within the project area. The nearest occurrences for this species in Riverside County are from the vicinity of Palm Springs and Joshua Tree National Park (CDFW, 2013). A single bat of an unidentified species was observed roosting beneath a bridge near Corn Springs Road, near the location of the proposed substation, during December 2009 surveys (AECOM, 2010).

The California leaf-nosed bat, known scientifically as Macrotus californicus, is a species of concern and a BLM Sensitive species and is covered under the NECO plan. California leaf-nosed bats occur in the deserts of California, southern Nevada, Arizona, and south to northwestern Mexico. In California, California leaf-nosed bats now are found primarily in the mountain ranges bordering the Colorado River Basin. In California, the two largest roosts of California leaf-nosed bats (each sheltering 1,500 bats during winter months) are in mines in extreme southeastern California. This species, the California leaf-nosed bat, depends on either caves or mines for roosting habitat. All major maternity, mating, and overwintering sites of the California leaf-nosed bat are in mines or caves (BLM CDD, 2002). Radio-telemetry studies of Macrotus californicus in the California desert show that California leaf-nosed bats forage almost exclusively among desert wash vegetation within 10 km of their roost (WBWG, 2005).

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159 "3. Affected Environment 3.23 Wildlife Resources TABLE 3.23-2 (Continued) SPECIAL-STATUS WILDLIFE WITH LOW TO MODERATE POTENTIAL TO OCCUR IN THE PROJECT STUDY AREA Species Habitat Requirements and Geographic Range Potential to Occur or Presence On Site

Mammals (cont.) Cave myotis, also referred to as Myotis velifer, occurs from western Texas, to southern Nevada, southeastern California (only along the Colorado River), southward into Mexico, and is also widely distributed in Arizona. The cave myotis is found primarily at lower elevations (the Sonoran and Transition life zones) of the arid southwest in areas dominated by creosote bush, palo verde, and cactus. This species, the cave myotis, has a potential to occur within the Study Area, more likely as a foraging species than a roosting bat species. The nearest CNDDB record for the cave myotis is from 2002 near the I-15 bridge over the Colorado River in Blythe where the roost was observed.This species is a "cave dweller" and caves where individual bats of this species were detected acoustically are the main roosts although the species may also use mines, buildings, and bridges for roosts. This species occurs from southern Nevada, southeastern California, northeastern Baja California, to western Arizona. Colorado Valley woodrats are found in a variety of coarse soils and habitats including low desert, pinyon-juniper woodlands, and desert-transition chaparral. Suitable habitat elements for the Colorado Valley woodrat include washes where organic debris gathers, areas of prickly pear cactus and mesquite, rocky areas, and crevices in boulders that are used for cover and nest sites. Hoary bat is the most widespread of North American bats and is highly associated with forested habitats in the west. Hoary bat roosts usually are located at the edge of a clearing, although more unusual roosting sites have been reported in caves, beneath rock ledges, woodpecker holes, squirrel nests, building sides, and in dried palm fronds on palm trees. A single bat of an unidentified species was observed roosting beneath a bridge near Corn Springs Road near the location of the proposed substation during December 2009 surveys. The pallid bat is a California species of concern and a BLM Sensitive species that is covered under the NECO plan. Pallid bats inhabit low elevation (less than 6,000 feet) rocky, arid deserts and canyonlands, shrub/steppe grasslands, but also occur in higher elevation coniferous forests, greater than 7,000 feet in elevation. The pallid bat is most abundant in xeric landscapes including the Great Basin, Sonoran, and Mojave deserts. Pallid bats are known from Cuba, Mexico, and throughout the southwestern and western United States. Population trends of the pallid bat are not well known, but there are indications of decline. Pallid bats roost alone, in small groups (2 to 20 bats), or gregariously (100s of individuals). Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees with exfoliating bark, and various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings. Pocketed free-tailed bat is a California species of concern. The pocketed free-tailed bat occurs in western North America, from southern California, central Arizona, southern New Mexico, western Texas, south into Mexico and Baja, California. Despite only a limited number of records, pocketed free-tailed bats are known to occur in the desert from March through August, when individual bats of this species then migrate out of the area.In California, bats are found primarily in creosote bush and chaparral habitats, detected acoustically during April 2002 (CDFG, 2013). A single bat of an unidentified species was observed roosting beneath a bridge near Corn Springs Road near the location of the proposed substation during December 2009 surveys (AECOM, 2010).

The spotted bat (Euderma maculatum) is known from all the states west of and including Montana, Wyoming, Colorado, New Mexico, and Texas. Although the spotted bat is broadly distributed, the spotted bat is rarely common but may occur locally from southern British Columbia, the northern Arizona/Utah border, and western Texas from below sea level to 8,100 feet above mean sea level. Spotted bats occur in arid, low desert habitats to high elevation conifer forests, and prominent rock features appear to be a necessary feature for roosting. The nearest CNDDB record for spotted bats is a historical occurrence from 1907 in the Colorado Desert near Mecca (CDFW, 2013).

Townsend's big-eared bat (Corynorhinus townsendii) has been reported in a wide variety of habitat types ranging from sea level to approximately 9,000 feet above MSL. Habitat associations include coniferous forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Foraging associations for Townsend's big-eared bat include edge habitats along streams, adjacent to, and within a variety of wooded habitats.

The western mastiff bat (Eumops perotis), the subspecies that occurs in North America, ranges from central Mexico across the southwestern United States, including parts of California, southern Nevada, Arizona, southern New Mexico, and western Texas. Recent surveys have extended the previously known range to the north in both Arizona and California. The western mastiff bat is found in a variety of habitats, from desert scrub to chaparral to oak woodland and into the ponderosa pine belt and high elevation meadows of mixed conifer forests. Surveys in northern Arizona have documented western mastiff bat roosts at approximately 3,600 feet elevation and foraging bat species at 7,500 feet above MSL (WBWG, 2005).

Yuma myotis (Myotis yumanensis) ranges across the western third of North America from British Columbia, Canada, to Baja California and southern Mexico. Yuma myotis is usually associated with permanent sources of water, typically rivers and streams, feeding primarily on aquatic emergent insects. Yuma myotis also use tinajas in the arid west and occurs in a variety of habitats including riparian, arid scrublands and deserts, and forests. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees. The nearest CNDDB record for Yuma myotis is from 2002 near the Blythe bridge over the Colorado River, where individual bats of this species were detected acoustically during April 2002 (CDFW, 2013).

Throughout this text, a single bat of an unidentified species was again observed roosting beneath a bridge near Corn Springs Road near the location of the proposed substation during December 2009 surveys (AECOM, 2010).\*\*Revised Text with Coreference Resolution:\*\*

Yuma mountain lion: In the NECO planning area, mountain lions primarily inhabit the low mountains and mountain lions likely use the Study Area, but no definitive sign of the mountain lions was observed during 2009 spring surveys. Puma concolor browni, mountain lions, extensively inhabit wash systems in and around Chuckwalla Bench, Chuckwalla Mountains, Chocolate Mountains, Picacho Mountains, Milpitas Wash, Vinagre Wash, and other washes in that area. Mountain lions typically occur in habitat areas with extensive, well-developed riparian or shrubby vegetation interspersed with irregular terrain, rocky outcrops, and community edges. Mountain lions are restricted to the southern Colorado Desert from Joshua Tree National Park south and east to the Colorado River. Burro deer, the primary prey item of the mountain lions, are known to spend the hot summer and fall in riparian areas along the Colorado River and in dense microphyll woodlands near the Coachella Canal. Palen Solar Electric Generating System Draft SEIS 3.23-18 July 2013

162 "CHAPTER 4 Environmental Consequences 4.1 Introduction This chapter includes analyses of environmental consequences or impacts that would result from implementation of the PSEGS and alternatives described in Chapter 2, Proposed Action and Alternatives. The direct and indirect effects of Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A are analyzed in the PSPP PA/FEIS, and much of that analysis remains valid. Accordingly, this chapter focuses primarily on impacts that could result from the PSEGS. To the extent that new information or circumstances warrant revision to the impact analysis presented in the PSPP PA/FEIS, the revision is included here. For example, the range of cumulatively considerable projects has changed since publication of the PSPP PA/FEIS. As such, this Chapter 4 includes analyses of cumulative impacts for the PSEGS and the alternatives that have been carried forward from the PSPP PA/FEIS. Unless otherwise indicated, analyses of the direct and indirect impacts of alternatives contained in the PA/FEIS are assumed to remain valid and are not replicated here. Existing environmental conditions for assessing the potential environmental impacts are primarily described in the PSPP PA/FEIS and supplemented in Chapter 3 of this Draft SEIS, as necessary, to reflect the types of information and changed circumstances referenced above. The methodology for the impact assessment contained in the following sections conforms with the guidance found in the BLM's NEPA Handbook H-1790-1 (January 2008) as well as the applicable CEQ regulations for implementing NEPA: (i.e., 40 CFR Section 1502.24, Methodology and Scientific Accuracy; 40 CFR Section 1508.7, Cumulative Impacts; and 40 CFR Section 1508.8, Effects). The CEQ regulations require agencies to "rigorously explore and objectively evaluate" the impacts of the alternatives. This chapter discusses short-and long-term direct, indirect and cumulative impacts of the PSEGS and alternatives; identifies mitigation measures where appropriate to address adverse impacts; and summarizes residual and unavoidable adverse impacts, if any, on an issue-by-issue basis. Where used in this analysis, the word "significantly" is intended strictly to mean the legal term of art defined in NEPA (40 CFR 1508.27; BLM NEPA Handbook Section 7.3). Section 4.1, Introduction, describes the analytical assumptions relied upon in analyzing the environmental consequences of the PSEGS and alternatives (Section 4.1.1) and defines the types of effects that may result (Section 4.1.2). The section also describes the projects and approach used for the cumulative scenario (Section 4.1.3), the mitigation measures identified to address adverse impacts on the resources and issue areas analyzed (Section 4.1.4), and the general terms and conditions required for all public land ROWs (4.1.5). Section 4.1.6 summarizes the potential for the PSEGS Palen Solar Electric Generating System Draft SEIS 4.1-1 July 2013

163 4. Environmental Consequences 4.1 Introduction and alternatives to have significant irreversible effects on the environment. Finally, Section 4.1.7 describes the relationship between the short-term use of the environment and the maintenance and enhancement of long-term productivity. 4.1.1 Analytical Assumptions The following impacts analyses were conducted with the following assumptions: 1. The laws, regulations, and policies applicable to BLM authorizing ROW grants for renewable energy development facilities would be applied consistently for all action alternatives. 2. The proposed facility would be constructed, operated, maintained, and decommissioned as described in each action alternative. 3.

(Note: The replacement of coreferent pronouns with corresponding noun phrases is performed where references to specific entities are made. Pleonastic usages of "it" which do not reference entities, e.g., weather conditions or existential constructions, are left unchanged, and not all potential coreferences are resolvable due to the nature of the text provided.)Short-term impacts are those expected to occur during the construction phase and the first 5 years of the operation and maintenance phase, as well as the end-of-project-life decommissioning phase. Long-term impacts are those that would occur after the first 5 years of operation. 4.1.2 Types of Effects The potential impacts from those actions that would have direct, indirect, and cumulative effects were considered for each resource. Effects and impacts as used in this document are synonymous and could be beneficial or detrimental (40 CFR 1508.7, 1508.8; BLM NEPA Handbook Section 6.8). Direct effects are caused by the action and occur at the same time and place as the action; indirect effects are caused by the action and occur later in time or further in distance, but are still reasonably foreseeable. Residual effects are effects that remain after mitigation measures have been applied. Cumulative impacts are those effects resulting from the incremental impacts of an action when combined with other past, present, and reasonably foreseeable future actions (regardless of which agency or person undertakes such actions). Cumulative impacts could result from individually insignificant but collectively significant actions taking place over a period of time. 4.1.3 Cumulative Scenario Approach This Draft SEIS analyzes the cumulative impacts of the construction, operation and maintenance, closure and decommissioning of the Palen Solar Electric Generating System and alternatives within the right-of-way application area, taking into account the effects in combination with past, present and reasonably foreseeable future actions. The cumulative effects analysis highlights past actions that are closely-related either in time or space (i.e., temporally or in geographic proximity) to the Palen Solar Electric Generating System and alternatives that could have ongoing impacts that could interact with those of other projects, present actions the review of which is in progress at the same time this Draft SEIS was being prepared; and reasonably foreseeable future actions, including those for which there are existing decisions, funding, formal proposals, or which are highly probable, based on known opportunities or trends. This information represents an update to the cumulative scenario presented in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement. Palen Solar Electric Generating System Draft SEIS 4.1-2 July 2013

164 4. Environmental Consequences 4.1 Introduction The intensity, or severity, of the cumulative impacts analysis considers the magnitude, geographic extent, duration and frequency of the effects (Council on Environmental Quality, 1997). The magnitude of the effect reflects the relative size or amount of the effect; the geographic extent considers how widespread the effect may be; and the duration and frequency refer to whether the effect is a one-time event, intermittent or chronic (Council on Environmental Quality, 1997). Varying degrees of information exist about projects within the cumulative scenario. Therefore, for resource areas where quantitative information is available, a quantitative analysis is provided. By contrast, where quantitative information is not available, a qualitative analysis is provided. Consistent with Bureau of Land Management Handbook, if the Palen Solar Electric Generating System and alternatives would have no direct or indirect effects on a resource, resource use or program area, the Draft SEIS does not analyze potential cumulative effects related to that issue. The cumulative scenario includes projects identified in Table 4.1-1, Cumulative Scenario, and shown in Figure 4.1-1. Table 4.1-1 identifies the following for each resource, resource use or Bureau of Land Management program area: the cumulative assessment impact area (i.e., the geographic scope for the corresponding resource, resource use, or Bureau of Land Management program area); elements to consider; Bureau of Land Management renewable energy projects; other Bureau of Land Management authorized actions; and other known actions or activities within the geographic scope that are not under Bureau of Land Management's jurisdiction. Most of the actions and projects listed have undergone, are undergoing, or would be required to undergo their own independent environmental review under NEPA or California Environmental Quality Act or both, as applicable. The specific area within which cumulative effects could occur varies by resource. Accordingly, the geographic scope of analysis in each instance is based on the natural boundaries of the resource affected by the Palen Solar Electric Generating System or alternatives, rather than jurisdictional boundaries. In addition, each project in a region would have its own implementation schedule, which may or may not coincide or overlap with the Palen Solar Electric Generating System's schedule. This is a consideration for short-term impacts from the project. However, to be conservative, the cumulative analysis assumes that all projects in the cumulative scenario are built and operating during the operating lifetime of the Palen Solar Electric Generating System. Renewable Energy Projects Included in the Cumulative Scenario A large number of renewable projects have been proposed on Bureau of Land Management-administered land, state land, and private land in California. As of May 2013, there were approximately 106 renewable projects proposed in California in various stages of environmental review or under construction. Solar, wind, and geothermal development applications have requested use of Bureau of Land Management-administered land, including approximately one million acres of the California desert.I'm sorry, it seems I made an error in understanding your requirement earlier. Please provide the specific text from your document for coreference resolution, and I’ll assist you with it.Environmental Consequences 4.1 Introduction TABLE 4.1-1 (Continued) CUMULATIVE SCENARIO Resource or Cumulative Analysis Other BLM BLM Program Impact Area Elements to Consider BLM Renewable Energy Projects Authorized Actions Other Known Actions/Activities Mineral All areas potentially underlain Designated aggregate resource Resources by construction-grade areas, extent and availability of all areas potentially underlain by construction-grade aggregate resources. Multiple Use CDCA Plan areas bearing the Restriction or preclusion of otherwise all BLM Renewable Energy Projects located on desert public lands classified MUC-M within Imperial County, Kern County, King County, Los Angeles County, Riverside County, San Bernardino County, San Diego County Classes multiple use class designation allowable use opportunities County, Kern County, King County, Los Angeles County, Riverside County, San Bernardino County, San Diego County Noise See Figure 4.9-1 Noise Equipment, motor vehicles, high Measurement Locations and pressure steam blow None Noise Contours Paleontological Eastern Riverside County Ground-disturbing activities; rock Desert Harvest Solar Farm, Desert Recreational Opportunities, Interstate 10, Chuckwalla Valley Resources units with potential high sensitivity or Sunlight Solar Farm, Genesis Solar Blythe Energy Project State Prison, Ironwood State known paleontological resources Energy, McCoy Solar Energy, Rice Solar Trans-mission Line, Eagle Prison, Blythe Energy Project, Energy, Rio Mesa Solar, Mountain View Mountain Pumped Storage Eagle Mountain Pumping Plant, Power Partners Novation/REC, Wind Project, Eagle Mountain Kaiser Mine, Blythe PV Project, Power Partners 1993, enXco McCoy, Landfill Project, etc. Chuckwalla Valley Raceway, Genesis Solar, Chuckwalla Solar I, Rice Intake Blvd. Shell Station, Three Solar Energy Project, Blythe Solar Commercial Projects, Intake Power Project, Desert Quartzite, Desert Shell, Fifteen residential Sunlight; Gypsum Solar; Palo Verde 2; developments, Blythe Airport Eagle Mountain; Desert Center II, Rio Solar I Project, etc. Mesa Solar Electric Generating Facility, etc. Public Health and Safety Hazardous Mojave Desert Air Basin, Releases, spills, emissions, bacteria; materials/ watershed, groundwater basin, ground disturbance that exposes hazardous waste with focus on and in the vicinity existing subsurface conditions; See Air Resources, above; see also, Water Resources, below, in this Table 4.1-1. of the site engineering and administrative controls; health risks Waste California Desert, with Solid and liquid wastes Desert Harvest Solar Farm, Desert Recreational Opportunities, Interstate 10, Chuckwalla Valley management emphasis on Riverside County Sunlight Solar Farm, Genesis Solar Blythe Energy Project State Prison, Ironwood State Energy, McCoy Solar Energy, Rice Solar Trans-mission Line, Eagle Prison, Blythe Energy Project, Energy, Rio Mesa Solar, Mountain View Mountain Pumped Storage Eagle Mountain Pumping Plant, Power Partners Novation/REC, Wind Project, Eagle Mountain Kaiser Mine, Blythe PV Project, Power Partners 1993, enXco McCoy, Landfill Project, etc. Chuckwalla Valley Raceway, Genesis Solar, Chuckwalla Solar I, Rice Intake Blvd. Shell Station, Three Solar Energy Project, Blythe Solar Commercial Projects, Intake Power Project, Desert Quartzite, Desert Shell, Fifteen residential Sunlight; Gypsum Solar; Palo Verde 2; developments, Blythe Airport Eagle Mountain; Desert Center II, Rio Solar I Project, etc. Mesa Solar Electric Generating Facility, etc. Palen Solar Electric Generating System Draft SEIS 4.1-5 July 2013" 4. Environmental Consequences 4.1 Introduction TABLE 4.1-1 (Continued) CUMULATIVE SCENARIO Resource or Cumulative Analysis Other BLM BLM Program Impact Area Elements to Consider BLM Renewable Energy Projects Authorized Actions Other Known Actions/Activities Public Health and Safety (cont.) Transmission line Immediate vicinity of the Interference with radio-frequency Blythe Energy Project Transmission Line, Devers-Palo Verde Interstate 10 safety and proposed gen-tie line communication; noise; fire hazards; Desert Quartzite, Chuckwalla Solar I, Transmission Line, nuisance hazardous shocks; nuisance shocks; Blythe Energy Project, Blythe Energy Colorado River Substation and electric and magnetic field Project Transmission Line, Desert and Expansion (EMF) exposure Southwest Transmission Line, etc. Aviation safety Air space governed by the Navigable airspace; reflectivity and Blythe Airport Land Use temporary flash occurrences; radio Compatibility Plan frequency emissions and potential interference; thermal plumes; height All Projects and location of structures; clear space within Compatibility Zone D; bird strike and avian-aviation incompatibilities Traffic and Public Access/OHV: designated Public Access/OHV: Temporary and transportation open routes in the CDCA permanent closure of OHV routes safety that adversely affect off-highway Transportation: I-10 corridor public access opportunities Same as Cultural Resources, above.Certainly! Here is the revised text, where all identifiable pronouns are replaced with the corresponding noun phrases they refer to:

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Transportation: Equipment that exceeds roadway load or size limits; hazardous materials transport Worker safety and Project site and linear facilities Site access; fire response; Desert Harvest Solar Farm, Desert, Recreational Interstate 10, Chuckwalla Valley fire protection corridor; jurisdictional boundary hazardous materials response; Sunlight Solar Farm, Genesis Solar Opportunities, Blythe State Prison, Ironwood State of the Riverside County Fire advanced life support/paramedic Energy, McCoy Solar Energy, Rice Solar Energy Project Trans-Prison, Blythe Energy Project, Department (RCFD) plus services; disaster preparedness Energy, Rio Mesa Solar, Mountain View mission Line, Eagle Mountain Pumping Plant, mutual aid agencies Power Partners Novation/REC, Wind Mountain Pumped Storage Kaiser Mine, Blythe PV Project, Power Partners 1993, enXco McCoy, Project, Eagle Mountain Chuckwalla Valley Raceway, Genesis Solar, Chuckwalla Solar I, Rice Landfill Project, etc. Intake Blvd. Shell Station, Three Solar Energy Project, Blythe Solar Power Commercial Projects, Intake Project, Desert Quartzite, Desert Sunlight; Shell, Fifteen residential Gypsum Solar; Palo Verde 2; Eagle developments, Blythe Airport Mountain; Desert Center II, Rio Mesa Solar I Project, etc. Solar Electric Generating Facility, etc. Geologic hazards Project site and linear facilities Accelerated and/or environmentally Blythe Energy Project Transmission Devers-Palo Verde Interstate 10 corridor harmful soil erosion; corrosive soils; Line, Colorado River Substation and Transmission Line, Blythe earthquake fault ruptures; earthquake Expansion, Desert Quartzite, Chuckwalla Energy Project induced ground deformations (e.g., Solar I, Blythe Energy Project lateral spreading, subsidence, Transmission Line, Desert Southwest liquefaction, or collapse), or otherwise Transmission Line unstable soils; landslides Palen Solar Electric Generating System Draft SEIS 4.1-6 July 2013

168 4. Environmental Consequences 4.1 Introduction TABLE 4.1-1 (Continued) CUMULATIVE SCENARIO Resource or Cumulative Analysis Other BLM BLM Program Impact Area Elements to Consider BLM Renewable Energy Projects Authorized Actions Other Known Actions/Activities Public Health and Safety (cont.) Recreation California Desert, with Dispersed recreational opportunities Desert Harvest Solar Farm, Desert Recreational Opportunities, Interstate 10, Chuckwalla Valley emphasis on eastern Riverside and experiences, ACECs, LTVAs Sunlight Solar Farm, Genesis Solar Blythe Energy Project State Prison, Ironwood State County Energy, McCoy Solar Energy, Rice Solar Trans-mission Line, Eagle Prison, Blythe Energy Project, Energy, Rio Mesa Solar, Mountain View Mountain Pumped Storage Eagle Mountain Pumping Plant, Power Partners Novation/REC, Wind Project, Eagle Mountain Kaiser Mine, Blythe PV Project, Power Partners 1993, enXco McCoy, Landfill Project, etc. Chuckwalla Valley Raceway, Genesis Solar, Chuckwalla Solar I, Rice Intake Blvd. Shell Station, Three Solar Energy Project, Blythe Solar Commercial Projects, Intake Power Project, Desert Quartzite, Desert Shell, Fifteen residential Sunlight; Gypsum Solar; Palo Verde 2; developments, Blythe Airport Eagle Mountain; Desert Center II, Rio Solar I Project, etc. Mesa Solar Electric Generating Facility, etc. Social Economic Social: Eastern Riverside Flow of goods and services; impacts Desert Harvest Solar Farm, Desert Recreational Opportunities, Interstate 10, Chuckwalla Valley Considerations County to local infrastructure and services; Sunlight Solar Farm, Genesis Solar Blythe Energy Project State Prison, Ironwood State ability to meet housing demand; Energy, McCoy Solar Energy, Rice Solar Trans-mission Line, Eagle Prison, Blythe Energy Project, Economic: Populated areas Energy, Rio Mesa Solar, Mountain View Eagle Mountain Pumping Plant, within a 2-hour commute employment/labor demand; possible Mountain Pumped Storage positive impacts to regional Power Partners Novation/REC, Wind Project, Eagle Mountain Kaiser Mine, Blythe PV Project, distance of the PSEGS Power Partners 1993, enXco McCoy, Chuckwalla Valley Raceway, economic sectors and/or adverse Landfill Project, etc. community impacts; severance or Genesis Solar, Chuckwalla Solar I, Rice Intake Blvd. Shell Station, Three other tax benefits; ability of Solar Energy Project, Blythe Solar Commercial Projects, Intake communities to absorb impacts Power Project, Desert Quartzite, Desert Shell, Fifteen residential Sunlight; Gypsum Solar; Palo Verde 2; developments, Blythe Airport Eagle Mountain; Desert Center II, Rio Solar I Project, etc. Mesa Solar Electric Generating Facility, etc.

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I ensured that pronouns were replaced with their corresponding noun phrases throughout the text. If there are specific sections or pronouns you'd like to address differently, please let me know!Soil Resources Mojave Desert Air Basin and Erosion See Air Resources, above; see also, Water Resources, below, in this Table 4.1-1. watershed Special Wilderness Areas within sight or Views, glint, glare, noise, recreation Designations hearing distance of the site (i.e., McCoy, Big Maria Mountains See related resource sections in this Table 4.1-1. and Little Chuckwalla Mountains Wilderness Areas); more generally, the I-10 corridor Transportation Transportation: Eastern Construction traffic - materials and I-10 Corridor: Same as Cultural Resources, above. and Public Access Riverside County, focusing on workers NECO Plan Area: including Genesis, Chuckwalla, First Solar/Desert Sunlight, etc.; see also cumulative the I-10 corridor. OHV recreation opportunities, projects identified for Vegetation Resources, below. Public Access: NECO Plan changes in viewscape, unauthorized area. routes Palen Solar Electric Generating System Draft SEIS 4.1-7 July 2013 169 4. Environmental Consequences 4.1 Introduction TABLE 4.1-1 (Continued) CUMULATIVE SCENARIO Resource or Cumulative Analysis Other BLM BLM Program Impact Area Elements to Consider BLM Renewable Energy Projects Authorized Actions Other Known Actions/Activities Public Health and Safety (cont.) Vegetation NECO Plan area. Ephemeral drainages and natural Blythe Energy Project, Blythe Energy Recreational Opportunities, Chuckwalla Valley State Prison, Resources communities; special status plants; Project Transmission Line, Blythe PV Devers-Palo Verde 2 Transmission Ironwood State Prison, Devers- stabilized and partially stabilized Project, enXco McCoy, Genesis Solar, Line Project, Desert Southwest Palo Verde 1 Transmission Line, dunes and sand transport corridors; Chuckwalla Solar I, Rice Solar Energy Transmission Line, Eagle Mountain Eagle Mountain Pumping Plant, invasive plants Project, Blythe Airport Solar I Project, Project, etc. Kaiser Mine, Chuckwalla Valley Blythe Solar Power Project, Desert Landfill Project, etc. Raceway, Intake Blvd. Shell Quartzite, Desert Sunlight, Desert Station, Three Commercial Harvest Project, Gypsum Solar, Palo Projects, Intake Shell, Fifteen Verde 2, Eagle Mountain, Desert Center residential developments, II, Rio Mesa Solar Electric Generating Colorado River Substation Facility, etc. Expansion, Eagle Mountain Pumped Storage Project, Red Bluff Substation, RCL00161R1 (Reclamation Plan), BGR100258, CUP03602, CUP03677, etc. Visual Resources I-10 corridor. PSEGS appearance; construction- Blythe Energy Project, Blythe Energy Recreational Opportunities, Chuckwalla Valley State Prison, related dust, light, glint, and glare; Project Transmission Line, Blythe PV Devers-Palo Verde 2 Transmission Line Ironwood State Prison, Devers- views from key observation points Project, enXco McCoy, Genesis Solar, Project, Desert Southwest Transmission Line Palo Verde 1 Transmission Line, Chuckwalla Solar I, Rice Solar Energy Project, Eagle Mountain Pumping Plant, Eagle Mountain Kaiser Mine, Chuckwalla Valley Blythe Airport Solar I Project, Blythe Solar Power Project, Desert Landfill Project, Raceway, Intake Blvd. Shell Quartzite, Desert Sunlight, etc. Desert Station, Three Commercial Harvest Gypsum Solar, Palo Verde 2, Eagle Mountain, Projects, Intake Shell, Fifteen Center residential Desert II, Rio Mesa Solar Electric developments, Colorado River Generating Facility, etc. Substation Expansion, Eagle Mountain Pumped Storage Project, Red Bluff Substation, RCL00161R1 (Reclamation Plan), BGR100258, CUP03602, CUP03677, etc. Water Resources Surface water Watershed Hydrology and quality Blythe, Nextera McCoy, Desert Colorado River Substation, First Solar Blythe Solar 1 Lines Associated Gen-tie Transmission Devers-Palo Verde 2 Transmission Line Project, Desert Southwest Transmission Line, Eagle Mountain Landfill Project, etc. Palen Solar Electric Generating System Draft SEIS 4.1-8 July 2013 170 4. Environmental Consequences 4.1 Introduction TABLE 4.1-1 (Continued) CUMULATIVE SCENARIO Resource or Cumulative Analysis Other BLM BLM Program Impact Area Elements to Consider BLM Renewable Energy Projects Authorized Actions Other Known Actions/Activities Water Resources (cont.)

Let me know if there is anything else you need!Groundwater Palo Verde Mesa Groundwater Basin balance, levels and quality Blythe, Nextera McCoy, Desert Colorado River Substation, First Solar Blythe, Blythe Airport Basin Quartzite, Devers-Palo Verde 2 Trans-Solar 1 mission Line Project, Desert Southwest Transmission Line, Eagle Mountain Landfill Project, etc. Wildland Fire Eastern Riverside County Mortality of plants and wildlife, loss of Desert Harvest Solar Farm, Desert Recreational Opportunities, Interstate 10, Chuckwalla Valley Ecology forage and cover; changes to the Sunlight Solar Farm, Genesis Solar Blythe Energy Project State Prison, Ironwood State vegetation communities; spread of Energy, McCoy Solar Energy, Rice Solar Trans-mission Line, Eagle Prison, Blythe Energy Project, invasive plants; consequences of Energy, Rio Mesa Solar, Mountain View Mountain Pumped Storage Eagle Mountain Pumping Plant, subsequent extreme weather events; Power Partners Novation/REC, Wind Project, Eagle Mountain Kaiser Mine, Blythe PV Project, air quality Power Partners 1993, enXco McCoy, Landfill Project, etc. Chuckwalla Valley Raceway, Genesis Solar, Chuckwalla Solar I, Rice Intake Blvd. Shell Station, Three Solar Energy Project, Blythe Solar Commercial Projects, Intake Power Project, Desert Quartzite, Desert Shell, Fifteen residential Sunlight; Gypsum Solar; Palo Verde 2; developments, Blythe Airport Eagle Mountain; Desert Center II, Rio Solar I Project, etc. Mesa Solar Electric Generating Facility, etc. Wildlife Resources Recovery Plan Area defined by Desert Tortoise, Mojave fringe-toed Desert Harvest Solar Farm, Desert Recreational Opportunities, Interstate 10, Chuckwalla Valley NECO; Critical Habitat Unit lizard, Couch's spadefoot toad, Sunlight Solar Farm, Genesis Solar Blythe Energy Project State Prison, Ironwood State defined by USFWS/CDFW migratory birds, golden eagle, Energy, McCoy Solar Energy, Rice Solar Trans-mission Line, Eagle Prison, Blythe Energy Project, existing range or eastern western burrowing owl, American Energy, Rio Mesa Solar, Mountain View Mountain Pumped Storage Eagle Mountain Pumping Plant, Riverside County badge, kit fox, Nelson's big horn Power Partners Novation/REC, Wind Project, Eagle Mountain Kaiser Mine, Blythe PV Project, sheep. Power Partners 1993, enXco McCoy, Landfill Project, etc. Chuckwalla Valley Raceway, Genesis Solar, Chuckwalla Solar I, Rice Intake Blvd. Shell Station, Three Also, mortality and injury; special Solar Energy Project, Blythe Solar Commercial Projects, Intake status wildlife; wildlife movement and Power Project, Desert Quartzite, Desert Shell, Fifteen residential connectivity; indirect impacts, Sunlight; Gypsum Solar; Palo Verde 2; developments, Blythe Airport including from lighting, collisions and Eagle Mountain; Desert Center II, Rio Solar I Project, etc. climate change. Mesa Solar Electric Generating Facility, etc. Palen Solar Electric Generating System Draft SEIS 4.1-9 July 2013 4. Environmental Consequences 4.1 Introduction TABLE 4.1-2 RENEWABLE ENERGY PROJECTS IN THE CALIFORNIA DESERT DISTRICT BLM Field Office Number of Projects & Acres Total MW Solar Energy 1 project Bakersfield 150 MW 1,509 acres 6 projects Barstow Field Office 3,864 MW 44,076 acres 8 projects El Centro Field Office 1,315 MW 4,935 acres 2 projects Needles Field Office 670 MW 5,471 16 projects Palm Springs Field Office 6,040 MW 87,820 acres 32 projects TOTAL - CA Desert District 11,889 MW 142,302 acres Wind Energy 2 projects Barstow Field Office 141 MW 8,806 acres 5 projects El Centro Field Office 501 MW 39,210 acres 6 projects Needles Field Office n/a 145,331 acres 5 projects Palm Springs Field Office n/a 56,116 acres 19 projects Ridgecrest Field Office 848 MW 528,630 acres 37 projects TOTAL - CA Desert District 1,490 MW 778,093 acres SOURCE: Based on the BLM Solar Applications and Authorizations as of May 2013 and projects listed in the BLM California Field Office Alternative Energy Website as of May 2013. Solar, wind and geothermal energy projects identified as being on State and private lands that also are considered by the BLM are identified in Tables 4.1-3 through 4.1-5.As shown in these tables, there are 86 solar projects that total 14,723 MW; 69 new wind projects and repowering projects that total 9,150.36 MW; and 24 geothermal projects that total 1,556.6 MW. Proposed solar energy projects within BLM's cumulative scenario also are shown in Table 4.1-1, above. Palen Solar Electric Generating System Draft SEIS 4.1-10 July 2013

172 4. Environmental Consequences 4.1 Introduction TABLE 4.1-3 SOLAR ENERGY PROJECTS ON STATE AND PRIVATE LANDS Project Name Location Status Solar Projects - 86 Projects (14,723.05 MW) Bethel Solar X Hybrid (30 MW solar, 30 MW Imperial County Complete biomass) Campo Verde Solar (140 MW) Imperial County Approved Centinela Solar (170 MW solar PV) Imperial County Under Construction Chocolate Mountain Solar Farm (49.9 MW solar Imperial County Under Environmental Review PV) Imperial Solar Energy Center South (250 MW) Imperial County Under Construction Imperial Solar Energy Center West (200 MW) Imperial County Under Construction Ocotillo Sol (18 MW) Imperial County Under Environmental Review Solar Gen 2 Solar Array (150 MW) Imperial County Approved Antelope Valley Solar Project by Renewable Kern County Approved Resources (650 MW) Astoria Solar Project by RE Astoria LLC (175 Kern County Under Environmental Review MW) Barren Ridge One by Recurrent Energy (74 MW) Kern County Approved Beacon Solar Photovoltaic Project (250 MW) Kern County Approved Cenergy Power (0.5 MW) Kern County Approved Chevron Energy Solutions (2 MW) Kern County Approved Clearwater and Yakima Solar (two separate 20 Kern County Under Environmental Review MW's) Columbia I by Recurrent Energy (20 MW solar PV) Kern County Approved Columbia II by Recurrent Energy (20 MW solar PV) Kern County Approved Columbia III by Recurrent Energy (10 MW solar Kern County Approved PV) Elk Hills Solar by enXco (7 MW) Kern County Approved Fremont Valley Preservation Water Bank & Solar Kern County Under Environmental Review Project (1,008 MW) FRV EAFB Solar Holdings LLC (Oro Verde Solar) Kern County Under Environmental Review (450 MW) FRV Mojave Solar Project by FRV Mojave Solar, Kern County Under Environmental Review LP (20 MW) FRV Valley Solar Project (2 sites: Regulus, Kern County Approved Adobe) (95 MW) FS Weldon Solar - Foresight Solar (20 MW) Kern County Under Environmental Review Goose Lake Solar by enXco (15 MW) Kern County Approved Great Lakes II Solar by Recurrent Energy (5 MW Kern County Approved solar PV) High Desert Solar (18 MW) Kern County Under Environmental Review Kern County General Services Dept - Lerdo Kern County Approved Detention Facility (2 MW) Kern Solar Ranch (1,000 MW) Kern County Under Environmental Review Palen Solar Electric Generating System Draft SEIS 4.1-11 July 2013

173 4. Environmental Consequences 4.1 Introduction TABLE 4.1-3 (Continued) SOLAR ENERGY PROJECTS ON STATE AND PRIVATE LANDS Project Name Location Status Solar Projects - 86 Projects (14,723.05 MW) (cont.)Kingbird Solar Project (40 MW) Kern County Under Environmental Review Lost Hills (32.5 solar PV) Kern County Approved Maricopa Sun Solar Complex (700 MW Solar PV) Kern County Approved Meadows Field Solar Project (0.75 MW) Kern County Approved Monte Vista (126 MW Solar PV) Kern County Under Environmental Review Old River I by Recurrent Energy (20 MW solar PV) Kern County Under Environmental Review Old River II by Recurrent Energy (17 MW solar PV) Kern County Under Environmental Review Orion Solar by Fotowatio Renewable Ventures (20 MW) Kern County Under Environmental Review Pioneer Green Solar Project (125 MW) Kern County Approved Regenesis Power for Kern County Airports Dept (0.9 MW PV) Kern County Complete Ridge Rider Solar Park by Global Real Estate Investment Partners, LLC (38 MW solar PV) Kern County Under Environmental Review Rosamond 1 by Recurrent Energy (20 MW solar PV) Kern County Complete Rosamond 2 by Recurrent Energy (20 MW solar PV) Kern County Approved Rosamond Solar Array by First Solar (155 MW) Kern County Complete Rosamond Solar Project by SGS Antelope Valley, LLC (120 MW) Kern County Approved SKIC Development Inc (33 MW) Kern County Approved SLP Solar (Sunlight Partners, LLC) (12-12.5 MW) Kern County Application Deemed Complete 8/28/2012 Smyrna Solar by enXco (20 MW) Kern County Approved Tehachapi Photovoltaic Project (20 MW solar PV) Kern County Under Environmental Review Tehachapi Solar 2 by Recurrent Energy (20 MW) Kern County Approved Tehachapi Solar by Recurrent Energy (20 MW) Kern County Approved Vaquero Energy (1 MW) Kern County Approved Wasco-Charca Solar by Solar Land Partners (8 MW) Kern County Under Environmental Review Willow Springs Solar Array by First Solar (160 MW) Kern County Under Environmental Review GE Energy LLC (40 MW) Kern County (Chantico Rd) Approved LADWP (10 MW) Kern County (Jawbone Canyon Rd) Approved Avenal Park (9 MW solar PV) Kings County (Avenal) Approved Corcoran I (20 MW solar PV) Kings County (Avenal) Under Environmental Review Corcoran II (20 MW solar PV) Kings County (Avenal) Under Environmental Review GWF (125 MW solar PV) Kings County (Avenal) Under Environmental Review Sand Drag (19 MW solar PV) Kings County (Avenal) Approved Sun City (20 MW solar PV) Kings County (Avenal) Approved Palen Solar Electric Generating System Draft SEIS 4.1-12 July 2013 4. Environmental Consequences 4.1 Introduction TABLE 4.1-3 (Continued) SOLAR ENERGY PROJECTS ON STATE AND PRIVATE LANDS Project Name Location Status Solar Projects - 86 Projects (14,723.05 MW) (cont.) NRG Alpine Suntower (66 MW solar PV) Los Angeles County Under Construction Palmdale Hybrid Power Project Unit 1 (50 MW solar thermal, part of a hybrid project) Los Angeles County Approved AV Solar Ranch One (230 MW solar PV) Los Angeles County (Antelope Valley) Under Construction Blythe Airport Solar 1 Project (100 MW solar PV) Riverside County Approved in 2009 Building. Permit applied for December 2010.I apologize for my previous responses. Upon reviewing the passage you provided, it seems to be a list of solar and wind energy projects along with their statuses and locations, lacking explicit coreferences or pronouns typically addressed in coreference resolution tasks. Therefore, there are no pronouns to replace with noun phrases in this list. If you have a different text or specific parts of this text needing coreference resolution, please let me know!Thank you for providing the text. Upon review, it seems the text primarily consists of a list of wind energy projects and their statuses. There are no instances of pronouns requiring coreference resolution. Please let me know if there's a specific section you would like more detailed analysis on!Environmental Consequences 4.1 Introduction TABLE 4.1-5 GEOTHERMAL ENERGY PROJECTS ON STATE AND PRIVATE LANDS Project Name Location Status Geothermal Projects - 24 Projects (1,556.6 MW) Buckeye Development Project by Calpine Geyserville, Sonoma Under Environmental Review (30 MW) Black Rock Geothermal 1 (53 MW) Imperial County Approved, On Hold Black Rock Geothermal 2 (53 MW) Imperial County Approved, On Hold Black Rock Geothermal 3 (53 MW) Imperial County Approved, On Hold Black Rock Geothermal 5, 6(235 MW) Imperial County Under Environmental Review Black Rock Geothermal 7, 8, 9(159 MW) Imperial County Under Environmental Review California Ethanol and Power Imperial Valley 1, Imperial County Approved LLC East Brawley (49 MW) Imperial County Under Environmental Review Esmeralda 2 San Felipe (20 MW) Imperial County Under Environmental Review Esmeralda Truckhaven (40 MW) Imperial County Under Environmental Review Hudson Ranch 1 (49.9 MW) Imperial County Approved Hudson Ranch 2 (49.9 MW) Imperial County Approved Orita (50 MW) Imperial County Under Environmental Review Orni 18, LLC Geothermal Power Plant (49.9 MW) Imperial County Approved Orni 19, LLC Geothermal Power Plant (49.9 MW) Imperial County Approved Orni 21 Wister (49 MW) Imperial County Under Environmental Review Simbol Calipatria Plant I Imperial County Approved Simbol Calipatria Plant II (SmCP2) (336 MW) Imperial County Under Environmental Review South Brawley (49 MW) Imperial County Under Environmental Review Truckhaven I (49 MW) Imperial County Approved Casa Diablo #1-3 (37 MW) Mono County Completed Casa Diablo #4 (30 MW) Mono County Under Environmental Review The Geysers Field (22 power plants, 35 MW) Sonoma County Completed Wildhorse North Geysers, Calpine (30 MW) Sonoma County Approved SOURCE: BLM Wind and Solar Applications, 2013; BLM Website, April 2013; California Energy Commission Generation Tracking Report, 2013; Kern County Planning and Community Development Website, 2013. Other BLM-Authorized Actions and Known Actions/Activities in the Cumulative Scenario Other existing BLM authorized actions and other known actions/activities along the I-10 corridor in Eastern Riverside County are identified in Table 4.1-6.Other future foreseeable projects along the I-10 corridor in Eastern Riverside County are identified in Table 4.1-7. These projects are shown in figure 4.1-1. Palen Solar Electric Generating System Draft SEIS 4.1-16 July 2013

4. Environmental Consequences 4.1 Introduction TABLE 4.1-6 EXISTING PROJECTS ALONG THE I-10 CORRIDOR (Eastern Riverside County) ID # Project Name; Agency ID Location Ownership Status Acres Project Description 1 Interstate 10 Linear interstate Caltrans Existing N/A Interstate 10 (I-10) is a major east-west route for highway running from trucks delivering goods to and from California. Interstate 10 runs from Santa Monica to Blythe is a four-lane divided highway in the project (in California) region. 2 Chuckwalla Valley State 19025 Wiley's Well Rd. CA Dept. of Corrections & Existing. Chuckwalla Valley State Prison opened 1,080 State prison providing long-term housing and Prison Blythe, CA Rehabilitation in December 1988. services for male felons classified as medium and low-medium custody inmates jointly located on 1,720 acres of state-owned property. APN 879040006, 008, 012, 027, 028, 029, 030 3 Ironwood State Prison 19005 Wiley's Well Rd. CA Dept. of Corrections & Existing. Ironwood State Prison was 640 Ironwood State Prison jointly occupies with Chuckwalla Valley State Blythe, CA Rehabilitation activated on February 1, Prison 1,720 acres of state-owned property, of 1994. which Ironwood State Prison encompasses 640 acres. The prison complex occupies approximately 350 acres with the remaining acreage used for erosion control, drainage ditches, and catch basins. APNs 879- 040-001, 004, 009, 010, 011, 015, 016, 017, 018, 019, 020 4 Devers-Palo Verde 1 From Palo Verde SCE Existing N/A Existing 500 kV transmission line parallel to I-10 Transmission Line (Arizona) to Devers from Arizona to the SCE Devers Substation, near Substation Palm Springs. Devers-Palo Verde 1 will loop into the approved Midpoint Substation (now called Colorado River Substation), which will be located 10 miles southwest of Blythe.See D and E in Table 3.18-3. 5 Blythe Energy Project City of Blythe, north of Blythe Energy, LLC Existing 76 520 MW combined-cycle natural gas-fired I-10, 7 miles west of electric-generating facility. The Blythe Energy Project is connected to the CA /AZ border the Buck Substation owned by WAPA. 6 (Intentionally Left Blank) 7 Eagle Mountain Pumping Eagle Mountain Road, Metropolitan Water Existing 144-foot pumping plant that is part of the Plant west of Desert Center District of Southern Metropolitan Water District of Southern California's California facilities. APNs 807-150-007, 807-150-009, 807- 150-010 8 Recreational Opportunities Eastern Riverside BLM Existing N/A BLM has numerous recreational opportunities on County lands in eastern Riverside County along the I-10 corridor including the Wiley's Well Campground, Coon Hollow Campground, and Midland Long- Term Visitor Area. Palen Solar Electric Generating System Draft SEIS 4.1-17 July 2013 179 4. Environmental Consequences 4.1 Introduction TABLE 4.1-6 (Continued) EXISTING PROJECTS ALONG THE I-10 CORRIDOR (Eastern Riverside County) ID # Project Name; Agency ID Location Ownership Status Acres Project Description 9 Kaiser Mine Eagle Mountain, north Kaiser Ventures, Inc. Existing Kaiser Steel mined iron ore at Kaiser Mine in of Desert Center Eagle Mountain and provided much of the Pacific Coast steel in the 1950s. The mining project also included the Eagle Mountain Railroad, 51 miles long. Imported steel captured market share in the 1960s and 1970s and primary steelmaking closed in the 1980s. 701380031 10 Blythe Energy Project From the Blythe Blythe Energy, LLC Existing N/A Transmission line modifications including Transmission Line Energy Project (Blythe, upgrades to Buck Substation, approximately CA) to Julian Hinds 67.4 miles of new 230 kV transmission line Substation between the Buck Substation and Julian Hinds Substation, upgrades to the Julian Hinds Substation, installation of 6.7 miles of new 230 kV transmission line between the Buck Substation and SCE's DPV 500 kV transmission line. 11 Blythe PV Project Blythe First Solar CPUC approved project 200 7.5 MW solar photovoltaic project located on terms of a 20-year power 200 acres. The Blythe PV Project was constructed by First Solar purchase agreement for and sold to NRG Energy. sale of 7.5 MW, Under construction in fourth quarter, 2009 12 Chuckwalla Valley Raceway Former site of the Developer Matt Johnson Existing. Construction 400 The existing 2.68 mile long, 40 foot wide Grand Prix Desert Center Airport was completed in March style vehicle/motorcycle raceway is located on 2010. 400 acres of private land formerly used as the Desert Center Airport. APNs 811-142-016, 811- 142-006. Facilities include a member-only raceway, fueling facility, RV camping, classroom, vendor area, and event space. 13 Intake Blvd. Shell Station Blythe, CA Completed N/A Reconstruction of a Shell facility located at Intake & Hobson Way. Demolition of the Intake Blvd. Shell Station occurred in 2008, reconstruction completed in 2012. SOURCE: CEC RSA, 2010 Section B.3.4, Table 2; BLM Wind and Solar Applications, 2013; BLM Website, April 2013; California Energy Commission Generation Tracking Report, 2013; Kern County Planning and Community Development Website, 2013. Palen Solar Electric Generating System Draft SEIS 4.1-18 July 2013 180 "4. Environmental Consequences 4.1 Introduction TABLE 4.1-7 FUTURE FORESEEABLE PROJECTS ALONG THE I-10 CORRIDOR (Eastern Riverside County) Project Name; ID # Agency ID Location Ownership Status Acres Project Description

A Three Commercial Blythe, CA Various Approved N/A Three commercial projects have been approved by the Blythe Projects Planning Department including Agate Road & RV Storage, Riverway Ranch Specific Plan, and Agate Senior Housing Development. B This row intentionally left blank.C Fifteen residential Blythe, CA Various Approved or Under Construction N/A Twelve residential development projects have been approved by the Blythe Planning Department including: Vista Palo Verde (83 Single Family Residential [SFR]), Van Weelden (184 SFR), Sonora South (43 SFR), Ranchette Estates (20 SFR), Irvine Assets (107 SFR), Chanslor Village (79 SFR), St. Joseph's Investments (69 SFR), Edgewater Lane (SFR), The Chanslor Place Phase IV (57 SFR), Cottonwood Meadows (103 Attached SFR), Palo Verde Oasis Phase IV (29 SFR). Three residential development projects have been approved and are under construction including: The Chanslor Phase II & III (78 SFR), River Estate at Hidden Beaches, Mesa Bluffs Villas (26 Attached SFR). D Devers-Palo Verde From the Midpoint SCE CPUC Petition to Modify Request to N/A New 500 kV transmission line parallel to the existing Devers- 2 Transmission Substation to construct CA-only portion was Palo Verde Transmission Line from Midpoint Substation, Line Project Devers Substation approved by CPUC November 2009. approximately 10 miles southwest of Blythe, to the SCE Devers (CA-only portion) DPV2 to Arizona was originally Substation, near Palm Springs. The right-of-way (ROW) for the 500 kV transmission line would be adjacent to the existing DPV ROW and would require an additional 130 feet of ROW on federal and State land and at least 130 feet of ROW on private land and Indian Reservation land. E Colorado River 10 miles southwest SCE CPUC published the Final 90 The substation was approved by the CPUC (as the "Midpoint Substation of Blythe Supplemental EIR April 2011. Substation") but is proposed to be expanded as a 500/230 kV Expansion Construction is expected to be substation and would be constructed in an area approximately completed in December 2013. 1,000 feet by 1,900 feet, permanently disturbing approximately 90 acres. The 500 kV switching station would include circuit breakers, disconnect switches, and other equipment. The switchyard would be equipped with 108-foot-high dead-end structures. Outdoor night lighting would be designed to illuminate the switchrack when manually switched on. Palen Solar Electric Generating System Draft SEIS 4.1-19 July 2013" 181 "4. Environmental Consequences 4.1 Introduction TABLE 4.1-7 (Continued) FUTURE FORESEEABLE PROJECTS ALONG THE I-10 CORRIDOR (Eastern Riverside County) Project Name; ID # Agency ID Location Ownership Status Acres Project Description F Desert Southwest 118 miles primarily Imperial Irrigation Final EIR/EIS prepared in 2005. N/A New, approximately 118-mile 500 kV transmission line from a Transmission Line parallel to DPV District Approved by the BLM in 2006. new substation/switching station near the Blythe Energy Project to the existing Devers Substation located approximately 10 miles north of Palm Springs, California. G Eagle Mountain Eagle Mountain Eagle Crest License application filed with FERC in 1,524 1,300 MW pumped storage project designed to store off-peak Pumped Storage iron ore mine, north Energy Company June 2009. EIR published in mid- energy to use during peak hours. The captured off-peak energy Project of Desert Center 2010; FERC Draft EIS published in would be used to pump water to an upper reservoir. When the December 2010. water is released to a lower reservoir through an underground electrical generating facility the stored energy would be added into the Southwestern grid during "high demand peak" times, primarily weekdays. Estimated water use is 8,100 acre-feet per year (AFY) for the first four-year start-up period and replacement water is 1,763 AFY thereafter (Eagle Crest Energy Company, 2009). H enXco McCoy; 10 miles northwest enXco Plan of Development submitted to 12,837 300 MW solar photovoltaic project on 12,837 acres. Project CACA 049490 of Blythe BLM Palm Springs-South Coast Field would require a 14-mile transmission line to proposed SCE Office Colorado River Substation south of I-10. Would use 575-600 AFY of water.I apologize for the misunderstanding, but the input text is missing essential components (e.g., sentences starting abruptly, missing verbs and context) for adequately conducting coreference resolution. It seems to be an excerpt from an environmental report or project summary table rather than continuous prose. For a document tailored to your requirement, here’s an attempt to integrate some context for enhanced clarity:

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\*\*Genesis Solar Project\*\*: North of I-10, NextEra Energy (formerly FPL) commenced construction on December 2010 of a 250 MW solar trough project covering approximately 4,640 acres. This is situated 25 miles west of the town of Blythe and is projected to be operational by July 2014. The project includes a six-mile natural gas pipeline and a 5.5-mile generation-tie line to the Blythe Energy Center. Transmission then proceeds east via shared poles to the Colorado River Substation (NextEra, 2011).

\*\*Chuckwalla Solar I Project\*\*: Located a mile north of Chuckwalla, plans were submitted to the BLM Palm Springs-South Coast Field Office in September 2006 for a 200 MW solar photovoltaic project covering 4,082 acres by Desert Center I, LLC. This project is intended to be developed over several phases and will connect to an existing SCE 161-kV transmission line crossing the site.

\*\*Rice Solar Energy Project\*\*: Situated in Rice Valley, the project received a CEC license in December 2010. This involves constructing a 150 MW solar power tower plant on 1,410 acres, featuring liquid salt storage, with compliance currently underway. A distinctive feature includes the power tower reaching approximately 650 feet and a 10-mile interconnection with the WAPA Parker-Blythe transmission line.

\*\*Blythe Airport Solar Project\*\*: Riverside County granted Plot Plan No. 24616 for developing a 100 MW solar photovoltaic project on 640 acres of airport land in December 2010.

\*\*Blythe Solar Power Project\*\*: North of I-10, adjacent to Blythe, the Blythe Solar Energy Project by NextEra was approved by CEC and BLM in 2010. The project spans approximately 4,138 acres and involves converting to photovoltaic technology after initially planning a solar trough on 6,831 acres with reduced capacity from 1,000 MW to 485 MW. This followed an ownership transition from Solar Millennium LLC/Chevron Energy.

\*\*Desert Quartzite Project\*\*: Located south of I-10, 8 miles southwest of Blythe, First Solar (formerly OptiSolar) submitted a development plan to the BLM. It proposes a 600 MW solar photovoltaic installation on 7,245 acres near the DPV transmission line and SCE Colorado River Substation.

\*\*Desert Sunlight Project\*\*: North of Desert Center, Desert Sunlight Holdings, LLC began construction in September 2011 on this 250 MW solar photovoltaic venture, situated on 4,144 acres and expected to be operational by 2015. This project will integrate with the SCE Red Bluff Substation, utilizing up to 27 AF of water during construction and 3.8 AFY during operation (First Solar, Inc., 2013).

\*\*Red Bluff Substation\*\*: This substation is adjacent to the southern side of I-10 and was planned to interconnect renewable projects near Desert Center via the DPV transmission line. Construction began in September 2011, and operations were expected to commence by December 2013.

\*\*Desert Harvest Project\*\*: Positioned 6 miles north of Desert Center, enXco's project acquired a ROD in March 2013 for a 150 MW photovoltaic plant occupying 1,208 acres of BLM-managed land.

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This reconstructed document allows for clearer context and proper handling of potential coreferences with specific entities denoted to align with your request for coreference resolution. If you have additional material or require further customized assistance, please let me know!Certainly! Here's a revision with resolved coreferences where applicable:

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Would Project; CACA Desert Center require a 5- to 8-mile transmission line to the planned SCE Red 049491 Bluff Substation. Palen Solar Electric Generating System Draft SEIS 4.1-21 July 2013

183 4. Environmental Consequences 4.1 Introduction TABLE 4.1-7 (Continued) FUTURE FORESEEABLE PROJECTS ALONG THE I-10 CORRIDOR (Eastern Riverside County) Project Name; ID # Agency ID Location Ownership Status Acres Project Description R Eagle Mountain Eagle Mountain, Mine Reclamation U.S. Court of Appeals for the Ninth 3,500 The Eagle Mountain project is proposed to be developed on a portion of the Kaiser Eagle Mountain Mine in Riverside County, California. CACA-30070 Center Kaiser Eagle EIS for the project in November 2009. The proposed land exchange project comprises a Class III nonhazardous municipal solid waste landfill and the renovation and repopulation of Eagle Mountain Townsite. The proposal by Eagle Mountain's proponent includes a land exchange and application for rights-of-way with the Bureau of Land Management and a Specific Plan, General Plan Amendment, Change of Zone, Development Agreement, Revised Permit to Reclamation Plan, and Tentative Tract Map with the County. The Eagle Mountain landfill project proposes to accept up to 20,000 tons of non-hazardous solid waste per day for 50 years. S RCL00161R1 North of I-10 and Northwest of US Highway 95 N/A Reclamation Plan applied for N/A The existing operation proposes to expand from approximately 14.3 acres to approximately 29.4 acres with an expiration date of December 2050, with Reclamation activities ending in 2051. T BGR100258 Ehlers Blvd and West Chanslor Way N/A Grading Permit applied for November 2010 N/A The grading permit is for a 9000 square foot church. U BNR100126 8 miles south of the intersection of HWY 177 and HWY 10 U.S. Solar Building Permit applied for December 2010 400 The construction project involves a 49.5 MW solar PV plant (PP24754). V CUP03602 South of Nicholls Warm Springs N/A Conditional Use Permit approved April 2009 200 The photovoltaic facility is on 200 acres approximately 8 miles west of Blythe (Riverside County ALUC, 2008). W Palo Verde Mesa East of Blythe Renewable Conditional Use Permit applied for 3,250 The proposed solar PV generating facility would have a capacity of up to 486 MW. Renewable Resources Group, Inc. applied for September 2011; Public Use Permit applied for July 2012. The project would include a solar panel array, two on-site electrical substations, a maintenance building, and ancillary facilities. A 14.7-mile 230 kV transmission line would cross lands under County, City of Blythe, and BLM jurisdiction to connect to the Colorado River Substation (Riverside County Planning Department, 2012). X Gypsum Solar Approximately 7 miles north of Blythe Ridgeline Energy LLC BLM application pending. Application date March 2010. 3,000 The energy facility would have a capacity of 50 to 100 MW, using solar PV or concentrated PV. The project would include a solar panel array, a maintenance building, an administration building, a raw water storage tank, a demineralized water tank, a potable water tank, and a 230 kV or lower transmission line and substation. Palen Solar Electric Generating System Draft SEIS 4.1-22 July 2013

184 4. Environmental Consequences 4.1 Introduction TABLE 4.1-7 (Continued) FUTURE FORESEEABLE PROJECTS ALONG THE I-10 CORRIDOR (Eastern Riverside County) Project Name; ID # Agency ID Location Ownership Status Acres Project Description Y This row intentionally left blank. Z Eagle Mountain Eagle Mountain, L.H. Renewables BLM application pending. Application date December 2009. 2,690 The proposed wind energy testing facility would consist of two meteorological towers at the Eagle Mountain site, each 197 feet high, to passively collect and record data year round. The total disturbance would be 1.13 acres for both towers (BLM, 2011h). AA Desert Center II Four miles north Ridgeline Energy, BLM application pending.

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I have focused on clear instances of coreference in the text that you provided, updating noun phrases were relevant to enhance clarity.The application for the 20 MW solar PV project involves occupying 130 acres of a 260-acre CACA 052344 east of Desert LLC, dated September 2010. The right-of-way (ROW) area facility would utilize a single-axis tracking Center system. Transmission infrastructure would be built over a 350-foot span to connect with the existing SCE 161 kV Blythe-Eagle Mountain transmission line (Ridgeline Energy, LLC, 2010b).

McCoy Solar was approved by BLM in 2013; Riverside County Draft EIR is in preparation for McCoy Solar, a project proposed by NextEra LLC. This project is up to a 750 MW solar PV project on 4,019 acres of public land and 477 acres of private land, identified as CACA-048728, located 13 miles west of Blythe, CA, south of I-10.

Approximately 5 miles west of Central Blythe and 40 miles east of Desert Center, Renewable Resources Group, Inc. submitted applications for a CUP and PUP for the Blythe Mesa Solar Energy Project. This is a 485 MW PV solar project to be constructed on 3,660 acres. Project components would include a solar array, three substations, two operation and maintenance buildings, a new 8.4-mile-long 230 kV double circuit gen-tie line, and other related infrastructure. The project would interconnect with the CRS. An NOP was issued for this project in November 2011 (Riverside County Planning Department, 2011).

These descriptions are sourced from Riverside County 2013a, b; Riverside County Planning Department, 2011; Riverside County Planning Department, 2005; City of Blythe 2013; CEC 2010; BLM 2011a, b, 2013a, b, c, d, e, f, g, h, i; DOE and BLM, 2011; BrightSource Energy, Inc, 2013.

4. Environmental Consequences 4.1 Introduction:

4.1.4 Mitigation Measures Included in the Analysis:

For impacts identified in the following resource sections, mitigation measures have been developed that would be implemented during all appropriate phases of the project, from initial groundbreaking to operations, and through closure and decommissioning. The mitigation measures include a combination of the following:

1. Regulatory requirements of other Federal, State, and local agencies;

2. USFWS terms and conditions identified in the Biological Opinion;

3. Terms and conditions identified in the Programmatic Agreement reached pursuant to National Historic Preservation Act Section 106; and

4. Additional BLM-proposed mitigation measures, standard right-of-way (ROW) grant terms and conditions, and best management practices.

These requirements are generically referred to as "Mitigation Measures" throughout this Draft SEIS. Because these Mitigation Measures are derived from a variety of sources, they also may be required, and their implementation regulated, by other agencies. The Applicant would be required by the ROD and the ROW grant to comply with the applicable requirements of other agencies; for example, see 43 CFR 2805.12(a) (Federal and state laws and regulations) and (i)(6) (more stringent state standards for public health and safety, environmental protection and siting, constructing, operating, and maintaining any facilities and improvements on the ROW). Any non-compliance with the implementation of these other federal or state requirements could affect the approval status of the ROD and ROW grant. The Applicant voluntarily has committed to implementing nearly all of the mitigation measures that are identified in the PSPP PA/FEIS as Applicant Proposed Measures (APMs) for the Palen Solar Electric Generating System (PSEGS). A comprehensive listing of these APMs is provided in Appendix C.

4.1.5 Terms and Conditions found in FLPMA and BLM ROW Regulations:

Title V of FLPMA addresses the issuance of ROW authorizations on public land. The BLM has identified all the lands that would be occupied by facilities associated with the PSEGS that are needed for construction, operation, and maintenance. The general terms and conditions for all public land ROWs are described in FLPMA Section 505 and include measures to minimize damage and otherwise protect the environment, require compliance with air and water quality standards, and require compliance with more stringent state standards for public health and safety, environmental protection, siting, construction, operation, and maintenance of ROWs. The Secretary may prescribe additional terms and conditions as necessary to protect Federal property, provide for efficient management, and, among other things, generally protect the public interest. For the PSEGS, terms and conditions would be incorporated into the ROW grant as necessary to protect public safety.The environmental consequences analysis in Chapter 4 of this Draft SEIS identifies impacts and mitigation measures to reduce or eliminate impacts. The Palen Solar Electric Generating System Draft SEIS 4.1-24 July 2013 provides detailed information.

4. Environmental Consequences 4.1 Introduction

Finally, all BLM ROW grants are approved subject to the regulations set forth in 43 CFR Part 2800, which specify that the BLM may, at any time, change the terms and conditions of a ROW grant "as a result of changes in legislation, regulations, or as otherwise necessary to protect public health or safety or the environment" (43 CFR 2805.15(e)). The BLM will monitor conditions and review any ROW grant issued for the Palen Solar Electric Generating System to evaluate if future changes to the grant terms and conditions are necessary or justified under this provision of the regulations to further minimize or reduce impacts resulting from the project. If approved, the solar energy ROW authorization would include diligent development terms and conditions, consistent with the requirements of 43 CFR 2805.12(i)(5). Failure of the holder to comply with the diligent development terms and conditions would provide the BLM authorized officer the authority to suspend or terminate the authorization (43 CFR 2807.17).

If approved, the solar energy ROW authorization also would include a required "Performance and Reclamation" bond to ensure compliance with the terms and conditions of the ROW authorization, which is consistent with the requirements of 43 CFR 2805.12(g). The "Performance and Reclamation" bond would consist of three components. The first component would be hazardous materials, the second component would be the decommissioning and removal of improvements and facilities, and the third component would address reclamation, revegetation, restoration, and soil stabilization.

4.1.6 Irreversible and Irretrievable Commitment of Resources

As discussed in the PSPP PA/FEIS, NEPA requires an analysis of the significant irreversible effects of a proposed action. The Palen Solar Electric Generating System would irretrievably commit resources over the 30-50 year life of the project. After 30-50 years, the Palen Solar Electric Generating System would be decommissioned and the land returned to its pre-project state. This would indicate that potentially some of the resources on site could be retrieved. However, 30-50 years is a long time and many variables could affect the affected area over that period. In addition, it is debatable how well the site can recover to its pre-project state. Open desert lands and sensitive desert habitats can take a long time to recover from disturbances such as development. This and other irreversible and irretrievable commitments of resources that would be required if the Palen Solar Electric Generating System or another action alternative were approved are described and analyzed throughout this Chapter 4.

4.1.7 Relationship Between Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

The short-term uses of the environment as a result of the implementation of any of the action alternatives include those typically found with solar energy development. Short-term impacts associated with construction activities are described on a resource-by-resource basis in this Chapter 4, and include effects on the natural environment, cultural resources, and recreation resources. These can be compared to the long-term benefits of the action alternatives, which would provide for the production of clean, renewable energy consistent with federal and state goals to increase production of renewable energy to help reduce dependence on fossil fuels. The Palen Solar Electric Generating System Draft SEIS 4.1-25 July 2013 offers further insight.

4. Environmental Consequences 4.1 Introduction

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4. Environmental Consequences 4.2 Impacts on Air Resources

4.2.1 Impact Assessment Methodology

The air resources impact assessment methodology described in PSPP PA/FEIS Section 4.2.1 (p. 4.2-1) was used to analyze the Palen Solar Electric Generating System in this Draft SEIS. The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 and No Action Alternative A can be found in PSPP PA/FEIS Section 4.2.2 (pp. 4.2-11 through 4.2-14). The discussion of cumulative impacts for these alternatives has been revised, as necessary, in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.2.3, below).

Mass Emissions Estimates

This section analyzes the potential for construction-related, operation-related, maintenance-related, and decommissioning-related activities to emit air pollutants and, thereby, contribute to adverse air quality conditions.Project mass emission estimates were provided by the Applicant (Galati, 2013; Palen Solar Holdings, LLC, 2013) and peer-reviewed by BLM's environmental consultant, Environmental Science Associates. The Palen Solar Electric Generating System (PSEGS)-related construction emissions are summarized in Tables 4.2-2 and 4.2-3, and emissions associated with operation and maintenance are summarized in Tables 4.2-6 and 4.2-7. Dispersion Modeling Assessment An analysis has been conducted that draws upon AERMOD modeling data, as well as the latest versions of the AERMOD preprocessors, to determine surface characteristics (AERSURFACE version13016), process meteorological data (AERMET version12345), and determine receptor elevations and hill slope factors (AERMAP version11103). This air dispersion modeling analysis was provided by the Applicant (Galati, 2013; Palen Solar Holdings, LLC, 2013) and peer-reviewed by BLM's environmental consultant, Environmental Science Associates. The air dispersion modeling analysis provides a means of predicting the location and ground-level pollutant concentrations related to the PSEGS emissions sources. The AERMOD model is used as a vehicle to estimate offsite pollutant concentrations over short-term (e.g., 1-hour, 3-hour, 8-hour, and 24-hour) and annual periods. AERMOD model results are described in terms of maximum concentrations, with units of mass per volume of air (i.e., micrograms per cubic meter (μg/m3)). The inputs for the air dispersion model include: the mass emissions estimates for the on-site facility sources, including start-up and nighttime preservation boilers, the emergency generators, fire pumps, and wet-surface air condensers; specific engine and vehicle emissions data; and meteorological data, such as wind speed, mixing height, and site elevation. Modeled impacts were added to background concentrations and then compared with the ambient air quality standards for each respective air contaminant to determine whether the PSEGS's emission impacts would cause a new exceedance of an ambient air quality standard or would contribute to an existing exceedance. The background concentrations used in this analysis (see Table 4.2-1) have been updated since the Palen Solar Power Project (PSPP) Preliminary Available/Final Environmental Impact Statement (PA/FEIS) and are based on the representative ambient Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.2-1 July 2013

189 4. Environmental Consequences 4.2 Impacts on Air Resources TABLE 4.2-1 3 BACKGROUND CONCENTRATIONS (μg/m3) Pollutant Averaging Time Background 1 hour 124.1 Nitrogen Dioxide (NO2) Annual 22.6 Carbon Monoxide (CO) 8 hour 1,980.9 24 hour 144.8 Particulate Matter (PM10) Annual 35.9 24 hourb 35.4 Particulate Matter (PM2.5) Annual 7.6 Sulfur Dioxide (SO2) 24 hour 13.1 concentrations for the Project area contained in Table 3.2-2, Criteria Pollutant Maximum Ambient Concentrations. Construction Modeling Analysis The construction modeling methodology used for the PSEGS is similar to that used for the PSPP PA/FEIS; however, several parameters were changed for this Draft SEIS. Construction of the PSEGS would last approximately 33 months compared to the 39-month construction period of the PSPP and the construction disturbance area has been reduced under the PSEGS from approximately 5,200 acres to 3,794 acres total. Similar to the PSPP, construction elements of the PSEGS would include the two solar power plants (each with its own power block and solar array, as well as other ancillary facilities such as the administration buildings, warehouse, and parking lot), a 230-kV transmission line to connect the project to Red Bluff Substation located to the west, access roads, and perimeter fencing, among other features. However, under the PSEGS, the 230-kV generator-tie line would include a slight reroute, a redundant telecommunications line would be installed beneath the generator-tie line maintenance road, a natural gas pipeline would be required to connect the PSEGS to the Southern California Gas Company (SoCal Gas) natural gas main pipeline south of I-10, and a secondary access road would be provided within the a natural gas pipeline Right of Way (ROW). The construction emissions concentrations for the PSEGS are summarized in Table 4.2-4. Operation Modeling Analysis Similar to emissions associated with construction, operation-related emissions concentrations of the PSEGS were estimated using the AERMOD model. The AERMOD model was used to determine the magnitude and location of the maximum impacts for each pollutant and averaging period. The maximum short-term impacts were used for comparison to NO2, CO, Sulfur Dioxide (SO2), PM10, and PM2.5 standards.NO2 impacts were calculated from modeled NOx impacts using the Ambient Ratio Method (ARM) and USEPA default ratios; namely, multiplying 1-hour NOx impacts by 80 percent and annual NOx impacts by 75 percent. The operation and maintenance emissions concentrations for the Palen Solar Electric Generating System (PSEGS) are summarized in Table 4.2-7. Palen Solar Electric Generating System Draft SEIS 4.2-2 July 2013

4. Environmental Consequences 4.2 Impacts on Air Resources 4.2.2 Direct and Indirect Impacts of the PSEGS Construction Exhaust emissions would be generated during construction activities from off-road construction equipment and on-road vehicles, and fugitive dust would occur primarily related to ground disturbance activities. Exhaust emissions from off-road equipment would result from diesel construction equipment (e.g., dozers, graders, cranes) used to prepare the site and install structures, water trucks used to control dust emissions, dump trucks used to haul soil spoils and other debris, diesel-powered welding machines, generators, and air compressors. On-road vehicle exhaust emissions would result from construction vehicles, including heavy-duty diesel trucks used to deliver materials and equipment, medium-duty diesel trucks used for various tasks during construction, and automobile and pickup trucks used to transport workers to and from and around the construction site. Fugitive dust emissions would result from dust entrained by ground disturbance related to site preparation and grading/excavation activities, as well as from travel on paved and unpaved surfaces on-site and off-site. Dust would also be entrained during aggregate and spoil loading and unloading operations, production of concrete at the on-site batch plant, and by wind erosion of areas disturbed during construction activities. PM10 and PM2.5 mass emissions estimates provided by Palen Solar Holdings, LLC (the Applicant, 2013) for fugitive dust that would be generated during construction of the PSEGS are presented in Table 4.2-2. The peer review conducted by BLM's environmental consultant, Environmental Science Associates, revealed that the estimates provided by Palen Solar Holdings, LLC (the Applicant) may underestimate the Project-related construction fugitive dust emissions due to the use of a mass-related emission factor for cut/fill activities and due to the use of an elevated dust control efficiency factor that is unsubstantiated. The Applicant's fugitive dust emissions estimates are based in part on an area-based uncontrolled emission factor (0.011 ton PM10 per acre-month) associated with Midwest Research Institute's Level 2 Analysis Procedure (Midwest Research Institute, 1996). The recommended procedure indicates that application of the area-based emission factor should be used with a volume-based cut/fill emission factor of 0.059 ton PM10 per 1,000 cubic yards of cut/fill handled. However, the Applicant's fugitive dust analysis includes a mass-based emission factor for soil handling (i.e., 0.0006 pounds PM10 per ton cut/fill), which results in substantially less dust emissions compared to the Midwest Research Institute recommended volume-based factor. In addition, the Applicant's fugitive dust emissions estimates assume a dust control efficiency rate of 80 percent based on a watering schedule of 3 to 4 watering cycles per day and limiting vehicle speeds to 15 mph. The SCAQMD has published dust control efficiency ratings that are unique for various types of construction activities. For example, applying water to disturbed areas would result in a control efficiency of approximately 61 percent related to general soil disturbance activities, limiting on-site vehicle speeds to 15 mph on unpaved roads would result in a control efficiency of 57 percent related to vehicle travel on unpaved roads, and covering trucks with loose loads and maintaining at least 12 inches of freeboard would result in a control efficiency of 91 percent associated with loose material hauling. Given that the fugitive dust emission estimates presented in the Palen Solar Electric Generating System Draft SEIS 4.2-3 July 2013 are based on the assumptions by Palen Solar Holdings, LLC (the Applicant), adjustments might be necessary to align with SCAQMD standards.Environmental Consequences 4.2 Impacts on Air Resources TABLE 4.2-2 PSEGS CONSTRUCTION FUGITIVE DUST MASS EMISSIONS Applicant Estimates BLM Adjustments PM10 PM2.5 PM10 PM2.5 Fugitive Dust Source pounds/day pounds/day pounds/day pounds/day Onsite Grading/Earthwork/Cut & Fill 9.52 2.0 40.92 8.59 Onsite Erection Phase 11.39 2.39 18.22 3.83 Onsite Gas Line 0.11 0.02 1.43 0.30 Onsite T-Line 0.16 0.03 8.91 1.87 Onsite Paved Roads 1.04 0.2 1.04 0.22 Onsite Soil Storage Piles 0.52 0.21 0.83 0.17 Onsite Unpaved Roads 6.95 0.69 11.12 2.34 Onsite Concrete Batch Plant 2.09 0.21 2.09 0.21 Offsite Access Road Construction 0.27 0.06 0.43 0.09 Offsite Paved Roads 7.40 1.25 7.40 1.25 Offsite Track-out 0.29 0.05 0.46 0.10 Fugitive Dust Source Total Tons Total Tons Total Tons Total Tons Onsite Grading/Earthwork/Cut & Fill 1.51 0.32 6.39 1.34 Onsite Erection Phase 3.39 0.71 5.42 1.14 Onsite Gas Line 0.01 0.002 0.25 0.05 PM10 PM2.5 PM10 PM2.5 Fugitive Dust Source Total Tons Total Tons Total Tons Total Tons Onsite T-Line 0.02 0.004 1.09 0.23 Onsite Paved Roads 0.34 0.06 0.34 0.06 Onsite Soil Storage Piles 0.09 0.04 0.14 0.03 Onsite Unpaved Roads 2.07 0.21 3.31 0.70 Onsite Concrete Batch Plant 0.31 0.03 0.31 0.07 Offsite Access Road Construction 0.02 0.0034 0.03 0.01 Offsite Paved Roads 2.42 0.41 2.42 0.41 Offsite Track-out 0.10 0.02 0.16 0.03 Normalized Normalized Normalized Normalized Fugitive Dust Source Tons/Year Tons/Year Tons/Year Tons/Year Max Total Onsite Fugitive Dust 2.81 0.50 6.27 1.31 Emissions Max Total Offsite Fugitive Dust 0.92 0.16 0.95 0.16 Emissions SOURCE: Palen Solar Holdings, LLC, 2013 with adjustments by ESA. for the PSEGS are estimated using emission factors that account for all on-site activities (as opposed to specific on-site emissions sources), these emission factors do not make it possible to estimate the exact combined control efficiency rating that would be associated with the fugitive dust APMs identified in Appendix C. However, considering the SCAQMD control efficiency rates identified above, it is reasonable to assume that the combined control efficiency of the dust control APMs identified in Appendix C would achieve a total control efficiency rating of 68 percent. Palen Solar Electric Generating System Draft SEIS 4.2-4 July 2013

192 4. Environmental Consequences 4.2 Impacts on Air Resources Table 4.2-2 presents the PM10 and PM2.5 mass emissions estimates provided by the Applicant and with adjustments made by the BLM consultant based on the more conservative Midwest Research Institute emission factor for cut/fill activities and the associated reduction of the overall dust control efficiency rate to 68 percent as discussed above. Construction-related exhaust mass emissions estimates are presented in Table 4.2-3. Tables 4.2-2 and 4.2-3 include the Applicant's emissions estimates that were used as input for the AERMOD model in terms of maximum pounds per day, total tons for the whole construction period, and normalized tons per year assuming a 33-month construction period.TABLE 4.2-3 PSEGS CONSTRUCTION EXHAUST MASS EMISSIONS Exhaust Sources, lbs/day NOx CO VOC SOx PM10 PM2.5 Onsite Power Block/Solar Fields and 760.8 396 97.1 1.00 37.7 37.7 Linear Facilities Onsite Support Vehicles 0.17 1.63 0.14 0.0025 0.026 0.026 Offsite Delivery/Hauling 19.9 7.62 1.55 0.04 0.93 0.93 Offsite Worker Travel 36.68 410.18 35.18 0.075 6.74 6.72 Exhaust Sources, Total Tons NOx CO VOC SOx PM10 PM2.5 Onsite Power Block/Solar Fields and 263.62 137.2 33.64 0.36 13.07 13.07 Linear Facilities Onsite Support Vehicles 0.057 0.563 0.047 0.001 0.009 0.009 Offsite Delivery/Hauling 6.9 2.64 0.54 0.013 0.323 0.323 Offsite Worker Travel 12.71 142.13 12.19 0.26 2.22 2.33 Exhaust Sources, Normalized Tons/Yr NOx CO VOC SOx PM10 PM2.5 Max Total Onsite Exhaust Emissions 95.88 50.1 12.25 0.131 4.76 4.76 Max Total Offsite Exhaust Emissions 7.13 52.64 4.63 0.099 0.965 0.965 SOURCE: Galati, 2013; Palen Solar Holdings, LLC, 2013 The annual emissions are based on the average equipment mix and use rates during the construction period. Daily emissions are derived from the annual values using the estimated construction time-frame (33 months). Table 4.2-4 summarizes the Applicant's air quality emissions concentrations estimates that would result from construction of the PSEGS. Table 4.2-5 summarizes the fugitive dust-related emissions concentrations adjusted with the more conservative assumptions described above for the mass emissions estimates presented in Table 4.2-2. The emission estimates indicate that construction could contribute to exceedances of the PM10 standards (24-hour and annual) and could cause exceedances of the 1-hour and 24-hour NAAQSs for NO2 and PM2.5, respectively. Adverse effects related to the creation of ozone resulting from construction of the PSEGS would be similar as those described in the PSPP PA/FEIS. As the MDAB is nonattainment of the AAQS for ozone, emissions of NOx (including NO2) and VOC from construction of the PSEGS have the potential to contribute to higher ozone levels in the region. Palen Solar Electric Generating System Draft SEIS 4.2-5 July 2013

193 4. Environmental Consequences 4.2 Impacts on Air Resources TABLE 4.2-4 MAXIMUM PSEGS CONSTRUCTION EMISSIONS CONCENTRATIONS Avg.

The text does not contain pronouns or noun phrases requiring coreference resolution beyond referencing specific tables and data, so it remains largely unchanged. Please let me know if there are additional sections you would like me to address.Here is the revised text with coreference resolution:

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Project Impact Background Total Impact Standard Percent of Pollutants Period ( µg/m³) ( µg/m³) ( µg/m³) ( µg/m³) Standard 1 hour- 200.6 124.1 324.9 339 96% CAAQS NO2 1 hour 200.6 124.1 324.9 188 173% NAAQS Annual 0.7 22.6 23.3 57 41% 1 hour 131 3,543 3,674 23,000 16% CO 8 hour 52 1,981 2,033 10,000 20% 24 hour 15.3 144.8 160.1 50 320% PM10 Annual 0.10 35.9 36.0 20 180% 24 hour 3.4 35.4 38.8 35 111% PM2.5 Annual 0.05 7.6 7.7 12 64% 1 hour 0.33 28.6 28.9 665 4% SO2 3 hour 0.21 28.6 28.8 1,300 2% 24 hour 0.07 13.1 13.2 105 13% SOURCE: Palen Solar Holdings, LLC, 2013 TABLE 4.2-5 MAXIMUM PSEGS CONSTRUCTION EMISSIONS CONCENTRATIONS WITH BLM FUGITIVE DUST ADJUSTMENTS Avg. Project Impact Background Total Impact Standard Percent of Pollutants Period ( µg/m³) ( µg/m³) ( µg/m³) ( µg/m³) Standard 24 hour 40.7 144.8 185.5 50 371% PM10 Annual 0.2 35.9 36.1 20 180% 24 hour 10.4 35.4 45.8 35 131% PM2.5 Annual 0.05 7.6 7.7 12 64% SOURCE: Palen Solar Holdings, LLC, 2013 with adjustments by ESA associated with onsite fugitive dust emissions (see Table 4.2-2). Operation Emission estimates indicate that operation of the Palen Solar Electric Generating System (PSEGS) would contribute to existing exceedances of the PM10 standards (24 hour and annual) and the PM2.5 (24-hour) standard, which would represent an adverse effect on local and regional air quality. Emissions of other criteria pollutants from the Palen Solar Electric Generating System would not adversely affect local or regional air quality. Adverse effects from ozone emissions resulting from operation of the PSEGS would be similar as described in the Palo Verde Solar Park Project Preliminary/Final Environmental Impact Statement (PSPP PA/FEIS). As the Mojave Desert Air Basin (MDAB) is nonattainment status under California Ambient Air Quality Standards (CAAQS) for ozone, emissions of nitrogen oxides (NOx, including nitrogen dioxide (NO2)) and volatile organic compounds (VOC) from operation of the PSEGS do have the potential to contribute to higher ozone levels in the region. Tables 4.2-6 and 4.2-7 summarize estimated maximum daily mass emissions and maximum annual mass emissions resulting from operation of the PSEGS. The PSEGS would not trigger the Prevention of Significant Deterioration (PSD) program Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.2-6 July 2013

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This revision maintains a focus on the real-world entities involved, clarifying references by using the full names where necessary, such as the PSEGS, MDAB, and pollutants, to provide a clearer understanding.I'm here to help with the text, but I seem to need more input. It would be helpful if you could provide the text for coreference resolution.Given the text you provided, there is limited context for pronouns or entities that need coreference resolution. The document seems to consist mainly of abbreviations, measurements, and technical data. However, I can explain the entities mentioned and their respective referents within the brief context given:

1. \*\*PSEGS\*\*: This refers to the Palen Solar Electric Generating System. Any instances likely referring back to "PSEGS" via pronouns like "it" would be replaced with "Palen Solar Electric Generating System" or "the PSEGS."

2. \*\*PSPP PA/FEIS\*\*: This likely refers to a previous report or document. Any pronouns referring back to "PSPP PA/FEIS" would generally be replaced by this term.

3. \*\*No Action Alternative A\*\*: Any pronouns referencing this section would be replaced with "No Action Alternative A."

4. \*\*APMs SC-1 through 11\*\*: This section might reference specific mitigation measures. Pronouns relating to these would be replaced accordingly.

Since the text is primarily listings and descriptions without the use of pronouns or obvious pleonastic "it" usage, coreference resolution might not significantly change or be applicable to the document you provided. If there's a specific section where you think coreference resolution is necessary, please highlight it, and I'll be happy to assist with clarifying or adjusting those parts.Environmental Consequences 4.3 Impacts on Global Climate Change 4.3.1 Impact Assessment Methodology The methodology to assess impacts related to GHG emissions and climate change under NEPA is continuing to evolve as consensus forms as to how best evaluate such effects at both proposed action-specific and cumulative levels. The CEQ published draft guidance on February 18, 2010, for federal agencies to improve their consideration of the effects of GHG emissions and climate change in federal agencies' evaluation of proposals for federal actions under NEPA. For example, the CEQ recommends that agencies consider the direct and indirect GHG emissions from a proposed action and a proposed action's alternatives and quantify and disclose those emissions in the environmental document (40 CFR 1508.25). The CEQ further recommends that agencies evaluate the relationship of climate change effects to a proposed action or a proposed action's alternatives, including the relationship to project design, environmental impacts, mitigation, and adaptation measures. Agencies also should consider mitigation measures to reduce proposed action-related GHG emissions from all phases and elements of the proposed action and the proposed action's alternatives over the proposed action's expected life, subject to reasonable limits based on feasibility and practicality (CEQ, 2010). GHG Emissions For the PSEGS, this section analyzes the potential for construction-, operation-, maintenance- and decommissioning-related activities to emit GHGs and, thereby, contribute meaningfully to global warming in light of the combined emissions of other broad-scale causes of climate change. PSEGS emission estimates were prepared for the Applicant by Palen Solar Holdings (2013) and peer reviewed by BLM's environmental consultant, Environmental Science Associates. PSEGS- related construction and operation emissions are summarized in Tables 4.3-1 and 4.3-2, respectively. Although Palen Solar Electric Generating System emission estimates are doubtful that this individual project, standing alone, could result in adverse climate change effects, this analysis considers the "incremental impact" of Palen Solar Electric Generating System emission estimates as a possible contributor, together with the incremental impacts of other past, present, and reasonably foreseeable actions, to cause global climate change. Mitigation measures are considered. Independent of NEPA, but pursuant to 40 CFR Part 98, Mandatory Reporting of Greenhouse Gases Rule, USEPA requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO2e emissions per year (USEPA, 2011a). In addition, pursuant to 40 CFR Part 52, Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, the USEPA mandated to apply PSD and Title V requirements to facilities whose stationary source CO2e emissions exceed 100,000 tons per year (USEPA, 2011b). For the purposes of this Draft SEIS, estimated net GHG emissions for the PSEGS are compared to the federal GHG mandatory emissions reporting threshold of 25,000 metric tons per year to determine whether the GHG emissions would contribute substantially to global climate change. Palen Solar Electric Generating System Draft SEIS 4.3-1 July 2013 Environmental Consequences 4.3 Impacts on Global Climate Change Climate Change Agencies under the Department of Interior (DOI), including the BLM, are required by Secretarial Order No. 3289 (September 14, 2009) to consider potential impacts associated with climate change, including potential changes in flood risk, water supply, sea level rise, wildlife habitat and migratory patterns, invasion of exotic species, and potential increases in wildfires. In addition, climate change is expected to result in a suite of additional potential changes that could affect the natural environment, in a manner that is relevant to the PSEGS. The issues associated with the potential for climate change to affect the Palen Solar Electric Generating System Project are the same as those that are discussed qualitatively in PSPP PA/FEIS Section, 4.3.3, Cumulative Impacts of the Proposed Action on Climate Change. Cumulative Impacts Impacts resulting from construction, operation, maintenance, and decommissioning of the PSEGS and other action alternatives would result in emissions of GHGs that, together with past, present, and reasonably foreseeable future actions, could contribute to climate change. Project-specific GHG emissions are considered in the context of this cumulative impacts analysis. Although the cumulative scenario described in Section 4.1.3, Cumulative Scenario Approach, generally includes activities in the California desert and highlights projects along the I-10 corridor, the geographic scope of the cumulative effects analysis for climate change is much broader: the geographic scope is both regional and global. Potential cumulative effects, whether adverse or beneficial, on climate change could be short-term (i.e., limited to the Palen Solar Electric Generating System proposed construction period) or long-term (i.e., occur during the Palen Solar Electric Generating System's projected 30-40 year lifespan).4.3.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System (PSEGS) Construction

Construction of industrial facilities such as power plants requires coordination of numerous equipment and personnel. Development of the Palen Solar Electric Generating System (PSEGS) would require on-site and off-site construction activities that would result in short-term, unavoidable increases in equipment and vehicle greenhouse gas (GHG) exhaust emissions. Development of the Palen Solar Electric Generating System (PSEGS) would require 16-hour workdays, 5 days a week, 21 days per month, for a period of approximately 34 months (starting in the fourth quarter of 2013). For the purposes of the GHG emissions analysis, construction equipment emissions estimates are based on several activity sources, including solar field assembly and installation, site road work, operations of the concrete batch plant, tower and boiler erection, power block erection, development of the common area switchyard, and other miscellaneous activities. The combustion of diesel fuel to provide power for the operation of various equipment and vehicles results in the generation of GHG emissions. GHG exhaust emissions associated with construction equipment (e.g., cranes, forklift, scrapers, graders, loaders, tractors) were estimated by multiplying CO2 and CH4 South Coast Air Quality Management District (SCAQMD) calendar year 2013 off-road emissions factors for the specific equipment types and horsepower ratings, by the equipment inventory amounts and usage rates provided by the Applicant for each of these activity sources described above. GHG construction emissions associated with vehicle use (e.g., light duty trucks, heavy and medium duty diesel trucks) were estimated by multiplying CO2 emission factors from the California Air Resources Board's (CARB) EMFAC 2007 model by the total vehicle miles travelled for each vehicle type, under the assumption that there would be an average of 596 daily construction worker roundtrips and 15 daily delivery-related roundtrips, and that these roundtrips would average 75 miles per trip. Where Off-road and EMFAC 2007 emission factors for N2O and CH4 were unavailable, N2O and CH4 construction emissions were estimated using N2O and CH4 fractions of CO2 for diesel and/or gasoline combustion from data obtained from the California Climate Action Registry (CCAR) General Protocol. CO2 equivalent (CO2e) emissions were then estimated using International Panel on Climate Change global warming potential factors for CH4 and N2O, and combining the adjusted CH4 and N2O emissions with the CO2 emissions. As shown in Table 4.3-1, the Palen Solar Electric Generating System (PSEGS) would generate a total of approximately 61,120 tons (55,447 metric tons) CO2e during the 33-month construction period.

TABLE 4.3-1 PROJECT CONSTRUCTION-RELATED GREENHOUSE GAS EMISSIONS Construction Emissions CO2e tons CO2e metric tons Total for the 33-month Construction Period 61,120 55,447 Total normalized for a One-year Period 22,226 20,163 NOTES: Emissions in the table do not include indirect emission estimates that would be associated with electricity or water use. It is estimated that these emission sources would increase the emission estimates provided in the table by up to 10 percent. SOURCE: Palen Solar Holdings, LLC, 2013; Galati, 2013.

Operation and Maintenance of the Palen Solar Electric Generating System (PSEGS)

Electricity generation GHG emissions generally are dominated by CO2 emissions from carbon-based fuels; other sources of GHG emissions are typically small. For the Palen Solar Electric Generating System (PSEGS), the primary fuel (solar energy) is GHG-free; however, natural gas would be fired in the four auxiliary boilers to assist with daily start-up of the power generation equipment and to preserve energy in the steam cycle overnight. GHG emissions from these auxiliary natural gas-fired boilers were estimated based on the expected fuel use (in terms of MMBtu) using natural gas emissions factors obtained from the California Climate Action Registry (CCAR) General Protocol. In addition, gasoline and diesel fuel would be used in the maintenance vehicles, offsite delivery vehicles, staff and employee vehicles, and the three diesel emergency generators and three firewater pump engines. Gasoline and diesel vehicle emissions were estimated using EMFAC 2007 emission factors for Riverside County and anticipated miles traveled data, and emissions related to diesel emergency generators and fire pumps were estimated based on average United States Environmental Protection Agency (USEPA) and South Coast Air Quality Management District (SCAQMD) values for fuel consumption per horsepower-hour and California Climate Action Registry (CCAR) General Protocol emission factors for diesel fuel. Sulfur hexafluoride (SF6) emissions also could result from electrical equipment leakage from the six 230-kV circuit breakers at the switchyard. It is assumed that SF6 would leak from the circuit breakers at a rate provided by Palen Solar Electric Generating System Draft SEIS 4.3-3 July 2013.Environmental Consequences 4.3 Impacts on Global Climate Change combined rate of 1 pound per year. The anticipated annual operations-related GHG emissions for the Palen Solar Electric Generating System (PSEGS) are shown in Table 4.3-2. All emissions are converted to CO2e and totaled. TABLE 4.3-2 PSEGS OPERATIONAL GREENHOUSE GAS EMISSIONS CO2e Emission Sources tons metric tons Start-Up Boilers 63,487 57,594 Nighttime Preservation Boilers 5,950 5,398 Emergency Generators 208 189 Fire Pumps 57 52 Maintenance Vehicles 36,377 33,001 Delivery Vehicles 58 53 Employee Vehicles 1,314 1,192 Equipment Leakage (SF6) 13 12 Total Project GHG Emissions 107,464 97,490 SOURCE: Palen Solar Holdings, LLC, 2013; Galati, 2013 The Palen Solar Electric Generating System is estimated to emit, directly from primary and secondary emission sources, approximately 107,464 tons (97,490 metric tons) CO2e GHG emissions per year, which is approximately five times the amount estimated to emit for the Palen Solar Power Project (PSPP). The Palen Solar Electric Generating System, as a renewable energy generation facility, is determined by rule to comply with the Greenhouse Gas Emission Performance Standard requirements of SB 1368 (Chapter 11, Greenhouse Gases Emission Performance Standard, Article 1, Section 2903 [b][1]).

Carbon Sequestration In addition to direct emission of GHGs, operations of the Palen Solar Electric Generating System also would cause the clearing of land and complete removal of vegetation over most of the project site. This clearing would reduce the ongoing natural carbon uptake by vegetation and soil. As discussed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 3.3.7 (p. 3.3-9), a study of the Mojave Desert indicated that the desert may uptake carbon in amounts as high as 100 grams per square meter per year. This carbon uptake would equate to a maximum reduction in carbon uptake, calculated as 1.48 metric tons of CO2 per acre per year for areas with complete vegetation removal and soil disturbance. The maximum equivalent loss in carbon uptake for the Palen Solar Electric Generating System would be about 6,356 tons (5,766 metric tons) of CO2 per year.

Displacement of Fossil Fuel-Based Energy The Palen Solar Electric Generating System would generate renewable energy and displace energy generated from conventional sources that emit more GHGs per unit of energy generated. The PSEGS's GHG emissions reduction potential from energy displacement would be substantial. Assuming the Palen Solar Electric Generating System would displace approximately 4,000 hours per year of operation of a typical 500 MW combined-cycle gas turbine-based power plant, the Palen Solar Electric Generating System would also displace approximately 1,071,000 tons of CO2e (Palen Solar Holdings, 2012).

Closure and Decommissioning of the Palen Solar Electric Generating System Palen Solar Electric Generating System-specific contributions to global climate change during the closure and decommissioning phase are anticipated to be comparable in type and magnitude to, but likely to be lower than, the construction emissions for the PSEGS, as discussed above.

Impact Summary This analysis compares total net operation-related Palen Solar Electric Generating System GHG emissions to the United States Environmental Protection Agency's (USEPA) GHG mandatory emissions reporting threshold of 25,000 metric tons per year. As shown in Tables 4.3-2 and 4.3-3, the annual direct and indirect GHG emissions for operations would be up to 107,464 tons (97,490 metric tons) CO2e per year. This emission level is above the USEPA's GHG mandatory emissions reporting threshold. However, when accounting for the loss of carbon sequestration and the displacement of fossil fuel-based energy, the Palen Solar Electric Generating System would result in an overall net reduction of GHG emissions of approximately 957,180 tons (868,349 metric tons) of CO2e per year (see Table 4.3-3). Therefore, implementation of the Palen Solar Electric Generating System would provide an environmental benefit to counter the potential effects of climate change.TABLE 4.3-3 TOTAL NET OPERATIONAL GREENHOUSE GAS EMISSIONS CO2e Emission Sources tons metric tons Direct and Indirect Emissions 107,464 97,490 Loss of Carbon Sequestration 6,356 5,766 Displacement of Fossil Fuel-Based Energy -1,071,000 -971,605 Total Net Project GHG Emissions -957,180 -868,349 Mitigation Potential of the Palen Solar Electric Generating System (PSEGS) on Climate Change Mitigation potential of the Palen Solar Electric Generating System on climate change would be the same as for the Palen Solar Power Project (PSPP) as described in the Palen Solar Power Project PA/FEIS. As discussed previously, power produced by the Palen Solar Electric Generating System would offset power production by fossil-based power plants. Therefore, the Palen Solar Electric Generating System would provide a direct benefit related to climate change. Implementation of the Palen Solar Electric Generating System would provide direct and indirect benefits that counter the potential effects of climate change, as described in the Palen Solar Power Project PA/FEIS. Palen Solar Electric Generating System Draft SEIS 4.3-5 July 2013

203 4. Environmental Consequences 4.3 Impacts on Global Climate Change 4.3.3 Cumulative Impacts Palen Solar Electric Generating System GHG Emissions Greenhouse gas emissions are inherently a cumulative concern because the accumulation of global greenhouse gas emissions in the atmosphere results in global climate change; therefore, the geographic scope of cumulative impacts related to greenhouse gas emissions and climate change is global. The Palen Solar Electric Generating System would result in short-term greenhouse gas emissions during construction and decommissioning, limited long-term greenhouse gas emissions during operations and maintenance, and would result in a long-term reduction of carbon sequestration at the site. However, the Palen Solar Electric Generating System would result in a long-term net reduction in greenhouse gases by displacing electricity from fossil fuel-fired power plants. Virtually all of the cumulative projects described in Section 4.1.3, Cumulative Scenario Approach, could contribute to global warming due to the generation of short-term and/or long-term greenhouse gas emissions. However, similar to the Palen Solar Electric Generating System, the renewable energy cumulative projects could result in long-term decreases in greenhouse gas emissions by displacing electricity from fossil fuel-fired power plants. Climate Change Impact on the Project Climate change, which itself is a cumulative impact associated with the global increase of greenhouse gas emissions and other factors, is expected to result in a suite of potential changes that could affect the natural environment in a manner that is relevant to the Palen Solar Electric Generating System. The climate change impacts on the Palen Solar Electric Generating System would be the same as those described in Palen Solar Power Project PA/FEIS Section 4.3.4 (p. 4.3-13 et seq.), GHG Emissions Associated with Past, Present, and Reasonably Foreseeable Future Actions. Reconfigured Alternative 2 Option 1 Based on the updated cumulative scenario, the cumulative impacts for Reconfigured Alternative 2 Option 1 would be the same as those for the Palen Solar Electric Generating System. Option 2 Based on the updated cumulative scenario, the cumulative impacts for Reconfigured Alternative 2 Option 2 would be the same as those for the Palen Solar Electric Generating System. No Action Alternative A There would be no cumulative air quality impacts under No Action Alternative A. See Palen Solar Power Project PA/FEIS Section 4.3.3 (p. 4.3-12). However, since the Right of Way application area is located within the Riverside East Solar Energy Zone, the California Desert Conservation Area Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future, potentially resulting in cumulative impacts similar to those of the Palen Solar Electric Generating System or Palen Solar Power Project. Palen Solar Electric Generating System Draft SEIS 4.3-6 July 2013

204 4. Environmental Consequences 4.3 Impacts on Global Climate Change Greenhouse Gas Emissions from Past, Present, and Reasonably Foreseeable Future Actions The emission of greenhouse gases from other projects in the cumulative scenario is described and analyzed in Section 4.3.4 of the Palen Solar Power Project PA/FEIS (4.3-13). This discussion is valid and has not been supplemented. Environmental Consequences of Climate Change No sufficient data or scientific method currently is available to precisely evaluate how the emissions from an individual project, such as the Palen Solar Electric Generating System, would contribute to global climate change. Therefore, based on available regional and global information, the overall cumulative environmental consequences of climate change, as relevant to the Palen Solar Electric Generating System, are the same as those discussed in Palen Solar Power Project PA/FEIS Section 4.3.4 (pp. 4.3-13, 4.3-14). 4.3.4 Summary of the Project-Specific Mitigation Measures None recommended.4.3.5 Residual Impacts after Mitigation Measures Were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation.

4.3.6 Unavoidable Adverse Impacts There would be no unavoidable adverse climate change or GHG-related impacts associated with the Palen Solar Electric Generating System (PSEGS). Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.3-7 July 2013

205 4. Environmental Consequences 4.3 Impacts on Global Climate Change This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 4.3-8 July 2013

206 4. Environmental Consequences 4.4 Impacts on Cultural Resources

4.4.1 Impact Assessment Methodology The cultural resources impact assessment methodology used in Chapter 4.4 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS), along with the updated cultural resources studies conducted in 2013 (The Bureau of Land Management (BLM) is awaiting cultural resource studies to identify resources that could be affected by the Palen Solar Electric Generating System but were not previously analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement. Upon completion of those studies, the studies' findings will be incorporated into the impact analysis contained within this section and integrated into the Final Supplemental Environmental Impact Statement), was used to analyze the impacts of the Palen Solar Electric Generating System in this Draft Supplemental Environmental Impact Statement. The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Chapter 4.4. The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement to reflect the updated cumulative scenario (see Section 4.4.3 below).

Area of Potential Effects The Area of Potential Effects (APE) for the Palen Solar Electric Generating System is as follows: 1. For direct effects, the Area of Potential Effects is defined as the area included within the Palen Solar Electric Generating System Right of Way (ROW) grant. This includes areas that were not included in the Palen Solar Power Project Area of Potential Effects, such as the generation-tie line reroute and natural gas line addition. 2. For indirect effects, the Area of Potential Effects is the Palen Solar Electric Generating System Right of Way grant plus a 15-mile buffer, to take into account potential indirect (i.e., visual or auditory) effects to historic properties, including ethnographic or tribal resources.

Cultural Resources Inventory The Bureau of Land Management is awaiting cultural resource studies to identify resources that could be affected by the Palen Solar Electric Generating System that were not analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement. These studies will include an inventory of cultural resources contained within the Area of Potential Effects. The potential effects of the Palen Solar Electric Generating System will be described in the context of the Area of Potential Effects. The analysis and impact conclusions will be presented in this chapter and integrated into the Final Environmental Impact Statement. Results of the cultural records search and inventory work performed for the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement are provided in Section 3.4 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement.

4.4.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System As described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.4, ground-disturbing construction activities associated with the development of a solar project on the proposed site could have a direct impact on cultural resources and historic properties by damaging and displacing artifacts, diminishing site integrity, and altering the characteristics that make the resources significant. In addition, in the case of historic architectural resources and places of traditional cultural importance, impacts can occur to the setting of a resource even if the resource is not physically damaged. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.4-1 July 2013

207 4. Environmental Consequences 4.4 Impacts on Cultural Resources In general, impacts to archaeological resources for the Palen Solar Electric Generating System would be similar to those described in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement. However, based on graphical representations showing the anticipated disturbance below ground and the anticipated above-ground intrusion into the flat landscape, impacts associated with the Palen Solar Electric Generating System that are different from those evaluated in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement include: 1. Minimal grading is anticipated within the solar field, except as needed to construct roads. An internal roadway system would be constructed within the solar array fields, which is anticipated to disturb approximately 36 acres. Depth of soil disturbance associated with grubbing and blading would be typically 6-12 inches with a maximum of approximately 3 feet below ground surface in areas where necessary to maintain grade. 2. In the solar array fields, trenches would be excavated for the installation of underground systems, including electrical transmission systems and natural gas system. These trenches could be excavated to a depth of up to 12 feet. 3. Auguring for the heliostat support pylons could extend to a maximum depth of 12 feet. The heliostats would intrude into the flat landscape to a height of 12 feet.Excavation and grading would be performed within each solar plant's power tower and power block areas, for the switchyard, within the administration complex area, and for the heliostat assembly buildings, which would cause ground disturbance down to a maximum depth of 8.5 feet. 5. The power towers would intrude onto the flat landscape to a maximum height of 750 feet; FAA-required lighting and lightning rods would extend an additional 10 feet. 6. The re-routing of the gen-tie line would affect approximately 18.9 acres, gen-tie line impacts to which were evaluated in the April 2011 Desert Sunlight Solar Farm California Desert Conservation Area Plan Amendment and Final Environmental Impact Statement (BLM, 2011a) and related Record of Decision (BLM, 2011b). 7. A redundant telecommunications line would be installed underground within the gen-tie line ROW, which would require trenches excavated to a maximum depth of 12 feet. 8. The natural gas line would disturb an additional 2.7 acres within BLM lands and 0.6 acres within CalTrans right-of-way. The excavation for the natural gas line would typically extend to a depth of 5 feet with an anticipated maximum depth of 12 feet to accommodate the crossing of I-10 by means of a jack and bore or directional drilling operation to minimize disturbance. The area disturbed for construction and operation of the Palen Solar Electric Generating System (PSEGS) would be approximately 3,896 acres. The Bureau of Land Management (BLM) is awaiting cultural resource studies for areas that could be affected by the PSEGS that were not analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS). Upon completion of those cultural resource studies, a discussion of the types and numbers of cultural resources that could potentially be affected by the full PSEGS would be included here, as would a discussion of the significant historic properties that could be affected by the PSEGS. This analysis, along with any mitigation measures that would reduce the significance of these impacts, will be presented in this chapter and incorporated into the Final Environmental Impact Statement (EIS). Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.4-2 July 2013

208 4. Environmental Consequences 4.4 Impacts on Cultural Resources 4.4.3 Cumulative Impacts PSEGS The Bureau of Land Management (BLM) is awaiting cultural resource studies for areas that could be affected by the Palen Solar Electric Generating System (PSEGS) that were not analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS). Upon completion of those cultural resource studies, the findings will be incorporated into the cumulative impacts analysis contained within this section and integrated into the Final Supplemental Environmental Impact Statement (SEIS). The cumulative impacts analysis will describe the contribution of the Palen Solar Electric Generating System (PSEGS) to the potential cumulative impacts on archeological resources and cultural landscapes from past, present, and reasonably foreseeable future actions (see Table 4.4-1 in this Draft Supplemental Environmental Impact Statement (SEIS)). Reconfigured Alternative 2 Options 1 & 2 In general, cumulative impacts to cultural resources would vary by alternative only to the degree to which direct and indirect impacts would vary by alternative. As neither Reconfigured Alternative 2 nor the conditions of the site on which Reconfigured Alternative 2 would occur has changed substantially from that described in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS), analysis of the cumulative impacts to cultural resources from Reconfigured Alternative 2 does not require supplement. See Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.4 for additional discussion. No Action Alternative A Under No Action Alternative A, the Bureau of Land Management (BLM) would not approve the Palen Solar Electric Generating System (PSEGS). As a result, no solar energy project would be constructed on the site at this time, and the Bureau of Land Management (BLM) would continue to manage the site in a manner consistent with the existing land use designation in the California Desert Conservation Area (CDCA) Plan. Because the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) amended the California Desert Conservation Area (CDCA) Plan to identify the Palen Solar Electric Generating System (PSEGS) site as within the East Riverside Solar Energy Zone, it is anticipated that future solar use of the site would be encouraged. Insufficient information is available at this time to allow for a meaningful analysis in this Draft Supplemental Environmental Impact Statement (SEIS) of any future proposal on the site; available information is too speculative or conjectural. 4.4.4 Summary of Mitigation Measures The Bureau of Land Management (BLM) is awaiting cultural resource studies for areas that could be affected by the Palen Solar Electric Generating System (PSEGS) that were not analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS). Upon completion of those cultural resource studies, a discussion of the types and numbers of cultural resources that could be affected by the Palen Solar Electric Generating System (PSEGS) would be included in this section, along with any mitigation measures that would reduce the significance of these impacts. Any adverse effects that the Palen Solar Electric Generating System (PSEGS) could have on cultural resources would be resolved through compliance with the terms and conditions of the existing Programmatic Agreement (PA) prepared and entered into consistent with the National Historic Preservation Act (NHPA) Section 106 as that Programmatic Agreement (PA) may be amended from time to time.In accordance with 36 CFR Section 800.14(b), Programmatic Agreements (PAs) are used for the resolution of adverse effects for complex project situations and when effects on historic properties, resources eligible for or listed in the National Register of Historic Places (NRHP), cannot be fully determined prior to approval of an undertaking. The Bureau of Land Management (BLM) prepared a Programmatic Agreement (PA) for the Palen Solar Power Project (PSPP) in consultation with the State Historic Preservation Officer, Indian tribes, and other interested parties. The Programmatic Agreement for the Palen Solar Power Project was signed and executed on October 7, 2010, and is now applicable to the Palen Solar Electric Generating System (PSEGS). The Programmatic Agreement would be included as an appendix to the Final Environmental Impact Statement (EIS). Analysis of impacts in this document and implementation of the Programmatic Agreement would demonstrate Bureau of Land Management's compliance with National Historic Preservation Act (NHPA) Section 106 and National Environmental Policy Act (NEPA). As necessary, based upon the degree of impact, treatment plans containing measures to mitigate impacts on historic properties that cannot be avoided by project construction would be developed in consultation with stakeholders as stipulated in the Programmatic Agreement.

The Bureau of Land Management is awaiting cultural resource studies to identify resources that could be affected by the Palen Solar Electric Generating System that were not analyzed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement. Until those studies are completed, full consideration of potential impacts and necessary mitigation is not possible, nor is a determination of residual impacts after mitigation measures are implemented. As discussed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement, any cultural resources damaged or destroyed by project construction, even if subjected to mitigation measures, would be permanently lost from the archaeological record. This would make the cultural resources unavailable for future study to address future research needs when more advanced investigative techniques and methods of analysis might be available.

Ground disturbance caused by the Palen Solar Electric Generating System would result in unavoidable adverse impacts on cultural resources through damage, displacement and destruction of sites, features, and artifacts, loss of integrity of cultural resources, and changes in the settings of cultural resources inconsistent with their historic or traditional cultural values.

The environmental justice impact assessment methodology used in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.5 was used to analyze impacts of the Palen Solar Electric Generating System in this Draft Supplemental Environmental Impact Statement (SEIS), except in regard to the populations used to analyze the Palen Solar Electric Generating System's potential impacts. This analysis uses a demographic screening evaluation to determine whether a minority and/or low-income population exists within two potentially affected study areas. The primary study area consists of the one community that is partially contained within a 6-mile radius beyond the project footprint, the community of Desert Center. This radius is consistent with modeling of the range of the project's air quality impacts and is also an appropriate study area for potential hazards and other physical environmental impacts, which are likely to be highly localized and could be felt disproportionately by one community when compared to another. A secondary study area is used to examine the potential effects of the Palen Solar Electric Generating System on the largest city or community within the vicinity (i.e., the City of Blythe), which may experience effects related to traffic, socioeconomics, or other human environment impacts disproportionately compared to the greater community (in this case, Riverside County). The City of Blythe provides an appropriate level of demographic detail for effects within the secondary study area because such effects are more likely to be spread throughout the study area rather than felt within specific local neighborhoods or communities. Such effects are also not likely to occur in communities near the Colorado River that are further from Interstate 10 (I-10) because these communities would not likely provide housing for large numbers of project workers, nor do these communities provide roads or other amenities that are likely to be used by project workers or delivery vehicles. The analysis of direct and indirect impacts of Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.5.2. The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement to reflect the updated cumulative scenario.

Similar to the Palen Solar Power Project, applicable resource sections of this Draft Supplemental Environmental Impact Statement were reviewed to determine whether any adverse impacts would occur to the minority communities of concern in Desert Center or Blythe. As described in Section 4.2, Impacts on Air Quality, construction and operation of the Palen Solar Electric Generating System could contribute to exceedances of the PM10 standards (24-hour and annual), and could contribute to higher ozone levels in the region.Additionally, construction could cause exceedances of the 1-hour and 24-hour National Ambient Air Quality Standards (NAAQSs) for nitrogen dioxide (NO2) and particulate matter (PM2.5), respectively. Although these exceedances and increases in ozone levels would represent adverse regional impacts, the distance between the source of emissions (the project site) and the residents of Desert Center would be such that emissions would disperse before traveling that distance and emissions would not occur in Desert Center in concentrations that would result in adverse localized effects. The Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) states:

Environmental Consequences: Impacts on Environmental Justice

As described in Section 4.9, Impacts on Noise, no adverse noise or vibration impacts from the Palen Solar Electric Generating System (PSEGS) project are expected as a result of the PSEGS project design, mitigation measures, and distance from sensitive receptors. Similarly, as described in Section 4.19, Impacts on Water Resources, the Palen Solar Electric Generating System would not result in wastewater discharges that could affect drinking water supplies or other water bodies, nor would the Palen Solar Electric Generating System adversely affect local groundwater wells after Applicant Proposed Measures (APMs) are implemented. Therefore, no disproportionately adverse air quality, noise, or water impacts would result for minority residents of the primary study area.

As described in Section 4.13, Social and Economic Impacts, and Section 4.16, Impacts on Transportation, similar to the Palen Solar Power Project (PSPP), the PSEGS would not displace any homes or businesses, nor would any significant adverse traffic impacts result during project construction or operation. Additionally, as described in Section 4.11, Impacts on Public Health and Safety, no significant and adverse public health and safety impacts are anticipated associated with the PSEGS. Therefore, no disproportionately adverse socioeconomic, traffic, or health and safety impacts would result for minority residents of the secondary study area.

Cumulative Impacts:

No direct or indirect environmental justice impacts would result from the PSEGS. Therefore, no cumulative environmental justice impacts would result.

Reconfigured Alternative 2:

The contribution of Option 1 to cumulative impacts on environmental justice would be the same as the contribution of the PSEGS.

The contribution of Option 2 to cumulative impacts on environmental justice would be the same as the contribution of the PSEGS.

No Action Alternative A:

To the extent that No Action Alternative A would not result in development of the site at this time, no contribution to a cumulative impact on environmental justice would occur. However, since the Right-of-Way (ROW) application area is located within the Riverside East Solar Energy Zone, the California Desert Conservation Area (CDCA) Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future. If another project were to result in impacts on the environment or on human health and safety that would be experienced disproportionately by minority or low-income populations, another project could result in a contribution to a cumulative impact on environmental justice.

Palen Solar Electric Generating System Draft SEIS continues:

Environmental Consequences: Impacts on Environmental Justice

Summary of Mitigation Measures: No environmental justice mitigation measures are proposed.

Residual Impacts after Mitigation Measures are Implemented: Because no mitigation measures are recommended, there would be no change in Palen Solar Electric Generating System project impacts resulting from mitigation.

Unavoidable Adverse Impacts: No unavoidable adverse environmental justice impacts would occur.

Palen Solar Electric Generating System Draft SEIS continues:

Environmental Consequences: Impacts on Lands and Realty

Impact Assessment Methodology: The lands and realty impact assessment methodology used in Section 4.6.1 of the PSPP Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) was used to analyze the PSEGS in this Draft SEIS. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Section 4.6.2 of the PSPP PA/FEIS. The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS (see Section 4.6.3, below) to reflect the updated cumulative scenario.

Direct and Indirect Impacts of the PSEGS: The main components of the PSEGS are two proposed solar fields. Each solar field would contain heliostats that would surround the power block and power tower.The total acreage for the solar field for Unit 1 would be approximately 1,643 acres and for Unit 2 would be approximately 1,883 acres. Preliminary plans for the Palen Solar Electric Generating System (PSEGS) solar fields are shown in Figure 2-3. A 230 kV gen-tie line and telecommunications cable would interconnect with the power grid at Southern California Edison's (SCE's) proposed Red Bluff Substation. The PSEGS also has proposed locating a redundant telecommunications cable underground entirely in the same right-of-way (ROW) as the gen-tie line. The natural gas supply for the Palen Solar Electric Generating System (PSEGS) would be provided by SoCal Gas. Related improvements are described in Section 2.1.4 of this Draft Supplemental Environmental Impact Statement (SEIS) and the proposed route is shown in Figure 2-3. Also as described in Section 2.1.4, main site access for the Palen Solar Electric Generating System (PSEGS) would be provided through a new, 1,350-foot long, 24-foot wide, paved road. The access road would be constructed from a point just north of the Interstate 10 (I-10)/Corn Springs Road entrance/exit ramps east to the project site entrance. Although there are numerous existing ROWs of record within and adjacent to designated Corridors K and 30-52, only a few would be directly affected by the PSEGS. Any existing authorized use that would be affected by the Palen Solar Electric Generating System (PSEGS) has "priority rights" in the sense that any new authorization(s) would be issued "subject to" the previously existing ROWs or other uses. Therefore, the Applicant would be required to mitigate any potential impacts to the existing authorized users at the Applicant's expense. This requirement would mean bearing all costs for relocating or modifying any facilities such as power poles or conductors that might be necessary to accommodate the new use.

Potential impacts to the designated corridors could occur as a result of the overhead gen-tie line, underground redundant telecommunications cable, and natural gas line that would cross portions of the corridors. However, with current technology, the potential impacts would be expected to be minimal, easily mitigated, and would not preclude continued and future use of either designated corridor. The existing corridor is approximately 2 miles wide. The Palen Solar Electric Generating System (PSEGS) is expected to take up approximately 1 mile of the corridor. There are two existing transmission lines in the corridor: the Blythe Energy Project transmission line and the Devers-Palo Verde No. 1 transmission line.

These existing transmission lines take up approximately 100 feet of the 1-mile corridor width that would not be impacted by the Palen Solar Electric Generating System (PSEGS). Based on the cumulative scenario, it is foreseeable that two additional transmission lines would be constructed in the corridor: the Desert Southwest transmission line and Devers-Palo Verde No. 2 transmission line. It is expected that future use of the corridors would be slightly constrained by placement of additional linear facilities within, and following along the path of, the corridors. However, even with the PSEGS and existing and planned transmission lines, a conservative estimate would leave more than 0.75 mile of the corridor unconstrained. Impacts from the access road exiting the frontage road and heading east to the project site and the emergency access road exiting the southern boundary of the site would be minimal because future transmission lines, both gas and electric, could easily bore under or span across the roads, respectively.

Future use of the corridors would be slightly constrained by placement of additional linear facilities within the corridors. The largest impact to the designated corridors would come from the proposed solar generating facility. Once constructed, the land encompassed by the Palen Solar Electric Generating System (PSEGS) would not be available for placement of future site or linear facilities. Any future use would have to be constructed around the outermost perimeter of the Palen Solar Electric Generating System (PSEGS) rather than spanning across or boring under the site. Given that both corridors are 2 miles wide, with Interstate 10 (I-10) being the approximate center line of both, virtually all of the north halves of both corridors would be rendered unusable for future site and linear projects at the PSEGS site. However, the land south of the site and south of both corridors is vacant desert land and could be available for expanding the width of the corridors to the south along this segment.

Potential impacts to Interstate 10 (I-10) from the overhead gen-tie line and telecommunications cable, buried redundant telecommunications cable, and buried natural gas line would be mitigated by following requirements of the Federal Highway Administration (FHWA) and/or California Department of Transportation (Caltrans), and industry standards (SOPs) and best management practices (BMPs) for aerial and buried crossings of federal highways.Potential impacts from the new access road that would exit Corn Springs Road and head east to the Palen Solar Electric Generating System (PSEGS) boundary and the emergency access road abutting the northern edge of the I-10 ROW boundary and extending into the project site would be mitigated by following requirements of the FHWA, Caltrans, and industry SOPs and BMPs for encroachment of federal/state highways. Impacts to Other Authorized Uses As proposed, potential impacts could occur from the overhead gen-tie line and telecommunications cable, buried redundant telecommunications cable, and buried natural gas line to authorized uses both north and south of I-10. However, construction and operation of these new linear facilities using industry SOPs and BMPs for crossing over or boring under existing authorized uses would effectively mitigate potential negative impacts to existing authorized users. Coordination with other agencies regarding their projects (such as with FERC regarding the Eagle Mountain Pumped Storage Hydroelectric Project) would further reduce the likelihood of potential negative impacts to existing authorized users. As stated previously, existing authorized uses potentially affected by the Palen Solar Electric Generating System (PSEGS) have "priority rights" and new authorization(s) would be issued "subject to" the previously existing ROWs or other uses. Therefore, the Applicant would be required to mitigate potential impacts at the Applicant's own expense, such as bearing all costs for relocating or modifying facilities such as power poles or conductor that might be necessary to accommodate the new use. The PSEGS proposes to leave in place SCE's existing Eagle Mountain-Blythe 161-kV transmission line and therefore no impacts to SCE's authorized use are anticipated as long as unrestricted access is provided to SCE for continued operation and maintenance of SCE's powerline. Cumulative Impacts of the PSEGS Impacts resulting from construction, operation, maintenance, and decommissioning of the Palen Solar Electric Generating System (PSEGS), when combined with those of past, present, or reasonably foreseeable future actions could result in a cumulative effect on lands and realty resources. The geographic scope of the cumulative effects analysis for Lands and Realty consists of eastern Riverside County, based on the jurisdictional boundaries within which the impacts of land use decisions could combine. Potential cumulative effects on Lands and Realty could occur during the PSEGS's proposed 34-month construction period if, for example, the need arises to relocate or modify existing facilities within an existing ROW or if future projects were constrained by the placement of PSEGS-related facilities located within designated corridors; or pursuant to closure and decommissioning activities. Existing conditions within the cumulative impacts area reflect a combination of the natural condition and the effects of past actions and are described in Chapter 3 of this Draft SEIS. Direct and indirect effects of the construction, operation and maintenance, and closure and decommissioning of the PSEGS on Lands and Realty are analyzed above (and in PSPP PA/FEIS Section 4.6.2 for alternatives). Updated past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1 of this document. Among them, other ROW applications for linear and non-linear projects that could be developed in eastern Riverside County include other utility-scale solar projects and the proposed Eagle Mountain Pump Storage project, associated gen-tie lines, other related ancillary facilities, three commercial projects, and 15 residential developments. Additional actions that could have cumulative impacts include, among others, ROW grants for other renewable energy projects, substation projects, and other linear facilities such as fiber optics, gas or electric transmission lines. ROW grants and other land use decisions associated with these actions and projects would affect the nature, type, and intensity of uses authorized on the lands potentially affected by the Palen Solar Electric Generating System (PSEGS) and its ancillary facilities. Permitting the Palen Solar Electric Generating System (PSEGS) and other projects within the cumulative impact area could affect the amount of land that would be available for permitting by the BLM for other uses consistent with the CDCA Plan. Permitting the Palen Solar Electric Generating System (PSEGS) and other projects for the single use proposed (e.g., solar energy development, pump storage, etc.) would restrict the use of the lands during the life of those projects reducing the number of acres of lands available to be administered by the BLM for other uses. Upon decommissioning of the Palen Solar Electric Generating System (PSEGS) and other single use projects, affected acreage would become available for multiple use management by the BLM. In addition to the Palen Solar Electric Generating System (PSEGS), other proposed solar generation projects are located in eastern Riverside County and have been approved by the BLM or are currently under construction.Such projects include McCoy Solar Energy Project, Genesis, Chuckwalla Solar I, Rice Solar Energy Project, Blythe Airport Solar I Project, Blythe Solar Power Project, Desert Quartzite Project, Desert Sunlight Project, and the Desert Harvest Project. Figure 4.1-1 identifies the following projects by letter, as follows: McCoy Solar Energy Project (Letter H), Genesis Solar (Letter I), Chuckwalla Solar I (Letter J), Rice Solar Energy Project (Letter K), Blythe Airport Solar I Project (Letter L), Blythe Solar Power Project (Letter M), Desert Quartzite Project (Letter N), Desert Sunlight Project (Letter O), and the Desert Harvest Project (Letter Q). The combined total number of acres identified for consideration in these applications, including the Palen Solar Electric Generating System (PSEGS), is approximately 48,294 acres. Each of these projects has identified an "action area" that includes more acreage than what would be needed for construction, operation and maintenance to allow for flexibility in final design. Should one or more of these projects be authorized, the acreage included in the right-of-way (ROW) grant(s) would be only that which is actually needed for the approved solar projects, not the total number of acres identified in the applications. Several transmission line projects and other past, present, and reasonably foreseeable future activities are expected to occur within the cumulative impacts assessment area. This includes the Devers-Palo Verde No. 1 (DPV1) Transmission Line, Devers-Palo Verde 2 (DPV2) Transmission Line, Desert Southwest Transmission Line, and the Blythe Energy Project Transmission Line. For example, the Devers-Palo Verde No. 1 (DPV1) Transmission Line is an existing 500 kV transmission line that spans approximately 128 miles of land within California paralleling Interstate 10 (I-10) (see Figure 4.1-1, Number 4). The Devers-Palo Verde No. 1 (DPV1) Transmission Line is within Corridors K and 30-52. The Devers-Palo Verde No. 1 (DPV1) Transmission Line was approved by the California Public Utilities Commission (CPUC) in 1979 and constructed in 1982. The Devers-Palo Verde 2 (DPV2) Transmission Line project was approved by CPUC in January 2007. The Devers-Palo Verde 2 (DPV2) Transmission Line project involves the construction of two 500 kV transmission lines (Figure 4.1-1, Letter D). The proposed Devers-Palo Verde 2 (DPV2) Transmission Line route is along the south side of I-10, parallel to the existing Devers-Palo Verde No. 1 (DPV1) Transmission Line route. The Bureau of Land Management (BLM) issued a right-of-way (ROW) grant for the use of public land to Southern California Edison (SCE) for the Devers-Palo Verde 2 (DPV2) Transmission Line (CACA-17905) on August 11, 1989, to extend from the Devers Substation in Palm Springs to the California border and continue into Arizona; however, the portion of the Devers-Palo Verde 2 (DPV2) Transmission Line continuing into Arizona was never constructed. On September 19, 2011, the BLM issued a ROW grant (CACA-053059) for construction and operation of the Devers-Palo Verde 2 (DPV2) line beginning at Valley Substation in Romoland and terminating at the Colorado River Substation near Blythe, California. The Desert Southwest Transmission Line project (Figure 4.1-1, Letter F) consists of construction of an approximate 118-mile 500 kV transmission line and two new substation/switching stations. The BLM has approved a ROW grant for the construction of the Desert Southwest Transmission Line project which crosses public lands between Blythe and the western end of the Coachella Valley. This Desert Southwest Transmission Line project would be constructed within an existing federal utility corridor. The BLM has issued a ROW grant for the Desert Southwest Transmission Line project. Upon completion of plans for development and finalization of the Programmatic Agreement (PA) entered into pursuant to the National Historic Preservation Act (NHPA) Section 106, the BLM would issue a notice to proceed for the Desert Southwest Transmission Line project. The Blythe 230-kV Transmission Line Project (Figure 4.1-1, Number 10) involves building two 230-kV transmission lines spanning approximately 70 miles between the Julian Hinds and Buck substations, and construction of a new midpoint substation. Construction on the Blythe 230-kV Transmission Line Project began in February 2009, was completed in 2010, and the Blythe 230-kV Transmission Line Project has since been energized. The Blythe 230-kV Transmission Line Project lies within the existing federally-designated utility corridors along I-10. Two substations are identified as part of the solar generating facilities in the area: the Colorado River Substation and the Red Bluff Substation. The location of the Colorado River Substation (Letter E) and the Red Bluff Substation (Letter P) is shown in Figure 4.1-1. Reconfigured Alternative 2 The components of Reconfigured Alternative 2 are described in the Preliminary Staff Assessment/Final Environmental Impact Statement (PSPP PA/FEIS) Chapter 2, and the direct and indirect impacts of Reconfigured Alternative 2 are analyzed in Section 4.6.2.Reconfigured Alternative 2 includes two possible layouts referred to in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) as Option 1 and Option 2. With respect to Lands and Realty, the cumulative effects of Reconfigured Alternative 2 would be similar to those of the Palen Solar Electric Generating System (PSEGS), with slight differences generally limited to the direct and indirect effects of Reconfigured Alternative 2 and the PSEGS. Differences in direct and indirect impacts as compared to the PSEGS would result from Reconfigured Alternative 2's potential use of 240 acres of private lands (Option 1 only), minor divergence of gen-tie line routes, gas line addition, redundant telecommunications cable routing, and possible relocation of Southern California Edison's (SCE) existing transmission line under Reconfigured Alternative 2. Under all action alternatives, however, industry Standard Operating Procedures (SOPs) and Best Management Practices (BMPs) would be followed for crossing over or boring under existing corridors and authorized uses which would be expected to effectively mitigate potential negative impacts to existing land use designations and authorized users.

No Action Alternative A:

Under No Action Alternative A, the Right-of-Way (ROW) application CACA-48810 would be denied, and the ROW grant would not be authorized. The California Desert Conservation Area (CDCA) Plan would not be amended. Under this alternative, the incremental impact of the Palen Solar Electric Generating System (PSEGS) to lands and realty resources as described above would not be immediately realized. However, since the ROW application area is located within the Riverside East Solar Energy Zone (SEZ), the CDCA Plan amendment decisions made in the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) that identify the area as suitable for any type of solar energy development would be in effect for future projects. Therefore, it is likely that this site in the future would be developed as a solar energy project with cumulative impacts to Lands and Realty that would be similar to those described above.

4.6.4 Summary of Mitigation Measures:

The Applicant Proposed Measures (APMs) of the Palen Solar Electric Generating System (PSEGS), as well as compliance with applicable laws, ordinances, regulations, and standards; and the use of industry Standard Operating Procedures (SOPs) (e.g., North American Electric Reliability Corporation (NERC), Western Electricity Coordinating Council (WECC), etc.) and Best Management Practices (BMPs), would avoid or reduce impacts associated with construction and operation of the Palen Solar Electric Generating System (PSEGS). Moreover, utility corridors have been designated by the Bureau of Land Management (BLM) to accommodate such uses and to reduce overall environmental impacts that would result from the construction and operation of multiple linear facilities in multiple locations. Accordingly, additional mitigation measures are not recommended.

4.6.5 Residual Impacts after Mitigation Measures were implemented:

Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation.

4.6.6 Unavoidable Adverse Impacts:

Approval of the Palen Solar Electric Generating System (PSEGS) would result in land not being available for other uses during the life of the project; however, once the Palen Solar Electric Generating System (PSEGS) is no longer viable and is decommissioned, the land once again would be available for other uses consistent with the California Desert Conservation Area (CDCA) Plan and associated amendments.

4.7 Impacts on Mineral Resources:

4.7.1 Impact Assessment Methodology:

To supplement the mineral resources impacts analysis conducted in PSPP PA/FEIS Section 4.7, the section on Impacts on Mineral Resources, applicable geologic maps were consulted to determine whether the gen-tie line reroute and natural gas supply line and metering yard would traverse different geologic formations than those analyzed in the PSPP PA/FEIS. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.7.2, Discussion of Direct and Indirect Impacts.

4.7.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System (PSEGS):

Construction of the Palen Solar Electric Generating System (PSEGS) would require less grading than the Palen Solar Power Project (PSPP), but otherwise would include construction processes similar to those analyzed in the PSPP PA/FEIS. As described in Section 3.8, Mineral Resources, the Palen Solar Electric Generating System (PSEGS) footprint (including the gen-tie line reroute and natural gas line addition) is within the same geologic setting as was characterized in the PSPP PA/FEIS mineral resources discussion. Further, rerouting of the gen-tie line and the addition of the natural gas supply line and metering yard do not involve new ground disturbance at a level that could affect the significance of the Palen Solar Electric Generating System (PSEGS)'s mineral resources impacts determined in the PSPP PA/FEIS. Only limited exploration for oil and gas and geothermal resources has been performed in the area, and further exploration with directional drilling or other technologies could still occur from areas adjacent to the subject site.The area is underlain by extensive sand and gravel deposits; however, adequate supplies are available in adjacent areas. For these reasons, the Palen Solar Electric Generating System (PSEGS) is expected to have a negligible and temporary effect on the availability of sand and gravel resources, and no significant impact on the availability of geothermal or other mineral or gas resources. 4.7.3 Cumulative Impacts PSEGS Because the Palen Solar Electric Generating System would have a negligible and temporary effect on the availability of sand and gravel resources, and no significant impact on the availability of geothermal or other mineral or gas resources, no cumulative impacts would result for these resources. Reconfigured Alternative 2 The geologic units that would be disturbed by Reconfigured Alternative 2 are the same as those that would be disturbed by the Palen Solar Electric Generating System, and ground disturbance would occur in roughly comparable amounts. As with the Palen Solar Electric Generating System, Reconfigured Alternative 2 would have a negligible and temporary effect on the availability of sand and gravel resources, and no significant impact on the availability of geothermal or other mineral or gas resources, no cumulative impacts would result. Palen Solar Electric Generating System Draft SEIS 4.7-1 July 2013

4. Environmental Consequences 4.7 Impacts on Mineral Resources No Action Alternative A If No Action Alternative A were selected, the right-of-way (ROW) application would be denied. The site would be expected to remain, at least for the short-term, in its existing condition, with no grading of the site, no installation of power generation or transmission infrastructure, and no new structures or facilities constructed or operated on the site. In the absence of the Palen Solar Electric Generating System, the site would remain available for solar energy development, mineral leasing, and for sales of mineral materials but would not be available for new claims to mineral resources in the near future. However, in the absence of a specific development proposal, the implications of future site development on mineral resources cannot reasonably be predicted. As discussed in Section 3.8, Mineral Resources, the site lies within a designated Solar Energy Zone (SEZ). Lands designated as Solar Energy Zones will not be subject to appropriation under the Mining Law of 1872 until 2033. 4.7.4 Summary of Mitigation Measures No mitigation measures are recommended. 4.7.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. 4.7.6 Unavoidable Adverse Impacts Approval of the Palen Solar Electric Generating System or any of the alternatives would not result in any unavoidable adverse impacts on mineral resources. Palen Solar Electric Generating System Draft SEIS 4.7-2 July 2013

4. Environmental Consequences 4.8 Impacts on Multiple Use Classes 4.8.1 Impact Assessment Methodology The impact assessment methodology for multiple use classes described in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.8.1 (p. 4.8-1) was used to analyze the Palen Solar Electric Generating System in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Section 4.8.2 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (p. 4.8-2 et seq.). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement to reflect the updated cumulative scenario (see Section 4.8.3, below). 4.8.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System The Palen Solar Electric Generating System would occupy or disturb approximately 3,895 acres of Bureau of Land Management (BLM)-administered lands. All of these acres would be on Multiple-Use Class-M (MUC-M) classified lands per the California Desert Conservation Area (CDCA) Plan. The impacts of the Palen Solar Electric Generating System on the Multiple-Use Class-M lands would be similar to those of the Palen Solar Power Project, in that the Palen Solar Electric Generating System would convert approximately 1 percent of all MUC-M lands in Eastern Riverside County to a single use for the duration of the project. The Applicant has submitted an application to the Bureau of Land Management requesting a project-specific CDCA Plan amendment and right-of-way grant. No changes in the Multiple-Use Class classification would be required prior to approving the right-of-way grant. Nonetheless, approval of the right-of-way grant would restrict multiple-use opportunities on the Palen Solar Electric Generating System site to a single dominant use for the lifespan of the project. This restriction would be lifted upon closure and decommissioning of the project. Thereafter, use opportunities on the site would return to pre-project conditions. 4.8.3 Cumulative Impacts Palen Solar Electric Generating System The geographic scope of the cumulative effects analysis for multiple-use classes would include approximately 400,000 acres of the 1.5 million California Desert Conservation Area Plan acres in Eastern Riverside County that are designated Multiple-Use Class-M.Potential cumulative impacts could result from construction of the Palen Solar Electric Generating System (PSEGS) and would continue until closure and decommissioning is complete because the proposed solar energy use would preclude other uses of the site allowed under the Multiple Use Class-Multiple (MUC-M) designation. Existing conditions within the cumulative impacts area reflect the MUC-M use opportunities presently being exercised and, where such opportunities are not currently being exercised, the flexibility to elect to pursue one or more among those opportunities at some point in the future. Effects of the Palen Solar Electric Generating System and other dedicated-use projects on Multiple Use Classes are related to opportunity cost: if a dedicated use (such as a solar energy generation plant) is developed on the site, then the site cannot be used for other uses that otherwise would be available there. Updated past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1. Among those actions, any projects that have been or would be developed on MUC-M designated land also would restrict available use opportunities within that classification for the duration of those projects. This restricted use could include renewable energy projects within Imperial, Kern, King, Los Angeles, Riverside, San Bernardino, and San Diego counties as well as other, non-energy related projects. For example, three approved utility-scale solar projects in Eastern Riverside County would be developed on MUC-M classified land: the Genesis Solar Energy Project (approximately 1,800 acres), Desert Sunlight Project (4,144 acres), and Desert Harvest Project (approximately 1,208 acres). Together with the Palen Solar Electric Generating System, approximately 11,007 acres of the 400,000-acre total (2.8 percent) would be dedicated to utility-scale solar energy generation for the duration of these projects. This preliminary quantification of potential impacts to Multiple Use Class-Multiple lands resulting from projects and other actions identified in the cumulative scenario will be updated when additional information is available. Other projects, if approved for development on Multiple Use Class-Multiple lands, would similarly dedicate Multiple Use Class-Multiple designated lands for the uses approved and thereby preclude their use for multiple uses envisioned under the California Desert Conservation Area (CDCA) Plan (e.g., mining, livestock grazing, and recreation). Cumulatively, this dedication would be a considerable commitment of Multiple Use Class-Multiple lands. Reconfigured Alternative 2 Option 1 would combine with the same cumulative projects as the Palen Solar Electric Generating System. Reconfigured Alternative 2 Option 1 would disturb approximately 4,125 acres of federal lands classified as Multiple Use Class-Multiple. Under this option, the total cumulative impact on Multiple Use Class-Multiple lands would be 11,277 acres, or 2.9 percent of all Multiple Use Class-Multiple lands in Eastern Riverside County. This dedicated area would be a slightly greater area than the area under the Palen Solar Electric Generating System but would not result in a substantially different cumulative impact. Option 2 would also combine with the same cumulative projects as the Palen Solar Electric Generating System. Reconfigured Alternative 2 Option 2 would disturb approximately 4,290 acres of federal lands classified as Multiple Use Class-Multiple. Under this option, the total cumulative impact on Multiple Use Class-Multiple lands would be 11,442 acres, or 2.9 percent of all Multiple Use Class-Multiple lands in Eastern Riverside County. This dedicated area would be a slightly greater area than the area under the Palen Solar Electric Generating System but would not result in a substantially different cumulative impact. For No Action Alternative A, to the extent that No Action Alternative A would not result in development of the site, no contribution to a cumulative impact on Multiple Use Class-Multiple lands would occur. However, since the Right Of Way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future, potentially resulting in cumulative impacts similar to those of the Palen Solar Electric Generating System or Palen Solar Power Project (PSPP). Summary of Mitigation Measures section of this document states that no mitigation measures are recommended. Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. Unavoidable Adverse Impacts Approval of the Palen Solar Electric Generating System would result in no unavoidable adverse impacts on Multiple Use Class-Multiple lands.4.8.7 Resource Management Plan/Land Use Plan Amendment Consistency Analysis As discussed in Section 1.5.3 of this Draft SEIS, to accommodate the proposed action or any of the build alternatives, the CDCA Plan must be amended because sites associated with power generation or transmission not identified in the CDCA Plan will have to be considered through the CDCA Plan Amendment process. Neither the PSEGS solar plant site nor the proposed gen-tie line route currently is identified in the CDCA Plan for the intended uses. Two additional amendments are proposed to be added to this section of the CDCA Plan, and the amendments would read "The Palen solar energy facility is allowed" and "The Palen solar facility gen-tie is allowed outside of a designated corridor."

The CDCA Plan Amendment process is outlined in Chapter 7 of the CDCA Plan and described in Section 1.5.3 of this Draft SEIS. To inform the amendment decisions, the BLM will rely on the environmental and other analysis set forth in the PSPP PA/FEIS issued by the BLM in May 2011 (Section 4.8.7 of the PSPP PA/FEIS includes an analysis of the amendment to "allow" the solar generating facility; Section 4.8.7 of the Draft SEIS includes an analysis of the amendment to "allow" the gen-tie line outside of a designated corridor) and the consolidated Final EIS that will be prepared for the PSEGS.

As described, all of the BLM-administered lands proposed for use by the PSEGS and alternatives are classified in the CDCA Plan as MUC-M. Multiple use class designations govern the type and degree of land uses allowed within the classification area. All land use actions and resource-management activities on BLM-administered lands within a MUC delineation must meet the guidelines for that class. These guidelines are provided in Table 1, Multiple Use Class Guidelines, of the CDCA Plan (at page 15). MUC-M allows electric generation plants for solar facilities to be developed in accordance with Federal, State and local regulations after NEPA requirements are met. The specific application of the Multiple Use Class designations and resource management guidelines for a specific resource or activity are further discussed in the plan elements section of the CDCA Plan.

1 Because the proposed natural gas line to supply the PSEGS would be less than 12-inches in diameter, no CDCA Plan amendment would be required to identify the affected area for the intended use; accordingly, the proposed natural gas line conforms to the CDCA Plan. Palen Solar Electric Generating System Draft SEIS 4.8-3 July 2013"

4. Environmental Consequences 4.8 Impacts on Multiple Use Classes designations, the authorized officer is directed to use judgment in allowing for consumptive uses by taking into consideration the sensitive natural and cultural values that might be degraded. Acknowledging that energy generation and transmission are "allowed" in MUC-M designated areas with a CDCA Plan Amendment, the land use plan consistency analysis presented in PSPP PA/FEIS Section 4.8.7 (p. 4.8-5 et seq.) applies equally to the PSEGS, with the exception of Air Quality. Class M lands are to be managed to protect air quality and visibility in accordance with Class II objectives of Part C of the Federal Clean Air Act as amended.

The anticipated maximum emissions that would be associated with the proposed action are provided in Table 4.2-4 for construction and Table 4.2-7 for operation and maintenance activities (see Section 4.2, Impacts on Air Resources). The analysis in Section 4.2 indicates construction emissions could contribute to exceedances of the PM10 standards (24-hour and annual) and could cause exceedances of the 1-hour and 24-hour NAAQSs for NO2 and PM2.5, respectively. The analysis also indicates PSEGS operations would contribute to existing exceedances of the PM10 standards (24 hour and annual) and the PM2.5 (24-hour standard), which would represent an adverse effect to the local and regional air quality. However, the increases would not exceed USEPA thresholds for Prevention of Significant Deterioration (PSD) in Class II areas, and therefore would be consistent with the CDCA Plan. Palen Solar Electric Generating System Draft SEIS 4.8-4 July 2013"

4. Environmental Consequences 4.9 Impacts on Noise 4.9.1 Impact Assessment Methodology The noise impact assessment methodology used in PSPP PA/FEIS Section 4.9.1 (p. 4.9-1 et seq.) was used to analyze the PSEGS in this Draft SEIS.Additionally, this analysis includes an assessment of the effects of construction-related vibration levels at nearby sensitive uses. Groundborne vibration levels resulting from construction activities were estimated using data published by the Federal Transit Administration (FTA) in the Federal Transit Administration's Transit Noise and Vibration Impact Assessment document (FTA, 2006). Potential vibration levels resulting from Palen Solar Electric Generating System (PSEGS) construction activities are identified at the nearest sensitive receptor based on the sensitive receptor's distance from construction activities. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project (PSPP) PA/FEIS Section 4.9.2 (pp. 4.9-5, 4.9-6). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement (SEIS) to reflect the updated cumulative scenario (see Section 4.9.3 below).

4.9.2 Direct and Indirect Impacts of the PSEGS

Noise impacts associated with the Palen Solar Electric Generating System could be created during the approximately 34-month construction period, approximately 30-year operation and maintenance period, and short-term closure and decommissioning activities. The Palen Solar Electric Generating System location and nearby sensitive receptors remain essentially the same as those identified for the Palen Solar Power Project; therefore, project-related effects would be the same as identified for the Palen Solar Power Project.

Construction

The construction period for the Palen Solar Electric Generating System would be approximately 34 months, with construction activities anticipated to commence during the fourth quarter of 2013 and conclude in June 2016. Compared to the Palen Solar Power Project, the construction period of the Palen Solar Electric Generating System would be shorter by about 5 months but would require a higher intensity in construction efforts as well as an increase in the overall number of workers present at the project site on a daily basis. In addition, whereas the acreage of the two power plant units associated with the Palen Solar Power Project would be 1,380 acres each, the acreages for solar field Unit 1 and Unit 2 for the Palen Solar Electric Generating System would be approximately 1,644 acres and 1,883 acres, respectively. Thus, with the increased footprint of the solar field as a whole within the Palen Solar Electric Generating System site, the shortest distance of the nearby off-site sensitive receptors from construction activities and equipment at the site could be closer than what would have occurred for the Palen Solar Power Project, resulting in higher temporary noise levels at the sensitive receptor locations. Construction activities associated with the Palen Solar Electric Generating System would increase the ambient noise levels at the identified off-site sensitive receptors.

As discussed in Section 4.9.2 of the Palen Solar Power Project PA/FEIS (p. 4.9-2), construction noise would elevate the existing ambient noise level at the nearest Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.9-1 July 2013

227 4. Environmental Consequences 4.9 Impacts on Noise receptor (LT1) by 16 dBA and at the second nearest receptor (LT2) by 5 dBA. Since the intensity of the construction activities and the solar field footprints would be greater for the Palen Solar Electric Generating System and would require more onsite workers on a daily basis, the increase in ambient noise levels at the two nearest residences also would be expected to be greater under the Palen Solar Electric Generating System compared to the Palen Solar Power Project. As described in Chapter 2 of this Draft Supplemental Environmental Impact Statement, construction activities for the Palen Solar Electric Generating System would occur from 5:00 a.m. to 3:30 p.m. with a swing shift during heliostat assembly (from 6:00 p.m. to 4:00 a.m.) and during tower construction (which may occur in three shifts around the clock until these tasks are completed). Additional hours may be necessary to make up schedule deficiencies or to complete critical construction activities (e.g., tower construction, foundation pouring, or working around time-critical shutdowns and constraints). Thus, during some construction periods and during the startup phase, it is anticipated that some activities would continue 24 hours per day, 7 days per week. Consequently, there would be periods of time when the nearby residences would be exposed to noise levels from Palen Solar Electric Generating System construction continuously during night and day.

Section 4.9.4 of the Palen Solar Power Project PA/FEIS (p. 4.9-7) identified mitigation measures to reduce or avoid potential construction noise impacts. The Palen Solar Electric Generating System Applicant has included those mitigation measures as Applicant Proposed Measures (APMs) for the Palen Solar Electric Generating System (in Appendix C of this Draft Supplemental Environmental Impact Statement, see NOISE-1 through NOISE-7). Thus, with respect to construction noise levels, APMs NOISE-1 through NOISE-3, NOISE-6, and NOISE-7 would be implemented as part of the Palen Solar Electric Generating System to minimize the construction noise impacts on nearby sensitive receptors.In particular, APM NOISE-6 restricts heavy equipment operation and noisy construction work to between the hours of 6 a.m. to 7 p.m. on Mondays through Fridays during the months of June through September, to between the hours of 6 a.m. to 6 p.m. on Mondays through Fridays during the months of October through May, and to between the hours of 9 a.m. to 5 p.m. on Saturdays. No construction activities would be allowed on Sundays and federal holidays. However, APM NOISE-6 also stipulates that construction activities that occur outside of the aforementioned hours must obtain approval from the County of Riverside. It should be noted that the increase in noise levels at the nearest off-site sensitive receptors during construction of the Palen Solar Electric Generating System (PSEGS) would be temporary in nature, and the increase in noise levels at the nearest off-site sensitive receptors would not generate continuously high noise levels, although occasional single-event disturbances from grading, trenching, and construction are possible. Additionally, while the construction noise levels at the off-site receptors locations would be the loudest when construction activities are occurring at an area within the site that is nearest to the off-site locations, the majority of the time noise levels at these off-site locations would be reduced as construction activities conclude or move to another more distant portions of the site. Thus, although construction activities would last approximately 34 months overall, the duration of the construction activities in the area that could have a considerable impact at the two nearest off-site residences (LT1 and LT2) would be limited to several months. Nonetheless, given the greater intensity of the construction efforts and increased hours of construction activities (e.g., 24-hour construction periods) at the site for the Palen Solar Electric Generating System, receptors LT1 and LT2 both would be expected to be exposed to greater construction noise levels than from the Palen Solar Power Project (PSPP), resulting in more of a nuisance to those residences compared to the Palen Solar Power Project. Palen Solar Electric Generating System Draft SEIS 4.9-2 July 2013

Additionally, similar to the Palen Solar Power Project, the Palen Solar Electric Generating System would involve the installation of a steam turbine generator for each of the two solar plants. "High pressure steam blow" typically would be the loudest noise encountered during construction of a project incorporating a steam turbine generator. Once the steam lines (piping and tubing) and turbine have been constructed, a series of short steam blows, lasting two or three minutes each, would be performed several times daily over a period of two or three weeks prior to connecting the steam lines to the steam turbine for operation. As discussed in Section 4.9.2 of the Palen Solar Power Project PA/FEIS (p. 4.9-3), unsilenced high pressure steam blows can produce noise levels as high as 129 dBA at a distance of 50 feet; unsilenced high pressure steam blows would amount to roughly 88 dBA at LT1 and 84 at LT2. Unsilenced steam blows could be disturbing at the nearest noise-sensitive receptors, depending on the frequency, duration, and noise intensity of venting. The Applicant would install a silencer on the steam blow piping; with the silencer, noise levels commonly are attenuated to 86 dBA at 50 feet. The gen-tie line rerouting near the western end of the route, the location of the redundant telecommunications cable underground entirely in the same right-of-way as the gen-tie line, and the addition of a natural gas supply line would not affect the Palen Solar Electric Generating System construction noise impacts identified for the Palen Solar Power Project in the Palen Solar Power Project PA/FEIS. The construction activities and equipment used for these project components would be substantially the same as for the Palen Solar Power Project, and the construction areas for these project components would not be located in proximity to any noise-sensitive receptors. For these reasons, the noise levels generated by construction of these Palen Solar Electric Generating System components would have a negligible noise effect. With respect to vibration, the primary source associated with Palen Solar Electric Generating System construction would be vibratory pile driving that would be required to insert the support pylons for the heliostats into the ground (pre-augering prior to the installation of pylons may also be required). Additionally, grading, utilities, and underground facilities construction could also generate substantial vibration levels. Consequently, the closest existing off-site sensitive receptor could be exposed to excessive groundborne vibration or groundborne noise levels related to construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to structural damage at the highest levels. Site ground vibrations from construction activities rarely reach the levels that can damage structures, but site ground vibrations from construction activities may be perceived in buildings very close to a construction site. LT1 would be the nearest sensitive receptor that could be impacted by construction-related vibrations from the Palen Solar Electric Generating System.This receptor, while located approximately 190 feet from the northwest corner of the proposed PSEGS fence line, would be located well beyond 100 feet from the nearest project area where vibratory pile-driving activities would occur. Table 4.9-1 shows the typical vibration levels that would be produced by construction equipment. As shown in Table 4.9-1, construction vibration levels would be less than the FTA's 0.2 inches per second peak particle velocity (PPV) threshold for damage to buildings. Because the nearest sensitive receptor would be located beyond 100 feet from the PSEGS construction activities that involve using vibratory pile drivers, construction vibrations are not predicted to cause damage to existing buildings at the sensitive receptor locations. Palen Solar Electric Generating System Draft SEIS 4.9-3 July 2013.

Environmental Consequences 4.9 Impacts on Noise TABLE 4.9-1 VIBRATION LEVELS FOR VARYING CONSTRUCTION EQUIPMENT PPV at 25 feet PPV at 100 feet Type of Equipment (inches/second) (inches/second) Pile Driver (sonic/vibratory) 0.170 0.021 Large Bulldozer 0.089 0.011 Loaded Trucks 0.076 0.010 Small Bulldozer 0.003 0.000 Auger/drill Rigs 0.089 0.011 Jackhammer 0.035 0.004 NOTE: PPV = peak particle velocity SOURCE: FTA, 2006. Operation and Maintenance Once operational, the PSEGS would generate relatively the same noise levels described for the PSPP, as the noise sources would essentially be the same. Similar to the PSPP, the PSEGS primary noise sources during operation would be the two power blocks where the steam turbine generators, air-cooled condensers, electric transformers, and various pumps would be located. The two power blocks of the PSEGS would be located generally in the center of each solar field and would be surrounded by heliostats. In addition, there would be diesel-powered emergency generators, which would be enclosed by a noise-reducing structure that would reduce noise levels to approximately 70 dBA at 50 feet. All water pipes and gas pipes would be underground and therefore silent during plant operation. Furthermore, as was analyzed for the PSPP, the PSEGS also would involve the operation of a 230-kV line that would embody a low corona design to minimize field strengths that would not add considerably to the current background noise levels. Thus, similar to the PSPP analysis, operation of the PSEGS would result in a daytime noise level increase of approximately 3 dBA above the ambient noise level at the nearest sensitive receptor (LT1), and no increase above the ambient noise level at LT2. In general, a difference of 3 dBA or less is not a perceptible change in environmental noise. In addition, under the PSEGS, the nearest power blocks would be slightly farther from the residences than under the PSPP; therefore, these noise levels may be slightly reduced under the PSEGS. Therefore, the increased daytime noise level at residence LT1 would not be considered an adverse noise effect. The PSEGS would result in virtually no nighttime operations-related noise levels; however, the PSEGS would have limited nighttime activities related to maintenance. It is anticipated that the projected noise level from these maintenance activities would be the same as that disclosed in the PSPP which at LT1 is 22 dBA (PSPP PA/FEIS Section 4.9.2, p. 4.9-4). This is considerably lower than the average nighttime ambient noise level of 34 at LT1 (see PSPP PA/FEIS Table 3.10-1, p. 3.10-1). Furthermore, as part of the PSEGS, APMs NOISE-4 and NOISE-5 would be implemented to ensure that plant operation noise would not exceed an average of 42 dBA Leq at LT1 and that an occupational noise survey would be conducted to identify any noise hazardous areas in the facility, respectively. Palen Solar Electric Generating System Draft SEIS 4.9-4 July 2013.

Environmental Consequences 4.9 Impacts on Noise In terms of ground-borne vibration generated from the operation of the PSEGS, the primary on-site sources would be the two steam turbine generators and their associated pumps. Similar to the PSPP, it is not anticipated that the ground-borne vibration generated from operation of the PSEGS would be detectable by any off-site sensitive receptors. Similar to the PSPP, permanent vibration sensors would be attached to the turbines and generators for the PSEGS.In addition, none of the project equipment is anticipated to produce noticeable airborne vibration (low-frequency noise) beyond the site boundary, which makes it highly unlikely that the project would cause perceptible airborne vibration effects at any off-site sensitive receptor. Closure and Decommissioning Impacts As discussed in PSPP PA/FEIS Section 4.9.2 (p. 4.9-5), all operational noise at the site would cease when the plant facilities close, and no further adverse noise impact from the plant facilities' operation would occur. It is assumed that decommissioning and reclamation of the permanent plant facilities would begin 30 to 50 years after the commercial operation date of the solar plant. Short-term noise levels would be generated at the project site during the dismantling of the project structures and equipment, as well as any site restoration work that may be performed. The noise levels generated would be similar to the noise levels caused by the original construction work for the PSEGS, and thus would be similarly managed with the project's APMs. In addition, any local, state, or federal noise laws and regulations in existence at that time also would apply. 4.9.3 Cumulative Impacts PSEGS Noise and vibration impacts resulting from construction, operation, maintenance, and decommissioning of the PSEGS could result in a cumulative effect with other past, present, or reasonably foreseeable future actions (see Section 4.1.3, Cumulative Scenario Approach). Cumulative projects are identified in Table 4.1-1, Cumulative Scenario, and shown in Figure 4.1-1. As noise and vibration are localized phenomena, and drastically reduce in magnitude as distance from the source increases, only other cumulative projects in the nearby area could combine with the proposed action to result in cumulative noise effects. As noted in PSPP PA/FEIS Section 4.9.3 (p. 4.9-7), the geographic scope of the cumulative effects analysis for noise and vibration is limited to the distance over which sounds generated by the proposed action or an alternative could be heard, i.e., within approximately 1 mile of the project site. Potential cumulative effects could occur during the proposed 34-month construction period for the PSEGS, during the PSEGS's projected 30-50 year lifespan, or during the closure and decommissioning period if noise-generating activities from other cumulative projects located within the identified cumulative effects area were to occur. As of May 2013, there were 106 renewable projects proposed in California in various stages of environmental review or under construction, down from the 244 identified in the PSPP PA/FEIS. The PSPP PA/FEIS concluded that no cumulative noise or vibration impacts would be created because no existing or foreseeable projects are located within the cumulative effects area of the project site. As this would also be true for the PSEGS, no cumulative noise or vibration effect would be generated in the cumulative effects area. Consequently, the incremental noise impacts of the Palen Solar Electric Generating System would not combine with impacts of other cumulative projects in a way that would be additive, countervailing, or synergistic. Reconfigured Alternative 2 Option 1 As the project site location for Reconfigured Alternative 2 Option 1 would be substantially the same as the PSEGS, the cumulative noise effects also would be comparable to the cumulative noise effects of the PSEGS. As discussed above, because no existing or foreseeable projects are located within the cumulative effects area of the project site, no cumulative noise or vibration impacts would be created. Option 2 As the project site location for Reconfigured Alternative 2 Option 2 would be substantially the same as the PSEGS, the cumulative noise effects also would be comparable to the cumulative noise effects of the PSEGS. As discussed above, because no existing or foreseeable projects are located within the cumulative effects area of the project site, no cumulative noise or vibration impacts would be created. No Action Alternative A As discussed previously, if No Action Alternative A was selected, the PSEGS would not occur at the project site. However, since the ROW application area is located within the Riverside East SEZ, the CDCA Plan amendment decisions made in the Solar PEIS ROD that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the SEZ. It is likely, therefore, that this site in the future would be developed as a solar energy project. Nonetheless, because no existing or foreseeable projects are located within the cumulative effects area of the project site, no cumulative noise or vibration impacts would be created.4.9.4 Summary of Mitigation Measures NOISE-8: Construction activities occurring outside of the permitted construction hours identified in the County of Riverside Municipal Code shall be located as far from sensitive receptors as feasible. If 24-hour construction activities are to be conducted in the immediate vicinity of sensitive receptors, construction specification requirements shall include installation and maintenance of a temporary noise barrier (e.g., engineered sound wall or noise blanket) between the noise source and the receptor, to the extent feasible. The temporary noise barrier shall be erected to a height that intercepts the line of sight between the construction site and sensitive receptors in order to achieve maximum noise attenuation. NOISE-9: Construction activities occurring outside of the permitted construction hours identified in the County of Riverside Municipal Code and within the vicinity of existing residences shall not include the use of impact or vibratory construction equipment that generates high peak noise and vibration levels. Examples include the use of pile-drivers and jackhammers. The Palen Solar Electric Generating System Draft SEIS 4.9-6 July 2013 232 4. Environmental Consequences 4.9 Impacts on Noise NOISE-10: Blasting activities shall be prohibited outside of the permitted construction hours identified in the County of Riverside Municipal Code. 4.9.5 Residual Impacts after Mitigation Measures were Implemented Implementation of Mitigation Measures NOISE-8 through NOISE-10, in addition to the applicable Applicant Proposed Measures for construction noise (i.e., Applicant Proposed Measures NOISE-1 through NOISE-3, and NOISE-6 and NOISE-7), would reduce the construction noise nuisance at nearby sensitive receptors due to the Palen Solar Electric Generating System (PSEGS). However, because there would be periods where construction activities associated with the Palen Solar Electric Generating System (PSEGS) would occur as early as 5:00 a.m. and other periods where construction activities would occur for 24 hours per day for 7 days per week, which would be outside of the permitted construction hours identified in the County of Riverside Municipal Code, the two off-site residences would be exposed to increased noise levels during nighttime hours. In particular, LT1, which is located approximately 25 feet from the northwest corner of the proposed Right of Way (ROW) boundary, could be exposed to noise levels that exceed the established nighttime exterior noise standard of 45 dBA Leq for residential uses as specified in the County of Riverside Municipal Code. No residual impact would result from operation of the Palen Solar Electric Generating System (PSEGS) because implementation of Applicant Proposed Measures NOISE-4 and NOISE-5 would ensure that the Palen Solar Electric Generating System (PSEGS) Project's operational noise levels would comply with applicable limits. 4.9.6 Unavoidable Adverse Impacts The Palen Solar Electric Generating System (PSEGS) would result in unavoidable adverse impacts during periods where construction activities at the site occur outside of the permitted construction hours identified in the County of Riverside Municipal Code. The Palen Solar Electric Generating System Draft SEIS 4.9-7 July 2013 233 4. Environmental Consequences 4.9 Impacts on Noise This page intentionally left blank The Palen Solar Electric Generating System Draft SEIS 4.9-8 July 2013 234 4. Environmental Consequences 4.10 Impacts on Paleontological Resources 4.10.1 Impact Assessment Methodology The paleontological resources impact assessment methodology used in the Palen Solar Project Preliminary Application/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.10.1 (p. 4.10-1) was used to analyze the Palen Solar Electric Generating System (PSEGS) in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Project Preliminary Application/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.10.2 (pp. 4.10-2, 4.10-3). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement (SEIS) to reflect the updated cumulative scenario (see Section 4.10.3 below). 4.10.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System (PSEGS) The paleontological resource impact analysis presented in the Palen Solar Project Preliminary Application/Final Environmental Impact Statement (PSPP PA/FEIS) determined that there is high probability that paleontological resources would be encountered during grading and excavation in the older Quaternary age alluvial sediments of the Palen Solar Project Preliminary Application/Final Environmental Impact Statement (PSPP) site and during deeper excavations that might reach the older buried Quaternary age alluvial soils. For much of the project area, the depth to high sensitivity soils is unknown. As such, Palen Solar Project Preliminary Application/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.10.2 (p. 4.10-1) assumed that any excavations that penetrate below 1.5 feet of the existing ground surface would have a high potential for impacting significant paleontological resources and would require paleontological monitoring.The PSEGS includes several ground disturbing activities proposed for areas beyond the previously analyzed PSPP site, and therefore not considered in the PSPP PA/FEIS. These include, for example, the gen-tie line reroute, the redundant telecommunications cable, and the natural gas pipeline, among other activities. Due to ground disturbance, each of these activities could affect paleontological resources. The tower foundations for the gen-tie line reroute would require ground disturbance to a depth of 6 feet, for a total disturbance area of 109 acres. The redundant telecommunications cable would be buried beneath the gen-tie line route and require 8 linear miles of trenching to a depth of 3 feet. The proposed natural gas pipeline would extend 0.56 miles and be buried to a depth of between 3 and 12 feet, depending upon location, which would result in a disturbance area of approximately 3.6 acres (Galati, 2013). Within the solar plant site, auguring for the heliostat support pylons could extend to a depth of 12 feet. Alternatively, the support pylons could be placed into the ground using vibration, in which case no dirt would be displaced and impacts to any paleontological resources would be unknown. Since the PSPP PA/FEIS was issued, many discoveries have been made of paleontological resources on or just below the surface of other solar project sites along the I-10 corridor. The depth of the Quaternary Age sediments within the requested ROW for the PSEGS is unknown and the Quaternary Age sediments have not been adequately characterized; therefore, the effects of the PSEGS on paleontological resources within the Quaternary Age sediments are unknown. Palen Solar Electric Generating System Draft SEIS 4.10-1 July 2013

235 4. Environmental Consequences 4.10 Impacts on Paleontological Resources Due to the high probability for paleontological resource discovery, PSPP PA/FEIS Section 4.10.4 (p. 4.10-4) identified several mitigation measures to reduce potential impacts to these resources. The Applicant has proposed to implement all of these measures as part of the PSEGS. These measures, referred to in this Draft SEIS as APMs PAL-1 through PAL-7, include the preparation and implementation of a Paleontological Resource Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources, among other measures. Together, APMs PAL-1 through PAL-7 are intended to ensure the appropriate removal and curation of the resources, if the resources are encountered. The full text of all of APMs PAL-1 through PAL-7 is set forth in Appendix C. While the PSEGS elements are not proposed for areas of known fossil collection sites, the potential remains for inadvertent discovery or disturbance. All of the mitigation measures prescribed for paleontological resources in the PSPP PA/FEIS would apply equally to the PSEGS via implementation of APMs PAL-1 through PAL-7 identified in Appendix C, elements described above, as well as those ground-disturbing activities that would occur within the previously analyzed project site. Although the PSEGS's impacts on paleontological resources are unknown, implementation of APMs PAL-1 through PAL-7 is intended to reduce the significance of such impacts. 4.10.3 Cumulative Impacts PSEGS Beneficial and adverse impacts on paleontological resources resulting from construction, operation, maintenance and decommissioning of the PSEGS could result in a cumulative effect with other past, present, or reasonably foreseeable future actions. See Section 4.1.4. Cumulative projects are identified in Table 4.1-1, Cumulative Scenario, and shown in Figure 4.1-1, BLM Rights of Way with Existing and Future/Foreseeable Projects. The value of paleontological resources is associated with their discovery within a specific geologic host unit. To the extent that paleontological resources are discovered intact and adequately preserved, the cumulative contribution to the science of paleontology would be beneficial. However, if paleontological resources are destroyed in the course of subsurface disturbance, the loss would be permanent. APMs PAL-1 through PAL-7 have been designed to facilitate early discovery and avoidance of adverse effects on paleontological resources (except in the heliostat fields, where use of vibration to insert support pylons could damage undetected paleontological resources). With appropriate measures in place, construction and other ground-disturbing activities associated with past and present projects could add to fossil discoveries which would enhance our understanding of the prehistoric climate, geology, and geographic setting of the region for the benefit of current and future generations. Reconfigured Alternative 2 The geologic units that would be disturbed under Reconfigured Alternative 2 also underlie the PSPP.The mitigation measures identified in the PSPP PA/FEIS Section 4.10.4 (p. 4.10-4 et seq.) for the Palen Solar Project also would apply to the implementation of Reconfigured Alternative 2 (Option 1 or Option 2), and are the same as the measures that would be implemented for the Palen Solar Electric Generating System (PSEGS) via the Palen Solar Electric Generating System Draft SEIS 4.10-2 July 2013. As a result, the cumulative effects of Reconfigured Alternative 2 (Option 1 or Option 2) would be similar to those described for the Palen Solar Electric Generating System. Under No Action Alternative A, the Right of Way (ROW) application would be denied. No site disturbance would occur and no impacts to paleontological resources would be expected. However, because the site lies within the Riverside East Solar Energy Zone (SEZ), it is reasonable to expect that the Bureau of Land Management (BLM) would receive a subsequent ROW application for a different solar project. The cumulative effects of such a project would vary based upon the extent of subsurface disturbance and the types of measures prescribed for early detection, collection, and curation of paleontological resources. No additional mitigation measures are required. Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. Although approval of the Palen Solar Electric Generating System would result in no unavoidable adverse impacts on known paleontological resources, the Quaternary Age deposits within the requested ROW are neither defined nor adequately characterized. Therefore, unavoidable adverse impacts to paleontological resources could result from implementation of the Palen Solar Electric Generating System.

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This section supplements the analysis in PSPP PA/FEIS Section 4.11 (p. 4.11-1 et seq.) of environmental consequences associated with impacts on public health and safety. This section considers potential impacts of the Palen Solar Electric Generating System on the following issue areas: hazardous materials/hazardous waste, waste management, unexploded ordnance (UXO), undocumented immigrants (UDI), transmission line safety and nuisance, traffic and transportation safety, worker safety and fire protection, and geologic hazards. The approach for each of these issues is described below.

The methodology described in PSPP PA/FEIS Section 4.11.2.1 (p. 4.11-1) was used to assess impacts to public health and safety resulting from the presence of hazardous materials associated with the Palen Solar Electric Generating System in this Draft SEIS. The PSPP PA/FEIS analysis considers whether the construction and operation of the Palen Solar Project could affect public health and safety as a result of the use, handling, transportation, or storage of hazardous materials. Of primary consideration for hazardous materials are: (1) the risk of accidents and spills, (2) chronic non-cancer health effects, and (3) cancer health risks. The following section describes the public health implications of the Palen Solar Electric Generating System for each of these factors. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Section 4.11.2.2 of the PSPP PA/FEIS (pp. 4.11-18, 4.11-19). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.11.1.3, below).

Multiple chemicals will be stored and used onsite during construction of the Palen Solar Electric Generating System. The types and quantities of hazardous materials that would be used during construction for the Palen Solar Electric Generating System are similar in type and quantity as those proposed for the Palen Solar Project and analyzed in the PSPP PA/FEIS. Most of the hazardous materials that would be used during Palen Solar Electric Generating System construction, although present at the proposed facility, would pose a minimal potential for off-site impacts since these materials would be stored in either solid form or in small quantities, have low mobility, low vapor pressure, or low levels of toxicity.These hazardous materials, which were eliminated from further consideration, are discussed briefly below. During the construction phase of the Palen Solar Electric Generating System (PSEGS), the only hazardous materials proposed for use include paint, cleaners, solvents, gasoline, diesel fuel, motor oil, welding gases, and lubricants. Any impact of spills or other releases of these hazardous materials would be limited to the site because of the small quantities involved, the infrequent use and hence reduced chances of release, and/or the temporary containment berms that would be used by contractors. Petroleum hydrocarbon-based motor fuels, mineral oil, lube oil, and diesel fuel all have very low volatility and would represent limited off-site hazards, even in larger quantities. The risks of leaks and spills during the operation of the PSEGS are associated with the hazardous materials that would be used during operation of the PSEGS, which are similar in type, but generally less in quantity than those analyzed in the Palen Solar Power Project (PSPP) Programmatic Agreement (PA)/Final Environmental Impact Statement (FEIS). A list of materials that would be stored onsite during PSEGS operation is provided in Table 4.11-1. A notable distinction between the PSPP and PSEGS proposals is the latter's elimination of Therminol VP-1TM and liquefied petroleum gas for project operations. During operations, hazardous chemicals such as cleaning agents, lube oil, sulfuric acid, sodium hydroxide, ammonium hydroxide, diesel fuel, and other various chemicals (see Table 4.11-1 for a complete list) would be used and stored on-site and would represent a limited off-site hazard due to the small quantities, low volatility, and/or low toxicity of these chemicals. Natural gas, while not proposed for storage at the PSEGS site, represents the largest quantity of hazardous materials proposed for use by the PSEGS. Natural gas poses a fire and/or possible explosion risk because of the flammability of natural gas. Composed mostly of methane, natural gas also contains ethane, propane, nitrogen, butane, isobutene, and isopentane. Natural gas is colorless, odorless, tasteless, and lighter than air. Natural gas can cause asphyxiation when methane's concentration exceeds 90 percent. Methane is flammable when mixed in air at concentrations of 5-14 percent, which is also the detonation range for methane. Natural gas therefore poses a risk of fire and/or explosion if a release were to occur under certain specific conditions. However, it should be noted that, due to the tendency of natural gas to disperse rapidly (Lees, 1998), natural gas is less likely to result in an unconfined vapor cloud explosion than many other fuel gases such as propane or liquefied petroleum gas although an unconfined vapor cloud of natural gas can explode under certain conditions. Noted above, while natural gas would be used in significant quantities, natural gas would not be stored on-site. Natural gas would be delivered through a new 8-inch pipeline extension from an existing Southern California Gas (SoCal Gas) pipeline to a proposed PSEGS metering station to be located within the common area, a distance of approximately 0.56 miles. The pipeline would be buried to a depth of between 3 and 12 feet below the ground surface, depending upon location. The risk of a fire and/or explosion on-site can be reduced to minimal levels through adherence to applicable regulations (i.e., 49 CFR Parts 190-192) and the development and implementation of effective safety management practices. The PSEGS proposes the use of both engineering and administrative controls to minimize the potential for accidental releases of hazardous materials and to implement procedures for timely response and cleanup in the event of a release. Engineering controls include structural elements, such as the construction of chemical storage and feed areas to contain leaks, spills, and stormwater; the use of concrete containment pits and drain piping that will allow a full tank capacity spill without overflowing containment; and the use of isolated drain piping for reactive chemicals to prevent and eliminate noxious or toxic vapors. Administrative controls would include training of plant personnel.

Please review the changes and let me know if you need any further revisions.Application Characteristics Quantity On Site SARA RQa Aqueous Ammonia 1336-21-6 pH control for Health: Major injury 1,600 gallons 1,000 pounds (19 percent) boiler chemistry likely unless prompt action is taken and medical treatment given Physical: minimally reactive Avista Vitec Not Reverse osmosis Health: Temporary or 900 gallons 1,000 pounds available scale inhibitor minor injury may occur Physical: minimally reactive Diesel Fuel 68476-34-6 Emergency Health: low toxicity 40,000 gallons N/A generator Physical: combustible liquid Hydraulic Fluid 64741-89-5 Miscellaneous Health: low to 6,00000 gallons N/A equipment control moderate toxicity oil Physical: Class IIIB combustible liquid Lube Oil 64742-65-0 Miscellaneous Health: low toxicity 30,000 gallons N/A equipment lubrication Physical: N/A Mineral Insulating Oil 8042-47-5 Provides Health: low toxicity 112,000 gallons N/A overheating and insulation Physical: N/A protection for transformers Nalco Elimin-OX 497-18-7 Boiler chemistry Health: low toxicity 1,600 gallons 30,670 pounds Oxygen Scavenger control Carbohydrazide Physical: ignitability (5-10 percent) Nalco 5200M Not Wastewater Health: Temporary or 1,500 gallons 10,000 pounds (Anti-scalant) available treatment minor injury may occur Sodium salt of Physical: low phosphonomethylated flammability diamine Nalco 3DT-187 7664-38-2; Wet-Surface Air Health: Temporary or 2,100 gallons 5,000 pounds (Corrosion Inhibitor) not Cooler (WSAC) minor injury may occur (Phosphoric Phosphoric acid, available Corrosion inhibitor acid) Substituted aliphatic Physical: low aldehyde flammability Nalco 73801WR Not WSAC Dispersant Health: Major injury 2,100 gallons Nalco (Dispersant) Alkyl available likely unless prompt 73801WR amine diol, action is taken and Substituted aromatic medical treatment (Dispersant) amine given Alkyl amine diol, Physical: corrosive, Substituted slightly flammable aromatic amine Nalco TRAC107 1310-73-2; Closed cooling Health: Temporary or 500 gallons 1,000 pounds (Corrosion Inhibitor) not water Corrosion minor injury may occur (Sodium Sodium hydroxide, available Inhibitor hydroxide) Inorganic salt Physical: corrosive Palen Solar Electric Generating System Draft SEIS 4.11-3 July 2013 241 4. Environmental Consequences 4.11 Public Health and Safety TABLE 4.11-1 (Continued) HAZARDOUS MATERIALS PROPOSED FOR STORAGE ONSITE DURING OPERATIONS Hazardous Maximum CERCLA Material CAS No. Application Characteristics Quantity On Site SARA RQa Nalco 7468 10279-57-9 Wastewater Health: no significant 1,500 gallons 10,000 pounds (Antifoaming agent) treatment system risk Hydrated silica anti-foaming agent Physical: slight flammability Sodium Bisulfite 7631-90-5 Dechlorination Health: Temporary or 900 gallons 5,000 pounds minor injury may occur Physical: N/A Sodium Hydroxide 1310-73-2 pH control Health: high toxicity 2,400 gallons 1,000 pounds (50 percent) Physical: corrosive, reactive Sodium Hypochlorite 7681-52-9 Biocide Health: Major injury 2,400 gal 100 pounds 12% (trade) solution likely unless prompt action is taken and medical treatment given Physical: corrosive, reactive Sulfuric Acid 7664-93-9 pH control Heath: Major injury 2,400 gallons 1,000 pounds 93% (66 Baume) likely unless prompt action is taken and medical treatment given Physical: corrosive, reactive Sulfuric Acid 7664-93-9 Contained in Health: high toxicity Contained in 1,000 pounds (29.5 percent) batteries batteries; 12,000 Physical: corrosive gallons and water reactive SOURCE: Palen Solar III, LLC, 2013a personnel in the proper handling of chemicals and procedures to follow in case of accidental release; and the provision of safety showers, eyewash stations, personal protective equipment, and absorbent materials for spill cleanup (Palen Solar III, 2013a). In addition, the Applicant has incorporated into the PSEGS as APMs all of the mitigation measures identified in the PSPP PA/FEIS relating to public health and safety.Set forth in Appendix C, these include limitations on the types of chemicals that can be used onsite; and development and implementation of a Spill Prevention, Control, and Countermeasure Plan (SPCC) and a Safety Management Plan, among other plans (see HAZ-1, HAZ-2, and HAZ-3). With these controls in place, the potential for spills and other releases of hazardous materials would be minimized and offsite impacts to public health prevented. Palen Solar Electric Generating System Draft SEIS 4.11-4 July 2013

"4. Environmental Consequences 4.11 Public Health and Safety Health Risk Assessment for Operations Palen Solar Holdings, LLC, generated cancer risk and chronic and acute hazard index values for a hypothetical maximum exposed individual (MEI) located at the maximum impact receptor (MIR). The hypothetical MEI is described as "an individual assumed to be located at the maximum impact receptor location, which is assumed (for purposes of this worst-case analysis) to be a residential receptor where the highest concentrations of air pollutants associated with Palen Solar Electric Generating System emissions are predicted to occur, based on the air dispersion modeling" (Palen Solar Holdings, 2013). The maximum impact receptor identified for the Palen Solar Electric Generating System analysis is located southeast of the proposed Common Facilities Area, between the project site and I-10. The nearest residential receptor is located at the northwest corner of the project site (at the edge of a solar array). No non-residential sensitive receptors were identified within 6 miles of the site. The results of the health risk assessment are summarized in Table 4.11-2.

TABLE 4.11-2 PALEN SOLAR ELECTRIC GENERATING SYSTEM HEALTH RISK ASSESSMENT SUMMARY Type of Hazard/Risk Hazard Index/Risk Adverse Effect Level Adverse? Acute Noncancer 0.00011 1.0 No Chronic Noncancer 0.00253 1.0 No Individual Cancer 4.03 in 1 million 10 in 1 million No SOURCE: Palen Solar Holdings, LLC, 2013. As the table indicates, Palen Solar Holdings, LLC,'s screening health risk assessment for the Palen Solar Electric Generating System identified a maximum acute hazard index of 0.00011 and a maximum chronic hazard index of 0.00253 for the hypothetical maximum exposed individual at the maximum impact receptor (Palen Solar Holdings, 2013). The maximum remotely possible cancer risk was found to be 4.03 in 1,000,000. Both acute and chronic hazard indices are below the adverse effect level of 1.0, and cancer risk is below the adverse effect level of 10 in 1,000,000, indicating that no short- or long-term adverse health effects would be expected.

Health Risk from Construction Phase For the construction phase analysis, atmospheric dispersion modeling of diesel particulate matter emissions from construction equipment and vehicles was conducted by Palen Solar Holdings, LLC, using the AERMOD Model. The majority of PM2.5 emissions that would be generated during construction would be diesel particulate matter due to the use of diesel off-road equipment and vehicles; a small percentage of the PM2.5 emissions would be associated with gasoline exhaust and fugitive dust. As described in Table 4.2-4 (see Section 4.2), maximum day concentrations of PM2.5 due to Palen Solar Electric Generating System construction activities could contribute to an exceedance of the federal 24-hour PM2.5 ambient air quality standard (AAQS). In terms of mass emissions, the estimated on-site PM2.5 exhaust from construction equipment and support vehicles over the estimated 33-month construction period is estimated to be 13 tons. The corresponding daily PM2.5 emission rate for exhaust emissions from onsite construction equipment and vehicles is expected to be approximately 26 pounds per day, averaged over the 33-month construction period. Although construction activities could contribute to a short-term exceedance of the federal 24-hour AAQS for PM2.5, considering that the residential exposure period for identifying health risks is over a 70-year lifetime, this rate of short-term exposure would not be considered adverse in terms of public health.

Cooling Towers As described in the Palen Solar Power Project Plan Amendment/Final Environmental Impact Statement Section 4.11.2.2 (p. 4.11-16), industrial water cooling systems, including the system proposed for the Palen Solar Electric Generating System, have the potential to support bacterial growth if not properly treated. Legionella is a bacterium that is ubiquitous in natural aquatic environments and is also widely distributed in man-made water systems. Legionella is the principal cause of legionellosis, otherwise known as Legionnaires' Disease, which is similar to pneumonia. Transmission to people results mainly from inhalation or aspiration of aerosolized contaminated water.Legionella can grow symbiotically with other bacteria and can infect protozoan hosts. This provides Legionella with protection from adverse environmental conditions, including making Legionella more resistant to water treatment with chlorine, biocides, and other disinfectants. Thus, if not properly maintained, cooling water systems and cooling water systems' components can amplify and disseminate aerosols containing Legionella. To minimize the potential for bacterial growth in the PSEGS water cooling system, the Applicant would prepare and implement a Cooling Management Plan. Treatment measures would include preventive maintenance, the use of biocides and anti-biofilm monitoring. As described in Appendix C (see APM PUBLIC HEALTH-1), the Cooling Management Plan would include sampling and testing for the presence of Legionella bacteria at least every 6 months. Implementation of these measures would ensure that the potential for worker and general public exposure is minimized and kept to below significant levels. 4.11.1.3 Cumulative Impacts PSEGS Impacts resulting from construction, operation, maintenance, and decommissioning of the project could result in a cumulative impact relating to hazardous materials, including the use, storage, and transport of hazardous materials, with other past, present, or reasonably foreseeable future actions. For example, cumulative impacts would exist or could result from the interaction of one or more controlled or uncontrolled release of hazardous materials, e.g., airborne or subsurface plumes, within the same geographic area, and during the same timeframe. The geographic area of the cumulative impacts analysis area for hazardous materials management includes the Mojave Desert Air Basin for airborne hazards and, for waterborne hazards, the watershed and groundwater basin. The relevant timeframe within which incremental impacts could be additive, synergistic or otherwise combine includes the construction period for the PSEGS, the PSEGS's anticipated 30-50 year lifespan, and the period of time required for closure and decommissioning of the PSEGS. Existing conditions within the cumulative impacts area reflect a combination of the natural condition and the effects of past actions and are described in the Chapter 3. Direct and indirect effects of the PSEGS are analyzed above. Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1.4, Cumulative Scenario Approach. Palen Solar Electric Generating System Draft SEIS 4.11-6 July 2013

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245 4. Environmental Consequences 4.11 Public Health and Safety 4.11.1.4 Summary of Mitigation Measures Applicant Proposed Measure HAZ-3 presently limits the safety management plan to hazardous materials delivered by tanker truck. The Palen Solar Electric Generating System (PSEGS) would utilize hazardous materials beyond those delivered by tanker truck. For this reason, the measure requires revision to include natural gas, which would be delivered by pipeline. The revised measure is provided below. HAZ-3, Safety Management Plan: The project owner shall develop and implement a Safety Management Plan for the delivery and handling of liquid and gaseous hazardous materials delivered by tanker truck or pipeline. The Safety Management Plan shall include procedures, protective equipment requirements, training, and a checklist. The Safety Management Plan shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials. The Safety Management Plan shall be applicable during construction, commissioning, and operation of the power plant. 4.11.1.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. 4.11.1.6 Unavoidable Adverse Impacts Unavoidable adverse impacts would be the same as those identified in the discussion of direct and indirect effects, above. 4.11.2 Waste Management 4.11.2.1 Impact Assessment Methodology The waste management impacts assessment methodology described in Palen Solar Power Project (PSPP) Programmatic Administrative/Final Environmental Impact Statement (PA/FEIS) Section 4.11.3 (p. 4.11-22 et seq.) was used to analyze the Palen Solar Electric Generating System (PSEGS) in this Draft Supplemental Environmental Impact Statement (SEIS). The waste management impacts assessment methodology focuses primarily on landfill capacity and compliance with waste management regulations. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project (PSPP) Programmatic Administrative/Final Environmental Impact Statement (PA/FEIS) Section 4.11.3.2 (pp. 4.11-25, 4.11-26). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement (SEIS) to reflect the updated cumulative scenario (see Section 4.11.2.3, below). 4.11.2.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System (PSEGS) Palen Solar Electric Generating System (PSEGS) wastes would be comprised of solid and liquid non-hazardous wastes, as well as lesser amounts of hazardous and universal wastes. Hazardous materials to be stored onsite are discussed in Section 4.11.1, above. The construction period for the Palen Solar Electric Generating System (PSEGS) is expected to be 34 months, slightly shorter than the expected 39 months for construction of the Palen Solar Power Project (PSPP). Construction is proposed to begin at the end of 2013 and conclude in June 2016. Hazardous and non-hazardous wastes generated during construction are listed in Table 4.11-3. Table 4.11-4 lists hazardous and non-hazardous wastes Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.11-8 July 2013

246 4. Environmental Consequences 4.11 Public Health and Safety expected during operation of the facility. An assumed operation lifetime of 30 years was used to calculate total amounts of waste generated over the lifetime of the facility.In the provided text, there are no clear pronouns or ambiguous references that need resolution to noun phrases as typically required in literature or narrative texts. The text is predominantly a structured table or list with specific information regarding waste streams and their management methods related to the Palen Solar Electric Generating System construction. Each line or section within the table is self-contained with specific data relating to waste types, composition, management methods, and amounts, minimizing potential for ambiguous references. Thus, there is no need for coreference resolution in this case. If you have any other text segments or questions, feel free to share them!TABLE 4.11-4 SUMMARY OF OPERATIONS-GENERATED WASTE STREAMS AND MANAGEMENT METHODS Estimated Waste Management Method Amount (increment/total over life of Waste Stream Origin and Composition operation) Onsite Offsite Non-Hazardousa Deionization Trailer Metal and resins from 1 trailer every None Recycled by deionization trailer water treatment process two weeks treatment manufacturer Condensate polishing Metal and resins from Multiple vessels Recycled by condensate polishing vessels water treatment process every two weeks treatment manufacturer Transport all collected Detergents, soluble oil, and 1,358 gallons per solids off-site for disposal Operating Area Wash suspended solids derived Collect solids in day/11,616 cubic by certified solid waste Down from evaporation of plant evaporation ponds yards treatment facility when plant wash down water is decommissioned Onsite sanitary 1,400 gallons per Contents of septic tank will Sanitary sewage treatment day/5040 cubic Septic tank be removed by sanitary wastewater/sewage yards system hauler as needed Hazardousa Lubricating oil Oil from small leaks and 600 gallons per None Recycled by certified oil spills from the steam maintenance recycler turbine lubricating oil event system and routine maintenance of the steam turbine Lubricating oil filters Paper, metal, oil from 1,500 lbs per None Recycled by certified oil steam turbine lubricating year/131 cubic recycler oil system yards Palen Solar Electric Generating System Draft SEIS 4.11-10 July 2013 248 4. Environmental Consequences 4.11 Public Health and Safety TABLE 4.11-4 (Continued) SUMMARY OF OPERATIONS-GENERATED WASTE STREAMS AND MANAGEMENT METHODS Estimated Waste Management Method Amount (increment/total over life of Waste Stream Origin and Composition operation) Onsite Offsite Hazardousa Solvents, paint, Various 180 pounds per None Recycle at a permitted adhesives month/154 cubic TSDF yards Oily rags Oily rags used during 900 pounds per None Recycled by certified oil maintenance and wipe year/154 cubic recycler down of equipment yards Oil sorbents Hydrocarbons from 600 pounds per None Recycled or disposed of by cleanup of small spills year/9 cubic certified oil recycler yards NOTE: a Classification under Title 22 CCR Division 4.5, Chapters 11, 12, and 23. SOURCE: Palen Solar III, 2013a, 2013c; U.S. EPA,1997; CalRecycle, 2004; Waste Management, 2013. During construction of the PSEGS, approximately 1,095 cubic yards of recyclable and non-recyclable non-hazardous waste would be generated. Non-hazardous waste generated during operations will be either recycled by the water treatment manufacturer and therefore will not be sent to surrounding waste facilities, or will be removed once upon site decommissioning in the case of evaporation pond solids or intermittently by a sanitary hauler in the case of septic tank clearing. The total non-recyclable waste generated during operation would be approximately 16,656 cubic yards. Approximately 654 cubic yards of recyclable and non-recyclable hazardous waste could be generated during the 34-month construction period, and approximately 448 cubic yards of recyclable and non-recyclable hazardous waste would be generated over the 30-year operating lifetime. During operation of the plant, hazardous materials would be stored and used in accordance with applicable laws, ordinances, regulations, and standards. The PSEGS incorporates all but one of the mitigation measures identified in the PSPP PA/FEIS as APMs. The mitigation measures were designed to avoid or reduce waste management impacts on the quality of the human environment. The mitigation measure not included is WASTE-8, which was designed to address disposal of Therminol. This measure is no longer applicable because the PSEGS design does not use Therminol. After the inclusion of APMs 1-7 and 9-10, the only factor that could contribute to a significant waste management impact would be a sizeable decrease in remaining capacities at solid waste facilities available to receive waste from the PSEGS. The capacities and estimated closure dates of many of the nearby solid waste disposal sites have changed since the publication of the PSPP PA/FEIS. These new capacities and closures are listed in Table 3.12-1 of this Draft SEIS. Five Class III municipal landfills are in the vicinity of the Palen Solar Electric Generating System Draft SEIS 4.11-11 July 2013 249 4. Environmental Consequences 4.11 Public Health and Safety project site and are likely to be available to take solid waste from the PSEGS.These facilities include Blythe Sanitary Landfill (in Blythe), El Sobrante Landfill (in Corona), Badlands Sanitary Landfill (in Moreno Valley), Lamb Canyon Sanitary Landfill (in Beaumont), and Chiquita Canyon Sanitary Landfill (in Valencia). The total remaining capacity of surrounding Classes II and III solid waste facilities (over 212 million cubic yards) far exceeds the expected total amounts of non-hazardous solid waste generated during both construction and operation of the PSEGS. Disposal of the non-hazardous solid wastes generated by the PSEGS project would occur without substantially impacting the capacity or remaining life of other Class III landfills in Riverside County. Hazardous wastes generated during construction, operation, and closure/decommissioning of the PSEGS would be sent to the same Class I facilities as were identified in PSPP PA/FEIS Section 4.11.3.2 (p. 4.11-25): Clean Harbors Buttonwillow Landfill in Kern County and Chemical Waste Management Kettleman Hills Landfill in Kings County. The combined remaining capacity of Clean Harbors Buttonwillow Landfill and Chemical Waste Management Kettleman Hills Landfill is 8,934,000 cubic yards. The quantity of hazardous wastes from the PSEGS requiring offsite disposal would be less than 0.1 percent of the combined remaining capacity of Clean Harbors Buttonwillow Landfill and Chemical Waste Management Kettleman Hills Landfill. There is sufficient remaining capacity at Clean Harbors Buttonwillow Landfill and Chemical Waste Management Kettleman Hills Landfill to handle the PSEGS's hazardous wastes during the PSEGS's operating lifetime.

4.11.2.3 Cumulative Impacts PSEGS

With the exception of hazardous waste, the PSEGS is expected to generate substantially the same amount and types of waste as were analyzed in the PSPP PA/FEIS. The quantities of hazardous wastes generated would be less under the PSEGS. Cumulative impacts to waste management could occur with the development of additional renewable energy projects and other development projects within range of the waste disposal facilities discussed in the analysis of direct and indirect impacts of the PSEGS, above. The same method used to analyze cumulative impacts in the PSPP PA/FEIS was used to assess cumulative impacts of the PSEGS. The PSPP PA/FEIS analysis estimates that solar projects would contribute about 100 cubic yards of non-hazardous solid wastes per megawatt during the lifetime of the PSPP, and that solar projects would represent about half of all renewable energy projects to be considered under the cumulative scenario. While the number of renewable energy projects anticipated to be built has decreased by about half, from 125 to 69, solar projects still make up about half of the total renewable energy projects cumulatively analyzed (see Table 4.1-2). Using these updated numbers, the solar projects would generate approximately 1,188,900 cubic yards of waste, and by extrapolation construction and operation of all of the renewable energy projects in the cumulative scenario would generate 2,377,800 cubic yards of waste within the cumulative impacts area. This quantity of waste is just over 1 percent of the combined remaining capacity of the Class III solid waste facilities in Riverside County alone.

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Reconfigured Alternative 2 (Option 1 and 2)

As analyzed in PSPP PA/FEIS Section 4.11.3.2 (p. 4.11-25), Reconfigured Alternative 2 (Option 1 and 2) would generate amounts of non-hazardous, universal, and hazardous wastes in amounts comparable to those generated by the PSEGS as analyzed above. For this reason, the impacts of Reconfigured Alternative 2 (Option 1 and 2) in the cumulative scenario are expected to be the same as those described for the PSEGS.

No Action Alternative A

Under No Action Alternative A, the PSEGS would not be developed. However, since the ROW application area is located within the Riverside East SEZ, the CDCA Plan amendment decisions made in the Solar PEIS ROD that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the SEZ. It is likely, therefore, that this Riverside East SEZ site in the future would be developed as a solar energy project, which could generate similar amounts and types of wastes as the PSEGS. The cumulative effects of a similarly sized project could be expected to have a similar cumulative effect with respect to landfill capacity. If no project is constructed, there would be no cumulative effect.

4.11.2.4 Summary of Mitigation Measures

The PSEGS incorporates previously recommended mitigation measures as APMs and does not significantly impact waste management directly, indirectly, or cumulatively. Consequently, no mitigation measures are recommended.4.11.2.5 Residual Impacts after Mitigation Measures were Implemented No mitigation measures are recommended, so there would be no change in project impacts resulting from mitigation. 4.11.2.6 Unavoidable Adverse Impacts Unavoidable impacts would be the same as those identified effects, above. 4.11.3 Unexploded Ordnance (UXO) 4.11.3.1 Impact Assessment Methodology The unexploded Ordnance (UXO) impact assessment methodology used in PSPP PA/FEIS Section 4.11.4 (p. 4.11-29) was used to analyze the Palen Solar Electric Generating System (PSEGS) in this Draft SEIS. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and the No Action Alternative can be found in PSPP PA/FEIS Section 4.11.4.2 (p. 4.11-29). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.11.3.3, below). Palen Solar Electric Generating System Draft SEIS 4.11-13 July 2013 251 4. Environmental Consequences 4.11 Public Health and Safety 4.11.3.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System (PSEGS) As described in the PSPP PA/FEIS, the project area is located near an area formerly used by military training camps during World War II. Activities associated with these camps included mock battles and the use of live ammunition rounds. Conventional and unconventional land mines and improvised personnel mines, as well as unexploded ordnance (UXO), have been detected in the area. The potential for detonation of such devices presents a direct risk to human health. The potential locations of this ordnance have not been mapped. However, because the Palen Solar Electric Generating System (PSEGS) (including the gen-tie line reroute and the natural gas line extension) would be constructed in the same general area as the PSPP, the exposure risk would be comparable. To ensure work in the project area minimizes potential impacts associated with unexploded ordnance, the Applicant proposes development of an Unexploded Ordnance Identification, Training, and Reporting Plan. Described more fully in Appendix C (see APM WASTE-1), the plan would outline a worker training program, ordnance discovery notification personnel, and a work plan for field screening and ordnance removal. Development and implementation of this plan would ensure significant impacts to public health associated with unexploded ordnance are avoided to the extent practicable. 4.11.3.3 Cumulative Impacts of the Palen Solar Electric Generating System (PSEGS) The accidental or unintentional detonation of unexploded ordnance (UXO) in the vicinity of the Palen Solar Electric Generating System (PSEGS) constitutes a continuing risk of immediate, acute physical injury from fire or explosion. However, the incremental unexploded ordnance (UXO)-related risks of projects in the cumulative scenario could not combine in a way that would be additive, countervailing, or synergistic. Consequently, there would be no significant unexploded ordnance (UXO)-related cumulative impacts associated with the Palen Solar Electric Generating System (PSEGS). Reconfigured Alternative 2 (Option 1 and 2) As noted for the Palen Solar Electric Generating System (PSEGS), the incremental unexploded ordnance (UXO)-related risks of projects in the cumulative scenario could not combine in a way that would be additive, countervailing, or synergistic. Consequently, there would be no significant unexploded ordnance (UXO)-related cumulative impacts associated with the Reconfigured Alternative 2 (Option 1 and 2). No Action Alternative A Under No Action Alternative A, the Palen Solar Electric Generating System (PSEGS) would not be developed. However, since the Right-of-Way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area (CDCA) Plan amendment decisions made in the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the Solar Energy Zone (SEZ). It is likely, therefore, that this site in the future would be developed as a solar energy project, which could pose the same risks with respect to unexploded ordnance (UXO) as the Palen Solar Electric Generating System (PSEGS). However, for the reasons described for the Palen Solar Electric Generating System (PSEGS) and Reconfigured Alternative, above, these risks could not combine with those of other projects in the area to result in a cumulatively significant impact. Palen Solar Electric Generating System Draft SEIS 4.11-14 July 2013 252 4. Environmental Consequences 4.11 Public Health and Safety 4.11.3.4 Summary of Mitigation Measures No mitigation measures are recommended. 4.11.3.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation.4.11.3.6 Unavoidable Adverse Impacts Unavoidable impacts would be the same as those identified in the discussion of direct and indirect effects, above. 4.11.4 Undocumented Immigrants (UDI) As stated in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.11.5 (p. 4.11-30), there are no known incidents with undocumented immigrants (UDI) at or near the project site. Thus, no UDI-related direct or indirect impacts would result from the Palen Solar Electric Generating System (PSEGS) or alternatives, no mitigation measures are recommended, and no cumulative impacts, residual impacts, or unavoidable adverse impacts related to UDI would result. 4.11.5 Transmission Line Safety and Nuisance 4.11.5.1 Impact Assessment Methodology The transmission line safety and nuisance impact assessment methodology described in PSPP PA/FEIS Section 4.11.6.1 (p. 4.1-31) was used to analyze the proposed PSEGS in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Section 4.11.6.2 of the PSPP PA/FEIS (p. 4.11-33). The discussion of cumulative impacts for the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.11.5.3, below). 4.11.5.2 Direct and Indirect Impacts of the PSEGS PSPP PA/FEIS Section 4.11.6 focuses on the transmission line required to serve the generation facility, and addressed the following issues, taking into account both the physical presence of the line and the physical interactions of the transmission line's electric and magnetic fields: 1. aviation safety; 2. interference with radio-frequency communication; 3. audible noise; 4. fire hazards; 5. hazardous shocks; 6. nuisance shocks; and 7. electrical and magnetic field (EMF) exposure. Palen Solar Electric Generating System Draft SEIS 4.11-15 July 2013

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Because the applicant has agreed to incorporate the mitigation measures recommended in PSPP PA/FEIS Section 4.11.6.4 (p. 4.11-35) into the PSEGS as Applicant Proposed Measures (APMs) (see Appendix C), and because the gen-tie line would be required to comply with all applicable laws, including those governing public safety, the proposed gen-tie line re-route would not have an appreciably different effect on aviation safety, radio frequency communication, noise, fire, nuisance shocks, and EMF exposure that the PSPP. Additional aviation safety and radio frequency communications considerations are addressed in Section 4.11.6, Traffic and Transportation Safety, below. 4.11.5.3 Cumulative Impacts PSEGS Incremental impacts of construction, operation, maintenance, and decommissioning of the PSEGS could contribute to a cumulative effect on transmission line safety and nuisance when considered in combination with additional transmission lines that would be associated with the cumulative projects identified in see Section 4.1.3. The cumulative impacts area for potential cumulative transmission line safety and nuisance impacts would be limited to the immediate vicinity of the proposed gen-tie line. The relevant timeframe within which incremental impacts could interact to cause or contribute to cumulative impacts would begin when the proposed gen-tie line is erected and would last for as long as the line remains in place. This time period very likely could extend past the point of site closure and decommissioning of the PSEGS. Existing conditions within the cumulative impacts area reflect a combination of the existing conditions and the effects of past actions and are described in Chapter 3 of this Draft SEIS.As noted above, the direct and indirect effects of the Palen Solar Electric Generating System (PSEGS) would be similar to those described in the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS). Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1.4. A portion of the PSEGS generation tie (gen-tie) line re-route would be located immediately adjacent to the Desert Sunlight transmission line. The re-route would not affect any new sensitive receptors. The effect of the re-route would be to consolidate and reduce the total combined effects associated with the PSEGS and Desert Sunlight transmission lines with respect to aviation safety, audible noise, fire hazard, and nuisance shocks. As no interference with radio-frequency communication is anticipated for the PSEGS, no cumulative effect is expected. Regarding electromagnetic field (EMF) exposure, when field intensities are measured or calculated for a specific location, these measurements reflect the interactive, and therefore, cumulative effects of fields from all contributing conductors involved in the Palen Solar Electric Generating System. This interaction could be additive or countervailing, depending on prevailing conditions. Since the proposed action's transmission line would be designed, built, and operated according to applicable Southern California Edison (SCE) field-reducing guidelines (as currently required by the California Public Utilities Commission (CPUC) for effective field management), any contribution to cumulative area exposures should be at levels expected for SCE lines of similar voltage and current-carrying capacity. The Palen Solar Electric Generating System gen-tie line, in combination with the gen-tie line of the Desert Sunlight Project, would contribute to cumulative EMF conditions. Reconfigured Alternative 2 (Option 1 and 2) as discussed in PSPP PA/FEIS Section 4.11.6.3 (page 4.11-34) assumes that the siting of transmission lines associated with cumulatively considerable projects in the immediate vicinity of the PSPP would be unlikely. As a result, the PSPP PA/FEIS anticipated no cumulative safety or nuisance impacts resulting from the PSPP or alternatives. The cumulative scenario presented in Section 4.1.4 of this Draft Supplemental Environmental Impact Statement (SEIS) has been revised to reflect changes to past, present, and reasonably foreseeable projects in the area. While the PSEGS proposes to locate a portion of the gen-tie line near the Desert Sunlight Project, Reconfigured Alternative 2 does not propose such siting, and so the cumulative scenario continues to assume that the siting of another project's transmission line next to the gen-tie line for Reconfigured Alternative 2 would be unlikely. Therefore, no cumulatively considerable safety or nuisance impacts are anticipated for Reconfigured Alternative 2 (Option 1 and 2). As discussed on page 4.11-35 of the PSPP PA/FEIS, Reconfigured Alternative 2 could, however, contribute to cumulative EMF conditions. No Action Alternative A involves the situation where the Bureau of Land Management (BLM) would deny the PSEGS right-of-way (ROW) application and no transmission line would be constructed pursuant to that application. However, because the ROW application area lies within the Riverside East Solar Energy Zone (SEZ), it is reasonable to expect that some sort of solar energy project may be proposed for the site in the future. While it would be speculative to assume the types of impacts that may result from a yet-to-be-identified proposal, for the reasons described for Reconfigured Alternative 2, it is unlikely that such a proposal's transmission line would have cumulatively considerable safety and nuisance impacts due to the siting of another project's line adjacent to that proposed by the future project. If a future project at this site does propose a transmission line route similar to that of the PSEGS, then similar cumulative effects would be expected. Under both scenarios, some cumulative contribution to EMF conditions would result. If no transmission line were developed for a future project on this site, no cumulative effect would result. Section 4.11.5.4 Summary of Mitigation Measures states that no mitigation measures are recommended. Section 4.11.5.5, Residual Impacts after Mitigation Measures were Implemented, notes that because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. In Section 4.11.5.6, Unavoidable Adverse Impacts, it is noted that no unavoidable adverse impacts are anticipated with respect to transmission line safety and nuisance. Section 4.11.6, Traffic and Transportation Safety, begins with 4.11.6.1, Impact Assessment Methodology, which describes that the traffic and transportation safety impact assessment methodology outlined in PSPP PA/FEIS Section 4.11.7.1 (page 4.11-36) was used to analyze the proposed PSEGS in this Draft SEIS.The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and the No Action Alternative can be found in PSPP PA/FEIS Section 4.11.7.2 (p. 4.11-38). The discussion of cumulative impacts for Reconfigured Alternative 2 and the No Action Alternative has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.11.6.3, below).

4.11.6.2 Direct and Indirect Impacts of the PSEGS Aviation Safety Physical Penetrations of Navigable Airspace

The PSEGS's overhead 230 kV single circuit transmission line would likely range from 90 feet to a maximum of 145 feet in height and would span approximately 5 miles from the proposed switchyard to the Red Bluff Substation. The PSEGS would not modify the characteristics of the PSEGS gen-tie line and the PSEGS's proposed shift of the PSEGS gen-tie line approximately 1,125 feet to the west of the westerly portion of the PSPP gen-tie line would not move the PSEGS gen-tie line appreciably closer to any sensitive receptor. The closest airports are the Desert Center Airport (approximately 2 miles from the PSEGS gen-tie line) and the Blythe Airport (approximately 30 miles east). There are no public use airport runways within 20,000 feet of the PSEGS gen-tie line and the maximum height of the proposed PSEGS gen-tie line support structures (145 feet) is below the height of the FAA's mandatory airspace protection notification surface (i.e., 200 feet above ground level) as defined in 14 CFR Part 77. It is unlikely that the proposed PSEGS gen-tie line would have a negative effect on navigable airspace.

The two PSEGS power tower structures would be constructed of concrete and would rise to a height of 750 feet above ground level, which is well above the height of the FAA's 14 CFR Part 77 notification surface. The Applicant has consulted with the FAA and will be filing FAA Form 7460-1, Notice of Proposed Construction or Alteration with the FAA's Office of Obstruction Evaluation/Airport Airspace Analysis (OE/AAA). The Applicant is seeking a Determination of No Hazard from OE/AAA. The Applicant also has committed to installing obstruction markings and lighting on the two PSEGS power tower structures consistent with guidance provided in FAA Advisory Circular 70/7460-1K (FAA, 2007) and Department of Defense Guidelines. See Appendix C, APM TRANS-8 for more details.

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The Applicant has proposed two, 2-acre evaporation ponds (i.e., artificial bodies of water) to be located in the southwest corner of the PSEGS site near the administrative/ warehouse building. The PSEGS would result in 4 acres of evaporation ponds within the PSEGS project site. Evaporation ponds could attract birds, especially where natural water sources are scarce. Flying birds can become a hazard to aircraft, particularly during take-offs and landings, which are the most critical times of flight. During take-offs and landings, the presence of birds can obscure pilots' vision or result in other dangers or distractions that could cause pilots to lose control of their aircraft. Based on the distance between the proposed evaporation ponds and the nearest airport facilities it is unlikely that construction of four acres of evaporation ponds on the site would increase the number of bird strikes at Desert Center Airport or Blythe Airport, or otherwise increase hazards to pilots of aircraft in the region. Nevertheless, the Applicant has committed to implementing measures to reduce the potential for the PSEGS evaporation ponds to act as an attractant to birds and other wildlife. See Appendix C, APM BIO-26 for more details.

Interference with Radio-Frequency Communication

The overhead 230 kV gen-tie line would be designed, built, and maintained in keeping with standard SCE practices that minimize surface irregularities, surface discontinuities, and related corona noise. Such corona effects would further be minimized by the specific low-corona designs proposed by the Applicant. No radar transmission or receiving facilities or other aviation navigational aids (NAVAIDS) are located at the Desert Center Airport or in the immediate vicinity. Since the PSEGS transmission line would traverse an uninhabited open space and would not interfere with modern digital airport-related communications, no interference with radio-frequency communication would occur.

Thermal Plumes

The Desert Center Airport is located approximately 5 miles northwest of the proposed solar field; the Desert Center Airport is used an average of approximately 12 times a month. Construction, operation and decommissioning of the PSEGS could have a limited effect on Desert Center Airport's operation.The Palen Solar Electric Generating System (PSEGS) includes two dry-cooling systems, including two 120-foot air-cooled condensers, one for each power tower structure. Under certain ambient air conditions, the two air-cooled condensers could create an upward flow of air and heat at a rate exceeding 14.1 feet per second (fps), which is equivalent to 4.3 meters per second (m/s), at heights as much as approximately 1,670 feet AGL. The temperature of the air exiting the top of the air-cooled condensers would be ambient temperature plus 5 to 20 degrees Fahrenheit (Galati, 2013). For the purposes of this analysis, it has been determined that a plume of 14.1 fps velocity has the potential to affect aircraft operations when flying at low levels. To reduce the potential aviation hazards associated with these plumes, the Project sponsor would implement APM PUBLIC HEALTH-2. Described more fully in Appendix C, this measure would involve submission of letters to the Federal Aviation Administration (FAA) and Department of Defense and area flight stations requesting formal notification to pilots of the presence of the power plant and recommending overflight of the project site below 1,500 feet above ground level be avoided.

Solar facilities generally use one of three technologies designed to concentrate the sun's rays to generate heat, thereby creating electricity. Concentrated solar power facilities with power towers are comprised of individual heliostats (mirrors) arranged in a circular array that track with the sun. Each heliostat reflects sunlight onto a central receiver located near the top of the power tower. This technology has the potential for creating glint and glare. Glint is defined as a momentary flash of light; glare, as a more continuous source of excessive brightness relative to the ambient lighting. Hazards from glint and glare from concentrating solar plants can range from permanent eye injury or retinal burn to temporary disability or distractions (flash blindness). These hazards could affect pilots using or flying past airports in the region and motorists traveling along I-10 and Highway 177, among other visitors to the area. To address potential glare/glint impacts to pilots, motorists, hikers, and others, the Applicant has proposed two measures: TRANS 6 and TRANS 7. These two measures, set forth in Appendix C, are expected to reduce the potential for the PSEGS to negatively impact aircraft pilots, motorists, and other user groups. It also is noted that windows of airplane cockpits typically are coated with anti-reflective glazing and operators generally wear polarized eyewear to reduce the effects of glint and glare (FAA, 2010).

The direct and indirect traffic and transportation safety-related impacts of the PSEGS on the transportation system are examined in this section. Several pieces of equipment that exceed roadway load or size limits would need to be transported to the project site via I-10 during construction, potentially resulting in a roadway hazard. This equipment includes the steam turbine generators and main transformers. The equipment would be transported using multi-axle trucks. To transport the equipment, the Applicant must obtain special ministerial permits from Caltrans to move oversized or overweight materials. In addition, the Applicant must ensure proper routes are followed; proper time is scheduled for the delivery; and proper escorts, including advanced warning and trailing vehicles as well as law enforcement control, are available, if necessary. Transportation of hazardous materials could result in leaks or spills and cause a hazard to public health and safety. Trucks would travel on I-10, exit at Corn Springs Road and continue to the site via a new access road. The transport vehicles would be required to follow federal and state regulations governing proper containment vessels and vehicles, including appropriate identification of the nature of the contents. Finally, increased congestion on I-10, mainly during the construction period, could increase the risk of vehicle collisions in the vicinity of the site. Discussed more fully in Section 4.16, the PSEGS would require approximately 998 daily construction workers, which equates to about 1,996 one-way vehicle trips per day (assuming each worker would be commuting via private vehicle).Peak construction is expected to occur during Month 22 (Year 2015) of the 34-month construction period. During this peak month, the workforce is estimated to be about 2,311 workers a day. Assuming a worst-case scenario, where all workers during the peak construction period commute in the workers' own vehicles, peak construction activities would yield about 4,622 one-way vehicle trips per day (Palen Solar Holdings, 2012). The Applicant has committed to implementing the mitigation measures identified in the PSPP PA/FEIS as APMs to ensure that significant roadway safety impacts are avoided. Set forth in Appendix C, these APMs include compliance with all applicable regulations governing transportation safety, obtaining and complying with permits required for transport of hazardous materials, repair of roads damaged during construction activities, and development and implementation of a traffic control plan that, among other things, encourages carpooling and minimizes truck deliveries during peak hours (see APMs TRANS-1 through TRANS-4).

Emergency Services Vehicle Access

The Applicant has proposed construction of a secondary access road and gate within the natural gas pipeline extension ROW, south of the PSEGS site. Pursuant to APM WORKER SAFETY-6 (see Appendix C), the road would be at least 20-feet wide, consist of an all-weather gravel surface, and connect to the I-10 ROW. The secondary access gate would be at least one-quarter mile from the main gate and be accessible to the RCFD, Riverside County Sheriff's Department, and California Highway Patrol. Preliminary plans for the access road and gate would be submitted to the RCFD for review and approval at least 60 days prior to the start of site mobilization, and final plans at least 30 days prior to the start of construction.

Water and Rail Obstructions

The PSEGS is not adjacent to a navigable body of water and therefore would not alter water-related transportation. Also, the PSEGS would not alter rail transportation because no rail tracks exist on or near the proposed site.

4.11.6.3 Cumulative Impacts

PSEGS incremental traffic and transportation-related safety impacts resulting from construction, operation, maintenance, and decommissioning of the PSEGS could result in a cumulative effect in combination with past, present, and/or reasonably foreseeable future actions. The cumulative impacts area for transportation safety consists of the I-10 corridor and areas in the vicinity of the Desert Center Airport and Blythe Airport. This geographic scope of cumulative impacts analysis is limited to the area where PSEGS-related transportation impacts could cause hazards. Potential cumulative effects on transportation safety could begin (for aviation) with the installation-related testing of the proposed air-cooled condensers, erection of the solar power towers, the installation of facilities that could cause glint or glare, or the occurrence of water within the evaporation ponds, and (for roadways) with the onset of over-sized construction vehicles. These beginning points may not coincide precisely with the initiation of the construction period. The potential for cumulative impacts would persist for as long as these features are present, and could extend to the conclusion of the closure and decommissioning phase of the project.

Existing conditions within the cumulative impacts area reflect a combination of the existing condition and the effects of past actions and are described in Chapter 3. Direct and indirect effects of the PSEGS are analyzed above. Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1.4. Within the cumulative impacts area for transportation safety, there are 15 solar projects (including the Genesis Solar Energy Project and the Blythe Solar Power Project) proposed along the I-10 corridor predominantly between Desert Center and Blythe. Based on the currently available data for these various projects (information obtained from Plans of Development and other project documents), and assuming all projects move forward, several of these projects would be under construction during the same general time frame as the project (2013 to 2016). Construction traffic could affect area roadways at the same time, thereby increasing the potential safety risks associated with accidents, hazardous materials spills, and potential incompatibility with other types of vehicles. Projects other than renewable projects also could proceed during this timeframe and, thereby, contribute construction traffic-related risks elsewhere along the I-10 corridor. The increased risk of safety hazards associated with construction traffic could be substantial.Aviation-related risks could increase as a result of the construction and operation of water features that could attract birds as part of other developments, such as the evaporation ponds associated with the Blythe Solar Power Project, thermal plumes caused by condensers and other equipment, and new sources of glint or glare, such as the solar troughs associated with utility-scale solar thermal projects (e.g., the Blythe Solar Power Project and Genesis Solar Energy Project) and, to a lesser extent (FAA, 2010), solar panels associated with photovoltaic projects (e.g., Desert Sunlight). Together, these contributions to an aviation-related hazard could be substantial. However, given the low level of use at the Desert Center Airport and the distance between the project site and the Blythe Airport, the Blythe Solar Power Project's contribution to aviation safety hazards is expected to be insubstantial. Reconfigured Alternative 2 (Option 1 and 2) The cumulatively considerable transportation safety impacts associated with Reconfigured Alternative 2 (Option 1 and 2) would be similar to those of the PSEGS because the alternative project would be similar in size and location. Potential impacts associated with construction traffic and aviation safety would be fewer, as the alternatives would employ a smaller workforce and not include solar power towers. At the same time, the risk of hazardous materials spills would be greater under Reconfigured Alternative 2 because the PSEGS would not use the heat transfer fluid Therminol. Palen Solar Electric Generating System Draft SEIS 4.11-22 July 2013

4. Environmental Consequences 4.11 Public Health and Safety No Action Alternative A Under this alternative, the BLM would deny the PSEGS ROW application. However, because the ROW application area lies within the Riverside East SEZ, it is reasonable to expect that some sort of solar energy project may be proposed for the site in the future. While it would be speculative to assume the types of impacts that may result from a yet-to-be-identified proposal; any utility-scale solar project proposed for the ROW application area, within the project timeframe of the projects identified in the cumulative scenario, would be expected to contribute cumulatively to those types of impacts identified above for the PSEGS or Reconfigured Alternative 2, with slight variations based upon proposed solar technology. 4.11.6.4 Summary of Mitigation Measures No mitigation measures are recommended 4.11.6.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. 4.11.6.6 Unavoidable Adverse Impacts Unavoidable impacts would be the same as those identified in the discussion of direct and indirect effects, above. 4.11.7 Worker Safety and Fire Protection 4.11.7.1 Impact Assessment Methodology The worker safety and fire protection impact assessment methodology described in PSPP PA/FEIS Section 4.11.8.1 (p. 4.11-40) was used to analyze the PSEGS in this Draft SEIS. The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.11.8.2 (p. 4.11-45). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.11.7.3, below). 4.11.7.2 Direct and Indirect Impacts of the PSEGS The PSPP PA/FEIS describes workplace safety and fire protection considerations associated with the PSPP (see, e.g., p. 4.11-41). As both proposals involve utility-scale solar projects, many of these considerations are similar for both projects. Described below, major differences in the two proposals concerning workplace safety and fire protection stem from the PSEGS's elimination of Therminol and liquefied petroleum gas from its plan of development and the PSEGS's addition of a natural gas pipeline extension.

4. Environmental Consequences 4.11 Public Health and Safety Worker Safety As described in the PSPP PA/FEIS, industrial environments, such as that proposed for the PSEGS, are potentially dangerous during construction, operation and maintenance, and closure. Workers at the site would be exposed to excessive heat, loud noises, moving equipment, trenches, and confined space entry and egress. The workers could experience falls, trips, bumps, lacerations, and numerous other injuries.They could be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, or electrical sparks and electrocution. Well-defined policies and procedures, training, and hazard recognition and control can minimize the potential of such risks to project workers. The Palen Solar Electric Generating System's (PSEGS's) compliance with applicable laws, ordinances, regulations, and standards would ensure adequate protection of worker health and safety.

Construction Safety and Health Program

Construction Safety Orders are published at Title 8 California Code of Regulations (CCR) Section 1502, et seq. These requirements have been promulgated by the California Occupational Safety and Health Administration (Cal/OSHA) and would apply to the construction phase of the PSEGS and would require the development of a Construction Safety and Health Program. Implementation of additional programs under General Industry Safety Orders (8 CCR 3200-6184), Electrical Safety Orders (8 CCR 2299-2974), and Unfired Pressure Vessel Safety Orders (8 CCR 450-544) would be required. These programs are described more fully in the Palen Solar Power Project (PSPP) Plan Amendment/Final Environmental Impact Statement (PA/FEIS) (see, e.g., p. 4.11-42).

The Applicant has proposed to implement, as part of the PSEGS, all of the mitigation measures identified in PSPP PA/FEIS Section 4.11.8.4 (pp. 4.11-46, 4.11-47). Set forth in Appendix C, these Applicant Proposed Measures (APMs) include commitments to prepare a project construction safety and health program (APM WORKER SAFETY 1). This program would be developed to comply with and carry out the requirements of the safety orders identified above.

Operations and Maintenance Safety and Health Program

Operations safety orders include General Industry Safety Orders (8 CCR 3200-6184), Electrical Safety Orders (8 CCR 2299-2974), and Unfired Pressure Vessel Safety Orders (8 CCR 450-544). As with the above for construction, the Applicant would develop an operations and maintenance safety and health program. The operations and maintenance safety and health program would address the issues of injury and illness (8 CCR 3203), fire protection and prevention (8 CCR 3221), protective equipment (8 CCR 3401-3411), and emergency action (8 CCR 3220). See APM WORKER SAFETY-2 in Appendix C. Written safety programs for the PSEGS would ensure compliance with the above-mentioned requirements and would assure that the impacts that otherwise could occur would be avoided or sufficiently minimized.

Fire Protection

Development of the PSEGS would be subject to requirements of the Riverside County Fire Department (RCFD), including access requirements. Further, implementation of the PSEGS could require response or assistance from the RCFD's hazardous materials response team; advanced life support/paramedic services; disaster preparedness and response during construction, operation and maintenance; or closure and decommissioning. The closest RCFD station that would respond to an incident at the site is the Lake Tamarisk Station, located off of I-10 approximately 10 miles west. The Lake Tamarisk Station (#49) is located at 43880 Lake Tamarisk in Desert Center. The next closest RCFD station that would respond is the Terra Lago Station (#87), located at 42900 Golf Center Parkway in Indio, approximately 45 miles from the project site. The nearest hazardous materials response team is located at the North Bermuda Dunes Station (#81) located at 37-955 Washington Street in Palm Desert, approximately 65 miles west.

It is expected that units from the Lake Tamarisk Station and Terra Lago Stations would arrive at the site within 14 and 45 minutes after dispatch, respectively, when responding to incidences of fire, and within approximately 1 hour when responding to hazardous material spills (Dorian Cooley, 2013). The types of hazards that could trigger the need for an RCFD response are discussed above. The Applicant has commissioned a Fire Needs Assessment that will be based on the National Fire Protection Association (NFPA) 551 Guide for the Evaluation of Fire Risk Assessments. There are several models that can be used. The Applicant will use the semi-quantitative likelihood method, which treats the likelihood and determines the frequency of occurrence of different types of incidents with different types of protections. The Applicant will use actuarial/loss statistics analyses for fire, rescuer, hazardous material incidents, and the study will consider training and inspection times required for the facility. A Fire Safety Concepts Tree will be developed to evaluate effective fire protection strategies and solutions using a branching diagram to show relationships of fire prevention and fire damage control strategies. The Fire Safety Concepts Tree will provide an overall structure with which to analyze the potential impact of fire safety strategies such as regulatory, construction, combustibility of contents, protection devices, and occupant procedures.It is anticipated that this plan will be completed in July 2013. The needs assessment will detail the measure necessary to minimize and offset impacts associated with the proposed project. These measures will be included in APM WORKER SAFETY-7. Upon receipt of the needs assessment, the BLM will review and, as appropriate, incorporate the proposed measures into the analysis and integrate the BLM's findings and any additional mitigation measures into the Final EIS for the Palen Solar Electric Generating System (PSEGS). Further, compliance with applicable requirements would avoid or reduce the potential for workplace accidents that otherwise could require emergency responders. For example, California regulations applicable to the PSEGS would require the Applicant to prepare an Operations Fire Prevention Plan (8 CCR 3221) to determine general program requirements (scope, purpose, and applicability) and potential fire hazards; to develop good housekeeping practices, proper handling and materials storage, potential ignition sources and control measures for these sources, and the persons who would be responsible for equipment and system maintenance; to locate portable and fixed fire-fighting equipment in suitable areas; to establish and determine training and instruction requirements; and to define recordkeeping requirements. Additionally, the 2007 California Fire Code, 2010 California Building Code, and Riverside County Ordinance No. 787 would safeguard life and property from fire and explosion hazards. The Applicant also would have to prepare a complete chemical classification inventory for submission to the Riverside County Planning and Engineering Bureau. Palen Solar Electric Generating System Draft SEIS 4.11-25 July 2013

"4. Environmental Consequences 4.11 Public Health and Safety Applicable regulations also would require preparation of a Personal Protective Equipment (PPE) Program and require first aid supplies be on-site whenever hazards are present that, due to process, environment, chemicals, or mechanical irritants, can cause injury or impair bodily function as a result of absorption, inhalation, or physical contact (8 CCR 3380-3400). All safety equipment would have to meet National Institute of Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards, and would carry markings, numbers, or certificates of approval. Respirators would meet NIOSH and Cal-OSHA standards. Each employee would be provided with the following information pertaining to the protective clothing and equipment: proper use, maintenance, and storage; when to use the protective clothing and equipment; benefits and limitations; and when and how to replace the protective clothing and equipment. Compliance with the PPE Program would ensure that the Applicant complies with applicable PPE requirements and provides employees with the information and training necessary to protect employees from potential workplace hazards. Further, applicable regulations would require an Emergency Action Plan (8 CCR 3220). It is expected that the Emergency Action Plan would identify roles and responsibilities; determine emergency incident response training; develop emergency response protocols; specify evacuation protocols; define post-emergency response protocols; and determine notification and incident reporting. Additional requirements called "safe work practices" would apply to the PSEGS. Both the Construction and the Operations Safety Programs would address safe work practices under a variety of programs. The components of these programs would include, but not be limited to, the programs discussed above. Employee safety training would include safe work practices. Implementation of these measures and programs would serve as the primary mechanism for fire prevention and protection. Services provided by the Riverside County Fire Department (RCFD) would be secondary and for emergency purposes. Use of Explosives PSEGS construction may require the use of explosives during the construction of footings to remove large rocks or boulders. In addition, explosives may be used to demolish the towers ground during site closure and reclamation. Prior to blasting, a detailed blasting plan would be submitted by the construction contractor for each blast site that identifies the proposed blasting methods, existing structures and facilities, and scaled distance estimates of projection distance and the speed of particles that may be mobilized by blasting activities. Conventional or plastic explosives would be used, if necessary, subject to safeguards (e.g., blasting mats) for adjacent areas (Palen Solar III, 2013a). As needed, the Blasting Plan would be part of either or both of the Construction Safety and Health Program (APM WORKER SAFETY-1, Project Construction Safety and Health Program) and the Decommissioning Plan (APM BIO-22, Decommissioning and Reclamation Plan). Palen Solar Electric Generating System Draft SEIS 4.11-26 July 2013

4. Environmental Consequences 4.11 Public Health and Safety 4.11.7.3 Cumulative Impacts PSEGS Incremental worker safety-related impacts of the project would result in a risk level that would remain below thresholds of concern and, therefore, would not cause or contribute to any cumulative effect on worker safety.Regardless of the level of solar development or acreage developed under any of the action alternatives, the utility-scale solar energy development that would result would be subject to the same worker safety requirements as the Palen Solar Electric Generating System (PSEGS) and, therefore, also would not result in a risk level that could cause or contribute to any cumulative effect on such safety. No Project Alternative A is not expected to require workers, and so No Project Alternative A would not be expected to affect worker safety, unless and until a future project is proposed on the site. For purposes of this analysis, the cumulative impacts area for fire safety-related resources consists of the Riverside County Fire Department (RCFD)'s service area. Potential cumulative fire safety-related effects could occur over the course of 40 or more years from construction, operation, and maintenance, through closure and decommissioning. For the fire safety-related issues of emergency medical and hazardous materials spill response, the incremental impacts of the PSEGS could result in a cumulative effect when combined with the impacts of other projects in the cumulative scenario. More specifically, a cumulative Worker Safety/Fire Protection impact would occur in the event of a simultaneous need for a fire department to respond to multiple locations such that the fire department's resources and those of the mutual aid fire departments (which routinely respond in every-day situations to emergencies at residences, commercial buildings, and heavy industry) would be overwhelmed and could not effectively respond. The RCFD has indicated that a solar project on the proposed site could result in a cumulative adverse impact to the RCFD's effectiveness for timely responses. The Applicant presently is working on a fire needs assessment to determine the impact of the PSEGS on response capacity and the measures that can be taken to ensure RCFD's ability to respond to fire safety related issues of emergency medical and hazardous materials spill response is not diminished. The results of the needs assessment will form the basis of an agreement between the Applicant and the RCFD that will outline such measures. Once finalized, the results of that agreement will be factored into this analysis, along with any additional mitigation measures necessary, and integrated into the Final Environmental Impact Statement (EIS). Reconfigured Alternative 2 (Option 1 and Option 2) Fire safety-related impacts resulting from the Reconfigured Alternative 2 (Option 1 and Option 2), when combined with those of the cumulative scenario, would be similar to those described for the PSEGS. Discussed in Section 4.1, there are presently at least 15 pending applications for solar projects on Bureau of Land Management (BLM) lands along the I-10 corridor in the project vicinity. Construction of multiple utility-scale solar projects in this area of Riverside County could continue to strain the RCFD's ability to maintain adequate response times. Palen Solar Electric Generating System (PSEGS) Draft Supplemental Environmental Impact Statement (SEIS) 4.11-27 July 2013 4. Environmental Consequences 4.11 Public Health and Safety No Action Alternative A Under No Action Alternative A, the BLM would deny the PSEGS Right of Way (ROW) application. However, because the ROW application area lies within the Riverside East Solar Energy Zone (SEZ), it is reasonable to expect that some sort of solar energy project may be proposed for the site in the future. If such a facility is constructed, for the reasons discussed for the PSEGS and Reconfigured Alternative 2, the combined effect of such a project with other developments in the region, including especially utility-scale solar projects, would be expected to have a cumulative effect on response times. If the ROW application area remains undeveloped, there would be no cumulatively considerable fire safety-related impact. Summary of Mitigation Measures No mitigation measures are recommended. Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. Unavoidable Adverse Impacts Unavoidable impacts would be the same as those identified in the discussion of direct and indirect effects, above. Geologic Hazards Impact Assessment Methodology The geologic hazards impact assessment methodology described in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.11.9.1 was used to analyze the PSEGS in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.11.9.2. The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.11.8.3, below).4.11.8.2 Direct and Indirect Impacts of the PSEGS The PSEGS is proposed for the same general location as was described and analyzed in the PSPP PA/FEIS. As such, the geologic hazards underlying the PSEGS ROW application area, including those areas proposed for the gen-tie line re-route and new natural gas pipeline, do not cross into areas where geologic hazards differ from those evaluated in the PSPP PA/FEIS Section 4.11.9 (p. 4.11-47 et seq.). Accordingly, risks associated with subsidence and volcanic activity would remain low. The potential for structural damage and spills of hazardous materials resulting from seismic groundshaking and liquefaction would remain low to moderate, as would the potential for structural damage and spills of hazardous materials associated with hydrocompaction and corrosive soils. The erosive forces of wind and rain at the proposed Palen Solar Electric Generating System site would continue to be high. PSPP PA/FEIS Section 4.11.9.4 (P. 4.11-52) identifies a number of mitigation measures designed to minimize potential effects of these geologic forces. The Applicant has elected to incorporate all such measures into the PSEGS as APMs. Set forth in Appendix C, these APMs include the preparation of several reports, plans, and contingencies for encountering unforeseen geologic conditions. Through implementation of these APMs, the geologic hazards associated with the PSEGS would be controlled effectively. 4.11.8.3 Cumulative Impacts PSEGS Impacts resulting from construction, operation, maintenance and decommissioning of the PSEGS could result in a cumulative effect in connection with geologic hazards with other past, present, or reasonably foreseeable future actions. Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1.4. This geographic scope of cumulative impacts analysis was established because potential cumulative effects, as potential cumulative effects pertain to geologic hazards, generally are limited to regional subsidence due to groundwater withdrawal in the Chuckwalla Valley groundwater basin. The geographic scope of the cumulative impacts analysis for such resources is limited generally to the proposed site (including the gen-tie line reroute and new natural gas line) overlaying the Chuckwalla Valley groundwater basin. Several projects identified in the cumulative scenario are located within the Chuckwalla Valley groundwater basin. Such projects could include groundwater pumping of similar magnitude to the PSEGS; however, the combined effect of these projects still would result in much less than the historic rate of 48,000 ac-ft/yr. Impacts associated with strong ground shaking and earthquake-induced settlement, hydrocompaction, and corrosive soils are not cumulative in nature and would not add to potential cumulative impacts to the facility. Potential cumulative effects on geologic hazards could occur at any time during the lifespan of the PSEGS, from construction to decommissioning. Existing conditions within the cumulative impacts assessment area of geologic resources and hazards reflect a combination of the natural condition and the effects of past actions and are described in Chapter 3. Historic groundwater withdrawals have not resulted in any documented subsidence in the vicinity of the PSEGS site. The PSEGS would result in increased annual groundwater pumping, from the current 2,000 aft/yr to approximately 2,200 aft/yr (a 10 percent increase). Since this level of pumping did not result in any documented regional subsidence, significant impacts to regional subsidence are not expected. Therefore, there would be no significant cumulative contribution to regional subsidence from foreseeable renewable projects, including the PSEGS, in the Chuckwalla Valley groundwater basin. Additional information on groundwater withdrawal is contained in Section 4.19. Finally, decommissioning of the PSEGS is not expected to require any significant amount of groundwater pumping; impacts to regional subsidence are not expected. Reconfigured Alternative 2 (Option 1 and 2) As the general location, operational water demands, and nature of Reconfigured Alternative 2 (Option 1 and 2) are substantially similar to those of the PSEGS, Reconfigured Alternative 2's potential cumulative effects on geologic hazards would be similar to those of the PSEGS. As discussed for the PSEGS, Reconfigured Alternative 2 (Options 1 and 2), cumulatively effects would largely be associated with subsidence due to groundwater withdrawal.As the water demands of the Reconfigured Alternative 2 would be similar to those of the Palen Solar Electric Generating System (PSEGS), and the Reconfigured Alternative 2 would withdraw water at rates below historic levels; construction, operation, and decommissioning of Reconfigured Alternative 2 would not be expected to contribute significant impacts to regional subsidence. Under No Action Alternative A, the Bureau of Land Management (BLM) would deny the PSEGS Right-of-Way (ROW) application. However, because the ROW application area lies within the Riverside East Solar Energy Zone (SEZ), it is reasonable to expect that some sort of solar energy project may be proposed for the site in the future. If such a project is constructed, the project could have water demands similar to those of the PSEGS.

4.11.8.4 Summary of Mitigation Measures: No mitigation measures are recommended.

4.11.8.5 Residual Impacts after Mitigation Measures were Implemented: Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation.

4.11.8.6 Unavoidable Adverse Impacts: No unavoidable adverse effects are anticipated.

4.11.9 Site Security

4.11.9.1 Impact Assessment Methodology: The site security impact assessment methodology described in the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.11.10 (p. 4.11-53) was used to analyze the PSEGS in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.11.10.2 (p. 4.11-54). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (See Section 4.11.9.3, below).

4.11.9.2 Direct and Indirect Impacts of the PSEGS: The PSPP proposed the use of liquefied petroleum gas (LPG), which is listed by the Department of Homeland Security (DHS) as a Chemical of Interest with a threshold level of 60,000 pounds. As the PSPP proposed to store a maximum of 152,000 pounds of propane/LPG onsite, the Chemical Facility Anti-Terrorism Standards would have applied, and the Applicant would have been required to submit a ""Top Screen"" assessment to the DHS. The PSEGS proposes no chemicals listed by DHS as a Chemical of Interest. Nonetheless, the BLM believes that action is appropriate to ensure that the PSEGS facility (or a related shipment of a hazardous material) is not the target of unauthorized access. The level of security needed for a particular power plant depends on the threat imposed, the likelihood of an adversarial attack, the likelihood of success in causing a catastrophic event, and the severity of consequences of that event. As discussed in the PSPP PA/FEIS, the PSPP facility was identified as ""low vulnerability"" for threat of adversarial attack despite the use of a DHS Chemical of Interest. Because the PSEGS is substantially similar to the PSPP but would not use any Chemicals of Interest, it also is assumed to be a ""low vulnerability"" project. This designation would not be affected by the gen-tie line reroute or natural gas pipeline extension. Security measures proposed for the PSEGS include installation of a chain link security fence around the site perimeter, switchyard, and other areas requiring controlled access before beginning construction. The PSEGS site perimeter fence would be designed and installed in accordance with requirements of DHS. Access to the PSEGS facility would be provided through controlled access gates. Access through the main gate would require an electronic swipe card. All visitors would be logged in and out of the PSEGS facility during normal business hours. Visitors and non-employees would be allowed entry only with approval from a staff member at the PSEGS facility. Visitors would be issued visitor passes that are worn during their visit and returned at the main office when leaving. The PSEGS facility would be staffed 24 hours per day, seven days per week. Even when the solar power plant is not operating, personnel would be present as necessary for maintenance, to prepare the plant for startup, and/or for site security (Palen Solar Holdings, 2012). In addition to these measures, the Applicant has agreed to implement all of the mitigation measures that were recommended in the PSPP PA/FEIS as Applicant Proposed Measures (APMs) (see Appendix C, APMs HAZ-6 and HAZ-7). These APMs include, among others, the preparation of a Construction Site Security Plan and Operation Security Plan. Implementation of these APMs would ensure that site security is maintained and the risk of threat is minimized.4.11.9.3 Cumulative Impacts PSEGS The development and operation of the Palen Solar Electric Generating System (PSEGS) would contribute an incremental low vulnerability site security threat to a cumulative effect relative to site security with other past, present, or reasonably foreseeable future energy generation actions. The geographic scope of the cumulative impacts analysis for such threat would be the California Desert area. Potential cumulative site security effects could occur at any time during the lifespan of the Palen Solar Electric Generating System, from construction to decommissioning, and would not persist past closure and decommissioning. Other past, present, and reasonably foreseeable future energy generation projects are identified in Section 4.1.4. As of May 2013, there were approximately 106 renewable projects proposed in California in various stages of environmental review or under construction. Solar, wind, and geothermal development applications have requested use of BLM land, including approximately Palen Solar Electric Generating System Draft SEIS 4.11-31 July 2013"

There are approximately 1 million acres of the California desert. State and private lands have also been targeted for renewable energy projects. In addition, approximately 69 applications for solar and wind projects on BLM land are currently being considered. BLM's energy projects in the California Desert District are identified in Table 4.1-2. Renewable energy projects on state and private lands are identified in Table 4.1-3. The BLM has not received threat determinations for specific facilities, such as the PSEGS; however, given the utility-scale nature of the Palen Solar Electric Generating System and the PSEGS's similarities with other proposed utility scale solar proposals (such as Blythe, Genesis, and Desert Sunlight), the BLM assumes that threat levels among the facilities would be comparable. Smaller projects could have an even lower vulnerability. Although the threat imposed and likelihood of an adversarial attack may be comparable regardless of facility size, the likelihood of a smaller (lower energy output) facility's success in causing a catastrophic event and the severity of consequences of that event would seem reduced. The presence of other DHS "Critical Infrastructure and Key Resources" sectors in the cumulative impacts analysis area, if present, also could contribute incrementally to the overall threat level. Such other sectors include National Monuments and Icons, Agriculture and Food, Banking and Finance, Chemical, Commercial Facilities, Critical Manufacturing, Dams, Defense Industrial Base, Emergency Services, Government Facilities, Healthcare and Public Health, Information Technology, Nuclear Reactors, Materials and Waste, Postal and Shipping, Water, Communications, and Transportation Systems (including aviation and highway). Thus, the Wileys Well Communication Tower, Blythe Municipal Airport, and I-10 each could contribute incrementally to the overall security threat. Reconfigured Alternative 2 (Option 1 and 2) Each of the utility-scale solar projects in the region that are or would be similar in size to the Palen Solar Electric Generating System would present a similar risk profile. The absence of the gen-tie line reroute or natural gas line addition would not be expected to appreciably reduce Reconfigured Alternative 2's vulnerability level relative to the Palen Solar Electric Generating System, and so the site security threat is expected to be similar to that of the Palen Solar Electric Generating System. No Action Alternative A Under this alternative, the BLM would deny the PSEGS ROW application. However, because the ROW application area lies within the Riverside East SEZ, it is reasonable to expect that some sort of solar energy project may be proposed for the site in the future. The cumulative contribution of such a project to security threats in the California Desert would vary based upon the factors discussed above, including the size and scale of the project, the types and quantities of chemicals stored on site, and level of security. If no project were to be constructed, there would be no cumulative contribution to site security impacts in the region. Palen Solar Electric Generating System Draft SEIS 4.11-32 July 2013"

4. Environmental Consequences 4.11 Public Health and Safety 4.11.9.4 Summary of Mitigation Measures No mitigation measures are proposed. 4.11.9.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. 4.11.9.6 Unavoidable Adverse Impacts No unavoidable impacts would be anticipated. 4.11.10 Military Overflights To determine whether there is any possible conflict with military overflights and military aviation training and operations, an analysis is required from the Department of Defense Regional Complex Sustainability Office (DOD R-2508), Region IX, based in San Diego. The Applicant has received a letter of non-objection from the Department of Defense for construction and operation of the towers at the PSEGS site.The letter, which is provided in Appendix E and documents an informal review by the DOD Siting Clearinghouse, indicates mitigable impacts to training activities conducted on four military training routes including VR-296, IR-218, VR-1265, and VR-1268. A formal review of possible impacts to military flight operations would be required from the San Diego Sustainability Office prior to construction. Palen Solar Electric Generating System Draft SEIS 4.11-33 July 2013

271 4. Environmental Consequences 4.11 Public Health and Safety This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 4.11-34 July 2013 272 "4. Environmental Consequences 4.12 Impacts on Recreation 4.12.1 Impact Assessment Methodology The recreation impact assessment methodology described in PSPP PA/FEIS Section 4.12.1 (p. 4.12-1) was used to analyze the potential effects of the Palen Solar Electric Generating System in this Draft SEIS. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.12.2 (pp. 4.12-4, 4.12-5). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario in Section 4.12.3, below. Note: This Section 4.12 focuses on non-transportation-related recreational opportunities. For impacts to OHV users, see Section 4.16, Impacts on Transportation and Public Access - Off-Highway Vehicle Resources. 4.12.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System On-Site Recreational Users The Palen Solar Electric Generating System would convert approximately 3,896 acres of public land within the ROW boundary to a solar energy use; this conversion would be approximately 130 fewer acres compared to the PSPP analyzed in the PSPP PA/FEIS. The construction period for the Palen Solar Electric Generating System would be approximately 5 months shorter than the PSPP, but would occur over longer work days. During construction, operation, and decommissioning, the direct impact to dispersed recreational opportunities on the site would be similar to that of the PSPP in that the opportunities would not be available to potential users. The effects of displacing recreational uses to other desert lands also would be similar, and likely would be minimal. Off-Site Recreational Users The Palen Solar Electric Generating System could cause indirect effects to off-site recreational users that are similar to those described in PSPP PA/FEIS Section 4.12.2 (p. 4.12-1). For a discussion of potential impacts to OHV route access to dispersed areas, including several wilderness areas, see Section 4.16, Impacts on Transportation and Public Access - Off-Highway Vehicle Resources. For a discussion of the potential impacts to visual quality from representative off-site recreational areas, see Section 4.18, Impacts on Visual Resources. Parks and Specially Designated Areas The Palen Solar Electric Generating System could affect the recreation experience of visitors to Joshua Tree National Park and BLM-administered specially designated areas, which are described in PSPP PA/FEIS Section 4.12.2. Recreational users could be affected by construction and decommissioning activities such as construction noise, fugitive dust, vehicle movement, and other "non-natural" construction activities and structures caused by the Palen Solar Electric Generating System. These impacts could affect users' perception of solitude, naturalness, and unconfined recreation. Palen Solar Electric Generating System Draft SEIS 4.12-1 July 2013"

273 "4. Environmental Consequences 4.12 Impacts on Recreation As discussed in Section 4.2, Impacts on Air Resources, construction, operation and decommissioning activities could generate dust in the form of PM10/PM2.5. However, the worst-case PM2.5 and PM10 impacts occur at the point of emission and drop off quickly with distance. Therefore, the Palen Solar Electric Generating System would cause no impacts to recreational users within off-site recreational areas. As discussed in Section 4.9, Impacts on Noise, typically, "high pressure steam blow" is the loudest noise encountered during construction of a project incorporating a steam turbine. Noise would attenuate such that the sound from the loudest noise associated with construction, the steam blow, would be barely audible at the nearest wilderness area boundary (approximately 1.25 miles). Once operational, the Palen Solar Electric Generating System would generate relatively the same noise levels described for the PSPP, and would have the same negligible noise effect on off-site recreational uses.For impacts on resource values in Special Designation areas, see Section 4.15, Impacts on Special Designations. Developed Recreation Sites The same developed National Park Service (NPS) and Bureau of Land Management (BLM) campgrounds and Long-Term Visitor Areas (LTVAs) would be affected by the Palen Solar Electric Generating System (PSEGS) as by the Palen Solar Power Project (PSPP) (see PSPP PA/FEIS Section 4.12.2, p. 4.12-3). Similar to the Palen Solar Power Project (PSPP), the National Park Service (NPS) and Bureau of Land Management (BLM) campgrounds would be too far from the site to be affected by air or noise impacts. The Palen Solar Electric Generating System (PSEGS) would be visible from numerous dispersed recreational areas from which the Palen Solar Power Project (PSPP) would not have been visible, including the Mule Mountains Long-Term Visitor Area (LTVA) and a portion of the Bradshaw Trail, due to the height of the Palen Solar Electric Generating System's (PSEGS's) towers. Views of the Palen Solar Electric Generating System's (PSEGS's) towers could alter the recreational experience in some of the dispersed areas by introducing large manmade structures into views of natural areas. For a discussion of the potential impacts to visual quality from scenic and recreational areas, see Section 4.18, Impacts on Visual Resources. It is anticipated that some Palen Solar Electric Generating System (PSEGS) construction workers would reside in RV campers at the Mule Mountains and Midland Long-Term Visitor Areas (LTVAs), or possibly camp on public lands in the vicinity of the proposed site during the construction phase of the Palen Solar Electric Generating System (PSEGS). Although the Bureau of Land Management (BLM) and National Park Service (NPS) offer developed campgrounds within commuting distance of the Palen Solar Electric Generating System (PSEGS), only Long-Term Visitor Areas (LTVAs) allow long-term camping. Additionally, Palen Solar Electric Generating System (PSEGS) workers and the workers' families, if present, could result in increased use of the regional recreational resources described in Draft Supplemental Environmental Impact Statement (SEIS) Section 3.12. The average Palen Solar Electric Generating System (PSEGS) construction workforce would be approximately 75 percent greater than that of the Palen Solar Power Project (PSPP), and the peak would be twice as large. Thus, the Palen Solar Electric Generating System (PSEGS) could result in greater impacts related to the increased use of developed recreation sites compared to the Palen Solar Power Project (PSPP). As described in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.12.2 (p. 4.12-1 et seq.), except for the designated campsites at Wiley's Well and Coon Hollow, Long-Term Visitor Area (LTVA), which provide minimal facilities can accommodate several hundred self-contained RV units on Bureau of Land Management (BLM)-administered lands where there are no assigned or designated sites. Long-Term Visitor Area (LTVA) regulations require that RV units maintain a minimum distance of 15 feet between units. Current use levels of Mule Mountain and Midland Long-Term Visitor Areas (LTVAs) are well below maximum capacity. Therefore, it is unlikely that any displacement of recreational users to other Long-Term Visitor Areas (LTVAs) would be noticed due to the number, distance, and unstructured camping patterns of the other Long-Term Visitor Areas (LTVAs) in the system. Impacts associated with Palen Solar Electric Generating System (PSEGS) construction to on-site and off-site recreational users would be similar to the Palen Solar Power Project (PSPP), except with respect to increased use by the substantially larger construction workforce, which could be greater than the impacts of the Palen Solar Power Project (PSPP). Impacts related to the visibility of the Palen Solar Electric Generating System's (PSEGS's) towers from recreational sites would be greater than the Palen Solar Power Project (PSPP) and are described further in Section 4.18, Impacts to Visual Resources. Impacts associated with closure and decommissioning would likely benefit recreational values, since additional acres would be reclaimed and potentially made available again for recreational use. 4.12.3 Cumulative Impacts Palen Solar Electric Generating System (PSEGS) Recreation impacts resulting from construction, operation, maintenance, and decommissioning of the Palen Solar Electric Generating System (PSEGS) could result in a cumulative effect with other past, present, or reasonably foreseeable future actions (see Section 4.1.3, Cumulative Scenario Approach). Cumulative projects are identified in Table 4.1-1, Cumulative Scenario, and shown in Figure 4.1-1. As noise and air quality impacts on recreation sites would be localized and would attenuate substantially as distance from the source increases, only other cumulative projects in the nearby area, such as the Genesis Solar Energy Project, could combine with the Palen Solar Electric Generating System (PSEGS) to result in cumulative noise and air quality nuisance effects to recreationists using areas immediately surrounding or between these projects. The Palen Solar Electric Generating System's (PSEGS's) contribution to a cumulative impact on the loss of availability of land for dispersed recreation would be approximately the same as that of the Palen Solar Power Project (PSPP). Within the California Desert District, approximately 142,302 acres potentially available for dispersed recreational use could be lost to solar development, and an additional 778,093 acres could be lost to wind development (see Table 4.1-2). The Palen Solar Electric Generating System's (PSEGS's) contribution would be approximately 3,896 acres or approximately 0.4 percent of this total impact. Indirect effects on recreation-related use of lands in the cumulative impacts area also could result from the change in the overall character of undeveloped Bureau of Land Management (BLM)-administered lands resulting from development of the cumulative projects.Changes to the visual landscape, impacts on vegetation, closure and development of roads, and related effects on wildlife may alter or reduce the recreational value of these lands for users seeking these attributes. The Palen Solar Electric Generating System (PSEGS) would have a substantial contribution to the cumulative change in character that would result from the cumulative scenario primarily due to the visibility of the Palen Solar Electric Generating System from recreational use areas up to 30 miles away. Potential cumulative effects could occur during the proposed 34-month construction period or during the decommissioning period if the Palen Solar Electric Generating System and other current or future cumulative projects' workforces use the same camping facilities for temporary housing, resulting in a greater cumulative demand for limited spaces. Recreationists desiring to use these facilities could be unable to do so due to lack of availability, and/or could experience adverse changes in the character of the campgrounds due to higher-than-normal levels of use. However, most of the projects in the cumulative scenario are in areas with low recreation use.

The contribution of Reconfigured Alternative 2 Option 1 to cumulative impacts on recreation would be the same as that of the Palen Solar Electric Generating System, with two exceptions. Reconfigured Alternative 2 Option 1's contribution to the conversion of land would include an additional 310 acres of land that would no longer be available for dispersed recreational use, resulting in a greater overall and project-specific cumulative impact (a 0.5 percent contribution to the total potential conversion). However, Reconfigured Alternative 2 Option 1 also would not build the two towers proposed under the Palen Solar Electric Generating System, and therefore the project would not be visible from as many locations as the Palen Solar Electric Generating System, resulting in a substantially reduced contribution to a cumulative impact resulting from changes in the natural character of dispersed and developed recreational sites.

Like Reconfigured Alternative 2 Option 1, Reconfigured Alternative 2 Option 2 does not include the Palen Solar Electric Generating System's towers and would similarly avoid impacts related to their visibility from recreational sites. Reconfigured Alternative 2 Option 2 would have the same types of contributions to cumulative impacts as the Palen Solar Electric Generating System and Reconfigured Alternative 2 Option 1, but Reconfigured Alternative 2 Option 2 would occupy 3,965 acres, resulting in a contribution to the conversion of dispersed recreational land that is slightly greater than that of the Palen Solar Electric Generating System and slightly smaller than that of Reconfigured Alternative 2 Option 1.

No Action Alternative A would not result in development of the site, so no contribution to a cumulative impact on recreation would occur. However, since the ROW application area is located within the Riverside East SEZ, the CDCA Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future, potentially resulting in cumulative impacts similar to those of the Palen Solar Electric Generating System or the Palen Solar Power Project (PSPP).

Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. Approval of the Palen Solar Electric Generating System would result in no unavoidable adverse impacts on recreational resources.

The social and economic impacts assessment methodology described in PSPP PA/FEIS Section 4.13.1 was used to analyze the Palen Solar Electric Generating System in this Draft SEIS using the modeling results generated by Impact Analysis for Planning (IMPLAN) data and software that were relied upon in the PSPP PA/FEIS. IMPLAN modeling results have not been updated to investigate the consequences of projected economic transactions of the Palen Solar Electric Generating System in the eastern Riverside County region, or enable a comparison of the estimated direct or indirect economic benefits associated with construction, operation, closure, and decommissioning-related expenditures resulting from the Palen Solar Electric Generating System relative to the PSPP. Impacts on public services related to health and safety (e.g., police protection, fire protection, and emergency medical services) are analyzed in Section 4.11, Public Health and Safety. Impacts on parks and recreational opportunities are considered in Section 4.12, Impacts on Recreation. Visual impacts are considered in Section 4.18, Impacts on Visual Resources.The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.13.2 (pp. 4.13-9, 4.13-10). The discussion of cumulative impacts for Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.13.3, below).

4.13.2 Direct and Indirect Impacts of the PSEGS Construction During construction, the Palen Solar Electric Generating System (PSEGS) would result in the same types of benefits and impacts as the Palen Solar Power Project (PSPP), though with differing intensity based on the increased size of the construction workforce and the shorter duration of the construction phase. See PSPP PA/FEIS Section 4.13.2 (p. 4.13-1).

Labor Force Impacts The Applicant expects that construction would last 34 months, with an average of about 998 daily construction workers with a peak employment of 2,311 workers during month 22 of construction. This is in contrast to the PSPP, for which construction was expected to last 39 months, with an average of about 566 daily construction workers and a peak employment of 1,145 workers. Therefore, the construction of the PSEGS would occur over approximately 5 fewer months than the PSPP, but would employ approximately 75 percent more workers on average and 100 percent more during peak months. While no new IMPLAN study was prepared to estimate the indirect economic benefits of the PSEGS; it can be estimated that the direct and indirect economic benefit of employee compensation and spending would be greater under the PSEGS than the PSPP due to this larger workforce. The economic benefits of construction-related spending (e.g., on materials, fuels, and other locally sourced products and services) also are expected to be greater than the PSPP. Palen Solar Electric Generating System Draft SEIS 4.13-1 July 2013 277

4. Environmental Consequences 4.13 Social and Economic Impacts Table 4.13-1 shows Year 2010-2020 occupational employment estimates and projections for the Riverside-San Bernardino-Ontario MSA by construction labor skill as compared to the estimated number of total construction workers by craft needed during peak construction (month 22). The primary trades required for the construction of the PSEGS would include pipefitters, skilled and unskilled laborers, electricians, carpenters, equipment operators, ironworkers, and truck drivers.

TABLE 4.13-1 PEAK MONTH CONSTRUCTION LABOR NEEDS AND TOTAL LABOR FORCE BY SKILL IN RIVERSIDE-SAN BERNARDINO-ONTARIO MSA

Peak PSEGS Skilled Estimated Average Projected Annual Construction Employment Average Employment Trade Employment (2010) (2020) a a Boilermaker 264 700 670 Carpenters 75 10,140 10,450 Cement Finisher 9 2,420 2,570 Electrician 359 4,000 4,520 Iron Worker 126 13,530 15,140 b b Laborer 82 11,870 13,380 c c Millwright 141 2,440 2,830 Equipment Operator 102 2,510 3,030 d d Pipefitter 508 3,160 3,570 e e Teamster 25 32,410 40,630 f f Instrument Tech 12 260 300 Craft Labor Subtotal 1,703 Unspecified and Other Non-Craft 608 -- -- Total 2,311g 83,440 97,090 NOTES: a "Structural Iron and Steel Workers" category was used. b "Construction Laborers" category was used. c "Machinists" category was used. d "Plumbers, Pipefitters, and Steamfitters" category was used. e "Heavy and Tractor-Trailer Truck Drivers" and "Light Truck or Delivery Services Drivers" categories were used. f "Electro-mechanical Technicians" category was used. SOURCE: EDD, 2012

Table 4.13-1 shows that there is a large population of suitably skilled construction workforce for the PSEGS currently living within Riverside and San Bernardino counties. The "unspecified and other non-craft" workers shown in Table 4.13-1 would consist of unspecified contractors, Project owner personnel, compliance support personnel, and other workers that may fall into numerous occupational categories, and may also be drawn from Riverside and San Bernardino counties. However, only a portion of these "unspecified and other non-craft" workers could be expected to be currently living within the region.As described in PSPP PA/FEIS Section 3.14.2 (p. 4.13-4), based on the regional study area's estimated 2010 population of 559,968 residents, which is 13.3 percent of the Riverside-San Bernardino-Ontario MSA population of 4,212,684, the regional study area's skilled labor force would likely be 13.3 percent or less of the skilled workforce shown in Table 4.13-1. Overall, that would suggest a total skilled labor force of approximately 11,100 workers living within the regional study area. Applying the current local unemployment levels of 12.2 percent shown in Table 3.14-2 would suggest that approximately 1,350 unemployed skilled workers may currently reside in the regional study area. Compared with the required peak craft labor employment need of 1,703 workers, the Palen Solar Electric Generating System (PSEGS) could employ more than the estimated currently unemployed construction workers.

While employing locally would represent a major proportion of the region's skilled workforce, there also could be individuals among the region's other unemployed workers who have or could obtain the necessary training to perform the facility construction. Also, it is likely that some of the currently employed skilled local construction workers would change their jobs in order to work closer to home, and those positions could be filled by other workers living outside of the regional study area.

Based on the above analysis, it is expected that most, if not all, of the construction employment for the PSEGS would consist of construction workers who live within a 2-hour commute from the site. Employee ride sharing, which would be encouraged and incentivized under APM TRANS-4, in Appendix C, and the relatively long duration of the work would likely encourage workers to commute considerable daily distances to work on the PSEGS. However, if there are insufficient suitable local workers to meet project needs, then the PSEGS could attract individuals to relocate to the regional or local study area either temporarily or permanently, which could result in an increased demand for housing and local services.

The housing vacancy rates indicated in PSPP PA/FEIS Section 3.14, Table 3.14-2 (p. 3.14-8), are relatively high, with 16.1 percent vacancy in Blythe (approximately 880 units), up to 34.9 percent in Ehrenberg (approximately 287 units), and up to 41.9 percent in Quartzsite (approximately 1,483 units). Altogether, it is conservatively estimated that up to approximately 2,650 existing housing units could be available as potential housing for future construction workers. This estimate does not account for other potential available housing within the unincorporated local study area. Although the PSEGS would have a greater construction workforce than the PSPP, for the same reasons described in PSPP PA/FEIS Section 4.13.2, it is anticipated that there would be adequate housing supply in the local study area, either in vacant housing units or in hotel/motel rooms or, in limited cases, RV campgrounds, for any construction workers who would choose to move closer to the site during construction.

Similar to the PSPP, because construction would be temporary and most or all workers would be expected to come from within a 2-hour commute area, the Palen Solar Electric Generating System would not induce substantial growth or concentration of population in either the regional or local study areas.

Like the PSPP, construction-related spending for the PSEGS would be an economic benefit, most likely within Riverside County. As described in PSPP PA/FEIS Section 4.13.2 (p. 4.13-6), the IMPLAN input-output model estimated that the PSPP would result in $67.3 million in annual construction labor payroll, and $9.2 million in annual capital expenditures and local spending on construction materials, equipment, and service. For the Palen Solar Electric Generating System, due to the increased construction workforce, the construction labor payroll can be estimated to be approximately 75 percent greater on average, or approximately $115 million per year.Construction spending for the Palen Solar Electric Generating System (PSEGS) would likely be similar to the Palen Solar Power Project (PSPP), resulting in a total of approximately $124 million per year in direct economic output. Based on the results of the PSPP IMPLAN model, shown in Table 4.13-2 of the PSPP Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.13.2 (p. 4.13-7), indirect economic output could be approximately 20 percent of this total, and induced output could be approximately 50 percent. Consequently, the PSEGS total economic output would be considerably greater than the PSPP, with a total of up to $200 million per year. Like the PSPP, the actual future economic impact of the PSEGS for eastern Riverside County could be smaller than the total economic benefits described above. Project-related spending would benefit eastern Riverside County and the local economies depending on the extent that workers live and spend their earnings at businesses locally and elsewhere in eastern Riverside County. Given the local study area's rural character, most of the projected benefits would likely be received by the larger cities and communities located elsewhere in eastern Riverside County, outside the local study area.

Social Character The potential impacts of the PSEGS on the social character of the local study area would be similar to those of the PSPP, though increased in proportion to the PSEGS's increased construction workforce. However, like the PSPP, the PSEGS is expected to have a minor and largely positive impact on the social character of the local study area for the duration of facility construction. See PSPP PA/FEIS Section 4.13.2 (p. 4.13-8).

Operation During operation, the PSEGS would employ approximately 100 permanent full-time personnel, which would be lower than the PSPP's 134-person operational workforce. The California Employment Development Department (EDD) projects that by 2020, there will be approximately 10,360 maintenance and repair workers, and 1,910 plant and system operators in the Riverside-San Bernardino-Ontario Metropolitan Statistical Area (MSA) (EDD, 2012). As described above, the population of eastern Riverside County is estimated to be 13.3 percent of the total population of the MSA, indicating an operational labor force of approximately 1,378 maintenance and repair workers and 212 plant and system operators. At the time of preparation of the PSPP PA/FEIS, future labor force projections were substantially lower than those prepared by the EDD in 2012, and the PSPP operational workforce was greater than the PSEGS. For reasons described in PSPP PA/FEIS Section 4.13.2 (p. 4.13-13), the PSPP's operations were not expected to result in population growth either directly or indirectly that would be major in magnitude or adverse in nature. Because the PSEGS would have a smaller operational workforce, and because the available labor force is projected to be greater than $124 million plus 70 percent (20 percent indirect and 50 percent induced), rounded to $200 million to account for uncertainty. Palen Solar Electric Generating System Draft SEIS 4.13-4 July 2013

4. Environmental Consequences 4.13 Social and Economic Impacts previously thought, the PSEGS would have a reduced impact on population growth compared to the PSPP, and therefore, the PSEGS would not be expected to result in major or adverse population growth. Operational spending and economic impacts would likely be similar to the PSPP, and would be beneficial in nature, though decreased due to the smaller operational workforce. See PSPP PA/FEIS Section 4.13.2 (p. 4.13-8).

Closure and Decommissioning Similar to the PSPP, closure of the PSEGS would result in job losses for the operations workforce and revenue losses to local businesses relying on operations-related or employee spending. However, the number of job losses would be fewer as the PSEGS operational workforce is projected to be approximately 25 percent smaller than the PSPP's operational workforce. There is insufficient information to reliably project the conditions when decommissioning of the proposed facilities would occur in 30 to 50 years into the future. Consequently, it would be speculative to try to characterize future circumstances under which facility closure and decommissioning would occur. However, it is anticipated that the types of decommissioning-related impacts would be similar to the construction impacts of the PSEGS, described above. The magnitude and duration of these impacts would likely be somewhat reduced, as the decommissioning process would not require facility startup and testing. Consequently, like the PSPP, the economic impacts associated with decommissioning initially could be positive from the increased employment and business spending over the relatively brief duration of the deconstruction and site restoration activities.However, following the completion of the decommissioning process, there would be some adverse long-term economic impacts to the local area economy from the loss of the solar facility's employment and annual spending. The social impacts of closure and decommissioning would be similar to those of the Palen Solar Power Project (PSPP), as described in the Palen Solar Power Project (PSPP) PA/FEIS. 4.13.3 Cumulative Impacts Palen Solar Electric Generating System (PSEGS) The potential for cumulative social and economic impacts exists where there are multiple projects proposed in an area that have overlapping construction schedules and/or project operations that could affect similar resources. Projects with overlapping construction schedules and/or operations could collectively result in a demand for labor that cannot be met by the region's labor pool, which could lead to an influx of non-local workers and possibly non-local workers' dependents. This population increase could impact social and economic resources if there are insufficient housing resources and/or infrastructure and public services to accommodate the new residents' needs. Section 4.1.3 identifies current solar and non-solar projects that have been or could be developed in the foreseeable future within eastern Riverside County. While a large number of projects may be planned, and so considered to be possible for future development, not all of the large number of projects are actually expected to be built due to construction funding constraints, schedule, delays, or other factors. Given the uncertain and challenging economic circumstances facing federal and state economies as well as private developers, it is far from assured that future funding and other necessary support will be sufficiently available for all of the proposed projects to be realized within the projected schedules. As shown in Table 4.1-2, 37 Bureau of Land Management (BLM) renewable energy projects have been approved or are proposed within the California Desert District. In addition, other non-renewable energy projects (Table 4.1-1) and projects identified on state and private lands (Table 4.1-3) could require workers with similar skills to the Palen Solar Electric Generating System (PSEGS), including non-BLM renewable energy projects, transmission lines, and electrical substations. The geographic scope of the cumulative impacts analysis includes populated areas within a 2-hour commute distance of the Palen Solar Electric Generating System (PSEGS). Although the 2-hour commute distance would extend into Arizona, the low population in western Arizona would contribute minimally to the available labor pool in the geographic scope. Therefore, the analysis for employment focuses on the California portion of this area. There are approximately 18 solar projects proposed or under construction along the I-10 corridor, predominantly between Desert Center and Blythe. Based on the currently available data for these various projects (information obtained from Plans of Development and other project documents), and assuming all projects move forward, these projects could be constructed in the same general timeframe as the Palen Solar Electric Generating System (PSEGS), or have the potential to overlap for at least a portion of the construction period. The cumulative analysis conservatively assumes that the construction of all of the proposed solar projects would be under construction within the 34-month cumulative timeframe for construction-related impacts of the Palen Solar Electric Generating System (PSEGS). This cumulative impacts discussion is based on available data with respect to both construction schedules and the Palen Solar Electric Generating System (PSEGS)'s labor requirements. If construction and operating labor requirements are not known for some projects, average workforce levels of other comparable projects and professional judgments have been used to develop conservative estimates of expected cumulative labor requirements for these projects. Construction Cumulative Construction Labor Needs Table 4.13-2 shows the currently available data about project construction workforces for several of the projects in the cumulative scenario (including the Palen Solar Electric Generating System (PSEGS)). These numbers were used to estimate the average and peak construction workforces per megawatt (MW) of solar projects, which were then used as workforce estimates for those projects in the cumulative scenario for which no workforce data is available. If all of the 18 solar projects identified in eastern Riverside County are constructed (including this project), a total of 4,897 MW of new solar power generation would be developed. The average solar power project would be approximately 272 MW in size and may be expected to require an average of approximately 360 full-time equivalent (FTE) construction workers and a peak of approximately 640 workers for the construction phase.Environmental Consequences 4.13 Social and Economic Impacts TABLE 4.13-2 AVERAGE AND PEAK CONSTRUCTION EMPLOYMENT FOR CUMULATIVE SCENARIO SOLAR PROJECTS Project MW Average Workers Peak Workers Palen 500 998 2,311 McCoy 750 341 750 Genesis 250 646 1,085 BSPP 485 430 619 Desert Sunlight 250 450 570 Rice 150 280 438 Column Total 2,385 3,145 5,773 Average for all Projects (per MW) 1.32 2.42 SOURCE: BLM, 2005, 2010a, 2010b, 2011, 2012; CEC, 2010; CPUC, 2006, 2011. 660 workers to be built. Because the precise construction schedules for each project are currently unknown, this analysis assumes that the peak construction periods of the solar projects in the cumulative scenario would be of a similar length to the project (approximately 3 months). Project developers would likely seek to minimize the construction occurring during the hottest summer months and may therefore stagger their construction periods accordingly. Consequently, some seasonality may be expected to occur as project developers favor more construction during the region's cooler winter months. It is assumed that peak construction needs for each of the solar projects would be approximately evenly spread throughout the 34-month period for cumulative construction-related impacts. If all of the solar projects experienced their peak construction during the 34-month cumulative temporal scope, the regional labor need for a realistic, but highly conservative, estimate would be for four to six solar projects to have peak labor needs during the same winter season. Therefore, this analysis assumes that the equivalent of five average (272 MW) solar projects could experience peak construction at one time, while the others may experience average construction employment levels. This gives an average cumulative solar workforce of approximately 8,000 workers. Under the extremely improbable circumstance that peak construction of all 18 planned solar projects happens concurrently, the 18 planned solar projects would require a maximum of 11,900 construction workers at one time. In addition to the solar projects described, other projects that could require similar types of construction labor would include wind projects, the DPV2 Transmission Line, Desert Southwest Transmission Line, and Red Bluff Substation, and Colorado River Substation projects. The DPV2 project is estimated to require 211 construction workers (CPUC, 2006) for the segment to be constructed within a reasonable commute distance of the Palen Solar Electric Generating System. The Red Bluff Substation is estimated to require up to 30 construction workers (BLM, 2011). The Colorado River Substation project is estimated to require up to 40 construction workers (CPUC, 2011). The Desert Southwest Transmission Line project is estimated to require an average of 71 construction workers (BLM, 2005). Adding these workforces to the average solar construction workforce derived above yields a total of approximately 8,300 workers. Because it is likely that not all of the cumulative projects would be under construction for the entire 34-month Project construction period, the actual cumulative construction workforce may be lower. However, it is reasonable to assume that other future projects that are not yet known for this Project's cumulative scenario may begin construction later in this time period. For this reason, a rounded winter-season peak of approximately 8,000 construction workers is used in this analysis. The Project's maximum potential contribution to this cumulative effect would be approximately 29 percent during the Project's own peak construction period. The Project's average contribution to the cumulative impact would be approximately 13 percent during the Project's non-peak construction. Regional Labor Force Supply As Table 3.14-3 illustrates, the total work force of skilled construction workers currently living in the Riverside-San Bernardino-Ontario MSA is estimated to be approximately 67,610 (Table 3.14-3). Assuming that these workers are distributed throughout the MSA in the same proportion as the total population, the total construction work force within the Riverside County would be approximately half of this number, or 33,800 workers, and the total within eastern Riverside County would be approximately 9,000, or 13 percent of the MSA.Future demand for 8,000 construction workers would exceed the capacity of the current skilled labor force. Although the population of skilled construction workers in the Riverside-San Bernardino-Ontario MSA is expected to increase by approximately 11.5 percent by 2020 (Table 3.14-3), even if this level of growth occurred in the geographic scope, the cumulative labor force demand would still represent nearly all of the local area's currently forecasted future skilled construction labor force, and would be a very large portion of Riverside County's forecasted future skilled construction labor force. The current unemployment rate in Riverside County is estimated to be 12.2 percent (see Table 3.14-2). Applying this unemployment rate to the skilled construction workers in eastern Riverside County yields an estimate of approximately 1,100 unemployed construction workers, and in all of Riverside County, 4,120 unemployed workers. The cumulative construction worker demand would represent far more than this number. Although many of the region's currently unemployed residents may lack transferable skills or have the physical aptitude to acquire the necessary skills required to serve the cumulative labor demand, many residents could be trained to be employable by these projects. Further, some of the construction work would be more entry-level positions which may be suitable for less skilled workers. Some of the regional workforce currently employed in other sectors also could have the capabilities to qualify for project construction work. In such cases, some job transferring may occur, particularly because the construction jobs may be expected to be relatively well-paid and attractive for many local residents. The less skilled or desirable jobs vacated by individuals transferring to construction work could be filled by other less skilled unemployed residents.

Notwithstanding the potential for employed and unemployed non-construction workers to qualify for the construction jobs of the cumulative scenario, there would be a demand for construction workers that would exceed the available labor supply within the geographic scope. It is assumed that those job positions would be filled by workers relocating into the region from elsewhere. Given the numerous variables discussed above, it is difficult to project the extent of future weekly commuting or other in-migration that would be necessary to meet the future cumulative labor needs within the region. However, considering that workers may commute from up to 2 hours away, it is assumed that up to approximately 4,000 construction workers could require temporary housing in the local area or within Riverside County. Based on State Employment Development Department data (EDD 2013a, 2013b), the skilled construction labor force within San Bernardino County is estimated to be approximately equal to that of Riverside County. This suggests that there is likely to be a considerable additional potential labor force available willing to commute weekly or to relocate temporarily to Riverside County, most likely to communities near the solar and other project sites. Consequently, from a broader geographic and labor force perspective, no significant shortages of adequately skilled construction workers are foreseen, provided that adequate suitable housing is available for relocating near the work sites.

The cumulative influx in construction labor to the county could create demand for temporary housing that is greater than the existing supply of temporary lodging. As discussed in the PSPP PA/FEIS (p. 4.13-5), private and public RV/campgrounds are not expected to be suitable or attractive lodging options for most construction workers seeking local accommodations. PSPP PA/FEIS Table 3.14-2 (p. 3.14-9), indicates that there are approximately 55,000 vacant housing units available in eastern Riverside County. Additionally, as indicated on PSPP PA/FEIS page 3.14-11, there are over 15,000 hotel or motel rooms within 2 hours' commuting distance of the project site. This availability would be sufficient to temporarily house the approximately 4,000 construction workers that could move into the county as a result of the cumulative projects. However, the cumulative scenario would exceed the capacity of the local area communities to adequately house these construction workers, so many would need to commute up to the full 2 hours to the site.

Furthermore, during the same time period with the greatest potential for adverse impacts resulting from the cumulative demand for construction worker housing, there also would be a major positive economic stimulus to the local area and eastern Riverside County economies associated with the solar development. This economic infusion could result in the construction or availability of additional rental units and so could offset a portion of the housing need-related impact. In summary, this analysis suggests that future construction labor demand would exceed the existing local workforce within eastern Riverside County. Therefore, there may be increased demand for temporary local housing from construction workers seeking to commute weekly.Environmental Consequences 4.13 Social and Economic Impacts the local area. Given the estimated availability of lodging and possible rental housing, it is expected that there could be a shortage of adequate and suitable housing to meet all future construction worker temporary housing demand. Some short-term adverse cumulative social and economic impacts could result, such as potential increased rents for local residents seeking housing or potential losses in visitor-generated spending. As hotels, motels, and campgrounds could be operating at maximum occupancy during this period, this could mean that potential vacationing visitors to the area would find increased room rates or no availability. It is expected that these temporary impacts would be offset as the local area and eastern Riverside County economies would experience a positive economic stimulus associated with the cumulative solar developments. Operations If all of the cumulative projects are constructed, a total of 4,897 MW of new solar power generation would be developed. As shown in Table 4.13-3, the average solar project is estimated to require approximately 0.12 operational employees for each MW of solar power production. Consequently, if full build-out of the planned solar development occurs, the future cumulative operational employment in the region would be approximately 550. The Palen Solar Electric Generating System's 100 operational jobs represent an approximately 18 percent contribution to the cumulative operation and maintenance related needs. It is not anticipated that the other non-solar projects considered for cumulative social and economic impacts (new electrical substations and new and expanded transmission lines) would contribute noticeably to the cumulative operational employment demand. TABLE 4.13-3 OPERATIONAL EMPLOYMENT FOR CUMULATIVE SCENARIO SOLAR PROJECTS Project MW Employees Palen 500 100 McCoy 750 20 Genesis 250 65 BSPP 485 20 Desert Sunlight 250 15 Rice 150 47 Column Total 2,385 267 Average for all Projects (per MW) 0.12 SOURCES: BLM, 2005, 2010a, 2010b, 2011, 2012; CEC, 2010; CPUC, 2006, 2011. As shown in Table 3.14-1, there are 20,300 workers in the "Transportation, Warehousing & Utilities" industry group in Riverside County. In the absence of more precise data on available skills, this industry group is used as the available labor pool for this analysis. Although not all workers in the "Transportation, Warehousing & Utilities" industry group may possess the skills required for solar power plant operation and maintenance, there would be opportunities for the transferability of other skills, on-the-job training and local community college training and a lower skilled qualification requirement for some of the available jobs. Based on current unemployment rates, it is assumed that approximately 2,476 of the 20,300 workers in the "Transportation, Warehousing & Utilities" industry group would be available to meet operational labor needs. Therefore, it is not expected that any in-migration of operational workers would be needed to meet the cumulative scenario's operational labor need, and there would be no cumulative impact during operations on housing and lodging. Decommissioning Evaluating the Palen Solar Electric Generating System's cumulative impacts when future facility decommissioning occurs is highly speculative. Decommissioning is expected to occur after 30 to 50 years of operation. It is not possible to project with confidence the likely future social and economic conditions of the local and regional study area. Similarly, the extent to which the projects in the cumulative scenario would undergo decommissioning concurrently is unknown. Nonetheless, Palen Solar Electric Generating System decommissioning is expected to require a workforce similar to the construction phase, and the Palen Solar Electric Generating System is expected to be one of many similar solar projects within eastern Riverside County. As such, the Palen Solar Electric Generating System's contribution to cumulative social and economic effects would be proportional to: (a) the Palen Solar Electric Generating System's size relative to the other development projects in the region; and (b) the collective size of projects undergoing decommissioning or construction at that time. Although the cumulative effects of construction were found to be potentially adverse based on a shortage of temporary housing, decommissioning would not likely overlap with as many projects as construction, and in over 30 years' time, based on regional population growth trends, it is likely that there would be more local workers and more temporary housing options available to accommodate decommissioning needs. Reconfigured Alternative 2 (Option 1 and 2) During construction, operation, maintenance, and decommissioning, project-related spending and workforce associated with Reconfigured Alternative 2 (Option 1 and 2) are anticipated to be very similar to the Palen Solar Electric Generating System as described above. Therefore, the cumulative impact analysis for Reconfigured Alternative 2 (Option 1 and 2) is expected to be the same as for the Palen Solar Electric Generating System.No Action Alternative A To the extent that No Action Alternative A would not result in development of the site, no contribution to a cumulative social or economic impact would occur. However, since the right-of-way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area (CDCA) Plan Amendment that identifies the ROW application area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future, potentially resulting in cumulative impacts similar to those of the Palen Solar Electric Generating System (PSEGS) or the Palen Solar Power Project (PSPP). 4.13.4 Summary of Mitigation Measures No mitigation measures are required. 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287 4. Environmental Consequences 4.13 Social and Economic Impacts 4.13.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in project impacts resulting from mitigation. 4.13.6 Unavoidable Adverse Impacts No unavoidable social or economic impacts would be expected to be associated with the Palen Solar Electric Generating System or alternatives. Palen Solar Electric Generating System Draft SEIS 4.13-12 July 2013

288 4. Environmental Consequences 4.14 Impacts on Soils Resources 4.14.1 Impact Assessment Methodology The soils resources impact assessment methodology described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.14.1 (p. 4.14-1) was used to analyze the Palen Solar Electric Generating System in this Draft SEIS. The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.14.2 (pp. 4.14-6 through 4.14-8). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement to reflect the updated cumulative scenario (see Section 4.14.3 below). 4.14.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System Erosion Soil characteristics at the project site allow for the potential for wind and water erosion (see Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 3.15 and Draft Supplemental Environmental Impact Statement, Section 3.15). Construction activities associated with the Palen Solar Electric Generating System such as site grading, excavation, and soil stockpiling would generate loose, exposed soil that could erode from rainfall and high winds. Erosion is the displacement of solids (soil, mud, rock, and other particles) by wind, water, or ice and by downward or down-slope movement in response to gravity. Due to generally flat terrain however, the project site is not prone to significant down slope erosion and sediment transport. During construction, grading would occur at parts of the solar plant site and those portions of the right-of-way supporting off-site linear facilities (i.e., gen-tie line, telecommunications line, natural gas line, and site access road). At that time, the surface of the disturbed areas would be devoid of vegetation thereby creating the highest potential for erosion and associated effects. These effects could include loss of topsoil and increased sediment yields downstream from disturbed areas. The Palen Solar Electric Generating System incorporates less grading and vegetation removal than estimated in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement for the Palen Solar Power Project. The amount of grading expected for the Palen Solar Electric Generating System is 200,000 cubic yards, reduced from the 4.5 million cubic yards analyzed in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.14.2 (p. 4.14-2). Less grading is expected because the Palen Solar Electric Generating System does not require an engineered flat surface under the solar arrays. Other project components, such as the power tower and power block areas, would require significant grading. These components have a smaller footprint than the solar arrays. By decreasing the amount of grading required under the Palen Solar Power Project, less soil would be moved from its current location, which consequently decreases the potential for erosion to occur. Nonetheless, the Applicant has committed to implementing the relevant mitigation measures identified in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.14.4 (p. 4.14-10) as Applicant Proposed Measures (APMs) to avoid and minimize direct and indirect impacts to soil resources (see Appendix C). These measures include plans to reduce, control and mitigate erosion and mobile dust during and after construction. In addition, the Applicant is required to implement a Drainage Erosion and Sediment Control Plan and appropriate geotechnical recommendations. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.14-1 July 2013

289 "4. Environmental Consequences 4.14 Impacts on Soils Resources Sand Transport The Palen Solar Electric Generating System has been designed to reduce impacts on sand transport through the placement of the project and removal of wind fences.In the PSPP PA/FEIS, it was determined that the PSPP could be configured to avoid the sand transport area, and thus reduce the impacts to sand dune habitat in the area. This alternative is described and analyzed in the PSPP PA/FEIS as Reconfigured Alternative 2. The PSEGS has been designed to fit within the Reconfigured Alternative 2 footprint, and so also avoids the sand transport area. The PSEGS also proposes to eliminate the 30-foot wind fences, which in the original PSPP plan of development were expected to create "sand shadows" that could cut off dunes downwind of the site from the sand supply necessary to maintain dune sand in volumes that support wildlife habitat. With these changes incorporated into the PSEGS, impacts to sand transport and dune habitat would be avoided.

4.14.3 Cumulative Impacts

PSEGS impacts to soils resources resulting from construction, operation, maintenance, and decommissioning of the PSEGS could result in a cumulative effect with other past, present, or reasonably foreseeable future actions (see Section 4.1.3). Cumulative projects are identified in Table 4.1-1 and shown in Figure 4.1-1. The geographic scope of the cumulative effects analysis for soils is comprised of: (a) the Mojave Desert Air Basin because wind can transport soils offsite, and (b) the watershed boundary because surface flows also could carry eroded soils off- site. Potential cumulative effects on soils resources could occur at any point during the overall lifespan of the PSEGS, from pre-construction activities to the conclusion of facility closure and site restoration. As of May 2013, there were 106 renewable projects proposed in California in various stages of environmental review or under construction, down from the 244 identified in the PSPP PA/FEIS. It is expected that some of the cumulative projects described in Section 4.1 that are not yet built may be under construction at the same time as the PSEGS. In addition, it is expected that others of the cumulative projects may be operational at the same time as the PSEGS.

Construction and decommissioning of the PSEGS would result primarily in construction-related changes at the site that would increase local wind-borne soil erosion and storm water runoff-related erosion. However, as a result of the implementation of the APMs, the PSEGS would be expected to contribute only a small amount to any possible construction-related erosion impact. Section 4.19, Water Resources, concluded that the cumulative soil erosion implications of the PSEGS would not be appreciably different from those of the PSPP, and short- and long-term cumulative impacts to soils erosion during construction and operation are expected. PSPP PA/FEIS Section 4.14.3 (p. 4.14-10) identified cumulative impacts to sand dunes and related features in sand transport corridors due to the footprint of the PSPP, and concluded that residual impacts to sand transport corridors would be avoided if the PSPP was built within the footprint of Reconfigured Alternative 2. The PSEGS footprint lies within Reconfigured Alternative 2 footprint, and therefore cumulative impacts to sand dunes and related features are not expected.

Reconfigured Alternative 2 (Option 1 and Option 2)

Reconfigured Alternative 2 could be expected to contribute to a cumulative impact on soil resources similar to the PSEGS in proportion to the amount of soil disturbance that could occur for Reconfigured Alternative 2 (which as discussed is substantially greater than for the PSEGS) and based upon the respective degree of interference in the sand dune or alluvial soil zones.

No Action Alternative A

To the extent that No Action Alternative A would not result in development of the site, no contribution to a cumulative impact on soil resources would occur. However, since the ROW application area is located within the Riverside East SEZ, the CDCA Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future, potentially resulting in cumulative impacts to soil resources similar to those of the PSEGS or PSPP.

4.14.4 Summary of Mitigation Measures

4.14.5 Residual Impacts after Mitigation Measures were Implemented

4.14.6 Unavoidable Adverse Impacts

Approval of the PSEGS would not result in any unavoidable adverse impacts to soils resources.Palen Solar Electric Generating System Draft SEIS 4.14-3 July 2013

291 4. Environmental Consequences 4.14 Impacts on Soils Resources This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 4.14-4 July 2013

292 4. Environmental Consequences 4.15 Impacts on Special Designations 4.15.1 Impact Assessment Methodology The impact assessment methodology for special designations used in PSPP PA/FEIS Section 4.15.1 (p. 4.15-1) was used to analyze the Palen Solar Electric Generating System in this Draft SEIS. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in PSPP PA/FEIS Section 4.15.2 (pp. 4.15-2, 4.15-3). The discussion of cumulative impacts for Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.15.3, below). 4.15.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System National System of Public Lands There are no special designations on the proposed solar plant site. The Palen Solar Electric Generating System would not construct the redundant telecommunications line parallel to I-10 within the Chuckwalla Desert Wildlife Management Area (an Area of Critical Environmental Concern) as was proposed for the Palen Solar Power Project in the Palen Solar Power Project Plan Amendment / Final Environmental Impact Statement. Additionally, while the portion of the Palen Solar Electric Generating System's generation-tie line that would be south of I-10 differs from the analogous portion of the generation-tie line analyzed in the Palen Solar Power Project Plan Amendment / Final Environmental Impact Statement, the portion of the Palen Solar Electric Generating System's generation-tie line would continue to be located within the Chuckwalla Desert Wildlife Management Area, impacting approximately 3.21 acres (slightly smaller than 3.63 acres for the Palen Solar Power Project). The addition of 3.2 acres associated with the Palen Solar Electric Generating System would not exceed the 1 percent limit (not more than 8,201 acres of new surface disturbance) established under the Northern and Eastern Colorado Desert Coordinated Management Plan. Therefore, the Palen Solar Electric Generating System would not result in an adverse effect to the Chuckwalla Desert Wildlife Management Area. The Palen Solar Electric Generating System would not directly impact (e.g., through surface disturbance) the Palen Dry Lake, Corn Springs, Alligator Rock, Desert Lily Preserve, and Chuckwalla Valley Dune Thicket, and Mule Mountains Areas of Critical Environmental Concern although the Palen Solar Electric Generating System could be visible from the Palen Dry Lake, Corn Springs, Alligator Rock, Desert Lily Preserve, and Chuckwalla Valley Dune Thicket, and Mule Mountains Areas of Critical Environmental Concern. Because these areas were established to protect biological and cultural resources, visitor use in these areas is a secondary resource benefit. The potential visibility of the Palen Solar Electric Generating System would not affect the primary resource protection purposes of these Areas of Critical Environmental Concern. Similarly, the Palen Solar Electric Generating System would not directly impact (but could be visible from) the Palen/ McCoy, Chuckwalla Mountains, and Little Chuckwalla wilderness areas; a portion of the Bradshaw Trail; and the Joshua Tree National Park and Wilderness units. For a discussion of the potential impacts to visual quality from specially designated places, see Section 4.18, Impacts on Visual Resources. With respect to indirect short-term or long-term impacts to users of surrounding wilderness areas due to construction, operation or decommissioning activities, the Palen Solar Electric Generating System would have impacts similar to the Palen Solar Power Project on opportunities for solitude and primitive unconfined recreation relating to increased motorized activity in the area (see Section 4.16, Impacts on Transportation and Public Access - Off Highway Vehicle Resources) and the introduction of industrial features into the landscape (see Section 4.18, Impacts on Visual Resources). See also Section 4.12, Impacts on Recreation, which discusses and finds no indirect impacts to recreational users, including recreational users using Bureau of Land Management-managed wilderness areas and Areas of Critical Environmental Concern, from any changes to air quality or noise that would occur as a result of the Palen Solar Electric Generating System. National Park System The Palen Solar Electric Generating System would have similar indirect impacts to Joshua Tree National Park and the Joshua Tree Wilderness as the Palen Solar Power Project with respect to air quality, noise, wildlife, and lighting. The Palen Solar Power Project Plan Amendment / Final Environmental Impact Statement concluded that potential impacts to National Park System units due to increased use would be adequately addressed by the mitigation measures proposed in Section 4.15 (Mitigation Measure-Special Designation-01 and Mitigation Measure-Special Designation-02).These mitigation measures provide the National Park Service (NPS) with opportunities to review relevant pre-construction plans to provide input on reducing impacts to National Park Service units, and to be reimbursed for costs incurred through monitoring construction dust and noise and temporary and permanent exterior nighttime lighting. The Applicant has incorporated those mitigation measures as Applicant Proposed Measures (APMs) in this Draft Supplemental Environmental Impact Statement (SEIS) (see Appendix C). Given the implementation of these measures, impacts on National Park System lands would be minimized. As described in Section 4.12, Impacts on Recreation, the Palen Solar Electric Generating System (PSEGS) would have a larger construction workforce, and therefore could result in greater impacts related to increased use of park facilities. The Palen Solar Power Project (PSPP) Programmatic Agreement (PA)/Final Environmental Impact Statement (FEIS) concluded that potential impacts to National Park Service campgrounds due to increased use would be adequately addressed by the Signage and Guidance Plan mitigation measure (MM-SD-03) proposed in Section 4.15. The Applicant has incorporated this measure as an Applicant Proposed Measure in this Draft Supplemental Environmental Impact Statement (see Appendix C). Given these measures and the absence of any support facilities, informal camping within Joshua Tree National Park by construction workers is expected to be limited. The Palen Solar Electric Generating System with Applicant Proposed Measures incorporated would result in a minor impact on the National Park Service camping facilities and natural resources from construction workers.

4.15.3 Cumulative Impacts

Palen Solar Electric Generating System incremental impacts on areas with special designations resulting from the Palen Solar Electric Generating System could combine with the impacts of past, present, or reasonably foreseeable future actions to cause or contribute to a cumulative impact. Since approval of the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) Record of Decision (ROD), there has been approximately 7.25 acres of permanent surface disturbance caused by other projects within the Chuckwalla Desert Wildlife Management Area (DWMA). To this, the Palen Solar Electric Generating System would add approximately 3.2 acres of disturbance within the Chuckwalla Desert Wildlife Management Area. As described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.15, future foreseeable projects including the Devers to Palo Verde No. 2 (DPV2) Transmission Line Project (approximately 13 acres), Desert Southwest Transmission Line (499 acres), and the Red Bluff Substation (90 acres) could result in approximately 602 acres of new surface disturbance within the Chuckwalla Desert Wildlife Management Area (Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement, p. 4.15-12). With the existing disturbance and the Palen Solar Electric Generating System, the total disturbance in the Desert Wildlife Management Area would be up to approximately 613 acres, of which the Palen Solar Electric Generating System contribution would represent approximately 0.5 percent. The total cumulative disturbance would be less than the Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.15-2 July 2013 Environmental Consequences Impacts on Special Designations 1 percent limit established under the Northern and Eastern Colorado Desert Coordinated Management Plan. Therefore, the Palen Solar Electric Generating System would not contribute to an adverse cumulative effect on the Desert Wildlife Management Area.

The geographic scope for potential cumulative indirect impacts on specially designated areas includes the range of areas from which sights, sounds, pollutants, or other effects of these projects could affect the users of specially designated lands and/or conflict with the management objectives of each area. Numerous energy-related development projects, including the Palen Solar Electric Generating System, could adversely affect views from the specially designated areas described in Section 3.16, Impacts on Visual Resources, by adding structures, fences, and other features that could cause glint or glare or otherwise interrupt landscape views; would result in increased noise caused by equipment required for construction and operation, motor vehicle use, voices, music, or other worker-related sounds; and could result in adverse air quality impacts, such as fugitive dust. Any of these activities individually or in combination could cause some users to seek out other areas of the desert for their wilderness activities and experiences. Potential cumulative visual effects are described in depth in Section 4.18, Impacts on Visual Resources.

As described in Section 4.9, Impacts on Noise, the geographic scope of the cumulative effects analysis for noise and vibration is limited to the distance over which sounds generated by the Palen Solar Electric Generating System could be heard, i.e., within approximately 1 mile of the site. No existing or foreseeable projects are located within the cumulative effects area for noise or vibration; therefore, impacts of the Palen Solar Electric Generating System could not combine with the incremental impacts of other projects in the cumulative scenario. As described in Section 4.2, Impacts on Air Quality, fugitive dust emissions generally would have a more localized impact, with the most noticeable impacts occurring within one-half mile or less of the site. Similar to the noise analysis, no existing or foreseeable projects are located within this cumulative effects area; therefore, no cumulative fugitive dust impacts would result, and the Palen Solar Electric Generating System would not contribute to a cumulative indirect noise or air quality effect on specially designated lands.

Reconfigured Alternative 2 Option 1

The contribution of Reconfigured Alternative 2 Option 1 to cumulative impacts on special designations would be the same as that of the Palen Solar Electric Generating System, except with respect to indirect visual impacts.This option would not build the two towers proposed under the Palen Solar Electric Generating System (PSEGS), and therefore the two towers would not be visible from as many locations as the Palen Solar Electric Generating System (PSEGS), resulting in a substantially reduced contribution to a cumulative impact resulting from changes in views from specially designated areas. Option 2, like Option 1, does not include the Palen Solar Electric Generating System (PSEGS)'s towers and would similarly avoid impacts related to the towers' visibility from specially designated areas. Other cumulative actions would be similar to the other cumulative actions analyzed for the Palen Solar Electric Generating System (PSEGS). No Action Alternative A, to the extent that No Action Alternative A would not result in the development of the site, would not contribute to cumulative impacts to special designations. However, the Right of Way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), and so the California Desert Conservation Area (CDCA) Plan Amendment made in the Record of Decision (ROD) for the Solar Programmatic Environmental Impact Statement (PEIS), which identifies the area as suitable for any type of solar energy development, would be in effect for future projects. As a result, this site could be developed using solar thermal trough, solar thermal power tower, or another solar power technology in the future, potentially resulting in cumulative impacts similar to those of the Palen Solar Power Project (PSPP) or Palen Solar Electric Generating System (PSEGS).Unavoidable Adverse Impacts Approval of the Palen Solar Electric Generating System (PSEGS) would result in no unavoidable adverse impacts on special designations.

Impacts on Transportation and Public Access - Off Highway Vehicle Resources Impact Assessment Methodology The transportation and public access - off highway vehicle resources impact assessment methodology used in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.16.1 was used to analyze the Palen Solar Electric Generating System (PSEGS) in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project (PSPP) PA/FEIS Section 4.16.2. The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement (SEIS) to reflect the updated cumulative scenario. Public Access As discussed in the Palen Solar Power Project (PSPP) PA/FEIS and applicable to the Palen Solar Electric Generating System (PSEGS), the California Desert Conservation Area (CDCA) and Northern and Eastern Colorado Desert Coordinated Management (NECO) plans, which include a detailed inventory and designation of open routes in the vicinity of the Palen Solar Electric Generating System (PSEGS), were reviewed to determine impacts to open routes. Transportation This analysis focuses on potential impacts related to the construction, operation, and decommissioning of the Palen Solar Electric Generating System (PSEGS) on the surrounding transportation systems and roadways based on information provided by the Applicant. For impacts to local transportation systems, impacts were evaluated based on level of service (LOS) determinations, which is a generally accepted measure used by traffic engineers, planners, and decision-makers to describe and quantify the congestion level on a particular roadway or intersection in terms of speed, travel time, and delay. As applied in the Palen Solar Power Project (PSPP) PA/FEIS and similarly to the Palen Solar Electric Generating System (PSEGS), the methodology contained in the Highway Capacity Manual 2000 was used to determine potential impacts to intersections from operations of the Palen Solar Electric Generating System (PSEGS). This methodology was used to assess delays at an unsignalized intersection for movements operating under traffic control—a stop sign, for example. For an intersection at which the only stop sign is placed at a side street, delay would be reported for movements controlled by the stop sign. The delay then would be assigned a corresponding letter grade to represent the overall condition of the intersection or level of service. These grades range from LOS A, free-flow, to LOS F, poor progression. The assessment of transportation-related impacts is based on evaluations and technical analyses designed to compare the pre-Palen Solar Electric Generating System (PSEGS) conditions to the post-Palen Solar Electric Generating System (PSEGS) conditions.Environmental Consequences 4.16 Impacts on Transportation and Public Access - Off Highway Vehicle Resources 4.16.2 Direct and Indirect Impacts of the PSEGS Public Access OHV Routes The Palen Solar Electric Generating System (PSEGS) would be located in substantially the same location as the Palen Solar Power Project (PSPP), and so would affect the same designated open routes for Off-Highway Vehicle (OHV) use as presented in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Table 4.16-1 (p. 4.16-2) and shown in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Figure 3.17-1 (p. A-17). Off-Highway Vehicle use of portions of 4 of the 11 designated routes (approximately 6.4 miles) identified in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Table 4.16-1 (p. 4.16-2) temporarily would be disrupted by construction of the Palen Solar Electric Generating System gen-tie line and redundant telecom line; however, users of these established routes could detour onto other routes and/or open washes to access the same locations. After gen-tie-related construction activities were complete, these routes would be open again for public use. The remaining seven designated routes (approximately 7.8 miles) identified in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Table 4.16-1 would be closed for the life of the Palen Solar Electric Generating System; however, the closure of only one route (ending in the center of the north boundary of the site) would block direct motorized access to lands that currently are accessible via designated routes. (As reported for the Palen Solar Power Project on page 4.8-10 of the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement, it appears that the area's open washes could continue to provide access to those currently accessible lands. Impacts to wash open zones are discussed below.) After the completion of decommissioning activities, these routes could be reopened for public use. Impacts associated with such closure are described for the Palen Solar Power Project on Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement page 4.16-2. The same adverse effects would result from the Palen Solar Electric Generating System. OHV Use of Wash Open Zones The Palen Solar Electric Generating System would be located in substantially the same location as the Palen Solar Power Project, and so would be located in an area designated in the California Desert Conservation Area (CDCA) Plan as Multiple Use Class – Moderate (MUC-M), which allows OHV travel in open washes. The primary and secondary washes that transverse the Palen Solar Electric Generating System site would be closed to OHV users; however, users could detour onto other routes and/or open washes to access the same locations. Transportation Construction Workforce. Construction of the Palen Solar Electric Generating System would occur during a different time period and would generate a different number of construction worker vehicle trips than was presented and analyzed for the Palen Solar Power Project. Construction-related activities and vehicle traffic associated with construction of the Palen Solar Electric Generating System are discussed below. The Palen Solar Electric Generating System would be completed over an approximately 34-month period, beginning in the fourth quarter of 2013 and concluding by June 2016. Construction activities would be scheduled into two phases, and construction activities would occur from 5:00 a.m. to 3:30 p.m. with a swing shift during heliostat assembly (from 6:00 p.m. to 4:00 a.m.) and during tower construction (which may occur in three shifts around the clock until these tasks are completed). Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., tower construction, foundation pouring, or working around time-critical Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.16-2 July 2013 shutdowns and constraints). During some construction periods and during the startup phase of the PSEGS, some activities would continue 24 hours per day, 7 days per week. Such activities may include, but not be limited to, the installation of heliostats and pouring of concrete for power towers. During construction, the majority of the construction workforce is anticipated to be sourced locally and from the surrounding communities near the Palen Solar Electric Generating System site. Certain non-local specialty trade workers supporting proprietary plant equipment/components and construction processes may also be employed on a short-term basis during construction. Construction access would be from the primary access road via the I-10 and Corn Springs Road interchange. Materials and equipment would be delivered by truck. The Palen Solar Electric Generating System would require approximately 998 daily construction workers (Palen Solar III, LLC, 2013), which equates to about 1,996 one-way vehicle trips per day (assuming each worker would be commuting via private vehicle). Peak construction would be expected to occur during Month 22 (Year 2015) of the 34-month construction period. During this peak month, the workforce is estimated to be about 2,311 workers a day.Assuming the highest impact, conservative scenario for the project, where all workers during the peak construction period commute in their own vehicles, peak construction activities would yield about 4,622 one-way vehicle trips per day. However, vehicle trips associated with construction activities would not occur simultaneously because such activities would occur in two or three different shifts (as stated above). The average number of day shift workers would be approximately 790, and the peak number of day shift workers would be approximately 1,700 (Palen Solar III, LLC, 2013). The Applicant estimates that approximately 7.5 percent of all day-shift workers would carpool to the project site (see APM TRANS-4 in Appendix C), and so the number of average one-way daily vehicle trips generated would be approximately 1,520 per day, and peak construction period one-way daily vehicle trips generated would be approximately 3,272 per day. However, as stated above, construction activities that would occur during the day should be scheduled to begin at 5:00 a.m. and conclude around 3:30 p.m., which are outside the typical peak commute travel periods (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.), and project-related construction vehicles would not coincide with peak commute travel along I-10 or commute traffic from nearby communities (e.g., Blythe and Desert Center). Construction worker-related vehicles and construction equipment/machinery would not be located in any public ROW or interfere with users of such facilities. Safety and efficiency concerns require on-site parking and laydown areas. That is, a traffic hazard could occur if workers were to park on public roadways, or if public roadways were used for the staging and laydown of equipment, materials, and supplies. Such a hazard could adversely affect traffic conditions along I-10 as well as the safety of the workers and drivers. Temporary construction parking areas would be provided within the Palen Solar Electric Generating System (PSEGS) site adjacent to the primary construction laydown area and within each power block's laydown area. Palen Solar Electric Generating System Draft SEIS 4.16-3 July 2013

4. Environmental Consequences - Impacts on Transportation and Public Access - Off Highway Vehicle Resources Table 4.16-1a compares projected peak hour traffic volume and Levels of Service (LOS) on study roadways along I-10 during the Year 2015 without the Palen Solar Electric Generating System and the Year 2015 with the Palen Solar Electric Generating System (during peak construction).

Table: 2015 PEAK HOUR VOLUMES AND LOS ON STUDY ROADWAYS DURING PEAK CONSTRUCTION

Roadway Segment:

- I-10: West of the project site

- Volume without Project: 3,070

- LOS: A

- Volume With Project: 3,888

- LOS: A

Roadway Segment:

- I-10: East of the project site

- Volume without Project: 3,070

- LOS: A

- Volume With Project: 3,888

- LOS: A

Roadway Segment:

- Corn Springs Road

- Volume without Project: Negligible

- LOS: A

- Volume With Project: 1,572

- LOS: A

NOTE: Year 2011 traffic volumes were expanded to Year 2015 using the same growth rate of expansion (3.74%/year) as applied in the Palen Solar Power Project (PSPP) Final EIS.

SOURCE: Palen Solar III, LLC, 2012; ESA, 2013.

Based on the findings presented above, and because the temporary increase in traffic associated with construction activities would not degrade Levels of Service (LOS) conditions along I-10 to an unacceptable service level, the Palen Solar Electric Generating System would not result in an adverse effect to the surrounding roadway network.

Construction Truck Traffic

The Palen Solar Electric Generating System would be expected to generate the same amount of truck traffic during construction as presented in the Palen Solar Power Project (PSPP) Preliminary Assessment/Final Environmental Impact Statement (PA/FEIS) (i.e., averaging 20 to 30 one-way truck trips per day and peaking at approximately one-way 40 truck trips per day), as presented on page 4.16-4 of the PSPP PA/FEIS. Accordingly, equipment and materials would be transported via trucks to the site on a daily basis, and trucks would utilize I-10 in order to access the site. As identified in the Palen Solar Power Project (PSPP) Preliminary Assessment/Final Environmental Impact Statement (PA/FEIS) and applicable to the Palen Solar Electric Generating System, to transport equipment, the Applicant must obtain special ministerial permits from Caltrans to move oversized or overweight materials. Oversized or overweight trucks with unlicensed drivers could be hazardous to the general public and/or damage roadways. These roadways could be damaged due to Palen Solar Electric Generating System related construction activities. Therefore, the Applicant must ensure proper routes are followed; proper time is scheduled for the delivery; and proper escorts, including advanced warning and trailing vehicles as well as law enforcement control, are available, if necessary.The activities necessary to construct the gen-tie line for the Palen Solar Power Project (PSPP) (as described and analyzed in the PSPP Plan Amendment/Final Environmental Impact Statement (PA/FEIS)) would be the same for the Palen Solar Electric Generating System (PSEGS) even though the PSEGS proposes to shift a segment of the gen-tie line near the western end of the route. The PSEGS-proposed gen-tie line rerouting would minimize crossings over Interstate 10 (I-10) and ensure easy entry into the Red Bluff Substation nearest the Palen Solar Electric Generating System's breaker position, which was relocated as part of the Red Bluff final design subsequent to publication of the PSPP PA/FEIS. Figure 2-2 shows the alignment of the proposed gen-tie line. No permanent spur roads would be required to maintain the gen-tie line; however, Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.16-4 July 2013 there would be a maintenance access road along the route. As a result, construction of the gen-tie line would not cause significant impacts to traffic volumes or Level of Service (LOS) because the construction is not expected to occur at the same time as peak construction employment, and the number of construction workers would be low.

Parking Capacity: As stated, construction period parking demands would be accommodated by temporary on-site parking areas within the Project site adjacent to the primary construction laydown area and within each power block's laydown area. The temporary construction laydown area would encompass approximately 28 acres located north of the common facilities area and west of the existing Southern California Edison (SCE) 161 kV transmission line. The temporary construction laydown area has been sized large enough to allow the staging of deliveries and truck and worker ingress and egress to the site to avoid stacking on the I-10 and Corn Springs interchange. Additional construction laydown and temporary use areas would be located near the power block in each plant. As a result, construction worker-related vehicles and construction equipment/machinery would not be located in any public Right of Way (ROW) or interfere with users of such facilities. Because designated construction staging/parking areas would be provided and no vehicles would be parked along public ROWs, the Palen Solar Electric Generating System would not result in any adverse effects to parking during construction.

Operation Impacts: Due to the nature and remote location of the Palen Solar Electric Generating System, a relatively minor amount of traffic would be generated to and from the site during standard operations. As stated in Section 2.1.5 Operations and Maintenance, the Palen Solar Electric Generating System would require about 100 full-time employees: 30 at Solar Plant 1 (including mirror washing machine operators), 30 at Solar Plant 2 (including mirror washing machine operators), and 40 at the administration complex. The 100 full-time employees would equate to about 250 daily one-way trips; however, the facilities would operate seven days a week, and employee work shifts would be staggered during each day. Therefore the amount of traffic generated during operation would be less than the total daily vehicle trips. As shown below in Table 4.16-2, the study roadway segments along I-10 would continue to operate at acceptable service levels (LOS A) during project operation; therefore there would be no adverse effect on traffic conditions.

During operations, employees would park on-site in an approximate 34,000 square-foot parking area, which would accommodate about 97 parking spaces, assuming 350 square feet per vehicle is needed. This parking area would adequately accommodate the 100-employee workforce, especially given the fact that employee work shifts would be staggered and not all 100 employees would be parked at the same time. Because the Palen Solar Electric Generating System would supply an adequate amount of on-site parking, it would not result in any parking spill-over to sensitive areas and would not create any adverse effects related to parking.

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TABLE 4.16-2 2016 PEAK HOUR VOLUMES AND LOS ON STUDY ROADWAYS DURING PROJECT OPERATION Construction Year (2016) Operation Year (2016) Roadway Segment Volume without Project LOS Volume With Project LOS I-10: West of the project site 3,184 A 3,234 A I-10: East of the project site 3,184 A 3,234 A Corn Springs Road Negligible A 125 Employee trips include 50 percent of total daily one-way trips (100) x 1.25, to account for miscellaneous midday trips.This is the assumed maximum one-way trips during the peak hour. SOURCE: Palen Solar III, LLC, 2012; ESA, 2013. 4.16.3 Cumulative Impacts PSEGS Public Access Open routes are inventoried in the CDCA and NECO Plans. Any renewable energy project or other action identified in Table 4.1-1 that precludes or prevents access (temporarily or permanently) to an open route could cause or contribute to adverse effects on off-highway vehicle (OHV) use, including rerouting, use restrictions, and closures. Additional details will be provided regarding whether any of the other projects in the cumulative scenario will affect the open routes that could be affected by construction or operation of the Palen Solar Electric Generating System (PSEGS) when that information is available. Any PSEGS-related adverse cumulative effects would cease upon decommissioning, when the affected routes would be restored for OHV use.

Transportation The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have overlapping construction schedules and/or project operations that could affect similar resources. Projects with overlapping construction schedules and/or operations could result in a substantial contribution to increased traffic levels throughout the surrounding roadway network. For purposes of the analysis, the geographic scope for cumulative transportation impacts includes projects that have been constructed; or are currently under construction, planned, or approved within a two-hour drive of the PSEGS; and in particular, at the same affected roadway segments as the PSEGS (e.g., within the I-10 corridor). As shown in Table 4.1-6, there are currently more than a dozen existing cumulatively considerable projects along the I-10 corridor. In addition, shown in Table 4.1-7, there are approximately 18 solar projects proposed or under construction along the I-10 corridor, predominantly between Desert Center and Blythe. Based on Palen Solar Electric Generating System Draft SEIS 4.16-6 July 2013

4. Environmental Consequences 4.16 Impacts on Transportation and Public Access - Off Highway Vehicle Resources the currently available data for these various projects (information obtained from Plans of Development and other project documents), and assuming all projects move forward, it is anticipated that these projects could be constructed in the same general timeframe as the PSEGS, or have the potential to overlap for at least a portion of the construction period. The cumulative analysis conservatively assumes that the construction of all of the proposed solar projects would be under construction within the 34-month cumulative timeframe for construction-related impacts of the PSEGS. This cumulative impacts discussion is based on available data with respect to both construction schedules and workforce and the PSEGS's construction schedule and workforce as they relate to transportation and traffic. If construction and operating labor requirements are not known for some projects, average workforce levels of other comparable projects and professional judgments have been used to develop conservative estimates of expected cumulative traffic associated with these projects. Past development near the Project area includes those projects listed in Table 4.1-6. All of the projects listed in Table 4.1-6 have been implemented and so would contribute ongoing operational traffic to area roadways during the PSEGS's construction, operation and maintenance, and decommissioning phases. Traffic associated with these past projects already contributes to existing traffic on the road network and, therefore, is accounted for as part of baseline conditions for the Project evaluated in Section 4.16.2, Direct and Indirect Impacts. Table 4.1-7 provides a list of reasonably foreseeable projects, including other proposed or approved renewable energy projects, various BLM-authorized actions/activities, proposed or approved projects within the County's jurisdiction, and other actions/activities considered reasonably foreseeable. As such, Projects A through AD (as labeled in Table 4.1-7) have the potential to affect the local road network and all of these projects listed in Table 4.1-7 would generate traffic along the I-10 corridor. Construction Cumulative impacts would be greatest if the peak construction period of all of these projects overlapped. Although this worst-case scenario is unlikely, even if this scenario were to occur, it is unlikely that the level of service (LOS) of the affected freeway segments would degrade to unacceptable service levels of LOS D or worse, which is the allowable limit in the Riverside County General Plan (Riverside County, 2009). This is based upon the fact that segments of I-10 near the Project site currently operate at LOS A. Additionally, as stated, project-generated traffic during any phase would not be substantial enough to degrade freeway LOS to unacceptable conditions. Cumulative impacts to segments of I-10 have been considered because it is likely that construction vehicle trips from foreseeable future projects and the PSEGS would have the greatest potential to combine cumulatively on I-10.It is likely that a portion of construction traffic, including worker and haul trucks, for all projects listed in Table 4.7-1 would traverse the same portion of I-10 as Project construction-related traffic. For example, the Desert Sunlight project would require an average of 450 workers per day and a peak of up to 570 workers per day during construction. Similarly, the McCoy Solar Energy Project would require an average of approximately 341 workers per day and up to 750 during peak construction. Based on these findings and assuming that workers would drive alone to their respective project site, these two future projects, the Desert Sunlight and McCoy Solar Energy Project, would result in over 800 daily worker trips (1,600 one-way trips) along I-10. Further, with implementation of the Palen Solar Electric Generating System (PSEGS) project and the PSEGS project's workforce (average of 998 workers and a peak of up to 2,311 workers per day), combined with the Desert Sunlight and McCoy projects, it would yield up to 3,111 additional trips along I-10 during these projects' construction periods, respectively. As stated, the above discussion describes a worst-case scenario, in which construction peak periods would overlap for all projects proposed in the Project area. Based on these findings and the substantial increase in traffic associated with PSEGS and other planned projects, the Level of Service (LOS) of I-10 could be temporarily degraded, but likely would not be degraded below the acceptable LOS C, and implementing these projects would not result in any permanent LOS degradation. Levels of congestion (delay) at on- and off-ramps along I-10 could be adversely affected due to the temporary influx of construction-related traffic; however, even a worst-case scenario would not likely exceed the capacity of I-10, which in this area has two lanes in both directions to accommodate the anticipated increase in traffic while maintaining adequate traffic flow along the freeway mainline. Implementation of APM TRANS-4, described more fully in Appendix C, would reduce the Project's construction-related contribution to cumulative traffic impacts. Based on the short-term nature of construction, any increase in vehicle trips and transportation-related impacts would be temporary. However, even with implementation of APM TRANS-4 and other related APMs during construction of the Project, implementation of a coordinated transportation management plan is recommended to reduce the Project's contribution to any potential traffic impacts to the surrounding network. Implementation of Mitigation Measure TRN-1 would reduce potential cumulative traffic impacts. Lastly, it is noted that other planned projects that would affect the I-10 corridor would have established traffic control plans in order to reduce and/or avoid potential adverse traffic effects along I-10 and to ensure that established LOS standards along the freeway are not exceeded. During the operation and maintenance phase, Project operation and maintenance are estimated to generate a total of about 100 daily trips, which would equate to about 250 daily one-way trips; however, the facilities would operate seven days a week, and employee work shifts would be staggered during each day. Therefore the amount of traffic generated during operation would be less than the total daily vehicle trips. In addition, because operation and maintenance of the Palen Solar Electric Generating System (PSEGS) project would generate substantially less traffic than construction or decommissioning activities, and because the construction phase of the Project would cause no adverse traffic impacts (as stated above), no adverse cumulative impacts would occur due to the traffic generated during the operation and maintenance phase of the Project. During the closure and decommissioning of the Project, the potential cumulative contribution of the Project to transportation and traffic impacts is unknown, as the number and proximity of cumulative projects in 30 to 50 years (expected life of the PSEGS) is unknown. It is assumed that the analysis of cumulative construction impacts discussed above could occur during decommissioning, and that APMs and mitigation measures implemented during construction activities also would be applicable to decommissioning activities. During construction, operation, maintenance, and decommissioning, the workforce required for Reconfigured Alternative 2 Option 1 is anticipated to be very similar to the Palen Solar Electric Generating System (PSEGS) project as described above. Therefore, the cumulative impact analysis for Reconfigured Alternative 2 Option 1 is expected to be the same as for the Palen Solar Electric Generating System (PSEGS). During construction, operation, maintenance, and decommissioning, the anticipated workforce required for Reconfigured Alternative 2 Option 2 is anticipated to be very similar to the Palen Solar Electric Generating System (PSEGS) as described above. Therefore, the cumulative impact analysis for Reconfigured Alternative 2 Option 2 is expected to be the same as for the Palen Solar Electric Generating System (PSEGS).No Action Alternative A If No Action Alternative A was selected, the Palen Solar Electric Generating System (PSEGS) would not occur at the project site. However, since the Right of Way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area (CDCA) Plan amendment decisions made in the Solar Programmatic Environmental Impact Statement Record of Decision (PEIS ROD) that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the Riverside East SEZ. It is likely, therefore, that the project site in the future would be developed as a solar energy project. However, insufficient information currently is known about the transportation and traffic-related specifics of any such future project to allow for a meaningful analysis.

4.16.4 Summary of Mitigation Measures The Applicant proposed a series of Applicant Proposed Measures (APMs) to reduce or avoid any potential transportation and traffic impacts that could result from the PSEGS. These Applicant Proposed Measures were derived from the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) (see Appendix C). In addition to these Applicant Proposed Measures, the following mitigation measure would be required to reduce any potential cumulative impact to traffic conditions along the Interstate 10 (I-10) corridor. TRN-1: Prior to construction, the Applicant shall develop a Coordinated Transportation Management Plan and work with the Bureau of Land Management (BLM) and Riverside County to prepare and implement a transportation management plan for roadways adjacent to and directly affected by the planned Project facilities, and to address the transportation impact of the multiple overlapping construction projects within the vicinity of the Project in the region. The transportation management plan shall include, but not be limited to, the following requirements:

1. Coordination of individual traffic control plans for the Project and nearby projects.

2. Coordination between the contractor and Riverside County in developing circulation and detour plans that include safety features (e.g., signage and flaggers). The circulation and detour plans shall address:

a. Full and partial roadways closures;

b. Circulation and detour plans to include the use of signage and flagging to guide vehicles through and/or around the construction zone, as well as any temporary traffic control devices;

c. Bicycle detour plans, where applicable;

d. Parking along arterial and local roadways; and

e. Haul routes for construction trucks and staging areas for instances when multiple trucks arrive at the work sites.

3. Protocols for updating the transportation management plan to account for delays or changes in the schedules of individual projects.

4.16.5 Residual Impacts after Mitigation Measures were Implemented

Public Access There would be no residual impacts related to public access.

Transportation Level of service within the vicinity of the PSEGS would operate under acceptable conditions (Level of Service A) during project construction.

4.16.6 Unavoidable Adverse Impacts

Public Access Navigable washes and Off Highway Vehicle (OHV) routes would be transected by the PSEGS which would result in closure to OHV users.

4. Environmental Consequences 4.17 Impacts on Vegetation Resources

4.17.1 Impact Assessment Methodology The vegetation resources impact assessment methodology described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4-17.1 (p. 4.17-1) was used to analyze the PSEGS in this Draft Supplemental Environmental Impact Statement (SEIS). Incorporated into this analysis are revised impact acreages (Palen Solar Holdings, LLC, 2013) and the results of biological surveys of the gen-tie line reroute, natural gas pipeline extension, and distribution yard (Karl, 2013a). The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.17.2 (p. 4.17-19 through 4.17-22). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement (SEIS) to reflect the updated cumulative scenario (see Section 4.17.3, below).

4.17.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System (PSEGS) Direct impacts are those resulting directly from project activities (e.g., excavation and grading), and occur at the same time and location as those activities. Indirect impacts also result from project activities, but can occur later in time and/or at more distant locations and are still reasonably foreseeable. The potential impacts discussed in this analysis are those most likely to be associated with construction and operation of the Palen Solar Electric Generating System (PSEGS).As described in the PSPP PA/FEIS, impact analyses typically characterize effects to plant communities as temporary or permanent, with a permanent impact referring to areas that are paved or otherwise precluded from restoration to a pre-project state. In the desert ecosystems the definition of "permanent" and "temporary" must reflect the slow recovery rates of desert ecosystems' plant communities. Natural recovery rates from disturbance in desert ecosystems depend on the nature and severity of the impact. For example, creosote bushes can resprout a full canopy within five years after damage from heavy vehicle traffic (PSPP PA/FEIS, p. 4.17-2), but more severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years for partial recovery; complete ecosystem recovery may require over 3,000 years (PSPP PA/FEIS, p. 4.17-2). Consequently, due to the slow recovery rates of plant communities in desert ecosystems, impacts of the Palen Solar Electric Generating System (PSEGS) are considered temporary only if there is evidence to indicate that pre-disturbance levels of biomass, cover, density, community structure, and soil characteristics could be achieved within 5 years.

Impacts to Upland Vegetation Communities Direct and indirect impacts to natural vegetation communities resulting from the PSEGS are presented in Table 4.17-1. The total project footprint, or Project Disturbance Area, is 3,898.96 acres. Impacts associated with approximately 99 percent of the Project Disturbance Area are evaluated in the PSPP PA/FEIS. Indirect effects of the PSEGS on areas beyond the project site, namely those that would occur within the Southern California Edison 161 kV Eagle Mountain-Blythe power line corridor and on adjacent private property (~ 51.4 acres), were also analyzed in the PSPP PA/FEIS.

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4.17 Impacts on Vegetation Resources

TABLE 4.17-1 DIRECT AND INDIRECT EFFECTS ON NATURAL COMMUNITIES/COVER TYPES

Natural Communities and Cover Types in the Disturbance

| One Mile Buffer | Resources Study | PSEGS Vicinitya Area | Areab Area |

|-----------------|-----------------|----------------------|-----------|

| Ephemeral Drainages "Riparian" | | |

| Desert dry wash woodland | 206.4 | 0.03 | 206.43 |

| Unvegetated ephemeral dry wash | 168.16 | 0.51 | 168.67 |

| Total Ephemeral Drainages "Riparian" | 374.56 | 0.54 | 375.10 |

| Upland | | |

| Active desert dunes | 0 | 0.00 | 0.00 |

| Desert sink scrub | 0 | 0.00 | 0.00 |

| Dry lake bed | 0 | 0.00 | 0.00 |

| Sonoran creosote bush scrub | 3,335.16 | 50.86 | 3,386.02 |

| Stabilized and partially stabilized desert dunes | 0.00 | 186.90 (permitted) | 186.90 |

| Total Upland | 3522.06 | 50.86 | 3572.92 |

| Other Cover Types | | |

| Agricultural Land | 0 | 0.00 | 0.00 |

| Developed | 2.34 | 0.00 | 2.34 |

| Total Other Cover Types | 2.34 | 0 | 2.34 |

| Total Acres | 3,898.96 | 51.40 | 3950.36 |

NOTES:

a The Project Disturbance Area encompasses the disturbance resulting from the proposed construction of the PSEGS, including solar fields, transmission facilities, office and maintenance buildings, lay down area, leach fields, and other components. The Project Disturbance Area includes the impact acreage of the gen-tie line and the natural gas line corridor and switch yard (3.53 acres).

b Indirect effects occurring within the buffer area generally are limited to the 161 kV Eagle Mountain-Blythe power line corridor and on adjacent private property.

SOURCE: Galati, 2013.

Areas previously unsurveyed for the PSPP that are associated with the PSEGS include the gen-tie line reroute (18.9 acres), natural gas pipeline extension (3.3 acres), and distribution yard (0.23 acres), for which vegetation resources were characterized in spring 2013 (Karl, 2013a). The 18.9-acre area associated with the gen-tie line reroute has, however, been surveyed as part of the Desert Sunlight Solar Project. Totaling 22.43 acres of new disturbance, these areas collectively comprise 1.0 percent of the total project footprint. As no additional vegetation communities or special-status plants were identified in new areas, with incorporation of new impact acreages, the PSPP PA/FEIS method for analyzing impacts to vegetation resources remains valid for the Draft SEIS.Sonoran Creosote Bush Scrub As described in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.17.2 (p. 4.17-2), direct impacts of the Palen Solar Power Project (PSPP) to creosote bush scrub would include the permanent loss of, and fragmentation of, adjacent wildlife habitat and native plant communities, including ecological services such as wildlife cover, forage, microhabitat for other plants, and erosion protection. An estimated 3,386.02 acres of creosote bush scrub would be impacted by the Palen Solar Electric Generating System (PSEGS) (Karl, 2013b). Direct impacts would total 3,335.16 and indirect impacts would total 50.86 acres. The Palen Solar Electric Generating System would maintain surface contours and allow vegetation under 12 inches in height to persist over the life of the project. This approach could minimize fragmentation of some plant communities by preserving root structures in the soil and providing for some plant microhabitats to continue, while protecting the site from erosion.

Stabilized and Partially Stabilized Dunes As described in the PSPP PA/FEIS Section 4.17.2 (p. 4.17-2), direct impacts of the Palen Solar Power Project to stabilized and partially stabilized dunes include permanent loss of habitat as well as potential accidental direct impacts to adjacent preserved habitat during construction and operation. Indirect impacts include disruption of sand transport corridor resulting in downwind impacts to sand dune habitat; introduction and spread of invasive plants; erosion and sedimentation of disturbed soils; fragmentation and degradation of remaining habitat. These impacts would likely be lessened under the Palen Solar Electric Generating System, because the reduction in grading would minimize the opportunity for invasive plants to colonize and would reduce the potential for erosion and sedimentation on the site. An estimated 186.9 acres of stabilized and partially stabilized dunes habitat would be directly impacted along the northeastern boundary of the site fenced area (Galati, 2013). The configuration of the Palen Solar Electric Generating System eliminates the construction of 30-foot high wind fences that were proposed under the Palen Solar Power Project, and this modification would allow sand transport to continue in the corridor and, thereby, minimize indirect effects.

Ephemeral Washes and Sensitive Plant Communities PSPP PA/FEIS Section 4.17.2 (p. 4.17-3 et seq.) describes grading that would have occurred within the Palen Solar Power Project disturbance area and the project's ephemeral drainages, resulting in a direct impact on these communities and eliminating the hydrological, biogeochemical, vegetation, and wildlife functions of these drainages. Desert washes downstream from the project area also would be subject to an indirect impact as a result of changes to upstream hydrology, with downstream vegetation in washes deprived of flows or receiving lower or higher volumes and velocities of water than current conditions at discharge points along the stormwater conveyance channel. Diversions could greatly alter the hydrology and wash-dependent vegetation of any features that may occur downstream of the project area. In response to these concerns and to minimize impacts on ephemeral washes and associated plant communities, the Palen Solar Electric Generating System decreases the intensity of grading and drainage control by reducing total grading from 4.5 million cubic yards of cut and fill to 200,000 cubic yards (0.2 million cubic yards) (Palen Solar III, LLC., 2013). Much of the Palen Solar Power Project grading would have occurred across the solar field where ephemeral washes and the sensitive plant communities they support are prevalent, but much less grading of the solar field would occur under the Palen Solar Electric Generating System. Grading still would occur in the following areas: power towers and blocks, switchyard, administration complex area, heliostat assembly buildings, and certain access roads. Grading and road surfacing (e.g., graveling or paving) would be required to construct "spoke" roads from the power block to the outer edge of the solar field. At some washes, limited grading may be required to allow the heliostat installation equipment and mirror washing machines access to the solar fields, and surface rocks and boulders would need to be relocated to allow proper installation of heliostats and facilities where the rocks and boulders cannot be avoided (Palen Solar III, LLC., 2013). For the Palen Solar Electric Generating System, the solar field and "ring" roads in the solar field would not be bladed or graded except where the height of existing localized vegetation precludes installation of any specific heliostat (Palen Solar III, LLC., 2013). Plant root structures, the soil surface, and natural land contours would be maintained to preserve surface drainage patterns and storm runoff.During PSEGS construction and operation, vegetation in the solar field would be mowed to a height of 12 to 18 inches. PSEGS impacts to ephemeral washes and the ephemeral washes' associated sensitive vegetation communities would total 375.10 acres (Karl, 2013b) with 98 percent of the impact occurring within the PSEGS site's fenced area. Direct impacts to Desert Dry Wash Woodland would total 206.4 acres, while indirect impacts to Desert Dry Wash Woodland would total 0.03 acre. Direct impacts to Unvegetated Ephemeral Dry Wash would total 168.16 acres, while indirect impacts to Unvegetated Ephemeral Dry Wash would total 0.51 acres. Impacts to Groundwater-Dependent Vegetation PSPP PA/FEIS Section 4.17.2 (p. 4.17-4 et seq.) explain that the effects of groundwater pumping may take several-to-many years to appear, depending on the degree of separation in the confining layers between the shallow aquifer (supporting plants) and deep aquifers (where groundwater pumping would occur). Groundwater levels near the PSPP's water supply wells would decline during project pumping. Compared to the PSPP, the PSEGS would reduce, but not eliminate impacts to groundwater-dependent vegetation by reducing water use over the life of the project by 50 percent from 14,750 AF to 7,160 AF. The reduction in water use would be accomplished by reducing water use during facility operations by 33 percent from 300 AFY to 201 AFY, and by reducing water use during construction by 80 percent from 5,750 acre feet to 1,130 acre feet (Palen Solar III, LLC., 2013). Use of Groundwater by Phreatophytes Within the PSPP's 2- to 3-mile radius groundwater drawdown zone, the groundwater dependent ecosystems (GDEs) are dominated or defined by "phreatophytes." Groundwater pumping could have a substantial impact to vegetation resources if groundwater pumping lowers the water table in areas where deep-rooted phreatophytes occur. As described in PSPP PA/FEIS Section 4.17.2 (p. 4.17-5), phreatophytes have deep roots that extend down to, and extract water from a periodically stable water supply, including the capillary fringe (i.e., the zone just above the water table that is not completely saturated, where water is lifted up by capillary action, or surface tension) (PSPP PA/FEIS, p. 4.17-5). Even though the groundwater may never be visible at the ground surface as the water is in a wetland or spring, phreatophytic ecosystems can still be groundwater-dependent (PSPP PA/FEIS, p. 4.17-5). Response to Water Stress As described in PSPP PA/FEIS Section 4.17.2 (p. 4.17-5), a plant's response to water stress can be manifest as anything from diminished physiological processes to plant death. The response of Palen Solar Electric Generating System Draft SEIS 4.17-4 July 2013 4. Environmental Consequences 4.17 Impacts on Vegetation Resources these GDEs to change in these attributes is variable (PSPP PA/FEIS, p. 4.17-5), and there is insufficient scientific information available to assess the project's short-term construction-related impacts and long-term residual operational impacts on GDEs. Impacts to Springs As described in PSPP PA/FEIS Section 4.17.2 (p, 4.17-7), the PSPP site is located within the Chuckwalla Valley Groundwater Basin, which supports four surface water sites (e.g., seeps and springs): Corn Spring Wash and two other sites located in the Chuckwalla Mountains southwest of the Project; and Coxcomb Wash, located eight miles north of the Project. The McCoy Mountains support a fifth surface water location known as McCoy Spring, located 15 miles northeast of the Project. Springs may be considered surface extensions of the local groundwater system or may be associated with base flow discharge or perched aquifers that are part of a separate groundwater flow system originating from surrounding mountains and having no direct hydraulic connection to the basin aquifer system. Impacts to springs associated with the PSEGS are the same as the impacts described in PSPP PA/FEIS Section 4.17.2 (p. 4.17-7), which found that the PSPP could have an impact on McCoy Spring only if groundwater levels were reduced by many feet, and that project impacts were unlikely. No new springs were identified during surveys of the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013b).Noxious and Invasive Weeds As described in PSPP PA/FEIS Section 4.17.2 (p. 4.17-8), construction activities and soil disturbance could introduce new noxious weeds to lands adjacent to the proposed solar plant site and the proposed solar plant site's linear facilities, and could further spread weeds already present in the project vicinity. The spread of invasive plants is a major threat to vegetation resources in the Colorado Desert because non-native plants can displace native plants, increase the threat of wildfire, and supplant wildlife foods that are important to herbivorous species. Tamarisk, Russian thistle, Sahara mustard, and Mediterranean grass are already present in the Project area and are expected to increase as a result of construction- and operation-related disturbance. The fact that the Applicant intends to mow the solar field instead of remove vegetation could reduce the risk that construction- and operation-related disturbance would cause the spread of Tamarisk, Russian thistle, Sahara mustard, and Mediterranean grass. Special Status Plants Harwood's Woolly-star As described in the PSPP PA/FEIS for Reconfigured Alternative 2 (p. 4.17-19 et seq.), which is similar to the PSEGS configuration, a total of 169 Harwood's woolly-star plants were observed in dunes east of the Project and no Harwood's woolly-star plants occurred within the Project Disturbance Area. No Harwood's woolly stars were observed in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). Based on these results, the PSERGS Project is expected to cause no direct or indirect impacts to Harwood's woolly-star from hydrologic changes downstream. Concerns about the potential for the spread of Sahara mustard into dunes east of the PSEGS from construction-related disturbance and transport of seeds on vehicles during construction and operation are described and addressed in this section under Noxious and Invasive Weeds. The significantly reduced grading activities under the PSEGS would likely lessen impacts on Harwood's woolly-star plants relative to the PSPP as proposed by preserving the Harwood's woolly-star plants' seed bank and, if unaffected by mowing activities, allowing Harwood's woolly-star plants to flower and reproduce through pollination. Harwood's Milkvetch Spring 2010 surveys identified seven Harwood's milkvetch individuals in the Project Disturbance Area (PSPP PA/FEIS, p. 4.17-9 et seq.) out of a total population of 146 Harwood's milkvetch plants in the BRSA. The local Harwood's milkvetch population size likely expands and contracts with the normal wide variations in annual rainfall. Harwood's milkvetch plants also are found in dune habitat east of the PSPP site. No Harwood's milkvetch plants were observed in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). PSEGS construction would result in the loss of some Harwood's milkvetch individuals, a direct impact, and Harwood's milkvetch plants could be indirectly affected through changes in surface drainage patterns and sediment transport. The significantly reduced grading activities under the PSEGS would likely lessen impacts on Harwood's milkvetch plants by preserving the Harwood's milkvetch plants' seed bank and, if unaffected by mowing activities, allowing Harwood's milkvetch plants to flower and reproduce through pollination. Ribbed Cryptantha An estimated 3.6 million ribbed cryptantha plants were observed in the Project Disturbance Area for the PSPP (PSPP PA/FEIS, p. 4.17-10). No ribbed cryptantha plants were observed in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). The PSPP PA/FEIS found that large occurrences totaling over 100,000 ribbed cryptantha plants have been found in the disturbance areas for the Genesis and Blythe solar projects (PSPP PA/FEIS, p. 4.17-10). The PSPP PA/FEIS determined that the direct impacts of the PSPP to the ribbed cryptantha were not substantial given the large number of ribbed cryptantha plants detected by all the I-10 projects within and outside of the ribbed cryptantha project disturbance areas, the likeliness of ribbed cryptantha to occur in similar habitats nearby, and the ribbed cryptantha's apparently stable range in California. The significantly reduced grading activities under the PSEGS would likely lessen impacts on ribbed cryptantha by preserving the ribbed cryptantha's seed bank and, if unaffected by mowing activities, allowing ribbed cryptantha to flower and reproduce through pollination.California Ditaxis As described in the PSPP PA/FEIS (p. 4.17-10), 11 California ditaxis plants were observed within the Project Disturbance Area along the original gen-tie line corridor and another 11 plants were observed in the survey buffer area. Half of the onsite population of California ditaxis plants would be directly impacted by PSPP activities and, as of 2010, there were no other documented occurrences of California ditaxis in Chuckwalla Valley east of Desert Center. No California ditaxis plants were observed in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). The PSPP PA/FEIS (p. 4.17-10) found that without mitigation the direct project impacts combined with indirect impacts resulting from noxious weed invasion would combine to result in a substantial impact to California ditaxis. It is unknown but likely that the significantly reduced grading activities under the PSEGS would lessen impacts on California ditaxis by preserving the seed bank and, if California ditaxis plants are unaffected by mowing activities, allowing California ditaxis plants to flower and reproduce through pollination. "Palen Lake Atriplex" (Atriplex sp. nov.) The PSPP PA/FEIS found that none of the potentially new taxon of saltbush (in the genus Atriplex) discovered on the saline playa margins of Palen Dry Lake in 2009 would be directly affected by the PSPP; however, some of the 920 Atriplex plants documented in the buffer near the northeastern boundary could be indirectly affected by groundwater drawdown (PSPP PA/FEIS, p. 4.17-10). No Atriplex plants were observed in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a). The PSEGS would reduce the amount of groundwater used during project construction and operation, which would result in an unquantifiable but qualitative reduction in potential impacts on "Palen Lake Atriplex." Utah Milkvine As described in the PSPP PA/FEIS (p. 4.17-11), one population of Utah milkvine was found east of the PSPP site, well beyond the Project Disturbance Area. The PSPP PA/FEIS determined that no direct or indirect impacts would occur to Utah milkvine. Because no additional Utah milkvine plants were observed in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute (Karl, 2013a), this Draft SEIS concludes that no direct or indirect impacts would occur to Utah milkvine from the PSEGS. Impacts to Summer-Fall Special-Status Plants As described in the PSPP PA/FEIS (p. 4.17-11 et seq.), summer-fall special-status plants are (1) annuals whose growth period is triggered by warm summer rains of subtropical origin (typically minimum 10 mm rain events), and (2) perennials that bloom regardless of the summer rain, and are triggered instead by the appearance of cooler storms that originate in the Pacific northwest. Special-status summer annuals documented to occur in the California Sonoran Desert region include Abram's spurge, flat-seeded spurge, and lobed ground cherry. Glandular ditaxis and California ditaxis are also late-season perennials, but the blooming period of these perennials overlaps the spring season and/or these perennials can be identified vegetatively and do not require flowers or fruit for identification. As described in Section 3.18, Abram's spurge's Heritage Program (HP) State (S) ranking was downgraded from an S1 to an S2S3 based on the discovery and documentation of new California populations, flat-seeded spurge's HP S ranking was shifted from S1.2 to S1, lobed ground cherry's status was downgraded from S1.2 to S2, glandular ditaxis' status upgraded from S1S2 to S1, and California ditaxis' status shifted from S2.2 to S2. No Abram's spurge, flat-seeded spurge, lobed ground cherry, or glandular ditaxis plants were detected during late-season surveys in 2010 in the PSPP BRSA. As noted above, 11 California ditaxis plants were found within the Project Disturbance Area for the PSPP during 2010 surveys. Late-season surveys have not been conducted in the PSEGS's proposed natural gas line extension, distribution yard, and gen-tie line reroute.As described above for California ditaxis, if California ditaxis species were present then impacts to California ditaxis species could be considered significant given California ditaxis species' rarity as indicated by HP S statuses ranging from Imperiled to Critically Imperiled. Within the PSEGS's Palen Solar Electric Generating System Draft SEIS 4.17-7 July 2013, the proposed natural gas line extension, distribution yard, and gen-tie line reroute, these species are unlikely to benefit from reduced grading activities. Indirect Impacts to Special-Status Plants As described in the PSPP PA/FEIS (p. 4.17-12 et seq. ), the following indirect impacts to special-status plants (i.e., impacts outside the direct Project Disturbance Area or impacts that occur following construction) were considered: introduction and spread of invasive plants; population fragmentation and disruption of gene flow; potential impacts to pollinators; alteration of the surface hydrology and basic geomorphic processes that support rare plants and rare plants' habitat (e.g., disrupted aeolian and fluvial sand transport processes from obstructions and diversions; erosion and sedimentation of disturbed soils that render the habitat vulnerable to invasion by pest plants; disturbance of the structure and ecological functioning of biological soil crusts that affects seed germination, reduces soil nutrition and carbon sequestration, and renders the soil vulnerable to water and wind erosion (PSPP PA/FEIS, p. 4.17-13); herbicide and other chemical drift; and disruption of photosynthesis and other metabolic processes from fugitive dust during construction and operation of the PSEGS. Impacts for the PSEGS would be the same as described in the PSPP PA/FEIS, with the exception of alteration of the surface hydrology and basic geomorphic processes that support rare plants and rare plants' habitat. These impacts would be reduced under the PSEGS because the PSEGS would involve a reduction in surface grading from 4.5 million cubic yards of cut and fill to 200,000 cubic yards and eliminate 30-foot-tall wind fences that would have contributed to disruption of the sand transport corridor. Cacti, Yucca, and Native Trees As described in the PSPP PA/FEIS (p. 4.17-14), teddybear, silver cholla, pencil cholla, common fishhook cactus, and possibly one cottontop cactus would be lost or salvaged from disturbed areas. These species provide microhabitats for other plants including special-status species, so those values would also be lost. Native trees such as smoke tree, honey mesquite ironwood, blue paloverde, and ocotillo would also be lost from the Project Disturbance Area for the PSPP. These native trees provide similar microhabitat values for other plants including special-status species and provide perching and nesting sites for wildlife. These values also would be lost within the Project Disturbance Area for the PSEGS. Due to these native trees' size, it is presumed that these native trees would need to be removed and, therefore, these native trees are unlikely to benefit from the PSEGS's reduced grading plan. Impacts Specific to Closure and Decommissioning of the Proposed Project As described in the PSPP PA/FEIS (p. 4.17-14 et seq. ), potential impacts to vegetation resources from closure and decommissioning of the PSPP would involve residual disturbance of developed areas and potentially altered hydrologic conditions, as well as similar impacts from worker vehicle and equipment access during decommissioning. 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4. Environmental Consequences 4.17 Impacts on Vegetation Resources

4.17.3 Cumulative Impacts PSEGS Cumulative impacts to vegetation resources were analyzed in detail in PSPP PA/FEIS Section 4.17.3 (p. 4.17-22 et seq.; see also PSPP PA/FEIS Appendix I). Past, present, and reasonably foreseeable probable future projects were identified for the assessment of potential cumulative impacts. The cumulative scenario has been revised to reflect changes in project status since publication of the PSPP PA/FEIS. The revised cumulative scenario is described in Section 4.1 of this Draft SEIS. The PSPP PA/FEIS analyzed cumulative impacts on Sonoran creosote bush scrub, desert dry wash woodland, sand dunes and transport corridors, groundwater-dependent ecosystems, waters of the state, noxious and invasive weeds, special-status plants, and carbon sequestration resulting from implementation of the PSEGS and PSEGS alternatives, relative to the resources present within the entire NECO planning area. The methodology used for this analysis in the PSPP PA/FEIS remains applicable for the PSEGS and has not been supplemented for this document.However, because the disturbance area of the Palen Solar Electric Generating System (PSEGS) is different from that of the Palen Solar Power Project (PSPP), the PSEGS's cumulative contribution of effects is also different. Similarly, the cumulative scenario presented in the PSPP Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) has changed since the publication of the PSPP PA/FEIS as some projects have been completed or abandoned, and new projects have been proposed. This discussion of cumulative impacts has been revised, based upon available data, to reflect these changes. Consideration for carbon sequestration is addressed in Section 4.3, Impacts on Global Climate Change. Table 4.17-2 summarizes the cumulative effects of existing and reasonably foreseeable projects, in combination with those of the PSEGS, on native vegetation communities within the Cumulative Study Area. As the table illustrates, proposed projects would displace 228,363 acres (5.96 percent) of Sonoran creosote bush scrub within the cumulative study area. If developed, the PSEGS would be responsible for 1.4 percent of the cumulative loss. Among riparian areas, proposed projects would impact 48,167 acres (7.06 percent) of desert dry wash woodlands and 18,634 acres (21.15 percent) of unvegetated ephemeral dry washes. The PSEGS, if developed, would account for 0.043 percent and 0.90 percent of impacts to those features, respectively. Cumulative loss of sand dune communities would total 175 acres (0.28 percent). If implemented, the PSEGS would account for 52 percent of the foreseeable cumulative impacts to these communities. Described more fully in Appendix C, the applicant has proposed to reduce these impacts through compensatory mitigation at ratios established by the California Energy Commission (CEC) in the CEC's Conditions of Certification for the PSPP (see Applicant Proposed Measures (APMs) BIO-7, BIO-8, and BIO-29). As discussed in the PSPP PA/FEIS, soil disturbance and habitat fragmentation resulting from these projects would create conditions favorable for the establishment and spread of non-native and invasive plants. Sahara mustard, for example, is already present at the site. Other species may be introduced through the use of construction equipment, wind, birds, and other means. The applicant proposes the development of a weed management plan to control the introduction and spread of invasive species at the site (see APM BIO-14 in Appendix C). Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.17-9 July 2013.Environmental Consequences 4.17 Impacts on Vegetation Resources TABLE 4.17-2 SUMMARY OF CUMULATIVE IMPACTS ON NATIVE VEGETATION COMMUNITIES (acres) Impacts to Vegetation Impacts to Vegetation Contribution Community from Community from Contribution of of Reconfigured Contribution of Existing Projects Foreseeable Future PSEGS to Future Alternative 2 (Option 1) Alternative 2 (Option 2) Total Vegetation (Percent of vegetation Projects (Percent of Cumulative Impacts to Future Cumulative to Future Cumulative Communities in the Community in Vegetation Community (Percent of Total Impacts (Percent of Total Impacts (Percent of Total Vegetation Cumulative Study Cumulative in Cumulative Impacts from Future Impacts from Future Impacts from Future Communitya Areaa Study Area) Study Area) Projects) Projects) Projects) Sonoran Creosote 22,815 228,363 3,386.02 3,817 3,771 3,829,999 Bush Scrub (0.6%) (5.96%) (1.46%) (1.64%) (1.62%) Desert Dry Wash 8,457 48,167 206.43 208 198 682,027 Woodland (1.24%) (7.06%) (0.43%) (0.43%) (0.41%) Ephemeral 961 18,634 169 199 186 Wash/Playa/Dry 88,110 Lake (1.09%) (21.15%) (0.90%) (1.06%) (0.99%) 14 175 186.9 156 188 Sand Dunes 62,140 (0.02%) (0.28%) (51.64%) (47.13%) (51.79%) Agriculture, n/a 1,017 0 3 3 94,187 Developed (1.08%) (<0.01%) (0.29%) (0.29%) NOTES: a Based on the BLM NECO Plant Communities dataset (BLM CDD 2002) conducted by the Biogeography Lab at the University of California, Santa Barbara and coordinated through the USGS Biological Resources Division UC Santa Barbara GAP Analysis (1996, cited in CEC SA/DEIS, 2010), updated during the NECO planning effort (see Appendix H of the NECO (BLM and CDD 2002) Palen Solar Electric Generating System Draft SEIS 4.17-10 July 2013

316 4. Environmental Consequences 4.17 Impacts on Vegetation Resources Cumulative effects associated with groundwater-dependent ecosystems would be similar to the cumulative effects discussed for the Palen Solar Power Project in the Project Area/Final Environmental Impact Statement. Implementation of all cumulatively considerable projects would place the Chuckwalla Valley Groundwater Basin into overdraft conditions. However, the Palen Solar Electric Generating System's contribution (201 acre-feet per year) to this cumulative effect is not considerable. Applicant Proposed Measures Soil&Water-3, Soil&Water-5, and BIO-23 would ensure groundwater-dependent vegetation within 2 to 3 miles of the project would not be adversely affected for the life of the project. Similarly, Applicant Proposed Measure BIO-24 provides for the development and implementation of a remedial action plan if negative effects on such vegetation are detected. Described above, several special status plant species have the potential to occur within the Palen Solar Electric Generating System site. Habitats for these species also extend throughout the Cumulative Study Area. Ground disturbance associated with the cumulatively considerable projects could have a substantial effect on these species. Due to the limited number of occurrence records in this region, and because desert rare plants often have specific microhabitat or germination requirements that are poorly understood, a reliable accounting of the extent of these impacts, or the cumulative contribution of the Palen Solar Electric Generating System, is not practicable. Outlined in Appendix C, the Applicant has proposed several measures to minimize and compensate for impacts to rare plants attributable to the Palen Solar Electric Generating System (see Applicant Proposed Measures BIO-7, BIO-8, and BIO-19). Reconfigured Alternative 2 Reconfigured Alternative 2 includes two possible layouts referred to as Option 1 and Option 2. Both options would rely on solar trough technology, rather than the Palen Solar Electric Generating System's proposed solar power tower technology. Significant grading and hydrologic engineering would occur under Reconfigured Alternative 2 that are not part of the Palen Solar Electric Generating System. Grading would fully remove vegetation from the site (rather than mowing of existing vegetation as proposed under the Palen Solar Electric Generating System). The impacts of Reconfigured Alternative 2 (Options 1 and 2) are analyzed in the Palen Solar Power Project Project Area/Final Environmental Impact Statement. That analysis remains valid and is not supplemented here.However, as the cumulative scenario has changed, the cumulative effects analysis for this alternative has been revised, as discussed below. Option 1 The impacts described in the PSPP PA/FEIS for Reconfigured Alternative 2 Option 1 have not changed since publication. Reconfigured Alternative 2 Option 1 would disturb approximately 4,366 acres, consisting of 3,817 acres of Sonoran creosote bush scrub, 156 acres of stabilized and partially-stabilized desert dunes, 208 acres of desert dry wash woodland, and 180 acres of unvegetated ephemeral dry wash. Table 4.17-2 summarizes the cumulative effects of reasonably foreseeable projects, in combination with those of Reconfigured Alternative 2 (Option 1), on native vegetation communities within the Cumulative Study Area. Noted above, proposed projects would displace 3,817 acres (0.10 percent) of Sonoran creosote bush scrub within the cumulative study area. If developed, Reconfigured Alternative 2 (Option 1) would be responsible for 1.64 percent of the cumulative loss. Among riparian areas, proposed projects would impact 48,167 acres (7.06 percent) of desert dry wash woodlands and 18,634 acres (21.15 percent) of unvegetated ephemeral dry washes. The Reconfigured Alternative 2 (Option 1) Palen Solar Electric Generating System Draft SEIS 4.17-11 July 2013

317 4. Environmental Consequences 4.17 Impacts on Vegetation Resources would account for 0.43 percent and 1.06 percent of impacts to those features, respectively. If developed, Reconfigured Alternative 2 (Option 1) would account for nearly 47 percent of impacts to that community type. The cumulative effect of Reconfigured Alternative 2 (Option 1), in combination with other cumulatively considerable projects in the Study Area, on groundwater-dependent vegetation, invasive weeds, and rare plant species would be similar to that described above for the PSEGS. Option 2 The impacts described in the PSPP PA/FEIS for Reconfigured Alternative 2 Option 2 have not changed since publication. Reconfigured Alternative 2 Option 2 would disturb approximately 4,330 acres, consisting of 3,771 acres of Sonoran creosote bush scrub, 188 acres of stabilized and partially-stabilized desert dunes, 198 acres of desert dry wash woodland, and 168 acres of unvegetated ephemeral dry wash. Table 4.17-2 summarizes the cumulative effects of reasonably foreseeable projects, in combination with those of Reconfigured Alternative 2 (Option 2), on native vegetation communities within the Cumulative Study Area. Noted above, proposed projects would displace 3,817 acres (0.10 percent) of Sonoran creosote bush scrub within the cumulative study area. If implemented, Reconfigured Alternative 2 (Option 2) would be responsible for 1.62 percent of the cumulative loss. Among riparian areas, proposed projects would impact 48,167 acres (7.06 percent) of desert dry wash woodlands and 18,634 acres (21.15 percent) of unvegetated ephemeral dry washes. Reconfigured Alternative 2 (Option 2) would account for 0.41 percent and 0.99 percent of impacts to those features, respectively. Loss of sand dune communities would total 175 acres (0.28 percent). If developed, Reconfigured Alternative 2 (Option 2) would account for nearly 52% of impacts to that community type. The cumulative effect of Reconfigured Alternative 2 (Option 2), in combination with other cumulatively considerable projects in the Study Area, on groundwater-dependent vegetation, invasive weeds, and rare plant species would be similar to that described above for the PSEGS. No Action Alternative A If No Action Alternative A were selected, the PSEGS would not occur at the project site and none of the associated impacts on natural vegetation communities described above would occur in the near term. However, since the ROW application area is located within the Riverside East SEZ, the CDCA Plan amendment decisions made in the Solar PEIS ROD that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the SEZ. It is likely, therefore, that this site in the future would be developed as a solar energy project. Such development could result in cumulative impacts similar to those of the PSEGS or PSPP; however, insufficient detail is known about any potential future solar project on the proposed site to provide a meaningful analysis. Palen Solar Electric Generating System Draft SEIS 4.17-12 July 2013

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I substituted pronouns with appropriate noun phrases related to Reconfigured Alternatives where applicable. If there's anything else or any specific part you need further clarification on, feel free to ask!Environmental Consequences 4.17 Impacts on Vegetation Resources 4.17.4 Summary of Mitigation Measures The Applicant voluntarily has committed to implementing as Applicant Proposed Measures (APMs) nearly all of the mitigation measures identified in the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.17.4 (p. 4.17-29), although some of the PSPP PA/FEIS mitigation measures have been revised to reflect differences between the Palen Solar Electric Generating System (PSEGS) and the PSPP. The full text of all Applicant Proposed Measures (APMs) is set forth in Appendix C. Specifically with respect to the Applicant Proposed Measures (APMs) that are intended to address potential vegetation-related impacts, the relevant differences between the Palen Solar Electric Generating System (PSEGS) and the Palen Solar Power Project (PSPP) include the Palen Solar Electric Generating System’s (PSEGS's): reduction in the amount of site grading proposed, elimination of reengineered water conveyance channels (affecting desert dry wash woodland and unvegetated ephemeral dry wash vegetation communities), and the changing legal statuses of rare plants based on the scale of data produced by regional project surveys. Mitigation ratios in the Applicant Proposed Measures (APMs) are the same as those included in the mitigation measures for the Palen Solar Power Project (PSPP). The Applicant Proposed Measures (APMs) reduce or avoid adverse impacts to Palen Solar Electric Generating System (PSEGS)-affected vegetation communities. The following mitigation measure is suggested to better protect vegetation resources that could be affected by the Palen Solar Electric Generating System (PSEGS): Supplemental Environmental Impact Statement (SEIS) Mitigation Measure BIO-1: Incorporate previously unsurveyed areas into the rare plant survey provisions of Applicant Proposed Measure (APM) BIO-19, Special-Status Plant Impact Avoidance, Minimization, and Compensation, to ensure that adequate spring and fall-season surveys are conducted of new Palen Solar Electric Generating System (PSEGS) areas. New Palen Solar Electric Generating System (PSEGS) areas that may not have been sufficiently surveyed include the proposed natural gas line extension, distribution yard, and gen-tie line reroute.

Noxious and Invasive Weeds Contributions of the Palen Solar Electric Generating System (PSEGS) to substantial cumulative indirect effects related to the spread of Sahara mustard and other invasive weeds into dunes and adjacent habitats would be addressed by the implementation of Applicant Proposed Measure (APM) BIO-8 (Impact Avoidance and Minimization Measures) and Applicant Proposed Measure (APM) BIO-14 (Weed Management Plan). See Appendix C for details.

Climate Change As discussed in Section 4.3, Impacts to Global Climate Change, potential losses of carbon sequestration on site due to disturbance of natural processes would be minor in comparison to the operation of the Palen Solar Electric Generating System (PSEGS), which would result in the offset of greenhouse gas (GHG) emissions from fossil-fueled power plants. Therefore, the Palen Solar Electric Generating System (PSEGS), even when considering greenhouse gas (GHG) emissions associated with construction and loss of naturally occurring carbon sinks, is anticipated to provide a net benefit in terms of greenhouse gas (GHG) reduction. Additionally, implementation of the identified Applicant Proposed Measures (APMs) for biological resources would further offset greenhouse gas (GHG) emissions due to the loss of naturally occurring carbon sequestration on site. These measures would compensate for loss of natural carbon sequestration potential and other impacts of climate change due to habitat loss by preventing the future development of desert lands through acquisition and permanent protection under conservation easements (Applicant Proposed Measure (APM) BIO-12, Applicant Proposed Measure (APM) BIO-19, Applicant Proposed Measure (APM) BIO-20, and Applicant Proposed Measure (APM) BIO-21), focusing the acquisitions into important linkages for species dispersal into critical refugia, restoring degraded portions of acquired lands (Applicant Proposed Measure (APM) BIO-19), and minimizing the size of the disturbance area along the linears (Applicant Proposed Measure (APM) BIO-8 and Applicant Proposed Measure (APM) BIO-19).

Native Cacti, Succulents, and Trees Biological surveys in 2009, 2010, and 2013 included an inventory of native cacti, succulents, and trees that are not designated as special-status or rare species, but are regulated to prevent unlawful harvesting. Potential impacts to these and other applicable non-listed plant species from the Palen Solar Electric Generating System (PSEGS) would be addressed through Applicant Proposed Measure (APM) BIO-8, Applicant Proposed Measure (APM) BIO-14, Applicant Proposed Measure (APM) BIO-23, and Applicant Proposed Measure (APM) BIO-24.

Closure and Decommissioning Potential impacts to vegetation resources from closure and decommissioning of the Palen Solar Electric Generating System (PSEGS) would be addressed by implementing Applicant Proposed Measure (APM) BIO-22, which would involve the preparation of a Decommissioning and Reclamation Plan and cost estimate that meets all applicable laws and regulations.

4.17.5 Residual/Unavoidable Adverse Impacts after Applicant Proposed Measures are Implemented The Palen Solar Electric Generating System (PSEGS) would have residual impacts to vegetation resources, eliminating some and degrading all of the Sonoran creosote bush scrub and other native vegetation communities within the disturbance area. Even with reduced soil grading activities, which would retain root structure, soil surfaces, and presumably surface hydrology over much of the solar field, the practice of maintaining vegetation height at a 12-inch maximum during project operations would stunt the growth or result in the death of larger canopy shrubs.This could result in secondary effects to understory plants in the Sonoran creosote bush scrub vegetation community. The Palen Solar Electric Generating System (PSEGS) would have residual sand shadow effects to downwind sand dune habitat in the Palen Dry Lake-Chuckwalla sand transport corridor. The Palen Solar Electric Generating System also would fragment and degrade adjacent native plant and wildlife communities, and could promote the spread of invasive non-native plants. Palen Solar Electric Generating System Draft SEIS 4.17-14 July 2013

320 4. Environmental Consequences 4.18 Impacts on Visual Resources This section analyzes the direct and indirect effects on visual resources that would occur with implementation of the Palen Solar Electric Generating System and identifies measures to avoid or reduce visual effects. Overall, the Palen Solar Electric Generating System would result in long-term visual alteration to approximately 3,794 acres of land managed under an Interim VRM Class III designation. Issues of viewshed and visibility are discussed at length in this section, and the reader may find it useful to refer to the viewshed map presented in Figure 3.19-3. 4.18.1 Impact Assessment Methodology The visual resources impact assessment methodology described in PSPP PA/FEIS Section 4.18.1 (p. 4.18-1) was used to analyze the Palen Solar Electric Generating System in this Draft SEIS. The analysis of direct and indirect impacts associated with the Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found on PSPP PA/FEIS pages 4.18-18 and 4.18-19, respectively. The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.18.3, below).

Selection of Key Observation Points The Palen Solar Electric Generating System Key Observation Points (KOPs) include 9 KOPs that were analyzed in the PSPP PA/FEIS 1 as well as 9 new KOPs identified in consultation with the BLM, Tribes, and the National Park Service (NPS). See PPSP PA/FEIS page 4.18-10 and the following for a description of the 9 KOPs shared by the PSPP and Palen Solar Electric Generating System. New KOPs are also described below. The new KOPs initially were identified as sensitive receptors (SR) in the Palen Solar Visual Resources Analysis Report (VRAR), completed by 3DScape. Sensitive receptors are vantage points on the landscape that represent important public and private views that could be affected by the Palen Solar Electric Generating System.

The contrast rating is done from the Key Observation Points, which represent the most critical viewpoints. The Key Observation Points are usually along commonly traveled routes or at other likely observation points. Factors that are considered in selecting Key Observation Points are: angle of observation, number of viewers, length of time the project is in view, relative project size, season of use, and light conditions (BLM Manual H-8431). Extensive research was conducted by 3DScape, as described in the Palen Solar Electric Generating System Visual Resources Analysis, to fully evaluate where sensitive receptors are located within the Chuckwalla Valley viewshed. The research relied heavily on previous studies of the visual environment and included published visual studies from the PSPP EIS.

The Key Observation Points for the PSPP PA/FEIS were researched and used where applicable. However, the Palen Solar Electric Generating System proposes a technology that has a substantially greater vertical presence. This requires using a much larger visual impact threshold distance to assure that all potentially visible areas are considered in the analysis. Other documents consulted include the Devers-Palo Verde 2 EIS, Desert Sunlight Solar Farm EIS, Genesis Solar Energy EIS, and the documentation of visual values from documents provided by BLM's Palm Springs South Coast Field Office's (PSSCFO) web site. Secondary research included BLM's Desert Access Guides, USGS quadrangle maps (1:24,000, 1:100,000, and 1:250,000), recent best science research on PSPP PA/FEIS Key Observation Point locations were relocated as closely as possible using GIS data and field-verification. Palen Solar Electric Generating System Draft SEIS 4.18-1 July 2013

321 4. Environmental Consequences 4.18 Impacts on Visual Resources visual impact threshold distances of renewable energy projects (Argonne National Laboratory), theoretical prediction of glare potential from renewable energy projects (Sandia National Laboratory), and the EISs for the Rio Mesa and Hidden Hills projects proposed by the Applicant using similar technology.Additionally, as stated earlier, the entire breadth of BLM's Solar PEIS is taken into consideration, particularly those discussions centered on the Riverside East SEZ (3DScape, 2013). Development of the KOPs for the PSEGS included consideration of 17 SR points located within the 30-mile-radius (2,827 square miles) visual impact threshold distance (VITD) boundary, as shown in Figure 3.19-3. Given the adjacency of JTNP and the sensitive receptors and dark sky of the JTNP, great care was given to areas administered by the NPS. The viewshed delineation and subsequent analysis of other data layers revealed that the PSEGS viewshed overlays 4.86 percent of JTNP. Because of the proximity of the Coxcomb Mountains, which are a part of the JTNP Wilderness Area, 10.1 percent of the JTNP Wilderness Area is within the PSEGS viewshed. This analysis employed a multiple criteria decision analysis matrix to quantitatively identify which of the SR locations were the most visually sensitive (3DScape, 2013). Based on this analysis, 9 of the 17 SRs were elevated to KOP status. These nine KOPs are added to the baseline visual conditions for the analysis. The SRs that were elevated to KOPs are KOPs 3A, 7A, 8A, 9A, 10A, 12A, 13A, 15A, and 17A. These new KOPs are spatially represented on Figure 4.18-1A.

Visual Simulations Computer-aided drafting and design (CADD), GIS, and GPS allowed for life-size modeling. These tools utilize real-world scale and coordinates to locate the PSEGS facilities, other site data, and the camera locations corresponding to three-dimensional (3D) simulation viewpoints. The CADD drawings and the KOPs were input into GIS and the camera positioning information was referenced to the 3D data set and the 3D modeling was generated. Using the computerized visual simulations, predicted future visual effects of the PSEGS for each KOP are described below. Visual contrast rating sheets for the PSEGS are not available for the original nine KOPs; however, contrast rating forms have been completed for the nine new KOPs based on the visual simulations.

Direct and Indirect Impacts of the PSEGS Project Appearance The PSEGS would convert approximately 3,896 acres (approximately six square miles) of naturally-appearing desert plain to an industrial facility characterized by complex, geometric forms, lines, colors, and textures that are dissimilar to the forms, lines, colors, and textures of the characteristic landscape. Described more fully in Section 3.19, the PSEGS would occur within the Chuckwalla Valley. The valley is characterized by the planar basin of the Chuckwalla Valley comprised of sandy soils and incised drainages, the sinuous lines of alluvial fans descending from the more textured bajadas, and the jagged lines and complex forms of the rugged mountains beyond. The colors generally transition from light tan basin soils mottled with intermittent patches of desert scrub vegetation; giving rise to the darker browns of the bajadas' desert varnish; to the browns, blues, and pinks of the mountains that lighten with their distance on the horizon. See Figure 3.19-1 for a representative photograph depicting the characteristic landscape.

Much of the developed area would be covered with two solar fields consisting of heliostats, generally arranged in concentric circles, each surrounding a power block and power tower at the centers of the two solar fields. Figure 4-18.2 shows example images of existing power tower facilities. Figure 4-18.3 shows a simulated rendering of the PSEGS from an oblique view to demonstrate the general configuration and appearance of the power tower facility in the landscape. Figure 4.18-3a includes a simulated rendering of the Project as the Project would be viewed from ground level, approximately 6 miles to the east, looking west from I-10. Due to the Project's proximity to the interstate, motorists traveling along I-10 are expected to be the user group most likely to encounter views of the Project. The solar fields of heliostats would occupy most of the disturbed area. Each of the heliostat assemblies would be comprised of two mirrors, each approximately 12 feet tall by 8.5 feet wide, with a total reflecting surface of 204.7 square feet. Figure 4.18-4 shows the size and reflectivity of typical heliostat mirrors.Each heliostat assembly would be mounted on a single pylon and rotate to track the movement of the sun. The final layout would be completed during detailed design, but the entire project is estimated to consist of a total of 170,000 heliostats (85,000 per solar field). Each solar field also would contain a 750-foot-tall power tower (topped by a 10-foot tall lightning rod) and associated power block, along with various buildings and structures for electrical generation and facility maintenance, which mostly range from 10 feet to 120 feet. The tallest proposed structures are the two power towers, followed by two boiler pump power distribution centers, each approximately 160 feet tall, and two air cooled condensers, each approximately 120 feet tall. The project would also include construction of an approximately seven-mile 230 kV power overhead transmission line mounted on poles rising to a maximum height of 120 feet, and a 0.56 mile underground natural gas pipeline extension. The transmission line would extend from the PSEGS electricity switchyard to the Red Bluff Substation. The Red Bluff Substation is located adjacent to and on the south side of I-10, west of the PSEGS site. Figure 2-2 shows the proposed gen-tie line alignment. A steel monopole design would be used for the gen-tie line. This analysis assumes the poles' base diameter would be 6 feet and the top diameter would be 3 feet; the poles would be spaced approximately 1,100 feet apart (Galati, 2013). Once constructed, the poles could have significant visual contrasts in the landscape. Chapter 2, Proposed Action and Alternatives, provides a detailed description of the PSEGS's proposed civil/structural features. The approximate dimensions of these features are summarized below (Table 4.18-1) for purposes of this analysis. Construction-Phase Impacts During the construction period, earth-moving activities and construction materials, equipment, trucks, and parked vehicles, all could be visible on the site and along the ROW. Construction would occur over a 34 month period, during which a number of activities would take place, including the construction of the towers and related structures, foundation pouring, earthwork, operation of a concrete batch plant, and heliostat assemblage and installation. The 203-acre temporary construction laydown area on the west side of the site would be used for equipment laydown, construction parking, construction trailers, a tire cleaning station, heliostat assembly, a temporary concrete batch plant and other construction support facilities. Figure 4.18-5 shows the Palen Solar Electric Generating System Draft SEIS 4.18-3 July 2013

323 4.Environmental Consequences 4.18 Impacts on Visual Resources TABLE 4.18-1 APPROXIMATE DIMENSIONS OF PROJECT STRUCTURES Dimensions (LxWxH) Footprint Component (Quantity) (Feet) / Capacity (square feet) Common Area Administration Building Including Control Room (1) 80x180x34 14,400 Maintenance Shops and Warehouse Building (1) 90x120x48 10,800 Firewater Storage Tank (1) 25x(N/A)x15 N/A Firewater Pump House (1) 12x36x10 432 Emergency Diesel Generator Enclosure (1) 12x18x10 216 Power Blocks #1 and #2 Solar Tower Including Solar Receiver Steam 75 (diameter) x750 (height) N/A Generator (2) Steam Turbine Generator Enclosure (2) 34x46x52 EA 1,564 EA Air Cooled Condenser (2) 220x300x120 EA N/A Steam Turbine Enclosure (2) 40x56x52 EA 2,240 EA Steam Turbine Generator Lube Oil Enclosure (2) 22x38x18 EA 836 EA Deaerator/Feedwater Heater Structure (2) 56x66x80 EA N/A Emergency Diesel Generator Enclosure (2) 12x32x12 EA 384 EA Plant Service Building (2) 56x100x16 EA 5,600 EA ACC Power Distribution Center (4) 14x50x16 EA 700 EA Fire Water Pump House (2) 36x12x12 EA 432 EA Demineralized Water Storage Tank (2) 26x(N/A)x26 EA N/A Service/Firewater Storage Tank (2) 40x(N/A)x30 EA N/A Mirror Wash Water Storage Tank (2) 25x(N/A)x21 EA N/A Boiler Pump Power Distribution Center (2) 50x14x160 EA 700 EA Waste Water Storage Tank (2) 25x(N/A)x23 EA N/A Water Treatment Power Distribution Center (2) 30x14x16 EA 420 EA Night Preservation Auxiliary Boiler (2) 10x12x12 EA N/A Start-up Auxiliary Boiler (2) 14x56x16 EA N/A Mirror Wash Vehicle Refueling and Storage Area 74x116x24 EA N/A Canopy (2) Mirror Wash Vehicle Storage Area Canopy (2) 40x184x20 EA N/A Wet Surface Air Cooler (WSAC) (2) 48x36x26 EA N/A Thermal Evaporation Unit (2) 34x18x64 EA N/A Residue Tank (2) 12x(N/A)x13 EA N/A Water Treatment Building (2) 66x90x26 EA 5,940 EA Generator Step-up Transformer (2) 12x26x22 EA N/A Drains Tank (2) 12x(N/A)x13 EA N/A SOURCE: Palen Solar Holdings, LLC, 2012. Palen Solar Electric Generating System Draft SEIS 4.18-4 July 2013 324 4. Environmental Consequences 4.18 Impacts on Visual Resources image of a typical construction staging area. PSEGS construction also would include the installation of temporary construction facilities including office trailers, parking areas, material laydown areas, a concrete batch plant, and a heliostat assembly facility. The construction would begin with site roads, and earthwork would include earthen berms around the power block areas to divert storm water, followed by the excavation and placement of foundations and other underground facilities. From the more common viewpoints (e.g., I-10), these construction activities generally would result in a moderate to high degree of visual contrast within the landscape, depending on the phase of construction. However, certain visual effects would be specific to construction activities, and could include the generation of large quantities of airborne dust and nighttime construction lighting. The affected viewers would be primarily the 5,300 motorists passing the project site during peak-hour weekday traffic on I-10, low numbers of OHV users, 204 Desert Center and Lake Tamarisk residents (US Census, 2010), and dispersed users seeking solitude and unconfined recreational opportunities in the surrounding designated wilderness. Although the construction period is estimated to occur over approximately 34 months, construction would be phased, so construction activities would not occur in any one place for the entire period. The maximum acreage estimated to be actively used on any single day is less than or equal to 260 acres. Activities that would generate dust, such as earthmoving, would occur episodically throughout the construction period, and nighttime construction lighting would be required to accommodate swing shifts.Generally, construction activities would occur from 5:00 a.m. to 3:30 p.m. with a swing shift during heliostat assembly (from 6:00 p.m. to 4:00 a.m.) and during tower construction (which may occur in three shifts around the clock until tower construction tasks are completed). Additional hours may be necessary to make up schedule deficiencies, or to complete critical construction activities (e.g., tower construction, foundation pouring, or working around time-critical shutdowns and constraints). During some construction periods and during the startup phase of the Palen Solar Electric Generating System, some activities would continue 24 hours per day, 7 days per week. Such activities may include but not be limited to the installation of heliostats and pouring of concrete for power towers. Many of the potential visual impacts associated with the Palen Solar Electric Generating System, such as potential visual impacts associated with the height and mass of the cooling towers, fencing, administrative complex and control buildings, and other features common to the projects, were also identified in the Palen Solar Power Project PA/FEIS. The mitigation measures identified in the PA/FEIS to minimize potential visual impacts have been adopted by the applicant and incorporated in the Palen Solar Electric Generating System. Such measures would apply equally to construction and operations activities unique to the Palen Solar Electric Generating System. These measures, identified in this Draft SEIS as Applicant Proposed Measures (APMs), are presented in Appendix C. Applicant Proposed Measures that would reduce visible dust emissions include limiting the speed of vehicles, surfacing construction access roads, and controlling wind erosion on soil stockpiles (see Applicant Proposed Measures AQ-SC-3 and AQ-SC-4). Measures to address the texture and color of project buildings and structures, including the power towers, are addressed in Applicant Proposed Measures VIS-1 and VIS-5, including the preparation of a Surface Treatment Plan in consultation with a BLM Visual Resource Specialist. When nighttime construction activities take place, illumination would be provided that meets state and federal worker safety regulations. To the extent possible, the Palen Solar Electric Generating System's nighttime construction lighting would be directed downward or toward the area to be illuminated and would incorporate fixture hooding/shielding. Task-specific Palen Solar Electric Generating System Draft SEIS 4.18-5 July 2013

325 4. Environmental Consequences 4.18 Impacts on Visual Resources lighting would be used to the extent practical while complying with worker safety regulations (See Applicant Proposed Measures VIS-3). Disturbed areas that would not be needed during operation and maintenance of the Palen Solar Electric Generating System would be restored, and temporarily disturbed areas would be recovered with soil, brush, rocks, and natural debris (see Applicant Proposed Measures BIO-8, BIO-22, and VIS-2). Due to the scale and strong forms and lines of the two power towers, Applicant Proposed Measures VIS-5 has been added to specifically address mitigation measures for the towers and power block structures. Operation-Phase Impacts During the operation of the Palen Solar Electric Generating System, visual effects would be caused by the visible elements of the Palen Solar Electric Generating System. The discussion below is divided between visual effects that are not fully captured by visual simulations (nighttime lighting and reflected sunlight/glare) and the visual contrast ratings of the Palen Solar Electric Generating System simulated in each Key Observation Point. Light and Glare (all Key Observation Points, with the exception of Key Observation Point-17A) Operational Lighting Palen Solar Electric Generating System operations would require onsite nighttime lighting for safety and security, and heliostat mirror washing, and would require aviation lighting for power tower structures (transmission facilities would not require aviation lighting). The site is located in an area with few existing structures, and the use of uncontrolled or excessive lighting would be noticed by nearby motorists, residents of Desert Center and Lake Tamarisk, and could affect the nighttime experience for dispersed recreational users in surrounding designated wilderness areas. Facilities and operations lighting plans would be developed in consultation with the BLM, Tribes, and National Park Service. As described more fully in Appendix C, Applicant Proposed Measures VIS-3, to reduce offsite lighting impacts, the Applicant would limit lighting at the facility to areas required for safety, security, and operation. The Applicant would consider setbacks of Palen Solar Electric Generating System features from the site boundary to aid in satisfying mitigation requirements. Lighting also would incorporate fixture hoods/shielding with light directed downward. Light fixtures that would be visible from the Right-of-Way boundary would have cutoff angles that would be sufficient to prevent light fixtures' visibility from beyond the Right-of-Way boundary, except where necessary for security. As much as practical, lighting would be of minimum necessary brightness. Lights in high illumination areas (such as maintenance platforms) would have switches and/or motion detectors so that the lights operate only when the area is occupied. Implementation of these Applicant Proposed Measures would minimize the amount of lighting potentially visible to viewers of the site at night. Because the height of the solar thermal power towers exceeds 200 feet, FAA compliant aircraft warning lights would be required (Federal Aviation Administration 2007).For the Palen Solar Electric Generating System (PSEGS), these high-intensity lights would flash white during the day and at twilight and red at night. Adverse effects of facility lighting are not necessarily limited to views of the site itself. Excessive lighting also could cause an adverse effect to viewers of the night sky via sky glow, which diminishes the visibility of the nighttime sky and stars. Visual simulations prepared by the Applicant indicate that the Palen Solar Electric Generating System Project lighting could be visible at night from locations as far away as 19 miles, including from locations north of Desert Center (12.4 miles), Northeast of Eagle Mountain (19.4 miles), and South of Eagle Mountain (15.6 miles) (Truescape, 2013). Prevention of offsite light spillage for ground observers does not necessarily prevent back-reflected light (i.e., light reflected off the ground and/or structures from down-directed lamps) from diminishing the visibility of the night sky. Normally, the contribution of project-related lighting is negligible when in an environment with abundant light sources; however, the area that could be affected by the Palen Solar Electric Generating System, specifically lands of National Park Service (NPS), is highly valued in terms of the quality of the lands of NPS's nighttime skies. This is attributable to the scarce and scattered nature of existing light sources in the surrounding area and the percentage of federally administered land allocated for conservation purposes in the region, which limits opportunities for development. While the level of use in the surrounding wilderness is considered to be low, the high visibility of the nighttime sky and stars is an important component of the wilderness experience for many backcountry users and the protection of the high visibility of the nighttime sky and stars is a priority management policy of NPS. While the Applicant Proposed Measures (APMs) would not totally eliminate the light visible by surrounding user groups, facility lighting would be minimized and controlled such that facility lighting would not be a nuisance and would not detract from the ability for affected viewers to enjoy their surroundings. Glint and Glare from the Heliostats and Power Tower Illumination Power tower projects generally have larger visual impacts compared to other solar technologies because of the relatively tall and brightly illuminated receiver towers. The solar receiver steam generators (SRSG) on top of the towers are approximately 68 feet tall and 100 feet wide. These dimensions result in an active receiver area of about 21,370 square feet when viewed straight on. In addition to the receiver towers and heliostat fields, the Palen Solar Electric Generating System would include other components that may have reflective surfaces, such as heliostat support structures, steam turbine generator components, piping, and fencing. The reflecting surface of the heliostat is essentially a mirror and, as such, is a highly reflective surface. Where visible, heliostats could display highly variable surface color and brightness. Viewed from certain angles, specular reflection, or an object's reflection of light towards an angle opposite that of its approach, might result in glint or glare from these surfaces, particularly from elevated viewpoints. Power tower facilities are typically configured with the heliostats arrayed in concentric circles around the central tower. Unlike parabolic trough collectors, heliostats of the Palen Solar Electric Generating System do not face the sun except when the sun and the SRSG are at the same angle from the heliostat's perspective, in which case the heliostats are pointing into the sky and not towards potential sensitive receptors at ground-level. At all other times that heliostats of the Palen Solar Electric Generating System are tracking the sun, the heliostats of the Palen Solar Electric Generating System would face approximately halfway between the sun and the SRSG. The only exception are mirrors in a 90-degree stow position. The only such mirrors allowed to point in the direction of I-10 are those which are blocked from the motorists' view by thousands of other heliostats (not pointed towards the highway). The heliostat supports would be primarily metal and would also reflect light. However, reflectivity of these surfaces would be lessened through Applicant Proposed Measures specifying paint or low reflectivity coatings, and these surfaces often would be shaded by the heliostats in any event.In addition to visual impacts from the tower structure, the sunlight focused on the Solar Receiver Steam Generator (SRSG) by the heliostats during normal operations causes the surface of the receiver to appear to glow with sufficient intensity to be visible for long distances; however, the apparent glow is actually diffuse reflected sunlight. The tower receivers can appear brilliantly white at close distances, and the light from relatively small-scale existing facilities has been observed at distances of 25 miles. The Applicant estimates that the intensity of light emitted from the SRSG is 70W/m². For comparison, the intensity of visible light from the sun is 80,000W/m², meaning that the glow of the receiver tower is estimated to be one-one thousandth that of the sun (0.1%). The perceived intensity of this reflection would vary based upon the angular size of the object from the vantage point of the viewer. Generally, as distance from the receiver increases, the angular size of the object decreases, as does the perceived intensity of the luminance. This intensity is measured by the visual angle (in radians), which is the ratio between the diameter of the receiver and the distance in meters of the viewer from the receiver. For example, at 1.86 miles from the receiver, the visual angle is 0.01 radians, which is about the visual angle of the sun. Moving away from the project site, the visual angle of the SRSG would be 0.037 radians at 0.5 miles, 0.018 radians at 1 mile, 0.009 radians at 2 miles, 0.004 radians at 5 miles, and 0.002 radians at 10 miles. The minimum viewing distance from I-10 towards the northwestern tower is 6,496 feet (1.23 miles), and the minimum viewing distance from I-10 towards the southeastern tower is 4,429 feet (0.84 miles) (PSH, 2013b). Observations to date have not shown the SRSG light to be as intense as the glare observed from parabolic trough facilities (Sullivan et al., 2012). In addition to heliostat reflections and glare from the SRSG, at certain times of the day and from certain angles, the reflection of sunlight on ambient dust particles in the air could occasionally result in the appearance of light streaming diagonally downward and/or upward from the tower in a luminous, transparent, tent-like form. Because the design and operation of the power tower and heliostats is integral to generating power, the heliostat mirrors cannot be color treated or dulled. Moreover, since the heliostats would be continually moving throughout the day, the backs of the heliostats would be seen equally as often as the fronts (assuming a fixed vantage point). The Applicant has incorporated the mitigation measures identified in the PSPP PA/FEIS to reduce the frequency of intensity of distracting light and reflected glare from the solar fields. Described more fully in Appendix C, these Applicant Proposed Measures include the painting or treatment of reflective surfaces, including, if necessary, the backs of the heliostats (see APMs TRANS-6, VIS-1, and VIS-5). With respect to glint and glare specifically, APM TRANS-6 includes provisions for documentation of heliostat position and movement, a description of the health and safety effects of the programmed heliostat operation, and development of a monitoring plan. To further reduce the potential for project-related glint and glare impacts, TRANS-6 is modified to include a Palen Solar Electric Generating System Draft SEIS 4.18-8 July 2013

4. Environmental Consequences 4.18 Impacts on Visual Resources pre-construction glint and glare assessment, as described under Section 4.18.4, Summary of Mitigation Measures, below. Despite the effectiveness of these measures, the measures would not eliminate the spread reflection or bright glow of the SRSG. The contribution of glint, glare, and receiver light impacts is considered in the contrast discussion of each Key Observation Point (KOP) below. Impacts of glint and glare on public safety are also addressed in Section 4.11, Public Health and Safety, of this Draft SEIS. Glint and Glare from Power Block Buildings, Administrative Buildings, and Transmission Lines The PSPP PA/FEIS addresses potential impacts associated with glint and glare from the PSPP power block buildings, administrative buildings, and transmission lines on page 4.18-10. The discussion is equally applicable to the Palen Solar Electric Generating System (PSEGS), and has not been supplemented.Visual Contrast Ratings To analyze the visual contrast in the landscape, the Palen Solar Electric Generating System (PSEGS) has been simulated in computer derived photographs of the area for original Key Observation Points (KOPs) 1-9 and new Key Observation Points (KOPs) 3A, 7A, 8A, 9A, 10A, 12A, 13A, 15A, and 17A, described in Section 4.18.1, above. Conclusions of Palen Solar Electric Generating System (PSEGS) visual contrast analysis presented below do not take into consideration the nighttime contrast (lighting color and intensity), which is discussed above. Documentation of the visual contrast ratings (BLM Form 8400-4, Visual Contrast Rating Worksheet) is included in Appendix G. Noted above, motorists traveling along California State Route 177 (CA 177) and Interstate 10 (I-10) are the single largest user group that would be exposed to the visual impacts associated with the Palen Solar Electric Generating System (PSEGS). Vehicles travel at high rates of speed along these routes and therefore drivers' views of the Project would be fleeting. Moreover, highway drivers have a narrower field of view than other users and are expected to be focused mainly on vehicle operation and road conditions in the immediate foreground. The duration of visual exposure for the average freeway traveler would be about 14 minutes. As such, the Palen Solar Electric Generating System (PSEGS) facility may not be as conspicuous for motorists traveling along California State Route 177 (CA 177) and Interstate 10 (I-10) as the Palen Solar Electric Generating System (PSEGS) would be for others with greater visual exposure (e.g., hikers, campers, and off-road vehicle (ORV) users) in the area. Key Observation Point (KOP)-1: Highway 177 and Palen Pass Road This Key Observation Point (KOP) represents the view for southbound motorists on Highway 117 (Figure 4.18-7). The project is located in a range of 13 to 16 miles south of this Key Observation Point (KOP). Although the solar fields and structures are greatly diminished due to distance, the glowing power tower receivers are prominently visible, appearing as two bright lights below the horizon of the Chuckwalla Mountains Wilderness. The low viewing angle (and long distance) reduces the visual contrast. Even though the power tower lights would be visible, due to the distance and intervening atmospheric haze, the intensity of the power tower lights is diminished. The power towers and associated facilities do not appear to dominate the landscape from this Key Observation Point (KOP). Glint, which is a momentary event, and glare from the heliostats could momentarily increase the color contrast of the Palen Solar Electric Generating System (PSEGS). Assumes an average visual distance of 15 miles and a travel speed of 65 miles per hour. Palen Solar Electric Generating System Draft SEIS 4.18-9 July 2013

4. Environmental Consequences 4.18 Impacts on Visual Resources The Applicant proposes a number of measures to reduce the degree of form, line, color and texture contrast. These measures, described more fully in Appendix C, would include applying color and texture treatments to proposed structures to blend in with the surrounding landscape, by restoring disturbed areas (such as revegetating the landscape), and by strategically placing structures and linear alignments to repeat the basic visual elements in the landscape (see TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6). For example, Figure 4.18-6 includes an image of vegetation that was preserved and trimmed under the installed heliostats of a constructed power tower project. The Applicant's development and implementation of a heliostat positioning plan, as described in TRANS-6, would prevent bright flashes due to movement in or out of stow position, but would not fully mitigate the effects of glint and glare. In summary, the Applicant Proposed Measures (APMs) would reduce glint and glare, and the Applicant Proposed Measures (APMs) are likely to reduce the degree of color contrast in the landscape. Although the Applicant Proposed Measures (APMs) would be visually beneficial, the Palen Solar Electric Generating System (PSEGS) still would be visible and could be perceived from Key Observation Point (KOP)-1. Key Observation Point (KOP)-2: Highway 177 at the edge of Joshua Tree Wilderness This Key Observation Point (KOP) represents the view for southbound motorists on Highway 117 and views from low-elevation portions of the far-eastern end of Joshua Tree National Park (JTNP) (Figure 4.18-8). In this portion of the Joshua Tree National Park (JTNP), there are no hiking trails, picnic areas, campgrounds or other visitor-serving facilities and thus visitor use in the area is expected to be low. The Palen Solar Electric Generating System (PSEGS) is located in a range of 8 to 11 miles southeast of this Key Observation Point (KOP), and all major elements of the project would be visible, including the power towers, power blocks, structures, and solar fields. The power towers would be more prominent from this viewpoint. The power tower on the left would break the horizon line of the Chuckwalla Mountains Wilderness. However, even though the power towers attract attention, the power towers do not dominate the landscape. Noted previously, the Applicant proposes several measures to reduce the length and intensity of glint and glare.Described more fully in Appendix C, these measures include treatment of reflective surfaces, revegetating disturbed soils, and incorporating design treatments to minimize visual intrusion, among others (see APMs TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6). Implementation of these measures would reduce the length and intensity of glint and glare of the solar fields and structures, and would be likely to reduce the degree of color contrast in the landscape; however, these efforts would not totally eliminate the contrast of the Palen Solar Electric Generating System (PSEGS) in the landscape.

KOP-3: Desert Lily Sanctuary entrance/parking area

This Key Observation Point (KOP) represents the view for low numbers of visitors to the Desert Lily Area of Critical Environmental Concern (ACEC) and off-highway vehicle (OHV) users (Figure 4.18-9). The PSEGS site is located in a range of 7 to 10 miles southeast of the Desert Lily Sanctuary entrance/parking area; all of the major elements of the PSEGS would be visible, including both power towers, power blocks, and solar fields. Both power towers rise above the horizon of the Chuckwalla Mountains Wilderness beyond, and the receiver lights appear to be more intense in brightness, but because of distance, the towers would not dominate the landscape. The project's incorporation of the above-described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6), would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence and illumination of the towers and receivers.

KOP-4: Eagle Mountain Road

This KOP represents the view for OHV users and dispersed recreational users (Figure 4.18-10). The proposed site is located in a range of 13 to 16 miles southeast of Eagle Mountain Road; all major elements of the PSEGS would be visible, including both power towers, power blocks, and solar fields. The power towers would be the tallest structures on the horizon and the bright lights of the receivers would be apparent; however, due to distance and associated atmospheric haze, these elements would not be expected to dominate the landscape. The project's incorporation of the above-described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6) would reduce the length and intensity of glint and glare, and would be likely to reduce the degree of color contrast in the landscape; however, the APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence and illumination of the towers and receivers.

KOP-5: I-10 Interchange at Desert Center

This KOP represents the view for eastbound motorists on I-10 at Desert Center (Figure 4.18-11). The PSEGS is located in a range of 8.5 to 11.5 miles east of the Desert Center I-10 Interchange. The degree of contrast primarily would result from the vertical power tower structures. During operation, the apparent glow of the receivers would attract attention from a casual observer. The solar field would be screened by vegetation and topography. Incorporation of the above-noted APMs (i.e., VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6) would reduce the visual contrast that might otherwise be created by the PSEGS's heliostat field and power block. However, there are no reasonable mitigation measures that would reduce the visual contrast of the two 750-foot-tall power towers protruding above the horizon.

KOP-6: Residential community entrance/exit in Desert Center

This KOP represents the view of the PSEGS for residents in the Desert Center area (Figure 4.18-12). The PSEGS is located in a range of 8.5 to 11.5 miles east of the residential community entrance/exit in Desert Center. The visible feature of the PSEGS from this KOP would be the power towers. Intervening topography and structures would screen views of the solar fields and power blocks from this viewpoint. The degree of visual contrast created by the PSEGS from this location would be the same as described above for KOP-5. Thus, for the same reasons described above, the visual contrast would draw attention from the common observer but would not dominate the landscape.

KOP-7: Corn Springs Road at the edge of Chuckwalla Mountains Wilderness

This KOP represents the view for northbound motorists on Corn Springs Road exiting the access points for the Chuckwalla Mountains Wilderness (Figure 4.18-13).

(The document continues...)The proposed site is located in a range of 1.5 to 4.5 miles north of this KOP; all of the major elements of the Palen Solar Electric Generating System (PSEGS) would be visible, including both power towers, power blocks, and solar fields. From this Key Observation Point (KOP), the Palen Solar Electric Generating System would result in a moderate to strong contrast. The strong contrast would come from the brilliant light of the power tower receivers, glare and glint from the solar fields, and the form of the power block structures and power towers, which are vertical, cubed, and rectilinear in a landscape that otherwise is largely absent of such forms. At all times, the Palen Solar Electric Generating System would likely be a major focus of viewer attention, largely because of the glow of the power tower receivers and structures in the landscape. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.18-11 July 2013.

Incorporation of Applicant Proposed Measures (APMs) would lessen the degree of visual contrast that might otherwise be created by the proposed solar field (see Appendix C, APMs TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6). Through these measures, the Applicant would reduce the degree of contrast by applying color and texture treatments to the project structures to blend in with the surrounding landscape, by revegetating disturbed areas, and by strategically placing structures and linear alignments to repeat the basic visual elements in the landscape. The proposed heliostat positioning plan (TRANS-6) would help prevent bright flashes due to movement in or out of stow position, but would not fully mitigate the effects of glare from diffuse reflections of the sun due to this viewpoint's elevated position. While the color and texture treatments would aid greatly in reducing the color and, due to the size and scale of the Palen Solar Electric Generating System, these measures are unlikely to be sufficient to reduce contrasts in form to moderate levels. Successful implementation of Applicant Proposed Measures would reduce the color contrast to acceptable levels, except while the power tower is in operation and during periods of glare.

KOP-8: I-10 eastbound near the southwestern corner of the Project. This Key Observation Point represents the view for eastbound motorists on I-10 (Figure 4.18-14). The proposed site is located 0.7 to 3.7 miles north of this Key Observation Point; most major elements of the Palen Solar Electric Generating System would be visible, including both power towers, power blocks, and solar fields. At this close viewing distance, the Palen Solar Electric Generating System would result in a strong contrast for all the design elements for the landscape features of vegetation and structures. The strong contrast would come from the brilliant light of the power tower receivers, glare and glint from the solar fields, and the form of the power block structures and power towers, which are vertical, cubed, and rectilinear in a characteristic landscape that is otherwise largely absent of such forms. At all times, the Palen Solar Electric Generating System would likely be a major focus of viewer attention, largely because the landscape is otherwise absent of large structures and the Palen Solar Electric Generating System would be dominant in the landscape. Incorporation of Applicant Proposed Measures would lessen the degree of visual contrast that might otherwise be created by the proposed solar field (see Appendix C, APMs TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6). Through these measures, the Applicant would reduce the degree of contrast by applying color and texture treatments to the However, due to the brightness of the power tower receiver and the size and scale of the Palen Solar Electric Generating System from this close distance, it is unlikely that the Applicant Proposed Measures would be sufficient to reduce contrasts in form, line, and texture to moderate levels. Successful implementation of these Applicant Proposed Measures would reduce the color contrast to acceptable levels, except during periods of glare.

KOP-9: I-10 westbound near the southeastern corner of the Project. This Key Observation Point represents the view for westbound motorists on I-10 (Figure 4.18-15). The proposed site is located 2.5 to 5.5 miles northwest of this Key Observation Point; the proposed power towers and power block structures would be visible. The solar fields appear to be screened by topography and Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.18-12 July 2013.\*\*Environmental Consequences 4.18 Impacts on Visual Resources vegetation.\*\* The degree of visual contrast created by the proposed power towers from this location is the same as described above for KOP-8. \*\*KOP-10 and KOP-11: Palen-McCoy Wilderness and Chuckwalla Mountains Wilderness\*\* There were no PSEGS simulations created for the PSPP PA/FEIS-analyzed KOP-10 (Palen-McCoy Wilderness) and KOP-11 (Chuckwalla Mountains Wilderness), thus Palen-McCoy Wilderness and Chuckwalla Mountains Wilderness are not included in the impact assessment. However, KOP-12A and KOP-15A were completed from very similar locations and will replace Palen-McCoy Wilderness and Chuckwalla Mountains Wilderness in this impact assessment. \*\*KOP-3A: Coxcomb Mountains Wilderness Area\*\* KOP-3A is located in the Coxcomb Mountains in lands managed by JTNP. Additionally, KOP-3A is located in Joshua Tree WA. The project site is to the southeast of KOP-3A. This view is characteristic of the view available to dispersed recreationists in JTNP. Visitor use can be expected to be low because of the lack of visitor services and no established or maintained trail networks. KOP-3A is 9.9 miles from the PSEGS site and occupies a topographically superior viewing angle. The contrast rating exercise demonstrates that the Project will produce moderate contrast to the landscape elements of line and form. Weak contrasts were further identified for color and texture. As demonstrated by the visual simulation from KOP-3A, the heliostat array is only faintly discernible from this vantage point due to the heliostat array's slightly inferior angle of observation. The viewer's ability to discern the heliostat field is important because of the heliostat field's extent and the heliostat field's color contrast with the existing ground plane. The PSEGS as seen from KOP-3A would create moderate visual contrasts of form and line, and weak visual contrasts of color and texture. The project would be in conformance with Class III Interim VRM objectives from this location. The project's incorporation of the above-described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6), would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence of the towers and illumination of the receivers. \*\*KOP-7A: Big Wash\*\* KOP-7A is located in JTNP, east of the WA boundary. There is easy access to KOP-7A by Hayfield Road and KOP-7A occupies a topographically superior viewing perspective. KOP-7A is located 15.5 miles from the PSEGS site and is 850 feet topographically superior. Sensitive users would be dispersed recreationists and motorists on lightly used Hayfield Road. Visitor use is expected to be low. The contrast rating exercise revealed KOP-7A experienced moderate contrast to line and form despite being in the BLM-defined seldom-seen zone. The details of the heliostat field are not visible at this distance. The SRSGs' glow would still be detectable to even the casual observer. The color and texture of the PSEGS created weak contrast but was still a discernible landscape feature and could be more contrasting during days with better atmospheric visibility. The Palen Solar Electric Generating System Draft SEIS 4.18-13 July 2013

333 4. Environmental Consequences 4.18 Impacts on Visual Resources simulations do not show any glare but the phenomena may occur as reflected sunlight strikes heliostats that are stowed or being cleaned. This glare would be brighter and more specular than the glare from the SRSG. If glare were to occur from this topographically superior position it would attract attention. The PSEGS as seen from KOP-7A would create moderate visual contrasts of form and line, and weak visual contrasts of color and texture. Therefore, the Project as viewed from KOP-7A would be in conformance with Class III Interim VRM objectives. The Project's incorporation of the above-described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6), would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence of the towers and illumination of the receivers. \*\*KOP-8A: Dragon Wash\*\* KOP-8A is located within JTNP, approximately a mile from the JTNP WA. KOP-8A is 15.9 miles from the PSEGS site.The elevation of KOP-8A is 1,390 feet AMSL, or 803 feet topographically superior to the Palen Solar Electric Generating System (PSEGS) site. The nearest power tower is 16.2 miles from KOP-8A. Visitors in the area around KOP-8A are primarily dispersed recreationists and those with interests in archaeology. KOP-8A is a very similar view to KOP-7A located in Joshua Tree National Park (JTNP); KOP-8A is four miles southwest of KOP-7A. The contrast rating exercise for KOP-8A produced similar results and conclusions; moderate contrast in form and line and weak contrast in color and texture. Therefore, the Project with the PSEGS would be in conformance with Class III Interim Visual Resource Management (VRM) objectives from the KOP-8A location. The Project's incorporation of the above-described Applicant Proposed Measures (APMs) (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6), would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the measures would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence of the towers and illumination of the receivers.

KOP-9A: Alligator Rock Area of Critical Environmental Concern (ACEC)

KOP-9A is located within public land administered by the Bureau of Land Management (BLM) and managed to protect significant prehistoric resources in the area. There are pictographs and lithic procurement areas in the ACEC. The Alligator Rock ACEC is 7,726 acres in size; the most notable landscape feature in the ACEC is the local landmark known as Alligator Rock. The topographic screening at KOP-9A obscures a considerable portion of the PSEGS site. Additively, the creosote scrub and small ironwood trees provide additional vegetative screening at KOP-9A. The contrast rating exercise conducted for KOP-9A provided these results: weak visual contrasts of form, line, color, and texture. Therefore, the Project with the PSEGS would be in conformance with Class III Interim VRM objectives from KOP-9A. The PSEGS Project's incorporation of the above-However, the APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence of the towers and illumination of the receivers.

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KOP-10A: Interstate-10 Eastbound

KOP-10A is located along the heavily traveled I-10 transportation corridor (approximately 5,300 vehicles per day). KOP-10A is located 6.4 miles from the nearest power tower. The elevation of the vantage point of KOP-10A is 810 feet AMSL, or 227 feet topographically superior to the PSEGS site. From KOP-10A on eastbound I-10, the PSEGS becomes more apparent because of the closer distance. The PSEGS site is located in the background from the KOP-10A vantage point. Details of the PSEGS Project are discernible from KOP-10A. Although the heliostat field is screened from view at this vantage point, the tops of the air-cooled condensers are visible as well as over 600 feet of the power tower concrete base and Steam Receiver System Generator (SRSG). The cylindrical form of the power tower becomes apparent in the view from KOP-10A. This view has many cultural modifications, including power lines and an electrical substation, which distract from the characteristics of the natural landscape. There is co-dominance with the substation and transmission line towers, all with a large vertical presence from KOP-10A. The contrast rating exercise for KOP-10A identified a strong contrast with the element of line; a moderate contrast in form, and weak contrast with texture and color. This can be directly attributable to the screened heliostat array. The two power towers would protrude above the horizon as seen from KOP-10A and would attract attention and produce strong "line" contrasts directly in the cone of vision of eastbound I-10 travelers. Cylindrical form contrasts are moderate, and color and texture contrasts are weak as seen from KOP-10A. The two visible power towers would create a major modification of the existing character of the Chuckwalla Valley as seen from the freeway. The tall height and the heavy mass of the towers would become the major focus of viewer attention as seen from KOP-10A. Taken as a whole, visual impacts to KOP-10A resulting from the PSEGS Project are expected to be significant, both as for the project as proposed and as mitigated, per BLM VRM standards, guidelines, and best management practices (BMPs).There are no feasible mitigation measures that could be applied that would reduce the visual contrast of the two 750-foot-tall power towers protruding above the horizon. Vegetative screening and/or architectural screening of the 750-foot-tall power towers is not feasible. Thus, the PSEGS's effect on visual resources from KOP-8A would not be brought into conformance with Class III Interim VRM objectives and would be considered an adverse impact on the landscape. The Project's incorporation of the above described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6), would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the described APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence of the towers and illumination of the receivers. KOP-12A (Replaces KOP-11): Chuckwalla Mountains Wilderness Area This vantage point is within the Chuckwalla Mountains WA and is located on the extensive bajada on the northeastern slope of the Chuckwalla Mountains. KOP-12A is located just over five miles from the nearest power tower. Palen Solar Electric Generating System Draft SEIS 4.18-15 July 2013" 335 "4. Environmental Consequences 4.18 Impacts on Visual Resources The strong contrasts of form, line, and color created by the PSEGS would create a major modification of the existing character of the Chuckwalla Valley and Palen Dry Lake as seen against the backdrop of the Palen Mountains. The Project would be a new dominant feature of the landscape visible from this KOP, which is representative of use areas in this wilderness. The Project would change the existing visual character of the viewshed. The two 750-foot-tall solar power towers are the most visually noticeable elements, and from this view at KOP-12A, the heliostat fields are highly visible too. The heliostat fields are horizontal in line and form, shiny silver or blue in color, and smooth in texture. These characteristics create a strong degree of contrast in form, line, and color and a weak degree of contrast in texture. The Project would change the character of the area, and would dominate the landscape and become the major focus of viewer attention as seen from KOP-12A. Taken as a whole, visual impacts to KOP-12A resulting from the PSEGS would be significant and unmitigable, per BLM VRM standards, guidelines, and best management practices (BMPs). Thus, the PSEGS's effect on visual resources from KOP-12A would not be brought into conformance with Class III Interim VRM objectives and would remain adverse. There are no reasonable or feasible mitigation measures that could be applied that would reduce the visual contrast of the two 750-foot-tall power towers, the elevated air cooled condensers, or the expansive heliostat fields. Vegetative screening and/or architectural screening of these features is not feasible. The Project's incorporation of the above described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6), would reduce contrasts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the above described APMs would not totally eliminate the contrast of the PSEGS in the landscape due to the vertical presence of the towers and illumination of the receivers. KOP-13A: Interstate-10 Westbound KOP-13A is from westbound I-10, 6.4 miles from the PSEGS site. KOP-13A occupies a typical perspective of the landscape of the Chuckwalla Valley. The two power towers would protrude above the horizon, attract attention, and produce strong "line" contrasts. Form contrasts are moderate, and color and texture contrasts are weak as seen from the westbound freeway. The two visible power towers would create a major modification of the existing character of the Chuckwalla Valley as seen from the freeway. The PSEGS would be a strongly contrasting feature in form, line, and color within the landscape visible from KOP-13A due to the vertical presence of the towers and illumination of the receivers. The Project would become the major focus of viewer attention as seen from KOP-13A. Taken as a whole, visual impacts to KOP-13A resulting from the PSEGS are expected to be significant and unmitigable, per BLM VRM standards, guidelines, and best management practices (BMPs). Thus, the PSEGS's effect on visual resources from KOP-8A would not be brought into conformance with Class III Interim VRM objectives and would remain adverse.There are no reasonable or feasible mitigation measures that could be applied that would reduce the visual contrast of the two 750-foot-tall power towers protruding above the horizon. Vegetative screening and/or architectural screening of the two 750-foot-tall power towers is impractical. The Project's incorporation of the above described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and Palen Solar Electric Generating System Draft SEIS 4.18-16 July 2013) would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape.

KOP-15A (Replaces KOP-10): Palen McCoy Wilderness Area

KOP-15A is in the Palen McCoy Wilderness Area, approximately 6 miles from the Palen Solar Electric Generating System site. The image was captured in 2010 by AECOM and the Palen McCoy Wilderness Area vantage point was used as KOP-10A in the Palen Solar Power Project EIS. The elevation from the Palen McCoy Wilderness Area vantage point provides an excellent perspective of the southern Chuckwalla Valley. The Palen McCoy Wilderness Area vantage point is one mile from an access road into the Palen McCoy Wilderness Area.

The strong contrasts of form, line, and color created by the Palen Solar Electric Generating System would create a major modification of the existing character of the Chuckwalla Valley and Palen Dry Lake, as seen against the backdrop of the Chuckwalla Mountains. The Project would be a new dominant feature of the landscape visible from the Palen McCoy Wilderness Area. The Project would change the existing visual character of the viewshed.

The two 750-foot-tall solar power towers would be the most visually noticeable elements, and from this view at KOP-15A, the elevated air-cooled condensers and heliostat fields would be highly visible too. The Project would change the character of the area, dominate the view, and become the major focus of viewer attention as seen from KOP-15A. The visual character in the area of Palen Dry Lake would change from open space desert to that of a developed, industrial landscape. The overall visual impact of the Palen Solar Electric Generating System would completely alter the existing undeveloped scenic quality of this characteristic landscape, and convert the Palen Solar Electric Generating System to an industrialized solar-electric landscape. However, some viewers may see the development of a solar resource facility as a point of positive visual interest. Taken as a whole, visual impacts to KOP-15A resulting from the Project would be significant and unmitigable, per BLM Visual Resource Management standards, guidelines, and best management practices (BMPs). Therefore, the Palen Solar Electric Generating System would not comply with the definition of Class III, above, as seen from KOP-15A in the Palen / McCoy Wilderness Area.

There are no reasonable or feasible mitigation measures that could be applied that would reduce the visual contrast of the two 750-foot-tall power towers, the elevated air cooled condensers, or the expansive and highly reflective heliostat fields. Vegetative screening and/or architectural screening of these features is impractical, if not impossible. Thus, the Palen Solar Electric Generating System's effect on visual resources from KOP-15A would not be brought into conformance with Class III Interim Visual Resource Management objectives and would remain adverse.

The Project's incorporation of the above described APMs (i.e., TRANS-6, VIS-1, VIS-2, VIS-4, VIS-5, and VIS-6) would reduce impacts associated with the length and intensity of glint and glare, and the degree of color contrast in the landscape. However, the above described APMs would not totally eliminate the contrast of the Palen Solar Electric Generating System in the landscape due to the vertical presence of the towers and illumination of the receivers.

KOP-17A: Bradshaw Trail

The Bradshaw Trail's vantage point (SR-17) is located in the SW 1/4, SE 1/4, Sec. 9, T8S, R20E SBB&M. SR-17 is 22.8 miles from the nearest power tower. The elevation of KOP-17A is 589 feet AMSL, or 32 feet topographically superior to the PSGES site. The Palen Solar Electric Generating System is not visible from KOP-17A.

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Impacts to BLM Wilderness Areas and Joshua Tree National Park

The four wilderness areas in the vicinity of the proposed site have no developed trails, or adjoining parking/ trailheads, or other visitor use facilities. These areas are generally steep, rugged mountains. Visitor use within the wilderness areas appears to be very light, although BLM has no visitor use counts.\*\*Observations by staff and Law Enforcement Rangers indicate only 100 to 200 hikers per year within the wilderness areas. Visitation to the desert peaks listed by the Sierra Club Angeles Chapter is discussed in PA/FEIS Chapter 3 (page 3.13-4). More popular is vehicle camping along roads that are adjacent to the wilderness areas. RV camping near wilderness areas, with associated hiking, OHV use, photography, sightseeing, etc. accounts for up to 2,000 visitors per year. Figures 3.19-3 and 3.19.3a show designated wilderness areas within the PSEGS viewshed. Views of the Palen Solar Electric Generating System (PSEGS) from special designations generally would be in mountainous areas that offer elevated viewpoints similar to KOP-4A, KOP-10A, and KOP-11A. Users of these areas would be able to view the Palen Solar Electric Generating System (PSEGS), but opportunities for solitude and unconfined recreation would not be greatly impacted due to the distance of the Palen Solar Electric Generating System (PSEGS) from the wilderness area. Where the Palen Solar Electric Generating System (PSEGS) would be readily visible in mountainous areas beyond five miles, the level of contrast would remain moderate because the Palen Solar Electric Generating System (PSEGS) would not dominate the view as a whole. While the proposed power tower receiver lights may be noticeable, the proposed power tower receiver lights would not overwhelm or dominate the panoramic views or more visually appealing elements of the scene, such as the rugged mountain ranges, the open sky, and the undisturbed portions of the valley floor. For portions of designated wilderness within 5 miles of the site, the level of contrast would be strong because the Palen Solar Electric Generating System (PSEGS) could dominate views of the valley and would not be in compliance with Visual Resource Management (VRM) objectives, as discussed above for KOP-10A and KOP-11A. The portion of Joshua Tree National Park (JTNP) where the Palen Solar Electric Generating System (PSEGS) could be visible would be within the background visibility zone and does not contain visitor-serving facilities such as hiking trails, campgrounds, or picnic areas. For the reasons above, impacts on the visitor experience to Bureau of Land Management (BLM) wilderness and Joshua Tree National Park (JTNP) would be minor.\*\*

\*\*Decommissioning: The purpose of decommissioning is to remove project-related structures and infrastructure so that affected lands could naturalize. However, until landform and vegetative restoration is achieved, adverse visual impacts would be similar to those described in the operation-phase impacts, because large areas would be devoid of desert scrub vegetation. The impacts of decommissioning would be somewhat reduced in intensity, however, as compared to construction, because the contrast created by the power towers, power block structures, and solar fields would be removed. The contrast in the design elements of form and line would remain. These impacts would be reduced through the Applicant Proposed Measures (APMs), which would incorporate techniques to reduce areas of disturbance, revegetate impacted areas, and select plant species appropriate for the surrounding landscape (see VIS-2 and VIS-4 for additional details). Furthermore, upon closure of the facility, the Applicant would implement the Project's Decommissioning and Reclamation Plan, along with numerous proposed impact avoidance and minimization measures (see Appendix C, APMs BIO-8, BIO-22, VIS-4, and VIS-4). These efforts would ensure the visual impacts of decommissioning are minor and short-term and the site is returned to a condition that is visually compatible with the surrounding characteristic landscape.\*\*

\*\*Palen Solar Electric Generating System Draft SEIS 4.18-18 July 2013. 338 4. Environmental Consequences 4.18 Impacts on Visual Resources 4.18.3 Cumulative Impacts PSEGS: Impacts resulting from construction, operation, maintenance, and decommissioning of the Palen Solar Electric Generating System (PSEGS) could result in a cumulative effect on visual resources when combined with the incremental effects of past, other present, or reasonably foreseeable future actions. The geographic scope of the cumulative effects analysis for visual resources consists of the I-10 corridor (where visual impacts could be synergistic) and locations from which a viewer could see the Palen Solar Electric Generating System (PSEGS) along with views of other projects (where visual impacts could be additive). This geographic scope of cumulative impacts analysis was established based on the natural boundaries of the affected resource, i.e., potential shared viewsheds, and not on jurisdictional boundaries. Potential cumulative effects on visual resources could occur during the proposed 34-month construction period (e.g., from cumulative construction disturbances), during the projected lifespan of the Palen Solar Electric Generating System (PSEGS) (e.g., project form, line, color, and/or texture contrast with the landscape, including contrasts from glint and glare), or result from closure and decommissioning (e.g., until restoration efforts return the landscape to its original condition). Existing conditions within the area of cumulative effects analysis reflect a combination of the natural condition and the effects of past actions and are described in Chapter 3. Direct and indirect effects of the Palen Solar Electric Generating System (PSEGS) are analyzed above.\*\*Direct and indirect effects of the alternatives described in Chapter 2 are analyzed in the PSPP PA/FEIS (see page 4.18-18 et seq.). Past, present, and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1.4, Cumulative Scenario Approach. These include the Blythe, Genesis, Rice, Palen, Desert Sunlight, Chuckwalla, Eagle Crest Pump Storage, Nextera McCoy, Desert Quartzsite, and Mule Mountain Soleil solar power projects and associated generation-tie lines. The Blythe, Genesis, Rice, Palen, Desert Sunlight, Chuckwalla, Eagle Crest Pump Storage, Nextera McCoy, Desert Quartzsite, and Mule Mountain Soleil solar power projects are expected to result in synergistic visual impacts for travelers along I-10, as well as visual impacts to dispersed recreational users in the surrounding areas. Visual changes as a result of other projects in the cumulative scenario could be located within the line of sight for travelers along I-10 viewing the project. Related cumulative effects are analyzed in the PSPP PA/FEIS (see page 4.18-20 et seq.). This analysis applies equally to the Palen Solar Electric Generating System and has not been supplemented. Dispersed wilderness users, including recreational users, in the Palen-McCoy Mountains, Chuckwalla Mountains, JTNP, and Joshua Tree Wilderness surrounding the project - due to the dispersed wilderness users' elevated position and access to unencumbered, panoramic views of the valley below - could experience both additive and synergistic impacts in the cumulative scenario. Related cumulative effects are analyzed in the PSPP PA/FEIS (see page 4.18-21 et seq.). This analysis applies equally to the Palen Solar Electric Generating System and has not been supplemented. Reconfigured Alternative 2 (Option 1 and Option 2) Direct and indirect effects of Reconfigured Alternative 2 (Option 1 and Option 2) are analyzed in the PSPP PA/FEIS (see page 4.18-18 et seq.). Reconfigured Alternative 2 would have a similar Palen Solar Electric Generating System Draft SEIS 4.18-19 July 2013 4. Environmental Consequences 4.18 Impacts on Visual Resources effect with respect to visual resources. Visual resource impacts would remain adverse for Reconfigured Alternative 2. However, Reconfigured Alternative 2 would not include the power towers and associated visual resource impacts. If No Action Alternative A was selected, the Palen Solar Electric Generating System would not occur at the project site. However, since the ROW application area is located within the Riverside East SEZ, the CDCA Plan amendment decisions made in the Solar PEIS ROD that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the SEZ. It is likely, therefore, that this site in the future would be developed as a solar energy project. Nonetheless, because no existing or foreseeable projects are located within the cumulative effects area of the project site, no cumulative impacts to visual resources would be created. Described in Chapter 2, Proposed Action and Alternatives, the Applicant has incorporated into the Palen Solar Electric Generating System nearly all of the mitigation measures identified in the PSPP PA/FEIS. The mitigation measures, referred to in this Draft SEIS as APMs are included in Appendix C. Specific modifications to the mitigation measures to further address the potential effects of the Palen Solar Electric Generating System are shown below with added text underlined and deleted text in strikethrough. Please see Appendix C for a full description of the mitigation measures. No additional measures are feasible or would appreciably reduce the residual visual resource impacts, after incorporation of the APMs. The project owner shall treat the surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion and contrast by blending with (matching) the existing characteristic landscape colors; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent, when possible, with local policies and ordinances. The transmission line conductors shall be non-specular and non-reflective, and the insulators shall be non-reflective and non-refractive. Grouped structures shall be painted the same color to reduce visual complexity and color contrast. Temporary and Permanent Exterior Lighting.To In addition to measures identified in VIS-6, and to the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting and all temporary construction lighting such that a) the lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) the lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except for required FAA aircraft safety lighting (which should be an on-demand, audio-visual warning system that is triggered by radar technology if allowed by FAA regulations and if the cost is no more than $1 million for both towers); d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with federal and state OSHA and with local policies and ordinances. The project owner shall submit to BLM's Authorized Officer and the CPM for review and approval, and the project owner shall submit to the County of Riverside and NPS Joshua Tree NP (see VIS-6) for review and comment a lighting mitigation plan. VIS-4: Project Design. To the extent possible, the project owner will use proper design fundamentals to reduce the visual contrast to the characteristic landscape. These design fundamentals include proper siting and location; reduction of visibility; repetition of form, line, color (see VIS 1) and texture of the landscape; and reduction of unnecessary disturbance. Design strategies to address these fundamentals will be based on the following factors: ... Vegetation Manipulation: Retain as much of the existing vegetation as possible. Use the existing vegetation to screen the development from public viewing. Use scalloped, irregular cleared edges to reduce line contrast as determined in VIS-1. Use irregular clearing shapes to reduce form contrast. Feather and thin the edges of cleared areas and retain a representative mix of plant species and sizes. ... Signs: The use of signs and project construction signs shall be minimized. Necessary signs shall be made of nonglare materials and utilize unobtrusive colors. The reverse sides of signs and mounts shall be painted or coated by using the most suitable color selected from the BLM Standard Environmental Color Chart or other sources approved by BLM to reduce color contrasts with the existing landscape; however, placements and design of any signs required by safety regulations must conform to regulatory requirements. Linear Alignments: Use existing topography to hide induced changes associated with roads, lines, and other linear features. Select alignments that follow landscape contours. Avoid fall-line cuts and bisecting ridge tops. Hug vegetation lines and avoid open areas such as valley bottoms. Cross highway corridors and less sharp angles. The visual color contrast of graveled surfaces shall be reduced with approved color treatment practices. Construction: No paint or permanent discoloring agents shall be applied to rocks or vegetation to indicate surveyor construction activity limits. All stakes and flagging shall be removed from the construction area upon completion of construction and disposed of in an approved facility. VIS-5 (Previously Identified as BLM-VIS-1): Power Block and Power Tower Appearance. In addition to the measures identified in VIS-1, the project owner shall paint power blocks structures and other vertical construction shadow gray as shown on the BLM Color Chart. The solar tower may be left untreated concrete. The backs of solar troughs heliostat mirrors shall also be color treated to minimize color contrasts designed to minimize reflectivity. TRANS-6: Heliostat Positioning Plan. The project owner shall prepare and implement a Heliostat Positioning Plan that would minimize potential for human health and safety hazards and bird injury or mortality from solar radiation exposure. The Heliostat Positioning Plan shall accomplish the following: Palen Solar Electric Generating System Draft SEIS 4.18-21 July 2013

341 4. Environmental Consequences 4.18 Impacts on Visual Resources ... 2) Assess the effects of the potential glint and glare associated with the proposed heliostat positions and movements determined through Item 1. The assessment shall quantify the potential glint and glare effects and determine public health, safety, and visual impacts at KOPs identified in the PSEGS Draft SEIS. In addition, the analysis shall identify the maximum project-related glint and glare that could be experienced by motorists along I-10. The assessment shall be conducted by qualified individuals using appropriate and commonly accepted software and procedures. The assessment results must be made available to the BLM in advance of project approval. If the project design is changed during the siting and design process such that substantial changes to glint and glare effects may occur, the glint and glare effects shall be recalculated, and the results shall be made available to BLM.4.18.5 Residual Impacts after Mitigation Measures were Implemented Even with adherence to all APMs, residual impacts to visual resources would remain. Section 4.18.6 provides a description of these residual impacts. 4.18.6 Unavoidable Adverse Impacts 1. Visual impacts to surrounding viewer groups (all KOPs, except 17A) from the single, strong vertical power tower forms (2 total) that would contrast strongly with the natural forms colors, lines and texture of the landscape. For example, the power tower forms are a strong tower line contrast with the horizon lines. Additionally, the brilliant white light of the receiver at the top of the towers would present a unique and strong color contrast that generally would be very conspicuous, even at long distances as seen by the casual observer. 2. Visual impacts to surrounding viewer groups (all KOPs, except 17A) from sunlight reflected off of the heliostat mirrors (glare) would also remain. 3. Visual impacts due to the general level of visual contrast of the PSEGS in the landscape, and non-conformance with Interim VRM Class III objectives would also persist. 4. Unavoidable and adverse cumulative impacts for travelers along I-10 and dispersed recreational users in the Palen/McCoy, Big Maria, and Little Maria Mountains and wilderness would occur. Palen Solar Electric Generating System Draft SEIS 4.18-22 July 2013

342 4. Environmental Consequences 4.19 Impacts on Water Resources 4.19.1 Impact Assessment Methodology The water resources impact assessment methodology described in PSPP PA/FEIS Section 4.20.1 (p. 4.19-1) was used to analyze the PSEGS in this Draft SEIS, which evaluates the proposed natural gas pipeline to the south and shifted gen-tie line route, each of which is located outside the area specifically considered in the PSPP PA/FEIS. The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Section 4.19.2 of the PSPP PA/FEIS (see page 4.19-18 et seq., and page 4.19-20 et seq., respectively). Potential cumulative impacts for all alternatives are analyzed in Section 4.19.3, below based on an updated cumulative scenario. This analysis is based, in part, upon information from the following sources: the Revised Plan of Development (POD) submitted February 8, 2013 by Palen Solar III, LLC to the Bureau of Land Management (Palen Solar III, LLC, 2013); the Petition to Amend for PSEGS submitted on December 17, 2012 by Palen Solar Holdings LLC (Palen Solar Holdings, LLC, 2012); the Developed Conditions Drainage Assessment for PSEGS (VTN Consulting, 2013); and Stormwater Pollution Prevention Plan or SWPPP (CH2MHill, 2013). 4.19.2 Direct and Indirect Impacts of the PSEGS The PSEGS differs from the PSPP in ways that result in different potential effects on water resources. For example, the PSEGS would: 1. Reduce water use during operation from up to 300 acre-feet per year (AFY) to 201 AFY; 2. Reduce water use during construction from 1,917 AFY (total of 5,750 acre feet) to 400 AFY (total of 1,130 acre feet); 3. Eliminate the large drainage control channels; 4. Reduce the number and acreage of evaporation ponds from up to two 4-acre ponds for each power block (as was proposed for the PSPP) to two 2-acre ponds for both Unit 1 and Unit 2 of the PSEGS; 5. Eliminate Therminol from the site; and 6. Eliminate the land treatment units (LTUs) that had been proposed for the treatment of Therminol-contaminated soils. Groundwater The PSEGS would use up to 10 groundwater wells. The amount of groundwater required during construction is estimated to be approximately 1,130 acre feet. During operations, an estimated 201 acre-feet per year (AFY) of groundwater would be required (Palen Solar Holdings LLC, 2012). Palen Solar Electric Generating System Draft SEIS 4.19-1 July 2013

343 4. Environmental Consequences 4.19 Impacts on Water Resources Currently, the Chuckwalla Valley Groundwater Basin (CVGB) balance is positive by approximately 2,608 AFY.Total inflow of approximately 13,719 AFY is slightly greater than the estimated outflow of approximately 11,111 AFY. Approximately 400 AFY is attributed to subsurface outflow to the adjacent Palo Verde Mesa Groundwater Basin (PVMGB). The groundwater withdrawals proposed under the Palen Solar Electric Generating System (PSEGS) would have an impact on the balance in the Chuckwalla Valley Groundwater Basin (CVGB). However, pumping for the Palen Solar Electric Generating System (PSEGS) would not exceed net average recharge to the basin. The groundwater table in this area is greater than 100 feet bgs as reported in the Palen Solar Power Project (PSPP) PA/FEIS (p. 4.19-26) and the Bureau of Land Management (BLM) has no information suggesting that the groundwater table has changed since the Palen Solar Power Project (PSPP) PA/FEIS was issued. Based on the current understanding of the hydrogeology and existing wells, it is unlikely that groundwater pumping for the Palen Solar Electric Generating System (PSEGS) would cause any nearby wells to go dry or be rendered unusable by declining groundwater levels. However, some groundwater level decline would be expected that could affect nearby wells. Monitoring of water levels in nearby wells as described in the Applicant Proposed Measures (APMs) would identify any such impacts (see Appendix C, SOIL&WATER-4).

Groundwater Drawdown Concerns Effects on Existing Wells Discussed more fully in Palen Solar Power Project (PSPP) PA/FEIS Section 4.19.2 (p. 4.19-1 et seq.), drawdown imposed by a well on another nearby well can have adverse effects. The extent and type of well interference experienced by an affected well is dependent on hydrogeologic conditions in the aquifer as well as the characteristics of the affected well. A range of potential impacts that could result to existing wells from the drawdown are identified on Palen Solar Power Project (PSPP) PA/FEIS page 4.19-4. The Palen Solar Electric Generating System (PSEGS) could cause the same types of effects.

Effects on Phreatophytes and Halophytes As discussed on Palen Solar Power Project (PSPP) PA/FEIS pages 4.19-4 and 4.19-5, phreatophyte trees (such as mesquite, ironwood, and palo verde) have deep root systems that can extend tens of feet below the ground surface to the underlying water table. In addition, wet playas can harbor halophyte plant communities that depend on a shallow water table for their moisture. Lowering of the water table below the root depth of these plants could result in stress or death. The nearest potential wetland or halophyte communities would be near Palen Dry Lake, approximately 3.6 miles from the proposed site. A preliminary estimate of the Palen Solar Power Project (PSPP)-related groundwater level decline (i.e., approximately 0.2 to 0.6 feet at the end of 33 years of operation) is provided on Palen Solar Power Project (PSPP) PA/FEIS page 4.19-5. The Palen Solar Electric Generating System (PSEGS) could cause the same types of effects, but to a lesser extent since anticipated water requirements would be less. The Palen Solar Electric Generating System (PSEGS) is not anticipated to substantially alter water levels due to groundwater production beneath this area.

Effects on Surface Water Features Potential impacts to surface water features from drawdown resulting from the Palen Solar Electric Generating System (PSEGS) are discussed on Palen Solar Power Project (PSPP) PA/FEIS page 4.19-5. The Palen Solar Electric Generating System (PSEGS) could cause the same types of effects as the Palen Solar Power Project (PSPP), but likely to a lesser extent since the Palen Solar Electric Generating System (PSEGS)'s anticipated water requirements would be less. Palen Solar Power Project (PSPP) PA/FEIS Section 3.20, Water Resources, describes surface water features in the area, including one spring (Corn Spring), two perennial springs (McCoy Spring and Chuckwalla Spring), and other surface water sites such as Ford Dry Lake Playa, Palen Dry Lake, Coxcomb wash, tenejas, and wildlife water guzzlers (see, e.g., Palen Solar Power Project (PSPP) PA/FEIS p. 3.20-19). Drawdown caused by the Palen Solar Electric Generating System (PSEGS) would be expected to have a negligible effect on the contribution of groundwater to Corn Spring, which appears to derive its water from precipitation falling onto the Chuckwalla Mountains, and movement of groundwater under pressure along a historic fault that bisects the mountains. Drawdown caused by the Palen Solar Electric Generating System (PSEGS) also would be expected to have a negligible effect on the contribution of groundwater to the McCoy and Chuckwalla springs, which are located farther from the site, 19 miles and 16 miles from the site, respectively. For the same reasons discussed on Palen Solar Power Project (PSPP) PA/FEIS page 4.19-5, the Palen Solar Electric Generating System (PSEGS)'s impacts on Ford Dry Lake Playa and Palen Dry Lake would be minor to negligible. Coxcomb wash, tenejas, and wildlife water guzzlers in the project vicinity would not be affected by drawdown as the features are not influenced by groundwater levels.Ground Subsidence As described in the PSPP PA/FEIS (p. 4.19-6), soils particularly susceptible to subsidence include compressible clays in a confined aquifer system. Compressible clays are not anticipated to be present onsite in a thickness sufficient to result in subsidence as a result of groundwater drawdown under the Palen Solar Electric Generating System (PSEGS). Based on the geologic/sedimentary characteristics of the Coachella Valley Groundwater Basin (CVGB), and on a lack of measured subsidence during previous, historic drawdown events, the potential for subsidence from groundwater level declines is believed to be remote. Thus based on the site conditions and historical subsidence rates, the Palen Solar Electric Generating System (PSEGS) is not expected to contribute appreciably to regional subsidence. Nonetheless, as set forth in Appendix C (Soil & Water-4), the Applicant has proposed a groundwater monitoring program to evaluate and mitigate for any potential impacts to groundwater levels during project construction and operation. Colorado River-Related Concerns As discussed in the PSPP PA/FEIS (p. 4.19-6), stakeholder groups have expressed concern that project-related groundwater use could affect the adjacent Parker Valley-Milpas Valley Groundwater Basin (PVMGB) by inducing flows from the Colorado River into that basin. The concern is that any resulting use of Colorado River water without an entitlement would be illegal. However, available data do not substantiate or support this hypothesis. Any groundwater flow from the Colorado River through the Palo Verde Irrigation District Valley Groundwater Basin (PVVGB) into the northern Parker Valley-Milpas Valley Groundwater Basin (PVMGB) under the present irrigation management regime is disputed by the Palo Verde Irrigation District (PVID), whose drains prevent any such underflow from occurring (PVID, 2012). Descriptions and figures showing Palo Verde Irrigation District's (PVID) drains and related infrastructure also are available in publicly accessible PVID documents, such as the April 2002 Hydrology and Water Quality Technical Report for the Palo Verde Irrigation District Land Management, Crop Rotation and Water Supply Program, which was included as Appendix B to the Draft Environmental Impact Report for the Proposed Palo Verde Irrigation District Land Management, Crop Rotation, and Water Supply Program (PVID, 2002). Palen Solar Electric Generating System Draft SEIS 4.19-3 July 2013

Environmental Consequences Impacts on Water Resources Groundwater Quality Groundwater quality could be affected by the Palen Solar Electric Generating System (PSEGS) through percolation of process wastewater in the evaporation ponds. As stated in the PSPP PA/FEIS (p. 4.19-6), given the probable low permeability sediment and dispersion or dilution and/or interference from other producers, and the design of the evaporation ponds constructed with berms to reduce the potential of mobilization of soil into the water table, the likelihood is low that vertical migration of poor quality water would degrade higher quality portions of the aquifer. This also is true of the Palen Solar Electric Generating System (PSEGS). The two 2-acre evaporation ponds proposed for the Palen Solar Electric Generating System (PSEGS) would be designed with a primary and secondary liner system and an intervening leak collection and recovery system. Each evaporation pond would be designated as Class II Surface Impoundment Waste Management Unit (WMU) and would meet state regulatory requirements (27 CCR 20200 et seq). Surface Water Surface Water Hydrology and Erosion The Palen Solar Electric Generating System (PSEGS) would generally limit grading activities to roads, foundation areas, and other work areas. The heliostat fields would remain largely free of grading. The Palen Solar Electric Generating System (PSEGS) would require an estimated 200,000 cubic yards of cut and fill (Palen Solar Holdings LLC, 2012). Figure 4.19-2 shows the grading and drainage plan based on the new Stormwater Pollution Prevention Plan (SWPPP) prepared for the Palen Solar Electric Generating System (PSEGS). No drainage channels would be required to control site runoff. To address potential erosion, the Applicant proposes the use of erosion and sedimentation control structures as part of the facility design and drainage facilities (see Appendix C, APMs GEN-5, CIVIL-1, and CIVIL-4 for additional details). During construction, portions of the site would be graded. The intent of grading would not be to level the site, but rather to prepare the site for installation of the heliostats and ease future maintenance activities. As such, the existing depressions for the drainages would remain, and natural drainage waters are expected to continue to occupy these ephemeral washes. Any grading required would be designed to promote storm water flow across the site as storm water flow occurs in a pre-project condition where possible. In addition, with the implementation of the Stormwater Pollution Prevention Plan (CH2MHill, 2013) and the Best Management Practices (BMPs) therein the construction activities would not have a substantially adverse impact. The Development Conditions Drainage Assessment (VTN Consulting, 2013) provides the difference in runoff volume and peak flows between the existing and post-construction of the Palen Solar Electric Generating System (PSEGS).The assessment used 12 cross sections throughout the Palen Solar Electric Generating System (PSEGS) site to measure the flow rates and volumes leaving the PSEGS site after a storm event. Based on the peak flow rate summary for multiple 24-hour events (100-year, 50-year, 25-year, 10-year events), the runoff volume was estimated to increase under project conditions by 1.93 percent (100-year event), 2.2 percent (50- and 25-year events), and 1.67 percent (10-year event). This flow increase would be spread out along the northern boundary of the PSEGS site, and not concentrated in any single location (VTN Consulting, 2013). This dispersed, slight increase in the flow would have a minor impact on the PSEGS site hydrology, would be reduced by the implementation of the Applicant Proposed Measures (APMs) described in Appendix C, and is not expected to have a negative effect on any downstream properties. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.19-4 July 2013

Environmental Consequences: Impacts on Water Resources Alteration of Drainage Patterns As noted above and described in Chapter 2, PSEGS-related grading activities would be limited to certain roads, development pads, and work areas. The majority of the PSEGS site would maintain original grades, and substantial alteration of drainage patterns is not proposed. In limited areas, such as the power blocks, switchyard, heliostat assembly area, and administrative areas, the stormwater management system would include diversion channels, bypass channels, or swales to direct run-on flow from up-slope areas and run-off flow through and around each facility. The Applicant also proposes a number of measures to control runoff, minimize erosion, and accommodate sheet flow from all storm events less than or equal to a 100-year, 24-hour storm event (Palen Solar Holdings LLC, 2012). In addition, the Applicant would prepare and implement a detailed Drainage, Erosion, and Sedimentation Control Plan, the details of which are provided in Appendix C, SOIL&WATER-1.

Flood Hazards PSEGS facilities could be exposed to the risk of floods and be damaged from a significant flood event. The depth of the heliostat pylons is estimated to not exceed 12 feet in penetration depth in order to provide adequate lateral support, which would also guard against the potential for scour during a significant flood event (Palen Solar Holdings LLC, 2012).

Surface Water Quality The Palen Solar Electric Generating System would affect surface water quality during the construction phase and the operation and maintenance phase. Similar to the Palen Solar Power Project (PSPP), the potential threats to surface water quality during construction include erosion and associated increases in sediment loads to adjacent streams and washes and spills of hydrocarbon fuels and greases, solvents, paints, or concrete. The Applicant would implement the Best Management Practices (BMPs) in the 2013 Storm Water Pollution Prevention Plan (SWPPP) to reduce impacts related to soil erosion and sediment transport offsite during and post-construction. Over the long-term, operation and maintenance of the Palen Solar Electric Generating System would generate the process wastewater stream, including the reverse osmosis reject water. The Palen Solar Electric Generating System would have similar treatment and disposal mechanisms as the Palen Solar Power Project, hence similar impacts would be expected for the Palen Solar Electric Generating System with the exception of the use of Therminol VP-1. Therminal VP-1 is described in Palen Solar Power Project Preliminary Application/Final Environmental Impact Statement (PA/FEIS) Table 4.11-1 (p. 4.11-7) as heat transfer fluid consisting of 26.5 percent biphenyl and 73.5 percent diphenyl ether. Therminal VP-1 is moderately toxic, a physical irritant, and a Class III-B combustible liquid. The Palen Solar Power Project would require the use of Therminal VP-1; the Palen Solar Electric Generating System would not. Therefore, there would be no risk that the Palen Solar Electric Generating System could cause Therminol releases into surface waters. Further, the Palen Solar Electric Generating System involves recycling and reuse of process water, including use of a thermal evaporator, which would reduce the volume of the process wastewater routed to the evaporation ponds. The Palen Solar Electric Generating System wastewater would be disposed in two 2-acre evaporation ponds that would be located in the common facilities area. The evaporation ponds would be constructed in accordance with Waste Discharge Requirements (WDRs) from the Colorado River Basin Regional Water Quality Control Board. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.19-5 July 2013

Similar to the Palen Solar Power Project, decommissioning of the Palen Solar Electric Generating System is expected to result in adverse impacts related to water resources similar to construction impacts: work could result in potential increases in sediment loads to adjacent streams and washes; and/or accidental spills of hydrocarbon fuels and greases and other materials associated with motorized equipment and construction work.4.19.3 Cumulative Impacts PSEGS Impacts resulting from construction, operation, maintenance and decommissioning of the Palen Solar Electric Generating System (PSEGS) could result in a cumulative effect on hydrologic resources when added to other past, present, or reasonably foreseeable future actions. The geographic scope of the cumulative effects analysis for hydrologic resources consists of the Chuckwalla Valley Groundwater Basin (CVGB) and, for surface waters, the area within the watershed boundary. Potential cumulative effects on hydrologic resources could occur at any point during the construction, operation and maintenance, or decommissioning of the PSEGS. The cumulative scenario described in Section 4.1 and illustrated in Figure 4.1-1 identifies several additional solar development projects that are underway or anticipated in the vicinity of the PSEGS site. Construction of the PSEGS is expected to result in the short-term adverse impacts described above. Some of the cumulative projects described in Section 4.1 that are not yet built may be under construction the same time as the PSEGS. In addition, others of the cumulative projects may be operational at the same time as the PSEGS. As a result, there could be substantial long-term cumulative impacts during operation of these projects related to hydrologic water resources. The PSPP Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.19.3 (p. 4.19-21 et seq.) provides a detailed analysis of the types of cumulative effects upon water resources that could result from the Palen Solar Power Project (PSPP), in combination with other projects pending or underway at that time. While the combination of projects comprising the cumulative scenario has changed since publication of the PSPP PA/FEIS, the cumulative implications of these projects upon the region's water resources would not be appreciably different. As such, implementation of the PSEGS could cause or contribute to substantial short-term and long-term cumulative impacts during construction and operation related to: soil erosion, geomorphology, basin balance, groundwater levels, groundwater quality, surface water hydrology, and surface water quality. Reconfigured Alternative 2 The cumulative effects of the Reconfigured Alternative 2 (Options 1 and 2) for water resources would be substantially similar to those referenced above and consistent with those detailed in Section 4.19.3 of the PSPP PA/FEIS. The revisions to the cumulative scenario described in Section 4.1 and illustrated in Figure 4.1-1 would not appreciably affect the conclusions reached in the PSPP PA/FEIS (p. 4.19-18 et seq.) regarding Reconfigured Alternative 2 (Options 1 and 2). Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.19-6 July 2013

348 4. Environmental Consequences 4.19 Impacts on Water Resources No Action Alternative A Since the PSEGS would not be built, no contribution to any cumulative impacts on water resources would occur. However, since the requested Right of Way (ROW) area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area (CDCA) Plan amendment decisions in the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) identify the ROW area as suitable for any type of solar energy development, and it is reasonable to expect that the Bureau of Land Management (BLM) would receive a subsequent ROW application for a different solar project. 4.19.4 Summary of Mitigation Measures As described in Chapter 2, Proposed Action and Alternatives, and provided in Appendix C, the Applicant has incorporated into the PSEGS many of the mitigation measures that were identified in the PSPP PA/FEIS. These measures, referred to in this Draft SEIS as Applicant Proposed Measures (APMs), represent a full range of avoidance and minimization measures available to reduce water resources impacts. For example, SOIL&WATER-1 would result in the development and implementation of an agency-approved Drainage Erosion and Sedimentation Control Plan; SOIL&WATER-2 would result in properly permitted and legally compliant groundwater wells that comply with all Riverside County water well standards for the life of the proposed wells; SOIL&WATER-3 relates to water use during construction and operation; SOIL&WATER-4 relates to groundwater level monitoring, mitigation and reporting; SOIL&WATER-5 relates to compensation of the owners of nearby wells determined to have been affected by PSEGS activities; and SOIL&WATER-6 relates to Waste Discharge Requirements (WDRs). Based on the Applicant's commitment to implement these and the other SOIL&WATER APMs identified in Appendix C, no new mitigation measures are recommended. 4.19.5 Residual Impacts after Mitigation Measures were Implemented Since no mitigation measures are recommended, there would be no change in PSEGS impacts resulting from mitigation. 4.19.6 Unavoidable Adverse Impacts No unavoidable adverse impacts would be expected. Palen Solar Electric Generating System Draft SEIS 4.19-7 July 2013

349 4.Environmental Consequences 4.19 Impacts on Water Resources This page intentionally left blank Palen Solar Electric Generating System Draft SEIS 4.19-8 July 2013

350 4. Environmental Consequences 4.20 Impacts on Wildland Fire Ecology 4.20.1 Impact Assessment Methodology The wildland fire ecology impact assessment methodology described in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.20.1 (p. 4.20-1) was used to analyze the Palen Solar Electric Generating System (PSEGS) in this Draft Supplemental Environmental Impact Statement (SEIS), including the additional 22.43 acres of Sonoran creosote bush scrub, desert dry wash woodland, and unvegetated ephemeral dry wash that are part of the Palen Solar Electric Generating System. The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.20.2 (pp. 4.20-2, 4.20-3). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft Supplemental Environmental Impact Statement to reflect the updated cumulative scenario (see Section 4.20.3 below). As described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 3.22, the primary causes of fire in the affected area are lightning and vehicles. This section evaluates direct and indirect impacts of the Palen Solar Electric Generating System related to wildland fire ecology, especially as these impacts may be caused by changes in human use of the affected area. 4.20.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System Potentially increased fire hazard impacts associated with the Palen Solar Electric Generating System could be created during the approximately 34-month construction period, approximately 30- to 50-year operation and maintenance period, and during site closure and decommissioning activities. Although new elements have been introduced for the Palen Solar Electric Generating System relative to the Palen Solar Power Project (such as the new natural gas line, shift in the location of a portion of the proposed generation tie line, and two proposed power towers), the general location and proposed approach to construction, operation and maintenance, and decommissioning remain substantially the same as identified for the Palen Solar Power Project. Therefore, Palen Solar Electric Generating System-related wildland fire ecology hazards and related effects would be substantially the same as identified for the Palen Solar Power Project. These are briefly described below. Construction Construction of the Palen Solar Electric Generating System would cause direct effects relating to wildland fire ecology. The Palen Solar Electric Generating System would require 400 acre-feet per year for each year of the construction phase. This requirement relates to fire hazard in that water use may promote the vigor of groundwater-dependent vegetation with an associated reduction in wildfire hazards. Groundwater pumping to supply the construction-related water needs of the Palen Solar Electric Generating System also could cause impacts to groundwater-dependent vegetation (i.e., phreatophytes) that are susceptible to desiccation if the deep roots of the groundwater-dependent vegetation cannot follow receding groundwater sources. The water demand for the Palen Solar Electric Generating System also could decrease the survivorship of desert dry wash woodland vegetation and increase the susceptibility of on-site and off-site woodland habitat to wildland fire, although this potential effect cannot be quantified. Proposed site grading (approximately 0.2 million cubic yards) would increase the area that would be susceptible to invasion by exotic weeds; this effect would be carried into the operation and maintenance and decommissioning phases. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 4.20-1 July 2013

351 4. Environmental Consequences 4.20 Impacts on Wildland Fire Ecology Construction of the Palen Solar Electric Generating System also would cause indirect effects relating to wildland fire ecology. Such effects would be similar to those of the Palen Solar Power Project and include the potential spreading of invasive plants, especially annual grasses, and related increased potential for wildfires, which can result in substantial ecological change (see Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.20.2, p. 4.20-1 et seq.). The probability of a wildfire to occur as a result of Palen Solar Electric Generating System construction would be low due to the moderate-risk site conditions, normally extremely patchy fuel distribution, dry climate, and the proposed level of heavy equipment use. However, during extreme weather conditions, a grass fire originating at the site could spread up the slopes of the adjacent McCoy Mountains or spread toward other projects out of control and pose a risk to life and property, and the risk of fire as a result of Palen Solar Electric Generating System construction therefore is considered substantial. The Applicant is proposing to implement the vegetation management measures identified in Applicant Proposed Measure (APM) BIO-14 (see Appendix C), which include a weed management plan, to minimize the potential for weed colonization and dominance on the proposed site by including implementation of a risk assessment of the invasive weed species currently known within the study area, procedures to control the spread of the invasive weed species on site, and procedures to help minimize the introduction of new weed species.Implementation of these measures would not completely eliminate the introduction of noxious weeds into the study area, but the measures would minimize the introduction of noxious weeds and control the spread of noxious weeds on the site. In addition, the required Construction Fire Prevention Plan (CFPP) (Appendix C, APM WORKER SAFETY-1), on-site fire protection and response infrastructure (Appendix C, APM WORKER SAFETY-7), and the Worker Environmental Awareness Program (WEAP) (Appendix C, APM BIO-6) would significantly reduce the risk of wildland fires associated with the Palen Solar Electric Generating System (PSEGS) and ensure that appropriate response mechanisms are in place should the need for appropriate response mechanisms arise. The proposed CFPP, entitled Draft Fire Safety Plan (PSH, 2013) and included as Appendix F, provides measures for fire prevention during construction and operation of the PSEGS. These measures include instruction on the use and storage of flammable and combustible materials and liquids, protocols for working with compressed gas, restrictions on the locations and conditions under which hot work may occur, direction regarding fire inspection and training, and a list of and specifications for fire protection equipment, among others. The WEAP would designate responsibilities and actions to be taken in the event of a fire or other emergency during construction. The WEAP would be provided to the Bureau of Land Management (BLM) and local fire departments for approval before the Applicant receives a Notice to Proceed to construction. The WEAP would help reduce the risk of wildfire on and off-site during construction. The above measures would minimize the potential for a wildfire ignition to occur as a result of PSEGS-related construction activities and the presence of personnel on-site.

Operation and Maintenance

Operation and maintenance of the PSEGS could cause direct and indirect effects relating to wildland fire ecology. The potential impacts described in Palen Solar Power Project (PSPP) PA/FEIS Section 4.20.2 (p. 4.20-1 et seq.) for the PSPP are equally applicable to the PSEGS, with similar fire hazards from electrical transmission lines and high winds increasing the potential for wildfire ignition and spread. No new or different operations and maintenance-related effects have been identified for the PSEGS. As with the PSPP, key elements of the fire protection systems for operation and maintenance of the solar plant site include a fire protection water system for protection of the administrative and maintenance building and portable fire extinguishers. The fire protection water system and fire water storage tank would be located on the solar plant site near the administrative and maintenance area. The particulars of the fire protection systems are described in Chapter 2 of this Draft SEIS. Annual projected water use (and associated groundwater pumping) is projected to require 201 acre-feet per year (AFY) for each year of the operation and maintenance phase of the PSEGS. This water use would have similar benefits to groundwater-dependent vegetation as those described for construction. Climate change is expected to result in a small but general increase in temperature, and also in an increase in the frequency of extreme weather events that could generate wildfires, such as an increased frequency of drought and heat waves or wetter seasons that increase fuel loads, during operation and maintenance of the PSEGS. The Applicant-provided measures (APMs) provided in Appendix C would apply to all phases of the PSEGS, including the operation and maintenance phase.

Decommissioning

Impacts from decommissioning would be similar to the impacts described in the construction section. The APMs provided in Appendix C would apply to all phases of the PSEGS, including decommissioning.

4.20.3 Cumulative Impacts

PSEGS cumulative impacts associated with wildland fire ecology were analyzed in detail in PSPP PA/FEIS Section 4.20.3 (p. 4.20-3 et seq.), and those details and the full methodology behind the analysis were provided in PSPP PA/FEIS Appendix I, Biological Resource-related Cumulative Impacts. As discussed in the PSPP PA/FEIS, the incremental impacts of the PSPP project could result in a cumulative effect on wildland fire risk in combination with past, present, or reasonably foreseeable future actions. The same is true for the PSEGS. The geographic scope of the cumulative effects analysis for fire resources related to the PSPP examined a study area that included 2,800 square miles (about 1,792,000 acres) in eastern Riverside County. This geographic scope also is true for the PSEGS. As discussed in the PSPP PA/FEIS, fire response is dependent upon services that would be fully or partly provided by the Riverside County Fire Department (RCFD).The nearest Riverside County Fire Department (RCFD) stations identified in the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) (p. 4.11-3) remain valid for the Palen Solar Electric Generating System (PSEGS), with the two nearest Riverside County Fire Department (RCFD) stations to the proposed site located off of Interstate 10 (I-10) approximately 10 miles west. The Lake Tamarisk Station (#49) is located at 43880 Lake Tamarisk Dr. in Desert Center and the Terra Lago Station (#87) is located at 42900 Golf Center Parkway in Indio. Units from the two closest Riverside County Fire Department (RCFD) stations would arrive at the site within 14 minutes after dispatch when responding to incidences of fire. Although this information was provided in the Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.20-3 July 2013, the Bureau of Land Management (BLM) has received no information indicating that estimated response times have changed since the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) was issued. Potential cumulative wildfire effects could occur over the course of 40 or more years, encompassing the entire lifespan of the Palen Solar Electric Generating System (PSEGS), from construction and operation and maintenance, through closure and decommissioning. As described in the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS), potential cumulative impacts to wildland fire ecology reflect a combination of the natural condition and the effects of past actions. The natural condition of the affected environment is described in Chapter 3, Affected Environment, of this Draft Supplemental Environmental Impact Statement (SEIS) and direct and indirect effects of the Palen Solar Electric Generating System (PSEGS) and alternatives are analyzed above and in the Palen Solar Power Project (PSPP) (regarding the direct and indirect effects of Option 1 and Option 2 of Reconfigured Alternative 2, see Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) p. 4.20-2 et seq.). Past, present and reasonably foreseeable future actions making up the cumulative scenario are identified in Section 4.1.3 of this Draft Supplemental Environmental Impact Statement (SEIS). Any of the cumulative projects that would use or store liquefied petroleum gas, install or operate transmission lines, and/or use equipment (including motor vehicles) that could spark or otherwise provide an ignition source could combine to cause or create a cumulative impact to wildland fire ecology. Additionally, the increased human presence and disturbance caused by the construction, operation and overall development that would occur under cumulative scenario could advance the rate of invasion by non-native vegetation and, thereby, contribute to fire fuel-loading that would burn with higher flames and hotter temperatures. Development of the site for utility-scale power generation would preclude some Off-Highway Vehicle (OHV) use, thereby decreasing cumulative wildfire risks associated with recreational uses.

Reconfigured Alternative 2 Option 1

Although Option 1 would involve different acreages and a different configuration than the other alternatives, the generating capacity and construction and operation-related vehicle use would be similar among all of the action alternatives. Because Option 1 would occupy more land than the Palen Solar Electric Generating System (PSEGS), Option 1 would have an incrementally greater cumulative contribution to wildland fire ecology impacts than the Palen Solar Electric Generating System (PSEGS) because of the increased area in which exotic weeds could establish on the site prior to and following site decommissioning.

Option 2

Although Option 2 would involve different acreages and configurations than the Palen Solar Electric Generating System (PSEGS) or the Palen Solar Power Project (PSPP), the generating capacity and construction and operation-related vehicle use would be similar among all of the action alternatives. Because Option 2 would occupy slightly more land than the Palen Solar Electric Generating System (PSEGS), Option 2 would have an incrementally greater cumulative contribution to wildland fire ecology impacts relative to the Palen Solar Electric Generating System (PSEGS), with the difference being the slightly increased area in which exotic weeds could establish on the site prior to and following site decommissioning. Consequently, the cumulative effects of Option 2 to wildland fire ecology would be roughly comparable those of the Palen Solar Electric Generating System (PSEGS).

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No Action Alternative A

To the extent that No Action Alternative A would not result in development of the site, no contribution to a cumulative impact on wildland fire ecology would occur. However, since the Right-of-Way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area (CDCA) Plan Amendment that identifies the area as suitable for any type of solar energy development would be in effect for future projects, and this land could be developed using this or another solar power technology in the future, potentially resulting in cumulative impacts to wildland fire ecology of a nature and type to be evaluated when sufficient detail is known about any such future proposal.

4.20.4 Summary of Mitigation Measures

The mitigation measures identified in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Section 4.20.4 (pp.4.20-4, 4.20-5) were incorporated with some modifications into the Palen Solar Electric Generating System (PSEGS) as Applicant Proposed Measures (APMs), which are provided in Appendix C. The applicant-proposed revisions to the Palen Solar Power Project (PSPP) mitigation measures address the following differences of the PSEGS relative to the Palen Solar Power Project: the PSEGS's proposed reduction in site grading, elimination of reengineered water conveyance channels (affecting desert dry wash woodland and unvegetated ephemeral dry wash vegetation communities), and the changing legal statuses of rare plants based on the scale of data produced by regional project surveys. The Applicant Proposed Measures set forth in Appendix C minimize or avoid adverse impacts related to wildland fire ecology. Specific Applicant Proposed Measures that are relevant to wildland fire ecology that protect vegetation resources in the affected area include: BIO-6 (Worker Environmental Awareness Program (WEAP)), BIO-14 (Weed Management Plan), WORKER SAFETY-1 (Construction Fire Prevention Plan); and WORKER SAFETY-7 (Fire Protection/Response Infrastructure). Implementation of these measures would reduce the incidence of invasive annual grasses and forbs on the Palen Solar Electric Generating System site that contribute to fire fuels, increase worker awareness of potential fire hazards, and provide a coordinated fire response program that can respond to potential fire outbreaks. No additional mitigation measures are recommended.

4.20.5 Residual Impacts after Mitigation Measures were Implemented Because no mitigation measures are recommended, there would be no change in the impacts described above resulting from mitigation.

4.20.6 Unavoidable Adverse Impacts Despite implementation of Applicant Proposed Measures as part of the Palen Solar Electric Generating System, the increased vehicle use required to access the area for construction, operation, and maintenance and changes in recreational vehicle use would increase the likelihood of wildfires in the vicinity of the Palen Solar Electric Generating System to a slight, but unknown degree.

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356 4. Environmental Consequences 4.21 Impacts on Wildlife Resources

4.21.1 Impact Assessment Methodology The wildlife resources impact assessment methodology used in Palen Solar Power Project PA/FEIS Section 4.21.1 (p. 4.21-1) was used to analyze the Palen Solar Electric Generating System in this Draft Supplemental Environmental Impact Statement (SEIS). The analysis of direct and indirect impacts associated with Reconfigured Alternative 2 (Option 1 and Option 2) and No Action Alternative A can be found in Palen Solar Power Project PA/FEIS Section 4.21.2 (pp. 4.21-19 to 4.21-22). The discussion of cumulative impacts for these alternatives has been revised as necessary in this Draft SEIS to reflect the updated cumulative scenario (see Section 4.21.3 below).

4.21.2 Direct and Indirect Impacts of the Palen Solar Electric Generating System The direct and indirect impacts to wildlife resources for the Palen Solar Electric Generating System are expected to be similar to the impacts described for the Palen Solar Power Project in the Palen Solar Power Project PA/FEIS. These discussions have been updated as necessary in the sections below. The following elements of the Palen Solar Electric Generating System that represent modifications to the Palen Solar Power Project are potentially relevant to wildlife resource impacts: cent Change from solar thermal parabolic trough technology to power tower technology. cent Construct two power tower receivers, or Solar Receiver Steam Generator (SRSG) towers, each measuring approximately 750 feet tall with a 10-foot lightning rod with associated daytime and nighttime safety lighting. cent Reduce the fenced project area relative to the Palen Solar Power Project by 572 acres, from 4,366 acres to approximately 3,794 acres. Total the project disturbance area including the natural gas corridor, distribution yard, and revised gen-tie corridor is approximately 3,899 acres. This includes habitat areas as well as developed areas, as discussed in Section 3.18, Vegetation Resources. cent Reduce anticipated water use relative to the Palen Solar Power Project both during construction (from 5,750 acre-feet to 1,130 acre-feet) and operation (from 300 acre-feet per year (AFY) to 201 AFY). cent Maintain natural hydrology across the site and beyond, via minimal grading required for erecting heliostats versus complete site grading and planning necessary for solar trough mirrors. cent Mow instead of grade the site and thereby avoid the elimination of vegetation and associated wildlife habitat that would occur under the Palen Solar Power Project. cent Relative to the Palen Solar Power Project, reduce from four, 4-acre evaporation ponds to two, 2-acre ponds, only one of which would be used at any single point in time. cent Leave in place the existing Southern California Edison (SCE) 161 kV transmission line to the edge of the site.Re-route the redundant telecommunication line to the gen-tie line route, where the telecommunication line will be buried. The Palen Solar Electric Generating System (PSEGS) would lie completely within the disturbance footprint analyzed in the Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS), with the exception of 1) a rerouting of the gen-tie line that extends 1,128 feet west, beyond the western end of the previously-proposed gen-tie; and 2) an extension of the natural gas pipeline from the existing Southern California Gas (So Cal Gas) pipeline south of Interstate 10 (I-10) north to the solar facility.

The gen-tie line extension comprises 18.9 acres and lies immediately adjacent (125 feet on center) to the Desert Sunlight project gen-tie line, which the Desert Sunlight project gen-tie line currently is under construction. At the gen-tie line extension's southern extent, the gen-tie line extension enters Southern California Edison’s (SCE) Red Bluff Substation, which is currently under construction. The gen-tie right-of-way (ROW) is 120 feet wide, although only the tower pads and stub roads or access road would actually be subject to surface disturbance. The natural gas pipeline extension corridor would be 50 feet wide, approximately 3,000 feet long, and comprise 3.3 acres.

The PSEGS Applicant has committed to implementing the mitigation measures identified in PSPP PA/FEIS Section 4.14 as Applicant Proposed Measures (APMs) to avoid and minimize direct and indirect impacts to wildlife resources (see Appendix C). These APMs have been considered in the impacts analysis that follows.

Evidence from 2009, 2010, and 2013 surveys, as described in Section 3.23, Wildlife Resources, shows that few desert tortoises occupy the PSEGS site. It is possible that one or more desert tortoises could be detected during pre-construction/clearance surveys or related work. As a result, construction, operation, and decommissioning of the PSEGS could have direct and/or indirect impacts on desert tortoises. A description of direct impacts to desert tortoises from the portions of the PSEGS that overlap with the PSPP can be found in PSPP PA/FEIS Section 4.21.2.

The gen-tie line reroute and natural gas line extension associated with the PSEGS overlay approximately 22.2 acres, all of which are considered desert tortoise habitat, except for the portion of the natural gas line that traverses I-10 (Table 4.21-1). The gen-tie line comprises 18.9 acres, but because surface disturbance would only occur on the tower pads, pulling sites, and access or stub roads, as well as the burial trench for the telecommunications line, the amount of surface disturbance would be less than 18.9 acres. At this time, however, the tower pads are not engineered, so the actual acreage of disturbance would be assumed to be 18.9 acres, of which some much smaller percentage would comprise a permanent loss of desert tortoise habitat. Both the tower pads around the transmission towers and the gas line acreage are considered to be "permanent" for purposes of habitat compensation calculations, even though these areas would be restored and available for tortoise use following construction. Due to long vegetation recovery times in the desert, any areas that are similarly disturbed are actually semi-permanent relative to habitat quality and, therefore, are considered to be permanently impacted for the purposes of habitat compensation.

The only part of the gen-tie line reroute and natural gas line extension that travels through a Desert Wildlife Management Area (DWMA) is the gen-tie line, which travels through the northern edge of the Chuckwalla DWMA, between I-10 and the Red Bluff Substation. The remainder of the gen-tie line and the entire natural gas line extension area is in Category III habitat. The natural gas line is in a DWMA Continuity Wildlife Habitat Management Area (WHMA) and the gen-tie line is sufficiently close, given the coarse scale of the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan maps, to be included in this WHMA. The PSEGS is in the Colorado Desert Recovery Unit, and both linear facilities partially intersect the Chuckwalla Critical Habitat Unit (CHU).Since the original passage you've provided is mostly a structured table format with no clear narrative involving pronouns, coreference resolution is not applicable. It appears to display quantified impacts on various wildlife resources related to a project, including categories and numerical acreages, without using pronouns or implying entities that would require resolution.

Please let me know if there is another part of the document or a different type of text where you'd like coreference resolution applied!Environmental Consequences 4.21 Impacts on Wildlife Resources TABLE 4.21-1 (Continued) PSEGS DISTURBANCE AREA AND ASSOCIATED WILDLIFE IMPACTS Impact Timing Area Project Element Project Feature (Acres) Phase I Phase II Aeolian Sand Corridor Impacts (Zones) Project Site Zone II 227.3 0 227.3 Fenced Area Zone III 901.2 5.3 895.9 Gen-Tie Corridor Zone III 16.9 16.9 0 Indirect Impacts Private Land: Zone II 2.9 0 2.9 (Secondary Project Disturbance Area) Private Land: Zone III 36.8 0 36.8 Total Area (Acres) 1,185.1 22.2 1,162.9 Jurisdictional Waters Impacts Project Site Desert Dry Wash Woodland 192.3 5.1 187.2 Fenced Area Unvegetated Ephemeral Dry Wash 161.3 4.5 156.8 Desert Dry Wash Woodland 4.6 4.6 0 Gen-Tie Corridor Unvegetated Ephemeral Dry Wash 0.4 0.4 0 Gas Line and Secondary Desert Dry Wash Woodland 1.25 1.25 Access Road Corridor Unvegetated Ephemeral Dry Wash 0.47 0.47 Private Land: Unvegetated Ephemeral Dry Wash 0.47 0 0.47 Indirect Impacts (Secondary Project SCE 161kV Corridor: Desert Dry Wash Woodland 0.03 0.03 0 Disturbance Area) SCE 161kV Corridor: Unvegetated Ephemeral Dry Wash 0.04 0.04 0 Total Area (Acres) 359.1 14.7 344.5 NOTES: a Primary Project Disturbance Area is the area within the Proposed PSEGS ROWs on which impacts would occur b Secondary Project Disturbance Area is the area beyond the Proposed PSEGS ROWs on which impacts would occur SOURCE: Galati, 2013 habitat overlaps part of the east-west portion and all of the north-south portion of the gen-tie line reroute; the habitat overlaps the natural gas line only south of I-10, near the existing SoCal Gas line. Acreages of overlap with DWMA and the CHU are shown in Table 4.21-2. Where applicable, acreage for the gen-tie line that was already accounted for in the PSPP has been subtracted from the PSEGS acreage in Table 4.21-2. As described for the PSPP, desert tortoise would be translocated from the PSEGS fenced solar fields and common area; the 161 kV "channel" also would be fenced to preclude trapping tortoises. Accordingly, continued maintenance inside the solar facility would not harm tortoises. There would be no biologically significant changes in impacts to designated critical habitat as compared to the PSPP. While the common area for the PSEGS is sited in critical habitat, the PSPP also had designed full surface disturbance for this portion of the site that overlaps critical habitat. However, 4.6 additional acres would be disturbed near I-10.

Palen Solar Electric Generating System Draft SEIS 4.21-4 July 2013.Environmental Consequences 4.21 Impacts on Wildlife Resources TABLE 4.21-2 ESTIMATED ACRES OF DESERT TORTOISE HABITAT DISTURBED FOR THE PSEGS LINEAR FACILITIES Total Minus Total Modified Permitted Location and Habitat Type Project Phase 1 Phase 2 Project Modified Gen-Tiea Total 18.9 18.9 0.0 4.5 Critical Habitat 18.1 18.1 0.0 3.7 Outside Critical Habitat 0.8 0.8 0.0 0.8 DWMA 2.3 2.3 0.0 1.5 Outside DWMA 16.6 16.6 0.0 2.99 Gas Pipeline Total 3.3 0.0 3.3 Not Applicable Critical Habitat 0.9 0.0 0.9 Not Applicable Outside Critical Habitat 2.4 0.0 2.4 Not Applicable DWMA 0.0 0.0 0.0 Not Applicable Outside DWMA 0.0 0.0 0.0 Not Applicable NOTE: a Because the Palen Solar Electric Generating System's proposed gen-tie has been shifted 1,128 feet west, where the Palen Solar Electric Generating System proposed gen-tie parallels the original gen-tie route, most of the acreage was already accounted for in the original Biological Opinion for the Palen Solar Power Project, with the additional acreage only in the east-west portion, plus a small amount south of Interstate 10. The permitted gen-tie intersected critical habitat for the entire north-south portion and the Desert Wildlife Management Area south of Interstate 10. SOURCE: BrightSource Energy, Inc., 2013

Indirect Impacts A description of the indirect impacts to desert tortoise from the Palen Solar Power Project can be found in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.21.2. These impacts are expected to be the similar for the Palen Solar Electric Generating System with the following exceptions, some of which are expected to reduce impacts to desert tortoises:

The Palen Solar Electric Generating System footprint would be 3,899 acres, a decrease of 572 acres in the direct loss of desert tortoise habitat relative to the Palen Solar Power Project. The Palen Solar Electric Generating System would construct two 2-acre evaporation ponds, which is a 50 percent reduction relative to the Palen Solar Power Project's proposal to construct four 4-acre ponds. The reduced number and size of netted evaporation ponds (Applicant Proposed Measure BIO-26) would provide less attraction to ravens, which prey on desert tortoises. Attraction of coyotes to the area is not anticipated to change due to the Palen Solar Electric Generating System.

The Palen Solar Electric Generating System would largely preserve current site hydrology, rather than rerouting flows as was proposed for the Palen Solar Power Project. As a result, off-site desert washes and associated desert dry wash woodland habitat generally would remain unaffected by the Palen Solar Electric Generating System. Indirect effects to offsite plants also would be lessened because of the preservation of many substrates and much of the vegetation onsite, with the resulting effect of decreased dust deposition offsite.

The Palen Solar Electric Generating System proposes to mow the site, which has the potential to increase weed populations; however, the degree to which this might occur is unknown. Sahara mustard (Brassica tournefortii) was noted as "prevalent" on the site (AECOM 2009b), although an estimate of weed density and distribution was not provided. The required weed management plan would be modified, as necessary, to accommodate weed monitoring related to ongoing mowing and heliostat washing activities, as well as the preservation of the site's hydrology.

Impacts of Relocation/Translocation The potential impact to desert tortoise associated with relocation/translocation were fully described in Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement Section 4.21.2. As described in the Applicant Proposed Measures (see Appendix C), the Palen Solar Electric Generating System Applicant will prepare a Desert Tortoise Relocation/Translocation Plan (Applicant Proposed Measure BIO-10) that includes measures to avoid and minimize adverse impacts to resident and translocated desert tortoises. This plan would be reviewed and approved by the California Department of Fish and Wildlife, the United States Fish and Wildlife Service, the Bureau of Land Management and the California Energy Commission staff, and would be implemented to move any tortoises detected during clearance surveys. The Desert Tortoise Relocation/Translocation Plan would: 1) analyze whether relocation or translocation is an appropriate action; 2) identify and prioritize potentially suitable locations for translocation; 3) evaluate desert tortoise handling and transport considerations (including temperature) and animal health considerations; 4) describe translocation scheduling, site preparation and management; and 5) specify monitoring and reporting activities for evaluating success of translocation.Movement and Habitat Connectivity of Desert Tortoise and Other Wildlife Movement and habitat connectivity of desert tortoise and other wildlife related to the site were described in PSPP PA/FEIS Section 4.21.2 and remain applicable to the PSEGS. Since the Biological Opinion was issued for the PSPP, the USFWS identified priority connectivity corridors for desert tortoise in solar energy development zones (USFWS, 2012). The USFWS's connectivity analysis identified no priority connectivity corridors for desert tortoise in the Project vicinity. The type of disturbance resulting from the rerouted gen-tie line and natural gas line extension would not disrupt habitat connectivity, especially given that the rerouted gen-tie line and natural gas line extension would not impede tortoise movement and given the existing and ongoing projects in the immediate vicinity of these linear facilities. As described for the PSPP, three large culverts under I-10, occurring along the existing washes in the project area, provide desert tortoise and other wildlife safe passage under I-10 in a north-south direction across the project area (PSPP PA/FEIS, p. 4.21-7). Although these I-10 major culverts would remain open to desert tortoise movement, the PSEGS would disrupt local movement patterns by impeding movement or forcing tortoises to circumnavigate the Project site. Three Multi-Species WHMAs occur in the general PSEGS vicinity: Big Maria Mountains WHMA, Palen-Ford WHMA, and the DWMA Continuity WHMA (which provides connectivity between the Chuckwalla DWMA/ACEC south of I-10 and the Palen-Ford WHMA north of I-10 in the immediate vicinity of the site). The PSEGS could impede wildlife movement in these corridors by obstructing connectivity, and on a population level could impede gene flow for desert tortoises. Palen Solar Electric Generating System Draft SEIS 4.21-6 July 2013

4. Environmental Consequences 4.21 Impacts on Wildlife Resources Mojave Fringe-toed Lizard The PSEGS has been designed to reduce impacts on sand transport through the placement of the project and removal of wind fences. In the PSPP PA/FEIS it was determined that the project could be configured to avoid the sand transport area, and thus reduce direct impacts to sand dune habitat in the area. This alternative is described in the PSPP PA/FEIS as Reconfigured Alternative 2. The PSEGS has been designed to fit within the Reconfigured Alternative 2 footprint and therefore is expected also to avoid the sand transport area. The PSEGS also proposes to eliminate the 30-foot wind fences, which in the original PSPP plan of development were expected to create "sand shadows" that could isolate dunes downwind of the site from the sand supply necessary to maintain dune sand in volumes that support wildlife habitat. With the changes incorporated into the PSEGS, indirect impacts to sand transport and off-site dune habitat will be avoided. Thus, effects to off-site Mojave fringe-toed lizard habitat through the previously described interruption of a regional sand transport corridor and creation of a sand shadow have been substantially reduced or eliminated under the PSEGS. The PSEGS would directly impact 186.8 acres of stabilized and partly stabilized desert dunes and an additional 1,332.1 acres of non-dune habitat that may support Mojave fringe-toed lizard in the northeastern portion of the Project Disturbance Area. Thus, the Project may impact a total of 1,518.9 acres of active wind-blown sand with relatively shallow sand deposits and areas of deeper and more active vegetated sand dunes (Table 4.21-1). However, the PSEGS would not interrupt the regional wind-borne sand transport corridor that moves sand southeast and east along the Chuckwalla Valley and toward the Colorado River. Project-related impacts on sand transport corridors and related dune habitats are further analyzed in Draft SEIS Section 4.14. The inclusion of the rerouted gen-tie line and natural gas line extension in the PSEGS would not impact sand transport or habitat for Mojave fringe-toed lizard. Western Burrowing Owl Potential project-related direct impacts to burrowing owls include loss of nest sites, eggs, and/or young; the permanent loss of breeding and foraging habitat; and disturbance of nesting and foraging activities for burrowing owl pairs within or near the solar plant site or linear facilities. Burrowing owls and their active burrows within the Project Disturbance Area could be crushed or displaced during construction activities.Indirect impacts to burrowing owls during construction and operation can include increased road kill hazards, modifications to foraging and breeding activities from rearrangement or loss of habitat, and loss of prey items and food sources due to a decreased number of fossorial (burrowing or digging) small mammals from lost or degraded habitat. Golden Eagle Palen Solar Electric Generating System (PSEGS) would impact approximately 3,946.7 acres of golden eagle foraging habitat within the NECO planning area. Potential impacts to avian species related to Palen Solar Electric Generating System noise, effects of lighting and nocturnal collisions with proposed facilities, solar flux impacts from solar mirrors and the Solar Receiver Steam Generator (SRSG) towers, collision hazards from power lines, and potential for bird electrocution are Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.21-7 July 2013" Environmental Consequences Impacts on Wildlife Resources discussed under Additional Impacts, below. Palen Solar Electric Generating System is not expected to result in direct disturbance to nesting golden eagles. Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS) Section 4.21.2 includes a full discussion of potential indirect impacts to golden eagle. Special Status and Migratory Birds Palen Solar Electric Generating System-related impacts to avian species would include the displacement of non-breeding resident and migratory birds from the site. Non-breeding resident and migratory birds would be directly affected by the loss of desert dry wash woodland, unvegetated ephemeral dry wash, and Sonoran creosote bush scrub. The site does not provide breeding habitat for Swainson's hawks, northern harriers, peregrine falcons, or yellow warblers, although Swainson's hawks, northern harriers, peregrine falcons, or yellow warblers could be present locally during migration periods. Indirect impacts include increased road kill hazard from operations traffic, andIn the absence of protective measures, the Palen Solar Electric Generating System (PSEGS) has the potential to worsen the canine distemper virus (CDV) outbreak by raising kit fox stress levels and causing increased susceptibility to infection, causing increased movement of diseased animals thereby increasing the spread of disease into new areas, or placing healthy kit foxes into contact with off-site infected animals. Due to its reduced size compared to the Palen Solar Power Project (PSPP), development of the PSEGS within the Palen watershed would have similar, if slightly reduced, impacts on the range and regional movement of burro deer to those described in the PSPP Programmatic Assessment/Final Environmental Impact Statement (PA/FEIS). As part of the PSPP, the Palen site was assessed for evidence of ponding that could support breeding of Couch's Spadefoot Toad (ponding that would last about 9 days) and these areas were not observed. Therefore, the PSEGS is not expected to impact this species or Couch's Spadefoot Toad's habitat. With the exception of potential impacts of Solar Receiver Steam Generator (SRSG) towers on bats, potential impacts to special-status bats are identical to those as described in the PSPP PA/FEIS (Section 4.21). Potential impacts of the SRSG towers to bats are described under "Solar Flux" Effects from Solar Mirrors and the SRSG Tower, under Additional Impacts, below. The Society for Conservation of Bighorn Sheep has recommended a 1-mile buffer from the upper edge of any solar development to the base of the mountains to protect spring foraging habitat. The PSEGS site is over 1 mile from the base of either the Chuckwalla Mountains or Palen Mountains. Barriers between the Chuckwalla Mountains and the Project site (I-10) and the Palen Mountains and the Project site (sand dunes) further limit the availability and usefulness of the PSEGS site as spring foraging habitat. The PSEGS would not directly affect habitat within any Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) connectivity corridors or Wildlife Habitat Management Areas (WHMAs), and would not conflict with Desert Bighorn Sheep Conservation goals and objectives outlined in the NECO planning area. Potential impacts to common and special-status wildlife species related to PSEGS Project noise during construction, operation and maintenance, and decommissioning are the same as those Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS)

described in the PSPP PA/FEIS. See PSPP PA/FEIS Section 4.21 (pp. 4.21-13 to 4.21-14) for a discussion of potential noise-related impacts to wildlife. A complete analysis of operation noise impacts is provided in Section 4.9. As discussed in the PSPP PA/FEIS, night lighting plays a substantial role in avian and bat collision risk because night lighting can attract nocturnal migrant songbirds and other wildlife species. Major bird kill events have been reported at lighted communications towers and ground lighting can also influence bird and bat behavior. With the exception of SRSG tower lighting for compliance with Federal Aviation Administration (FAA) and Department of Defense (DOD) requirements, potential PSEGS impacts to common and special-status wildlife species related to nighttime lighting during construction, operation and maintenance, and decommissioning are the same as those described in the PSPP PA/FEIS. The potential impact mechanisms by which the SRSG tower may attract migratory birds and preferred lighting systems that minimize bird attraction are discussed in the PSPP PA/FEIS and are relevant to the discussion of potential impacts for the PSEGS. Consistent with FAA and DOD requirements, night lighting is required on structures greater than 200 feet in height. The SRSG towers would exceed 750 feet above grade level, thus, temporary day and night safety lighting would be required during construction once the structure exceeds 200 feet above ground level (AGL), and permanent lighting is required during operation and maintenance, until the decommissioning phase until the tower is below 200 feet AGL. The required SRSG tower lighting would use flashing lights (strobes) on towers that are believed to result in less bird aggregation, and, by extension, lower bird mortality, than the use of steady-burning lights. The FAA will likely require strobe beacons at the top of the SRSG tower and at intermediate levels on the body of the structure (FAA, 2000). Night lighting would increase the visibility of the SRSG towers to bird and bat species, thereby reducing the potential for nighttime collisions with the SRSG towers. The use of strobe lighting on the towers would reduce the potential for nighttime bird aggregations and reduce impacts to nighttime bird movement (Ghering and Kerlinger, 2007).PSEG Project adherence to FAA guidelines for lighting as required by APM TRANS-8 (see Appendix C) would help minimize nighttime impacts to birds and bats. "Solar Flux" Effects from Solar Mirrors and the SRSG Tower Two proposed solar fields of 1,643 acres (Unit 1) and 1,883 acres (Unit 2) would be populated with a system of heliostats mounted on pylons. Each heliostat assembly would be composed of two reflective mirrors, each approximately 12 feet high by 8.5 feet wide. The heliostats are sources of bright light that would reflect solar radiation to each of the SRSG towers. The PSPP analysis of impacts from Heat Collecting Elements based on parabolic mirrors is similar to the potential impact that heliostats could have on avian species. Specifically, elevated heat and sunlight, termed "solar flux", above 4 Kw/m from mirrored heliostat surfaces is considered potentially unsafe to birds near heliostats and near the solar energy concentration area of the SRSG towers. Because reflective solar facilities present a new and relatively un-researched risk from lighting hazards, the impacts of reflected light on birds are not known.

The most relevant Palen Solar Electric Generating System Draft SEIS 4.21-10 July 2013 study on effects of this technology on birds was conducted in the early 1980s at Solar One, a 10 megawatt, 80 acre pilot solar concentrating facility in the Mojave Desert. Bird mortality consisted of collisions with structures, primarily heliostats, and burning from flight through "standby points" near the solar tower (McCrary et al., 1986). Seventy birds of 26 species died during 40 weeks of field work. In an April 3, 2013, comment letter for the proposed Hidden Hills Solar Energy Generating System, the USFWS expressed concerns about the effects of exposure to elevated levels of solar flux on birds at an individual, local, and population level, citing the potential that elevated levels of solar flux generated by the focused energy from the heliostats may burn and damage exposed skin and feathers (USFWS, 2013). The USFWS (2013) additionally postulated additional hazards in that: "degradation of eyesight could result in additional injury and mortality through collisions with objects in the environment (including the tower and heliostats), or preventing them from being able to perform normal life functions, including feeding, territorial maintenance, migration, or evading predators. In addition, mirrored heliostats and other infrastructure may cause injury and mortality by collisions."

At this time, the direct and indirect effects of avian exposure to elevated solar flux are not known. In describing the technology, the USFWS acknowledges that technical studies are needed before the impacts of solar tower technology on avian and bat species physiology and behavior are fully understood (USWFS, 2012). Based on the present understanding of risks that solar tower power technology poses to avian species, there is a potential risk that bats or diurnal birds could be subject to temporary or permanent blinding or other physiological harm, or fatality from interactions with the solar flux. As an APM, the Avian Protection Plan (APM BIO-16A, Avian and Bat Habitat Compensation; APM BIO-16B, Avian Enhancement and Conservation Measures; APM BIO-16C, Avian and Bat Surveys, Monitoring and Adaptive Management) would provide the information needed to determine if operation of the PSEGS poses a collision risk for birds, and would provide an adaptive management strategy to mitigate impacts to lower levels for the PSEGS and future solar tower technology projects.

Collisions with Mirrors and Transmission Facilities The potential hazards presented by bird collisions with mirrors and transmission facilities are discussed in the PSPP PA/FEIS and have not changed appreciably for the PSEGS. Bird fatalities resulting from mirror collisions were anticipated as a potential project effect in the PSPP PA/FEIS. During both day and night, migratory water birds may interpret the reflective mirror fields as large waterbodies. The species of birds that could be affected from collisions with mirrors cannot be known with certainty, though recent findings at the Desert Sunlight solar facility near Joshua Tree National Park in Riverside County suggest that common and special-status water birds may be susceptible to collisions with mirrors. On May 8, 2013 the facilities reported a dead Yuma clapper rail and several grebes to the USWFS.As an Avian Protection Plan, the Avian Protection Plan (APM BIO-16A, Avian and Bat Habitat Compensation; APM BIO-16B, Avian Enhancement and Conservation Measures; APM BIO-16C, Avian and Bat Surveys, Monitoring and Adaptive Management) would provide the information needed to Palen Solar Electric Generating System Draft SEIS 4.21-11 July 2013 determine if operation of the Palen Solar Electric Generating System poses a collision risk for birds, and would develop an adaptive management strategy in coordination with the wildlife agencies (i.e., USFWS, CDFW) and BLM to mitigate impacts to lower levels for the Palen Solar Electric Generating System and future solar tower technology projects. Electrocution As discussed in the Palen Solar Power Project PA/FEIS, large raptors such as the golden eagle, red-tailed hawk, and great-horned owl can be electrocuted by transmission lines when a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. This happens most frequently when a bird attempts to perch or take off from a structure with insufficient clearance between these elements. Electrocution-related hazards to avian species were analyzed in the Palen Solar Power Project PA/FEIS and no new impacts were identified for the Palen Solar Electric Generating System. See Palen Solar Power Project PA/FEIS Section 4-21 (p. 4.21-17) for a discussion of potential electrocution hazards to avian species. Project adherence to the most recent Avian Power Line Interaction Committee (APLIC) guidelines for transmission line design, as proposed for the Palen Solar Power Project and required by APM BIO-8 (Appendix C) would help reduce the risk of avian electrocution. Evaporation Ponds The Palen Solar Electric Generating System would include two, 2-acre evaporation ponds, only one of the two 2-acre evaporation ponds would be used at any single point in time. The wastewater from each power block would be transported to the evaporation ponds by truck. One truck trip a day from each power block is anticipated to be sufficient for this purpose. The two 2-acre evaporation ponds would be located in the common facilities area and designed with a primary and secondary liner system and an intervening leak collection and recovery system (LCRS). The evaporation ponds would be designated as Class II Surface Impoundments Waste Management Units (WMU) and will meet the requirements of the California Code of Regulations (27 CCR 20200 et seq). The reduced size of the ponds under the Palen Solar Electric Generating System could lessen the related impacts to wildlife species that were discussed in the Palen Solar Power Project PA/FEIS, and no new impacts were identified for the Palen Solar Electric Generating System. Avian Protection Plans including pond netting to prevent access by wildlife have been identified to address potential impacts to wildlife resources from evaporation ponds (see BIO-26 in Appendix C). 4.21.3 Discussion of Cumulative Impacts Palen Solar Power Project PA/FEIS Appendix I includes an analysis of cumulative impacts from past, present, and reasonably foreseeable future actions to special-status wildlife, plants, and movement corridors. Foreseeable projects within the NECO planning area also are presented in Palen Solar Power Project PA/FEIS Appendix A, Figure 4.21-1. These impacts are further summarized in Table 4.21-3. An updated cumulative scenario is presented in Section 4.1 of this Draft SEIS. Palen Solar Electric Generating System Construction and operation of the Palen Solar Electric Generating System would cause adverse impacts to many wildlife resources within the Chuckwalla Valley and the NECO planning area. These include: Mojave fringe-toed lizard; desert tortoise; wildlife movement and connectivity; golden eagle; burrowing owl; American Palen Solar Electric Generating System Draft SEIS 4.21-12 July 2013 4. Environmental Consequences 4.21 Impacts on Wildlife Resources TABLE 4.21-3 CUMULATIVE IMPACTS TO SELECTED WILDLIFE RESOURCES FROM THE PROJECTa Wildlife Resource Impact Desert Tortoise Contributes to cumulative loss of low to moderate value desert tortoise habitat (0.15% to 0.2 habitat value, 3.7% to 0.3 habitat value, 2.5% to 0.4 to 0.5 habitat value, and 0.02% to 0.6 to 0.7 habitat value) from future projects in the NECO planning area. Mojave Fringe-Toed Lizard Contributes substantially to cumulative loss of Mojave fringe-toed lizard habitat in the Chuckwalla Valley (24.3% of all impacts from future projects, Table 14).The Palen Solar Electric Generating System's (PSEGS) contribution to fragmentation and indirect impacts increases the already fragmented distribution of the Mojave fringe-toed lizards and increases the risk of extirpation of isolated populations within the Chuckwalla Valley. The Western Burrowing Owl contributes 0.9% to cumulative loss from future projects within the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) planning area and also contributes indirect impacts. For the Golden Eagle, the PSEGS contributes 0.3% to the cumulative loss of foraging habitat within a 140-mile radius of the site, specifically 0.3% of Sonoran creosote scrub and 100% loss of dry desert wash woodland. The PSEGS also contributes to a cumulative loss of foraging habitat within 10 miles of mountain nesting habitat within the NECO planning area: 1.6% of the loss of Sonoran creosote bush scrub and 0.3% of desert dry wash woodland, and the PSEGS also contributes to fragmentation and indirect impacts. Special-status birds and migratory birds contribute 1.0% to cumulative loss of habitat from future projects within the NECO Migratory Birds planning area, including the contribution of 0.3% of desert dry wash woodland. Nelson's Desert Bighorn Sheep contributes to 0% of cumulative impacts from future projects within the NECO planning area; 3.7% of total NECO Bighorn Sheep Wildlife Habitat Management Areas (WHMAs); 5.6% of connectivity corridors in NECO planning area. Desert Kit Fox and American Badger contribute 0.9% to cumulative loss of habitat from future projects within the NECO planning area and also contribute to fragmentation and indirect impacts. Wildlife Habitat Management Areas contribute to 68% loss of Sonoran creosote scrub habitat from future projects within Palen-Ford WHMA, 73.3% loss of desert dry wash woodland to Palen-Ford WHMA from future projects, and 0% loss of sand dune communities within the Palen-Ford WHMA. The PSEGS contributes to an approximately 5% loss to the Desert Wildlife Management Area (DWMA) Connectivity WHMA. The PSEGS has no cumulative contribution to habitat loss in Big Maria Mountains WHMA. Approximately 201 acres of the southwestern corner of the PSEGS site overlaps the northern boundary of the Chuckwalla Desert Tortoise Critical Habitat Area. Note that at this scale of analysis, there is essentially no difference between the PSEGS and any of the action alternatives for the badger, desert kit fox, LeConte's thrasher, and other migratory desert birds. For many wildlife resources, the PSEGS contribution to cumulative effects after implementing Applicant Proposed Measures (APMs) would be relatively minor. However, the PSEGS would cause substantial incremental contributions to cumulative impacts on Mojave fringe-toed lizard, desert tortoise habitat loss and connectivity, and other wildlife habitat values when combined with other past, present, and reasonably foreseeable future actions in the cumulative area. Because the impacts on individual golden eagles, special-status, and migratory birds, and bats from solar flux by the solar mirrors and SRGS tower are unquantified, the cumulative contribution to population-level mortality in the cumulative area is unknown. The Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) states in section 4.21-13 from July 2013 that the environmental consequences on wildlife resources, as discussed in the Palen Solar Power Project Programmatic Agreement/Final Environmental Impact Statement (PSPP PA/FEIS), indicate that for the golden eagle, habitat loss from the PSPP contributes to a cumulative loss of foraging habitats in the Chuckwalla Valley and the NECO planning area. Although the PSEGS, at roughly 572 acres smaller in size, would slightly reduce cumulative habitat loss for golden eagle compared to the PSPP, the PSEGS contribution to the cumulative impacts would remain substantial when combined with the reasonably foreseeable indirect effects of habitat fragmentation from the construction of projects in the cumulative scenario (see Table 4.1-1). The U.S. Fish and Wildlife Service (USFWS) and others (PSPP PA/FEIS, p. 4.21-23) estimate there are approximately 30,000 golden eagles in the western U.S., down from an estimated 100,000 in the late 1970s. Survey data from 2003 and 2006 to 2008 indicate a decline of 26 percent since 2003. Climate change is also expected to impact the golden eagle by increasing drought severity, and CO2 concentrations are expected to exacerbate the spread of non-native invasive plants, which displace native species and habitats, fuel wildfires, and alter fire regimes. Additionally, the proposed transmission lines for this and other proposed future projects may increase raptor collisions and electrocutions. Proposed future projects, within 10 miles of all mountains in the NECO planning area, would cumulatively displace over 300,000 acres of Sonoran and Mojave creosote bush scrub and desert dry wash woodland.The Palen Solar Electric Generating System (PSEGS) contribution to the cumulative loss of foraging habitat within the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) planning area would be adequately addressed by applying Avoidance and Minimization Measure (APM) BIO-16B, which would fund the restoration of degraded habitat with native vegetation to support bird use, reduce regional bird hazards, and support avian research and management efforts. Reconfigured Alternative 2 includes two possible layouts referred to as Option 1 and Option 2. Both options would rely on solar trough technology that would not create a solar flux hazard to avian species. Also, significant grading and hydrologic engineering would occur under Reconfigured Alternative 2 that is not part of the Palen Solar Electric Generating System (PSEGS). Grading would fully remove vegetation from the site (rather than mowing of existing vegetation as proposed under the Palen Solar Electric Generating System (PSEGS)) and wildlife hazards related to evaporation ponds would be relatively higher, as described for the Palen Solar Power Project (PSPP).

The impacts described in the Palen Solar Power Project (PSPP) Plan Amendment/Final Environmental Impact Statement (PA/FEIS) for Reconfigured Alternative 2 Option 1 have not changed since publication. Reconfigured Alternative 2 Option 1 would disturb approximately 4,366 acres, consisting of 3,817 acres of Sonoran creosote bush scrub, 156 acres of stabilized and partially-stabilized desert dunes, 208 acres of desert dry wash woodland, and 180 acres of unvegetated ephemeral dry wash. Reconfigured Alternative 2 Option 1 would be approximately 420 acres larger than the proposed Palen Solar Electric Generating System (PSEGS), increasing the impacts to natural vegetation communities. Under Reconfigured Alternative 2 Option 1, relative to the Palen Solar Electric Generating System (PSEGS), approximately 258 additional acres of potential desert tortoise habitat would be impacted. Similarly, the impacts on potential Mojave fringe-toed lizard habitat would increase under Reconfigured Alternative 2 Option 1 by approximately 128 acres.

The impacts described in the Palen Solar Power Project (PSPP) Plan Amendment/Final Environmental Impact Statement (PA/FEIS) for Reconfigured Alternative 2 Option 2 have not changed since publication. Reconfigured Alternative 2 Option 2 would disturb approximately 4,330 acres, consisting of 3,771 acres of Sonoran creosote bush scrub, 188 acres of stabilized and partially-stabilized desert dunes, 198 acres of desert dry wash woodland, and 168 acres of unvegetated ephemeral dry wash. Reconfigured Alternative 2 Option 2 would be approximately 384 acres larger than the proposed Palen Solar Electric Generating System (PSEGS), increasing the impacts to vegetation communities. Under Reconfigured Alternative 2 Option 2, relative to the Palen Solar Electric Generating System (PSEGS), approximately 190 additional acres of potential desert tortoise habitat would be impacted. Similarly, the impacts on potential Mojave fringe-toed lizard habitat would increase under Reconfigured Alternative 2 Option 2 by approximately 115 acres.

If No Action Alternative A was selected, the Palen Solar Electric Generating System (PSEGS) would not occur at the project site. However, since the Right of Way (ROW) application area is located within the Riverside East Solar Energy Zone (SEZ), the California Desert Conservation Area (CDCA) Plan amendment decisions made in the Solar Programmatic Environmental Impact Statement (PEIS) Record of Decision (ROD) that identify the area as suitable for any type of solar energy development would be in effect for future projects. This includes prioritization of solar energy development in the Solar Energy Zone (SEZ). It is likely, therefore, that the project site in the future would be developed as a solar energy project. Such development could result in cumulative impacts similar to those of the Palen Solar Electric Generating System (PSEGS) or Palen Solar Power Project (PSPP); however insufficient detail is known about any potential future solar project on the proposed site to provide a meaningful analysis.

The Palen Solar Electric Generating System (PSEGS) Applicant has committed to implementing the relevant mitigation measures that were identified in Palen Solar Power Project (PSPP) Plan Amendment/Final Environmental Impact Statement (PA/FEIS) Section 4.21.4 as Avoidance and Minimization Measures (APMs) to avoid and minimize direct and indirect impacts to wildlife resources (see Appendix C). The Applicant also has included additional Avoidance and Minimization Measures (APMs) or modified Avoidance and Minimization Measures (APMs) to address impacts unique to the Palen Solar Electric Generating System (PSEGS) (e.g., BIO-16C, regarding avian and bat surveys, monitoring and adaptive management). In addition, the following measures shall be implemented to reduce or avoid impacts to wildlife species from construction, operation and maintenance, and decommissioning of the Palen Solar Electric Generating System (PSEGS).

The project owner shall develop and implement an American Badger and Desert Kit Fox Mitigation and Monitoring Plan. The objective of the American Badger and Desert Kit Fox Mitigation and Monitoring Plan shall be to avoid direct impacts to the American badger and desert kit fox as a result of construction of the power plant and linear facilities, as well as during project operation and decommissioning. The final American Badger and Desert Kit Fox Mitigation and Monitoring Plan is subject to review and comment by the Bureau of Land Management (BLM) and revision and approval by the Compliance Project Manager (CPM), in consultation with the California Department of Fish and Wildlife (CDFW). The final American Badger and Desert Kit Fox Mitigation and Monitoring Plan shall include, but is not limited to, the following procedures and impact avoidance measures: 1.Describe pre-construction survey and clearance field protocol, to determine the number and locations of single or paired kit foxes or badgers on the project site that would need to be avoided or passively relocated and the number and locations of Palen Solar Electric Generating System Draft SEIS 4.21-15 July 2013. Environmental Consequences Impacts on Wildlife Resources desert kit fox or badger burrows or burrow complexes that would need to be collapsed to prevent re-occupancy by the animals. a. Pre-Construction Surveys. Biological Monitors shall conduct pre-construction surveys for desert kit fox and American badger no more than 30 days prior to initiation of construction activities, including pre-construction site mobilization. The pre-construction surveys shall also address the potential presence of active dens within 100 feet of the project boundary (including utility corridors and access roads) and shall be performed for each phase of construction. If dens are detected, each den shall be classified as inactive, potentially active, or definitely active den. b. Monitoring and Protection Measures, Passive Hazing, and Den Excavation. The plan will include details on monitoring requirements, types and methods of passive hazing, and methods and timing of den excavation, including, but not limited to the following: i. Inactive dens. Inactive dens (inactive dens are dens that are mostly or entirely silted in and ones in which the back of the den can clearly be seen (the back of the den isn't deep and doesn't curve) that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badger or kit fox. ii. Potentially and definitely active dens. Potentially and definitely active dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If the Biological Monitor observes no tracks in the tracking medium or captures no photos of the target species after three nights, the Biological Monitor shall excavate and backfill the den by hand. If the Biological Monitor observes tracks, the Biological Monitor shall progressively block the den with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied, the Biological Monitor shall then excavate and backfill the den by hand to ensure that no badgers or kit fox are trapped in the den. If the Biological Monitor proves the den inactive, then the den may be collapsed during whelping season. BLM approval may be required prior to the release of badgers on public lands. iii. Active natal/pupping dens. If the Biological Monitor detects an active natal den (a den with pups) on the site, the BLM, CEC, and CDFW shall be contacted within 24 hours to determine the appropriate course of action to minimize the potential for animal harm or mortality. The course of action would depend on the age of the pups, location of the den on the site (the location of the den on the site is in a central area or in a perimeter location), status of the perimeter site fence (completed or not), and the pending construction activities proposed near the den. A 500-foot no-disturbance buffer shall be maintained around all active dens. The denning season for American badger is approximately March to August, and for desert kit fox the denning season is approximately Mid-January to pup independence (typically by June). If the den is active during the whelping season, even if the Biological Monitor has not seen pups, disturbance is not allowed. The Biological Monitor will not excavate or passively relocate active natal/pupping dens. c. Exception for American badger. In the event that passive relocation techniques fail for badgers, outside the denning season, or during the denning season if individual badgers can be verified to not have a litter, then live-trapping by a CDFW and CPM approved trapper is an option that may be employed to safely perform active removal with approval on a case by case basis by the CPM, BLM, and CDFW In the event live-trapping would be employed as a last resort, a live-trapping plan would be submitted to the CPM for review and approval in consultation with BLM and CDFW. The live-trapping plan would at a minimum include timing, trapping methods, and location of release of the individual badger as well as the name and resume, including documentation of relevant handling permits of the proposed trapper.Address other factors and procedures that may affect the success of kit fox and American badger relocation offsite, such as: a. Qualitative discussion of availability of suitable habitat on off-site surrounding lands within 10 miles of the project boundary, and quantitative evaluation of unoccupied desert kit fox burrows available on surrounding lands within 1 mile of the project boundary (e.g., by inventorying burrow numbers in selected representative sample areas); b. Estimates of the distances kit foxes would need to travel across the project site and across adjacent lands to safely access suitable habitat (including burrows) off-site; c. Proposed scheduling of the passive relocation effort; d. Methods to minimize likelihood that the kit foxes or American badgers will return to the project site; e. Descriptions of any proposed or potential ground disturbing activities related to kit fox relocation, and locations of those activities (e.g., artificial burrow construction); f. A monitoring and reporting plan to evaluate success of the relocation efforts and any subsequent re-occupation of the project site; and g. A plan to subsequently relocate any kit foxes or American badgers that may return to the project site (e.g., by digging beneath fences). 3. Address notification procedures for notifying the CPM, BLM, and CDFW if injured, sick, or dead American badger or kit fox are detected. Notify the CPM, BLM, and CDFW if injured, sick, or dead American badger and desert kit fox are found. If an injured, sick, or dead American badger or desert kit fox is detected on any area associated with the solar project site or associated linear facilities, the CPM, BLM Palm Springs/South Coast Field Office, and the Ontario CDFW Office shall be notified immediately by phone. Written follow-up notification via FAX or electronic communication shall be submitted to the CPM, BLM, and CDFW within 24 hours of the incident and shall include the following information as appropriate: Palen Solar Electric Generating System Draft SEIS 4.21-17 July 2013

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If an American badger or desert kit fox is found sick and incapacitated on any area associated with the project site or associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM, BLM, and CDFW personnel for immediate capture and transport of the sick American badger or desert kit fox to a CDFW-approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFW shall determine the final disposition of the sick American badger or desert kit fox, if the sick American badger or desert kit fox recovers. If the sick American badger or desert kit fox dies, a necropsy shall be performed by a CDFW-approved facility to determine the cause of death. The project owner shall pay to have the sick American badger or desert kit fox transported and a necropsy performed. A written notification of the incident shall be sent to the CPM, BLM, and CDFW and contain, at a minimum, the date, time, location, and circumstances of the incident. c. Fatalities. If an American badger or desert kit fox is killed because of any project-related activities during construction, operation, and decommissioning or is found dead on the project site or along associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately refrigerate the carcass and notify the CPM, BLM, and CDFW personnel within 24 hours of the discovery to receive further instructions on the handling of the dead American badger or desert kit fox. Handling of a dead kit fox shall follow the Guidelines for Handling a Desert Kit Fox Carcass (CDFW WIL) or most recent guidance. If the dead American badger or desert kit fox is suspected of dying of unknown causes, a necropsy shall be performed by a CDFW-approved facility to determine the cause of death. The project owner shall pay to have the dead American badger or desert kit fox transported and a necropsy performed. 4. Additional protection measures to be included in the plan and implemented: a. All pipes within the project disturbance area must be capped and/or covered every evening or when not in use to prevent desert kit foxes or other kit foxes from accessing the pipes. b. All water sources shall be covered and secured when not in use to prevent drowning of the kit foxes or other animals.c. The project owner shall coordinate with the California Department of Fish and Wildlife (CDFW) to identify any additional fence design features to maximize the effectiveness of the fence to exclude kit foxes from the project. d. The project owner shall incorporate and implement the CDFW Veterinarian's guidance regarding impact avoidance measures, including measures to prevent disease spread among desert kit foxes. Palen Solar Electric Generating System Draft SEIS 4.21-18 July 2013 374 4. Environmental Consequences 4.21 Impacts on Wildlife Resources e. The project owner shall include measures to reduce traffic impacts to wildlife if the project owner anticipates night-time construction. The plan must also include a discussion of what information will be provided to all night-time workers, including truck drivers, to educate the workers about the threats to kit fox, what the workers need to do to avoid impacts to kit fox, and what to report if the workers see a live, injured, or dead kit fox. f. In order to reduce the likelihood of distemper transmission: i. No pets shall be allowed on the site prior to or during construction, operation, and decommissioning, with the possible exception of vaccinated kit fox scat detection dogs during preconstruction surveys, and then only with prior Compliance Project Manager (CPM) and CDFW approval; ii. Any hazing activities that include the use of chemical or other repellents (e.g., ultrasonic noise makers, or non-animal-based chemical repellents) must be cleared through the CPM and CDFW prior to use. The use of animal tissue or excretion based repellents (e.g., coyote urine, anal gland products) is not permitted. iii. Any sick or diseased kit fox, or documented kit fox mortality shall be reported to the CPM, CDFW, and the Bureau of Land Management (BLM) within 8 hours of identification. If a dead kit fox is observed, the dead kit fox shall be collected and stored according to established protocols distributed by the CDFW Wildlife Investigations Lab (WIL), and the WIL shall be contacted to determine carcass suitability for necropsy. 5. Verification: No fewer than 90 days prior to the start of any pre-construction site mobilization, the project owner shall provide the CPM, BLM, and CDFW with a draft American Badger and Desert Kit Fox Mitigation and Monitoring Plan for review and comment. No fewer than 45 days prior to start of any pre-construction site mobilization, the project owner shall provide an electronic copy of the CPM-approved final plan to the CPM, BLM, and CDFW and implement the plan. The project owner shall submit a report to the CPM, BLM, and CDFW within 30 days of completion of any badger and kit fox surveys. The report shall describe survey methods, results, impact avoidance and minimization measures implemented, and the results of those measures. No later than 2 days following a phone notification of an injured, sick, or dead American badger or desert kit fox, the project owner shall provide to the CPM, BLM, and CDFW, via FAX or electronic communication, a written report from the Designated Biologist describing the incident of sickness, injury, or death of an American badger or desert kit fox, when the incident occurred, and who else was notified. Beginning with the first month after the start of construction and continuing every month until construction is completed, the Designated Biologist shall include a summary of events regarding the American badger and desert kit fox in each Monthly Compliance Report (MCR). No later than 45 days after the initiation of project operation, the Designated Biologist shall provide the CPM and BLM with a final American Badger and Desert Kit Fox Mitigation and Monitoring Plan Report that includes: 1) a discussion of all mitigation measures that were and currently are being implemented; 2) all information about project-related kit fox and badger injuries and/or deaths; 3) all information regarding sick kit fox and badger found within the project site and along related linear facilities; and 4) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the American badger and desert kit fox. 4.21.5 Residual Impacts after Mitigation Measures were Implemented The Palen Solar Electric Generating System (PSEGS) would eliminate most habitat for wildlife within the Project Disturbance Area. Adherence to the identified Applicant Proposed Measures (APMs) and mitigation measures would avoid, minimize, or compensate for the loss to varying, but unquantified degrees, but would not completely offset those losses. Routes of wildlife movement from the mountainous southwest to the northeast would be severely curtailed due to perimeter fencing. Wildlife trailing along the perimeter fence to find a suitable route would be subject to increased vulnerability to predation.Gaps in fencing, if not properly maintained, could trap desert tortoises, badgers, kit foxes, burro deer, or Nelson's bighorn sheep, or increase vehicle interaction hazards associated with I-10. In addition to direct loss of habitat, the Palen Solar Electric Generating System (PSEGS) would fragment and degrade adjacent native wildlife communities, and could promote the spread of invasive non-native plants and increase the presence of desert tortoise predators such as ravens. These habitats provide foraging, cover, and/or breeding habitat for a variety of resident wildlife, including the state and federally-listed desert tortoise, as well as Mojave fringe-toed lizard, golden eagle, migratory birds, burrowing owl, Nelson's bighorn sheep, burro deer, American badger, and desert kit fox. The residual impacts of the "solar flux" on resident and migratory birds and bats are unknown and unquantified and cannot be mitigated without further study of the potential hazards presented by solar tower technology. The adaptive management approach of the Avian Protection Plan described as Applicant Proposed Measure (APM) BIO-16 would help provide an understanding of potential impacts from solar tower technology, and could potentially reduce future impacts for the Palen Solar Electric Generating System (PSEGS) and other similar projects. The magnitude of this potential impact and the feasibility of reducing potential impacts following study are not known at this time. PSEGS-specific and cumulative residual impacts remaining after the implementation of Applicant Proposed Measures (APMs) could be addressed only through a regional and coordinated effort aimed at preserving and enhancing large, intact expanses of wildlife habitat and linkages, including maintaining connections between Desert Wildlife Management Areas (DWMAs) and other movement corridors. Ongoing collaborative efforts by federal and state agencies to develop a Desert Renewable Energy Conservation Plan offer an appropriate forum for such a regional mitigation approach. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.21-20 July 2013.

4. Environmental Consequences 4.21 Impacts on Wildlife Resources 4.21.6 Unavoidable Adverse Impacts Under the Palen Solar Electric Generating System (PSEGS) and other action alternatives, native wildlife communities would be lost on habitat totaling 3,946.7 acres (PSEGS), 4,366 acres (Reconfigured Alternative 2, Option 1), and 4,330 acres (Reconfigured Alternative 2, Option 2). Unquantified indirect losses to wildlife habitats and communities would occur adjacent and downwind from the Palen Solar Electric Generating System (PSEGS) site, including habitat for desert tortoise, Mojave fringe-toed lizard, golden eagle foraging, American badger, burrowing owl, other special status and migratory birds, and kit fox, and would degrade and fragment adjacent wildlife communities, decreasing regional connectivity and dispersal of resident wildlife. Additionally, the proposed project is likely to promote the spread of invasive non-native plants and to subsidize desert tortoise predators. Construction, operation or maintenance activities could result in some death, harm, harassment, removal, or capture of wildlife, including eggs and nests and so constitute unavoidable loss of individual animals. Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.21-21 July 2013.

4. Environmental Consequences 4.21 Impacts on Wildlife Resources This page intentionally left blank Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement (SEIS) 4.21-22 July 2013.

CHAPTER 5 Consultation, Coordination and Public Involvement 5.1 Interrelationships Major authorizing laws and regulations authorizing the Bureau of Land Management (BLM) to take action with respect to Rights-of-Way (ROW) grant authorization and amendment of the California Desert Conservation Area (CDCA) Plan for the proposed Palen Solar Electric Generating System (PSEGS) are summarized in Section 1.4.1. In addition to these authorities, the Bureau of Land Management (BLM) coordinates its fire management activities with the actions of related federal and state agencies responsible for fire management. The Federal Wildland Fire Policy is a collaborative effort that includes the Bureau of Land Management (BLM), United States Forest Service (USFS), National Park Service (NPS), United States Fish and Wildlife Service (USFWS), Bureau of Indian Affairs (BIA), the National Biological Service, and state wildlife management organizations. The collaborative effort has formulated and standardized the guiding principles and priorities of wildland fire management. The National Fire Plan is a collaborative interagency effort to apply the Federal Wildland Policy to all Federal Land Management Agencies and partners in state forestry or lands departments. Operational collaboration between the Bureau of Land Management (BLM), United States Forest Service (USFS), National Park Service (NPS), and United States Fish and Wildlife Service (USFWS) is included in the Interagency Standards for Fire and Fire Aviation Operations 2003. This federally approved document addresses fire management, wildfire suppression, fuels management and prescribed fire safety, interagency coordination and cooperation, qualifications and training, objectives, performance standards, and fire management program administration. 5.1.1 Department of Defense Bureau of Land Management (BLM) coordinates with Department of Defense prior to approval of rights-of-way for renewable energy, utility, and communication facilities to ensure that these facilities would not interfere with military training routes. Coordination for the Palen Solar Electric Generating System (PSEGS) is ongoing.5.1.2 U.S. Army Corps of Engineers As discussed in Sections 1.2.5 and 5.1.2 of the PSPP PA/FEIS (pp. 1-6 and 5-1 et seq., respectively), the USACE rendered a final opinion on August 2, 2010 concluding that the PSPP would not affect waters of the U.S. and thus, the PSPP would not require a Section 404 permit. Because the PSEGS is proposed within the same footprint as was analyzed in the PSPP PA/FEIS and for other reasons, the PSEGS also would not affect waters of the U.S. and also would not require a Section 404 permit. Palen Solar Electric Generating System Draft SEIS 5-1 July 2013

379 5. Consultation, Coordination and Public Involvement 5.1.3 California Energy Commission As summarized in Sections 1.2.2 and 5.1.3 of the PSPP PA/FEIS (pp. 1-4 and 5-2, respectively), the California Energy Commission (CEC) has exclusive authority to certify the construction, modification, and operation of thermal electric power plants 50 megawatts (MW) or larger. The California Energy Commission approved the PSPP in December 2010. On December 17, 2012, PSH LLC submitted a Petition to Amend the original California Energy Commission Final Decision to approve the project modifications associated with the change in concentrating solar power technology from using parabolic troughs to solar power tower. Pursuant to CEQA, the California Energy Commission issued a Preliminary Staff Assessment (PSA) for the PSEGS on June 28, 2013. The California Energy Commission anticipates that the Preliminary Staff Assessment will be followed by a Staff Assessment, Presiding Member's Proposed Decision, and Commission Decision in the months to come. The California Energy Commission's licensing proceeding and associated environmental review are separate from and independent of the Bureau of Land Management's consideration of the PSEGS under FLPMA and NEPA. 5.1.4 California Department of Fish and Wildlife As discussed in Sections 1.2.6 and 5.1.4 of the PSPP PA/FEIS (pp. 1-7 and 5-2 et seq., respectively), the California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game (CDFG), protects fish and aquatic habitats within California through regulation of streambed alterations under Section 1602 of the state Fish and Game Code. As part of the PSPP, the prior applicant filed a Streambed Alteration Agreement in November 2009. Compliance with the requirements of Streambed Alteration Agreement provisions is among the mitigation measures that were identified in the PSPP PA/FEIS that have been included in the PSEGS as Applicant Proposed Measures (see Draft SEIS Section 2.1.7). The California Department of Fish and Wildlife 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.). Accordingly, in January 2010 and as part of the PSPP, the prior applicant submitted to the California Department of Fish and Game an application for a CESA Section 2081(B) Incidental Take Permit and Revised Desert Tortoise Technical Report. Evaluation of compliance with the requirements of incidental take authorization will be evaluated as required by the adopted mitigation measures. 5.1.5 South Coast Air Quality Management District As discussed in Section 5.1.5 of the PSPP PA/FEIS (p. 5-3), the PSPP site is located in the Mojave Desert Air Basin and is under the jurisdiction of the South Coast Air Quality Management District (District). The District issued a Final Determination of Compliance (FDOC) for the PSPP on December 1, 2010. The PSEGS is proposed substantially within the same footprint as the PSPP, and so the PSEGS also is located within the Mojave Desert Air Basin and subject to the District's jurisdiction. Coordination with the District for the PSEGS is ongoing. The Mojave Desert Air Basin lies inland southeast of the San Joaquin Valley Air Basin and northeast of the South Coast Air Basin. The desert portions of Kern, San Bernardino, Riverside, and Los Angeles counties are within the Mojave Desert Air Basin's boundaries. Palen Solar Electric Generating System Draft SEIS 5-2 July 2013

380 5. Consultation, Coordination and Public Involvement 5.1.6 California Department of Transportation As discussed in Section 5.1.6 of the PSPP PA/FEIS (p. 5-3), the California Department of Transportation (Caltrans) has jurisdiction over encroachments to Caltrans facilities and related easements and ROWs.Caltrans approval would be required prior to the installation of a locked gate in the I-10 ROW fence, for maintenance of the I-10 fence and gate, for the installation of desert tortoise exclusion fencing along I-10 within Caltrans's ROW, and potentially also for the transport of hazardous materials or other deliveries. Compliance with Caltrans requirements for the Palen Solar Electric Generating System (PSEGS) would be met through implementation of Applicant Proposed Measures (APMs), including, for example, BIO-9 (desert tortoise fencing), TRANS-1 (roadway use), TRANS-2 (hazardous materials transport), and TRANS-4 (over-sized load permits) (see Appendix C). 5.2 Description of Consultation Processes for Endangered Species Act (ESA) Section 7, National Historic Preservation Act (NHPA) Section 106, and Indian Tribes 5.2.1 U.S. Fish and Wildlife Service As described in Palen Solar Power Project (PSPP) Programmatic Agreement/Final Environmental Impact Statement (PA/FEIS) Sections 1.2.3 and 5.2.1 (pp. 1-5 and 5-4, respectively), the U.S. Fish and Wildlife Service (USFWS) has jurisdiction over threatened and endangered species listed under the Endangered Species Act (ESA) (16 USC 1531 et seq.). Formal consultation with the USFWS under Section 7 of the ESA for the PSPP was initiated in March 2010 and concluded with the June 2, 2011, issuance of a biological opinion (BO) related to potential impacts to the federally threatened desert tortoise and the desert tortoise's designated critical habitat. Conservation measures were identified in the biological opinion to reduce adverse impacts to the desert tortoise. The Bureau of Land Management (BLM) currently is reviewing a Draft Biological Assessment (BA) that outlines the changes and effects of the Palen Solar Electric Generating System (PSEGS) relative to the Palen Solar Power Project (PSPP). Upon completion of review and submittal of the Draft Biological Assessment, the Bureau of Land Management will initiate Section 7 consultation with the U.S. Fish and Wildlife Service to produce a biological opinion for the Palen Solar Electric Generating System. 5.2.2 Tribal Consultation and Section 106 Compliance The Bureau of Land Management consults with Native American Indian tribes in accordance with several authorities, including the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA) (16 USC 470), as amended; the American Indian Religious Freedom Act of 1978 (42 USC 1996), as amended; Executive Order (E.O.) 13007 (May 24, 1996), concerning Indian Sacred Sites; Executive Order 13175 (Nov. 6, 2000), concerning Consultation and Coordination With Indian Tribal Governments; and the Presidential Memorandum of April 29, 1994 (59 Fed. Reg. 22951 (1994). For the Palen Solar Power Project, in coordination and cooperation with the California Energy Commission (CEC), the Bureau of Land Management expanded the Bureau of Land Management's consultation to include Native American groups not recognized as Indian tribes by the federal government. Sixteen tribes or related entities were identified and invited to consult on the Palen Solar Power Project, including: 1. Agua Caliente Band of Cahuilla Indians Tribal Historic Preservation Officer 2. Augustine Band of Cahuilla Mission Indians 3. Cabazon Band of Mission Indians 4. Cahuilla Band of Mission Indians Palen Solar Electric Generating System Draft Supplemental Environmental Impact Statement 5-3 July 2013

381 5. Consultation, Coordination and Public Involvement 5. Chemehuevi Indian Tribe 6. Cocopah Indian Tribe 7. Colorado River Indian Tribes 8. Fort Mojave Indian Tribe 9. Fort Yuma Quechan Indian Tribe 10. Morongo Band of Mission Indians 11. Quechan Indian Tribe 12. Ramona Band of Mission Indians 13. San Manuel Band of Mission Indians 14. Soboba Band of Luiseno Indians 15. Torres-Martinez Desert Cahuilla Indians 16. Twentynine Palms Band of Mission Indians The Bureau of Land Management also consulted with Native American Indian tribes and interested tribal members on the development and execution of a Programmatic Agreement for the Palen Solar Power Project, in accordance with 36 CFR Part 800.14(b) (September 21, 2010). Programmatic agreements are used for the resolution of adverse effects for complex project situations and when effects on historic properties (resources eligible for or listed in the National Register of Historic Places) cannot be fully determined prior to approval of an undertaking. Consultation in accordance with the National Historic Preservation Act (NHPA) Section 106 is an ongoing process. As part of the Palen Solar Power Project, the Bureau of Land Management conducted government-to-government consultation with a number of tribal governments. The consultation and discussions revealed concerns about the importance and sensitivity of cultural resources on and near the Palen Solar Power Project site, concerns about cumulative effects to cultural resources, and, further, that the tribes attach significance to the broader cultural landscape. As a result of the tribal consultation process, many important cultural resources were identified in the project study area and incorporated into the Palen Solar Power Project design and analysis, as well as the Palen Solar Electric Generating System and this Draft Supplemental Environmental Impact Statement.\*\*5.3 Implementation, Monitoring and Enforcement\*\* If any of the action alternatives is approved, then the BLM would continue to involve and collaborate with the public during project implementation. Opportunities to become involved during implementation and monitoring could include development of partnerships and community-based citizen working groups. BLM invites citizens and user groups within the project area to become actively involved in implementation, monitoring, and enforcement of decisions. BLM and citizens may collaboratively develop site-specific goals and objectives that mutually benefit public land resources, local communities, and the people who live, work, or play on the public lands. BLM would monitor activities throughout the life of the project to ensure that decisions are implemented in accordance with the approved ROD and ROW grant. Monitoring would be conducted to determine whether decisions, APMs, BMPs, and approved mitigation are achieving the desired effects. Effectiveness monitoring would provide an empirical database on impacts of decisions and effectiveness of mitigation. Effectiveness monitoring also would be useful for improving analytical procedures for future impact analyses and for designing or improving mitigation and enhancement measures.

\*\*5.4 Scoping\*\*

\*\*5.4.1 PSPP EIS\*\* The BLM solicited internal and external input on the issues, impacts, and potential alternatives to be addressed in the PSPP EIS, as well as the extent to which those issues and impacts would be analyzed in the document, as described in the PSPP PA/FEIS. See PSPP PA/FEIS Section 5.4 (p. 5-6) and PSPP PA/FEIS Appendix D for details.

\*\*5.4.2 Draft SEIS\*\* Supplemental EISs are prepared, circulated, and filed with the same requirements as EISs, except that supplemental EISs do not require scoping (40 CFR 1502.9). No formal scoping activities occurred for the Draft SEIS. Nonetheless, the BLM solicited internal and external input on the issues, impacts, and potential alternatives to be addressed in the Draft SEIS as well as the extent to which those issues and impacts would be analyzed in the document at a multi-agency meeting held March 26, 2013, at the University of California at Riverside's Palm Desert Campus, which is located at 75080 Frank Sinatra Drive in Palm Desert, California.

\*\*5.5 Public Comment Process\*\*

\*\*5.5.1 PSPP EIS\*\* As described in PSPP PA/FEIS Section 5.5.1, the BLM and the CEC issued a joint Staff Assessment/Draft Environmental Impact Statement for the PSPP for public and agency review and comment on March 18, 2010. The public comment period ended on July 1, 2010. Eight comment letters were received. PSPP PA/FEIS Section 5.5.1 (p. 5-7) includes a list of all individuals, agencies, and organizations that provided written comments, Section 5.5.2 (p. 5-7 et seq.) provides common (consolidated) responses for topics regarding which a number of similar or related comments were received, and Section 5.5.3 (p. 5-56 et seq.) provides responses to all individual comments received.

\*\*5.5.2 Draft SEIS\*\* This Draft SEIS will be circulated for a 90-day public comment period. All comments must be postmarked no later than 90 days from the date the Notice of Availability for the Draft SEIS published in the Federal Register by the USEPA. All substantive issues raised in writing during the public comment period will be considered, and modifications based on these comments may be made to develop the Final EIS for the PSEGS.

\*\*5.6 List of Preparers\*\* Though individuals have primary responsibility for preparing sections of the Draft SEIS, the Draft SEIS is an interdisciplinary team effort. In addition, internal review of the document occurs throughout preparation.

Apologies for any oversight. You mentioned expecting around 65,470 characters, but it seems the provided text is much shorter. If you have more specific sections or more text to process, please share them.Specialists at the BLM's Field Office, State Office, and Washington Office review the analysis and supply information, as well as provide document preparation oversight. Contributions by individual preparers may be subject to revision by other BLM specialists and by BLM management during internal review.

TABLE 5-1 LIST OF PREPARERS Name Job Title/ Primary Responsibility BLM Personnel McMenimen, Frank Project Manager BLM, Renewable Energy Coordination Office Elser, Lynnette Planner BLM, Renewable Energy Coordination Office Fesnock, Amy Biologist BLM, California State Office Godfrey, Peter Hydrologist BLM, Renewable Energy Coordination Office Gomez, Diane Realty Specialist BLM, Palm Springs-South Coast Field Office Hickey, Michael Solicitor U.S. Department of Justice Hill, Greg Wilderness Specialist BLM, Renewable Energy Coordination Office Kline, George Archeologist BLM, Palm Springs-South Coast Field Office Ludwig, Noel Hydrologist BLM, Renewable Energy Coordination Office Marsden, Kim Biologist BLM, Renewable Energy Coordination Office McGinnis, Sandra Sr. Planner BLM, California State Office Miller, Luke Solicitor U.S. Department of Justice Meyer-Shield, Planner BLM, California State Office Elizabeth Thomas, Tiffany Archeologist BLM, Renewable Energy Coordination Office Environmental Science Associates Stewart, Shannon Project Director Quality Assurance/Quality Control Scott, Janna Project Manager Quality Assurance/Quality Control Livestock and Grazing, Public Health and Safety, Davidian, Elijah Deputy Project Manager Wild Horse and Burros Palen Solar Electric Generating System Draft SEIS 5-6 July 2013

5. Consultation, Coordination and Public Involvement TABLE 5-1 (Continued) LIST OF PREPARERS Name Job Title/ Primary Responsibility Office Location Environmental Science Associates (cont.) Bray, Madeleine Associate III Cultural Resources Carlson, Allisa Senior Associate Visual Resources Costa, Peter Senior Associate Transportation Devadiga, Asavari Managing Associate II Water Resources Dvorak, Amy Natasha Senior Associate Vegetation, Wildlife Fagundes, Matthew Managing Associate Air Resources, Climate Change, Noise Mineral Resources, Paleontological Resources, Hudson, Peter Director Soils Resources, Water Resources Hutchison, Jack Managing Associate III Transportation Jung, Perry Senior Graphics Graphics Environmental Justice, Lands and Realty, Multiple Kostalas, Alexandra Senior Associate Use Classes, Recreation, Special Designations Mineral Resources, Paleontological Resources, Lancelle, Karen NEPA Analyst Socioeconomics, Soils Resources McCullough, Wes GIS Analyst Figures Pittman, Brian Vegetation, Wildlife, Wildland Fire Ecology Strauss, Monica Director Cultural Resources Taplin, Justin Technical Associate Soil and Mineral Resources Tierney, Kristina Senior Associate Air Resources, Climate Change, Noise Consultants Providing Independent Third Party Review of the Draft SEIS Babb, Vicky Vicky Babb Consulting Aviation and Military Burch, Alvin Burch Consulting Services Minerals Clapp, Elvin Eagle Trails Consulting Visual Resource Management Cordery, Ted TEC Ecological Vegetation, Wildlife, Wildland Fire Ecology Cox, Levi Section 37 Project Management Assistance Air, Water, Soils, Grazing, and Wild Horse and Hooper, Ron Wind Whistle Consulting Burros Kershaw, Byard North Rim Consulting Hazmat and Public Health and Safety Kershaw, Carol Red Rock Consulting Lands and Realty, Multiple Use Classifications O'Sullivan, Terry O'Sullivan Resources Recreation and Special Designations Simmons, Gregg Simmons ENRC Land Use Planning and NEPA Cultural Resources, Environmental Justice, Stumpf, Gary Legacy Cultural Resource Consulting Paleontological Resources Palen Solar Electric Generating System Draft SEIS 5-7 July 2013

CHAPTER 6 Acronyms and Abbreviations 3D three-dimensional 1/2g/m3 micrograms per cubic meter F degrees Fahrenheit AAQS ambient air quality standards AC alternating current ACEC Area of Critical Environmental Concern ACRP Airport Cooperative Research Program ACS American Community Survey AERMOD AMS/EPA Regulatory Model af or ac-ft acre-feet afy or ac-ft/yr acre-feet per year AFD Airport/Facility Directory AGL above ground level AIM Aeronautical Information Manual AML appropriate management level ANSI American National Standards Institute APE Area of Potential Effects APM Applicant Proposed Measure Applicant Palen Solar Holdings, LLC AQMD Air Quality Management District AQMP Air Quality Management Plan ARB California Air Resources Board ARM Ambient Ratio Method ASTM American Society for Testing Materials Standards BA Biological Assessment bgs below ground surface BLM United States Bureau of Land Management BMPs best management practices BO Biological Opinion BRSA Biological Resources Study Areas BSE BrightSource Energy, Inc. CAA Clean Air Act CADD Computer-aided drafting and design Palen Solar Electric Generating System Draft SEIS 6-1 July 2013

6.It seems like I made an error in understanding your original request as you provided a list of acronyms and abbreviations instead of a text requiring coreference resolution. Lists like this typically don't contain pronouns referring to noun phrases or entities. If you have a different text that needs coreference resolution, please provide that portion, and I'll be happy to help.Acronyms and Abbreviations N2O nitrous oxide NO2 nitrous dioxide NAAQS National Ambient Air Quality Standards NAHC Native American Heritage Commission NAVAIDS navigational aids NECO Northern and Eastern Colorado Desert Coordinated Management Plan NEPA National Environmental Policy Act NERC North American Electric Reliability Corporation NHPA National Historic Preservation Act NIOSH National Institute of Safety and Health NMFS National Marine Fisheries Service NRCS Natural Resources Conservation Service NO nitric oxide NO2 nitrogen dioxide NOA Notice of Availability NOI Notice of Intent NOX nitrogen oxides NOTAM Notice to Airmen NPDES National Pollutant Discharge Elimination System NPS United States National Park Service O2 oxygen O3 ozone OEHHA Office of Environmental Health Hazard Assessment OHV off-highway vehicle OSHA United States Occupational Safety and Health Administration PA Programmatic Agreement PEIS, or Solar PEIS Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States PM10 particulate matter less than 10 microns in diameter PM2.5 particulate matter less than 2.5 microns in diameter POD Plan of Development PPA Power Purchase Agreement ppm parts per million PPV peak particle velocity PSA Preliminary Staff Assessment PSH Palen Solar Holdings, LLC PSI Palen Solar I, LLC PSIII Palen Solar III, LLC psi pounds per square inch psia pounds per square inch absolute Palen Solar Electric Generating System Draft SEIS 6-5 July 2013

390 6. Acronyms and Abbreviations PSPP Palen Solar Power Project PV photovoltaic RCFD Riverside County Fire Department RO reverse osmosis ROD Record of Decision ROW right-of-way RPOSD Riverside County Regional Park and Open-Space District RPS Renewables Portfolio Standard RSA Revised Staff Assessment RV recreational vehicle RWQCB Regional Water Quality Control Board S Sensitive SAA Lake or Streambed Alteration Agreement SAC surface air coolers SE State listed as endangered SEZ Solar Energy Zone SF6 sulfur hexafluoride SO2 sulfur dioxide SO4 sulfate SOPs standard operating procedures SOX sulfur oxides SPCC Spill Prevention Control and Countermeasures SRA Safety Risk Assessment SRSG Solar Receiver Steam Generator STG steam turbine-generator SVP Society of Vertebrate Paleontology SWPPP Storm Water Pollution Prevention Plan SWRCB State Water Resources Control Board TAC Toxic Air Contaminants TFR temporary flight restriction UDI undocumented immigrants mu g/L micrograms per Liter mu g/m3 micrograms per cubic meter US United States USACE United States Army Corps of Engineers USEPA United States Environmental Protection Agency USFS United States Forest Service USFWS United States Fish and Wildlife Service USGS United States Geological Survey UXO unexploded ordnance VITD visual impact threshold distance Palen Solar Electric Generating System Draft SEIS 6-6 July 2013

391 6. Acronyms and Abbreviations VOCs volatile organic compounds VR Visual Route VRM Visual Resource Management W/m2 watts per square meter WDR Waste Discharge Requirement WECC Western Electricity Coordinating Council WHMA Wildlife Habitat Management Area WL Watch List WMU Waste Management Units ZCTA Zip Code Tabulation Area Palen Solar Electric Generating System Draft SEIS 6-7 July 2013

392 CHAPTER 7 Glossary of Terms A Adjacent: Defined by ASTM E1527-00 as any real property the border of which is contiguous or partially contiguous with that of the Site or would be contiguous or partially contiguous with that of the Site but for a street, road, or other public thoroughfare separating them. Air Basin: A regional area defined for state air quality management purposes based on considerations that include topographic features that influence meteorology and pollutant transport patterns, and political jurisdiction boundaries that influence the design and implementation of air quality management programs. Air Quality Control Region: A regional area defined for federal air quality management purposes based on considerations that include topographic features that influence meteorology and pollutant transport patterns, and political jurisdiction boundaries that influence the design and implementation of air quality management programs. Alluvium: A fine-grained fertile soil consisting of mud, silt, and sand deposited by flowing water on flood plains, in river beds, and in estuaries. An unconsolidated deposit of clay, silt, sand, or gravel deposited in comparatively recent geologic time in stream or river channels, floodplains, deltas, or at the base of a mountain slope. Alluvial Fan: Fan shaped material of water deposited material. A low, outspread, relatively flat to gently sloping mass of loose rock material shaped like an open fan or segment of a cone deposited by running water where running water issues from a narrow mountain valley upon a plain or broad valley. The apex of the fan points upstream. Ambient Air Quality Standards: A combination of air pollutant concentrations, exposure durations, and exposure frequencies that are established as thresholds above which adverse impacts to public health and welfare may be expected.Ambient air quality standards are set on a national level by the U.S. Environmental Protection Agency. Ambient air quality standards are set on a state level by public health or environmental protection agencies as authorized by state law. Ambient Air: Outdoor air in locations accessible to the general public. Archaeological district: A significant concentration, linkage, or continuity of sites, buildings, or features important in history or prehistory. There can be discontiguous districts composed of resources that are not in close proximity to one another. Area of Critical Environmental Concern (ACEC): A designated area on public lands where special management attention is required: (1) to protect and prevent irreparable damage to fish and wildlife; (2) to protect important historic, cultural, or scenic values, or other natural systems or processes; or (3) to protect life and safety from natural hazards. Attainment Area: An area that has air quality as good as or better than a national or state ambient air quality standard. A single geographic area may be an attainment area for one pollutant and a non-attainment area for others. Basic Elements: The four design elements (form, line, color, and texture), which determine how the character of a landscape is perceived. Best Management Practices (BMPs): A practice or combination of practices that are determined to provide the most effective, environmentally sound, and economically feasible means of managing an activity and mitigating its impacts. Bioremediation: The use of biological agents, such as bacteria or plants, to remove or neutralize contaminants, as in polluted soil or water. Buffer Area: An area beyond the Project Disturbance Area used to evaluate suitable habitat for biological resources surveys and biological resources analysis purposes. The Project Disturbance Area and the Buffer Area constitute the Biological Resources Study Area, or BRSA. Calcareous Substrates: Substances, often of a chalky composition, containing, or resembling calcium carbonate. Cancer: A class of diseases characterized by uncontrolled growth of somatic cells. Cancers are typically caused by one of three mechanisms: chemically induced mutations or other changes to cellular DNA; radiation induced damage to cellular chromosomes; or viral infections that introduce new DNA into cells. Carbon Monoxide (CO): A colorless, odorless gas that is toxic because carbon monoxide reduces the oxygen-carrying capacity of the blood. Characteristic: A distinguishing trait, feature, or quality. Characteristic Landscape: The established landscape within an area being viewed. This does not necessarily mean a naturalistic character. Characteristic Landscape could refer to an agricultural setting, an urban landscape, a primarily natural environment, or a combination of these types. Climate: A statistical description of daily, seasonal, or annual weather conditions based on recent or long-term weather data. Climate descriptions typically emphasize average, maximum, and minimum conditions for temperature, precipitation, humidity, wind, cloud cover, and sunlight intensity patterns; statistics on the frequency and intensity of tornado, hurricane, or other severe storm events may also be included. Community Noise Equivalent Level (CNEL): A 24-hour average noise level rating with a 5 dB penalty factor applied to evening noise levels and a 10 dB penalty factor applied to nighttime noise levels. The CNEL value is very similar to the Day-Night Average Sound Level (Ldn) value, but includes an additional weighting factor for noise during evening hours. Contrast: Opposition or unlikeness of different forms, lines, colors, or textures in a landscape. Contrast Rating: A method of analyzing the potential visual impacts of proposed management activities. Cretaceous: In geologic history, the third and final period of the Mesozoic Era, from approximately 145 million to 65 million years ago. Criteria Pollutant: An air pollutant for which there is a national ambient air quality standard (carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, inhalable particulate matter, fine particulate matter, or airborne lead particles). Critical Habitat: Habitat designated by the US Fish and Wildlife Service under Section 4 of the Endangered Species Act and under the following criteria: 1) specific areas within the geographical area occupied by the species at the time it is listed, on which are found those physical or biological features essential to the conservation of the species and that may require special management of protection; or 2) specific areas outside the geographical area occupied by the species at the time it is listed but that are considered essential to the conservation of the species. Cultural Landscape: A geographic area, including both natural and cultural resources, associated with a historic event, activity, group, or person; or, a geographic area that has been assigned cultural or social meaning by associated cultural groups.Cultural Modification: Any man-caused change in the land form, water form, vegetation, or the addition of a structure which creates a visual contrast in the basic elements (form, line, color, texture) of the naturalistic character of a landscape. Cultural Resource: A location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources include archaeological and historical sites, structures, buildings, objects, artifacts, works of art, architecture, and natural features that were important in past human events. Cultural resources may consist of physical remains or areas where significant human events occurred, even though evidence of the events no longer remains. And cultural resources may include definite locations of traditional, cultural, or religious importance to specified social or cultural groups. Cultural Resource Data: Cultural resource information embodied in material remains such as artifacts, features, organic materials, and other remnants of past activities. An important aspect of cultural resource information is context, a concept that refers to the relationships among these types of materials and the situations in which these types of materials are found. Cultural Resource Data Recovery: The professional application of scientific techniques of controlled observation, collection, excavation, and/or removal of physical remains, including analysis, interpretation, explanation, and preservation of recovered remains and associated records in an appropriate curatorial facility used as a means of protection. Cultural resource data recovery may sometimes employ professional collection of such data as oral histories, genealogies, folklore, and related information to portray the social significance of the affected resources. Such cultural resource data recovery is sometimes used as a measure to mitigate the adverse impacts of a ground-disturbing project or activity. Cultural Resource Integrity: The condition of a cultural property, the cultural property's capacity to yield scientific data, and the cultural property's ability to convey its historical significance. Cultural resource integrity may reflect the authenticity of a property's historic identity, evidenced by the survival or physical characteristics that existed during its historic or prehistoric period, or its expression of the aesthetic or historic sense of a particular period of time. Cultural Resource Inventory (Survey): A descriptive listing and documentation, including photographs and maps of cultural resources. Included in a cultural resource inventory are the processes of locating, identifying, and recording sites, structures, buildings, objects, and districts through library and archival research, information from persons knowledgeable about cultural resources, and on-the-ground surveys of varying intensity. Class I: A professionally prepared study that compiles, analyzes, and synthesizes all available data on an area's cultural resources. Information sources for this study include published and unpublished documents, BLM inventory records, institutional site files, and state and National Register files. Class I inventories may have prehistoric, historic, and ethnological and sociological elements. Class I inventories are periodically updated to include new data from other studies and Class II and III inventories. Class II: A professionally conducted, statistically based sample survey designed to describe the probable density, diversity, and distribution of cultural properties in a large area. This survey is achieved by projecting the results of an intensive survey carried out over limited parts of the target area. Within individual sample units, survey aims, methods, and intensities are the same as those applied in Class III inventories. To improve statistical reliability, Class II inventories may be conducted in several phases with different sample designs. Class III: A professionally conducted intensive survey of an entire target area aimed at locating and recording all visible cultural properties. In a Class III survey, trained observers commonly conduct systematic inspections by walking a series of close interval parallel transects until trained observers have thoroughly examined an area. Cultural Resource Values: The irreplaceable qualities that are embodied in cultural resources, such as scientific information about prehistory and history, cultural significance to Native Americans and other groups, and the potential to enhance public education and enjoyment of the Nation's rich cultural heritage. Cultural Site: A physical location of past human activities or events, more commonly referred to as an archaeological site or a historic property. Cultural sites vary greatly in size and range from the location of a single cultural resource object to a cluster of cultural resource structures with associated objects and features. Day/Night Average Sound Level (Ldn): A 24-hour average noise level rating with a 10 dB penalty factor applied to nighttime noise levels. The Ldn value is very similar to the CNEL value, but the Ldn value does not include any weighting factor for noise during evening hours. Decibel (dB): A generic term for measurement units based on the logarithm of the ratio between a measured value and a reference value. Decibel scales are most commonly associated with acoustics (using air pressure fluctuation data), but decibel scales sometimes are used for ground-borne vibrations or various electronic signal measurements. Distance Zones: A set of pre-determined distances from a viewpoint.In the Bureau of Land Management's (BLM) visual resource management system, landscapes are subdivided into three distance zones based on relative visibility from travel routes or observation points. The zones are foreground-middleground, background, and seldom seen. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations that are less than 3-5 miles away. Areas seen beyond the foreground-middleground zone but usually less than 15 miles away are in the background zone. Areas not seen as foreground-middleground or background (i.e., hidden from view) are in the seldom-seen zone. Desert Pavement: A surface covering of closely packed rock fragments of pebble or cobble size found on desert soils. Desert Wildlife Management Area (DWMA): areas established in the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan to address the recovery of the desert tortoise. Desert Wildlife Management Areas are intended to be areas where viable desert tortoise populations can be maintained (Category I habitat). Distance Zones: A subdivision of the landscape as viewed from an observer position. The subdivision (zones) includes foreground-middleground, background, and seldom seen. Enhancement: A management action designed to improve visual quality. Equivalent Average Sound Pressure Level (Leq): The decibel level of a constant noise source that would have the same total acoustical energy over the same time interval as the actual time-varying noise condition being measured or estimated. Equivalent Average Sound Pressure Level values must be associated with an explicit or implicit averaging time in order to have practical meaning. Ethnohistoric Resources: Areas used by Native Americans following exploration and settlement by non-Native Americans. Sites or artifacts of particular significance to modern Native Americans are often kept secret by modern Native Americans to protect the sites from disturbance, looting, overuse, or other defamations. Ethnographic: Pertaining to the systematic study and description of human cultures. The ethnographic setting described in this Draft Supplemental Environmental Impact Statement (SEIS) pertains to Native Americans as Native Americans lived at the time of contact by non-Native Americans. Palen Solar Electric Generating System Draft SEIS 7-5 July 2013 Glossary of Terms Excavation: The scientific examination of an archaeological site through layer-by-layer removal and study of the contents within prescribed surface units, e.g. square meters. Form: The mass or shape of an object or objects which appear unified, such as a vegetative opening in a forest, a cliff formation, or a water tank. Geomorphic Province: Naturally defined geologic regions that display a distinct landscapes or landforms. Glare: The sensation produced by luminance within the visual field that is sufficiently greater than the luminance to which the eyes are adapted, which causes annoyance, discomfort, or loss in visual performance and visibility. See Glint. Glint: A momentary flash of light resulting from a spatially localized reflection of sunlight. Greenhouse Gas: A gaseous compound that absorbs infrared radiation and re-radiates a portion of heat back toward the earth's surface, thus trapping heat and warming the earth's atmosphere. Habitat: A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space. Historical Site: A location that was used or occupied after the arrival of Europeans in North America (ca. A.D. 1492). Such sites may consist of physical remains at archaeological sites or areas where significant human events occurred, even though evidence of the events no longer remains. Historical sites may have been used by people of either European or Native American descent. Holocene: In geologic history, of, denoting, or formed in the second and most recent epoch of the Quaternary Period, which began 10,000 years ago at the end of the Pleistocene and which continues today. Hydrocarbons: Any organic compound containing only carbon and hydrogen, such as the alkanes, alkenes, alkynes, terpenes, and arenes. Igneous: Rock, such as granite and basalt, which has solidified from a molten or partially molten state. Indian Tribe: Any American Indian group in the United States that the Secretary of the Interior recognizes as possessing tribal status. Section 301 of the National Historic Preservation Act defines Indian tribe as a tribe, band, nation, or other organized group or community which is recognized as eligible for the special programs and services provided by the United States to Indians because of Indians' status as Indians. Federally-recognized tribes are listed periodically in the Federal Register. Indigenous: Being of native origin, such as indigenous peoples or indigenous cultural features.Invasive Species: An exotic species whose introduction does or is likely to cause economic or environmental harm or harm to human health (Executive Order 13122, Feb. 3, 1999). Isolate: Artifacts not associated with other artifacts or features. Also, non-linear, isolated archaeological features without associated artifacts. K Key Observation Point (KOP): One or a series of points on a travel route or at a use area or a potential use area, where the view of a management activity would be most revealing. L Lacustrine: Of, relating to, or associated with lakes. Lacustrine sediments are soils deposited by lakes. Landscape Character: The arrangement of a particular landscape as formed by the variety and intensity of the landscape features and the four basic elements of form, line, color, and texture. These factors give the area a distinctive quality which distinguishes the area from the area's immediate surroundings. Landscape Features: The land and water form, vegetation, and structures which compose the characteristic landscape. Leasable Minerals: Minerals whose extraction from federally managed land requires a lease and the payment of royalties. Leasable minerals include coal, oil and gas, oil shale and tar sands potash, phosphate, sodium, and geothermal steam. Line: The path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or texture. Within landscapes, lines may be found as ridges, skylines, structures, changes in vegetative types, or individual trees and branches. Lithic: Consisting of or pertaining to stone. In archaeology, lithic artifacts include ground and chipped stone tools and the debris resulting from the manufacture of stone tools. Lithic scatters are collections of stone flakes on the surface of the ground that were produced during the manufacture of stone tools. Locatable Minerals: Minerals subject to exploration, development, and disposal by staking mining claims as authorized by the Mining Law of 1872, as amended. This includes deposits of gold, silver, and other uncommon variety minerals not subject to lease or sale. Long Term Visitor Area: LTVAs are, in most cases, the traditional use areas of long-term visitors on BLM managed lands. The LTVA program was established in Arizona and California Palen Solar Electric Generating System Draft SEIS 7-7 July 2013 399 7. Glossary of Terms to designate areas for safe and proper accommodation of the increasing demand for long-term winter visitation and for natural resource protection through improved management of this use. The program, which was instituted in 1983, designated LTVAs and identified an annual long-term use season from September 15 to April 15. During the long-term season, visitors who wish to camp on public lands in one location for extended periods must stay in the designated LTVAs and purchase an LTVA special use permit. M Maintenance Area: An area that currently meets federal ambient air quality standards but which was previously designated as a nonattainment area. Federal agency actions occurring in a maintenance area are still subject to Clean Air Act conformity review requirements. Management Activity: A surface disturbing activity undertaken on the landscape for the purpose of harvesting, traversing, transporting, protecting, changing, replenishing, or otherwise using resources as defined in BLM Manual 8400 - Visual Resource Management, April 5, 1984. Mineral Material Disposal: The sale of sand, gravel, decorative rock, or other mineral materials defined in 43 CFR 3600. Mining Claim: A mining claim is a selected parcel of Federal Land, presumably valuable for a specific mineral deposit or deposits, for which a right of possession has been asserted under the General Mining Law. This right is restricted to the development and extraction of a mineral deposit. The rights granted by a mining claim protect against a challenge by the United States and other claimants only after the discovery of a valuable mineral deposit. The two types of mining claims are lode and placer. In addition, mill sites and tunnel sites may be located to provide support facilities for lode and placer mining, and tunnel sites may be located as an exploration tool to intersect lode deposits. Mitigation: Mitigation includes: (a) Avoiding the impacts altogether by not taking an action or parts of an action, (b) Minimizing impacts by limiting the degree or magnitude of the action and the action's implementation, (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment, (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, (e) Compensating for the impact by replacing or providing substitute resources or environments (40 CFR 1508.20). N National Historic Preservation Act. Established the National Register of Historic Places, the Advisory Council on Historic Preservation, State Historic Preservation Officers, Tribal Historic Preservation Officers, and a preservation grants-in-aid program.I'm sorry for the misunderstanding, but it seems you didn't provide the intended text for coreference resolution. Could you please confirm if you wanted the changes made to the text provided, or if there is another specific text you have?), the simple oxides of carbon (carbon monoxide and carbon dioxide), metallic carbides, or metallic carbonates. Overdraft condition: An overdraft condition in which the total volume of water being extracted from the groundwater basin would be greater than the total recharge provided to the basin. Ozone (O3): A compound consisting of three oxygen atoms. Ozone is a major constituent of photochemical smog that is formed primarily through chemical reactions in the atmosphere involving reactive organic compounds, nitrogen oxides, and ultraviolet light. Ozone is a toxic chemical that damages various types of plant and animal tissues and which causes chemical oxidation damage to various materials. Ozone is a respiratory irritant, and ozone appears to increase susceptibility to respiratory infections. A natural layer of ozone in the upper atmosphere absorbs high energy ultraviolet radiation, reducing the intensity and spectrum of ultraviolet light that reaches the earth's surface.

Paleontological Resources (Fossils): The physical remains of plants and animals preserved in soils and sedimentary rock formations. Paleontological resources are valuable for understanding past environments, environmental change, and the evolution of life. As defined in the Paleontological Resources Preservation Act, paleontological resource means any fossilized remains, traces, or imprints of organisms, preserved in or on the earth's crust, that are of paleontological interest and that provide information about the history of life on earth. The term does not include any materials associated with an archaeological resource as defined in the Archaeological Resources Protection Act or any cultural item as defined in the Native American Graves Protection and Repatriation Act.

Paleontology: A science dealing with the life forms of past geological periods as known from fossil remains.

Paleozoic Era: An era of geologic time from approximately 542 to 251 600 million to 280 million years ago, between the Late Precambrian and the Mesozoic Era and comprising the Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian Periods.

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Particulate Matter: Solid or liquid material having size, shape, and density characteristics that allow the material to remain suspended in the atmosphere for more than a few minutes. Particulate matter can be characterized by chemical characteristics, physical form, or aerodynamic properties. Categories based on aerodynamic properties are commonly described as being size categories, although physical size is not used to define the categories. Many components of suspended particulate matter are respiratory irritants. Some components (such as crystalline or fibrous minerals) are primarily physical irritants. Other components are chemical irritants (such as sulfates, nitrates, and various organic chemicals). Suspended particulate matter also can contain compounds (such as heavy metals and various organic compounds) that are systemic toxins or necrotic agents. Suspended particulate matter or compounds adsorbed on the surface of particles can also be carcinogenic or mutagenic chemicals.

Peak Particle Velocity: A measure of ground-borne vibrations. Physical movement distances are typically measured in thousandths of an inch, and occur over a tiny fraction of a second. But the normal convention for presenting those data is to convert the physical movement distances into units of inches per second.

Petroglyph: Pictures, symbols, or other art work pecked, carved, or incised on natural rock surfaces.

pH (parts hydrogen): The logarithm of the reciprocal of hydrogen-ion concentration in gram atoms per liter.

Physiographic Province: An extensive portion of the landscape normally encompassing many hundreds of square miles, which portrays similar qualities of soil, rock, slope, and vegetation of the same geomorphic origin (Fenneman 1946; Sahrhaftig 1975).

Pleistocene (Ice Age): An epoch in the Quaternary Period of geologic history lasting from approximately 268 million to 10,000 years ago. The Pleistocene was an epoch of multiple glaciations, during which continental glaciers covered nearly one fifth of the earth's surface land.

Pliocene: The Pliocene Epoch is the time period in the geologic time scale that extends from approximately 5.3 to 2.6 million 5.332 million to 2.588 million years before present.

PM10 (inhalable particulate matter): A fractional sampling of suspended particulate matter that approximates the extent to which suspended particles with aerodynamic equivalent diameters smaller than 50 microns penetrate to the lower respiratory tract (tracheo-bronchial airways and alveoli in the lungs). In a regulatory context, PM10 is any suspended particulate matter collected by a certified sampling device having a 50 percent collection efficiency for particles with aerodynamic equivalent diameters of 9.5-10.5 microns and a maximum aerodynamic diameter collection limit less than 50 microns.Collection efficiencies are greater than 50 percent for particles with aerodynamic diameters smaller than 10 microns and less than 50 percent for particles with aerodynamic diameters larger than 10 microns. PM2.5 (fine particulate matter) is a fractional sampling of suspended particulate matter that approximates the extent to which suspended particles with aerodynamic equivalent diameters smaller than 6 microns penetrate into the alveoli in the lungs. In a regulatory context, PM2.5 is any suspended particulate matter collected by a certified sampling device having a 50 percent collection efficiency for particles with aerodynamic equivalent diameters of 2.0-2.5 microns and a maximum aerodynamic diameter collection limit less than 6 microns. Collection efficiencies Palen Solar Electric Generating System Draft SEIS 7-11 July 2013 are greater than 50 percent for particles with aerodynamic diameters smaller than 2.5 microns and less than 50 percent for particles with aerodynamic diameters larger than 2.5 microns. A precursor is a compound or category of pollutant that undergoes chemical reactions in the atmosphere to produce or catalyze the production of another type of air pollutant. Prehistoric refers to the period wherein American Indian cultural activities took place before written records wherein Native American cultures were not yet influenced by contact with nonnative culture(s). A Programmatic Agreement (PA) is a document that details the terms of a formal, legally binding agreement between one party and other state and/or federal agencies. A Programmatic Agreement establishes a process for consultation, review, and compliance with one or more federal laws, most often with those federal laws concerning historic preservation. The Project Disturbance Area encompasses the disturbance resulting from the proposed construction of the Palen Solar Electric Generating System, including solar fields, transmission facilities, office and maintenance buildings, lay down area, leach fields, and other components, including the impact acreage of the gen-tie line and the natural gas line corridor and switch yard. A Protocol Agreement (Protocol) is a modified version of the NPA. A Protocol Agreement is developed pursuant to the provisions of the Bureau of Land Management's (BLM) National Programmatic Agreement. The Bureau of Land Management's California Protocol is adapted to the unique requirements of managing cultural resources on public lands in California and portions of Nevada managed by the California Bureau of Land Management. The Protocol describes the manner in which the Bureau of Land Management and California State Historic Preservation Officer shall cooperatively implement the National Programmatic Agreement. The Protocol is used as the primary management guidance for Bureau of Land Management offices in the state. Quaternary Age is the most recent of the three periods of the Cenozoic Era. In the geologic time scale of the International Commission on Stratigraphy, the Quaternary Age follows the Tertiary Period, spanning time from approximately 2.6 - 0.005 million years ago to the present. The Quaternary includes two geologic epochs, the Pleistocene and the Holocene. Rehabilitation is a management alternative and/or practice which restores landscapes to a desired scenic quality as defined in Bureau of Land Management Manual 8400 - Visual Resource Management, April 5, 1984. Restoration (Cultural Resource) is the process of accurately reestablishing the form and details of a property or portion of a property together with the property or portion of a property's setting, as the property or portion of a property appeared in a particular period of time. Restoration may involve removing later work that is not in itself significant and replacing missing original work. Also see Stabilization (Cultural Resource). Riparian is situated on or pertaining to the bank of a river, stream, or other body of water. Riparian normally describes plants of all types that grow rooted in the water table or sub-irrigation zone of streams, ponds, and springs. Palen Solar Electric Generating System Draft SEIS 7-12 July 2013 Road is a linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use. "Routes" represents a group or set of roads, trails, and primitive roads that represents less than 100% of the Bureau of Land Management transportation system. Generically, components of the transportation system are described as routes. Saleable Minerals are common variety minerals on the public lands, such as sand and gravel, which are used mainly for construction and are disposed by sales to individuals or companies or special permits to local governments. See also Mineral Materials Disposal. Scale is the proportionate size relationship between an object and the surroundings in which the object is placed. Scenery is the aggregate of features that give character to a landscape. A Scenic Area is an area whose landscape character exhibits a high degree of variety and harmony among the basic elements which results in a pleasant landscape to view. Scenic Quality is the relative worth of a landscape from a visual perception point of view.Scenic Quality Evaluation Key Factors: The seven factors (land form, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications) are used to evaluate the scenic quality of a landscape. Scenic Quality Ratings: The relative scenic quality (A, B, or C) assigned to a landscape by applying the scenic quality evaluation key factors; scenic quality A is the highest rating, B is a moderate rating, and C is the lowest rating. Scenic Values: See Scenic Quality and Scenic Quality Ratings. The Secretary of the Interior: The U.S. Department of the Interior is in charge of the nation's internal affairs. The Secretary of the Interior serves on the President's cabinet and oversees such agencies as the Bureau of Land Management, U.S. Geological Survey, and National Park Service and appoints citizens to the National Park Foundation board. Sedimentary Rocks: Rocks, such as sandstone, limestone, and shale, that are formed from sediments or transported fragments deposited in water. A rock such as sandstone, limestone, or shale resulting from the consolidation of loose sediment that has accumulated in layers and been deposited by water, air, or ice; or a rock such as salt formed by precipitation from solution; or an organic rock such as limestone consisting of the remains or secretions of plants and animals. Sensitivity Levels: Measures (e.g., high, medium, and low) of public concern for scenic quality. Simulation: A realistic visual portrayal which demonstrates the perceivable changes in landscape features caused by a proposed management activity. This realistic visual portrayal is done through the use of photography, artwork, computer graphics, and other such techniques. Palen Solar Electric Generating System Draft SEIS 7-13 July 2013" 405 7. Glossary of Terms Solar Programmatic Environmental Impact Statement, or Solar PEIS: The Bureau of Land Management (BLM) issued a final Programmatic Environmental Impact Statement (EIS) for Solar Energy Development in Six Southwestern States (Arizona, California, Colorado, Nevada, New Mexico, and Utah) in July 2012 and signed the associated Record of Decision in October 2012. Through the Solar Programmatic Environmental Impact Statement (PEIS), the Bureau of Land Management (BLM) evaluated actions that would facilitate utility-scale solar energy development on public lands. Special Status Species: Federal- or state-listed species, candidate or proposed species for listing, or species otherwise considered sensitive or threatened by state and federal agencies. Specular Reflection: Also known as direct reflection, regular reflection, or mirror reflection. Specular reflection is the reflection of electromagnetic rays without scattering or diffusion. In specular reflection, the angle at which the wave is incident on the reflecting surface is equal to the angle at which the wave is reflected from that surface. See Glint; Glare. Stabilization: Introducing chemical, mechanical, or structural elements to retard the deterioration of cultural resources. For example, chemical measures include the application of polymers to protect rock art; mechanical measures include the jacking of floors in historic buildings; structural measures include the replacement of mortar in brick or adobe walls. The State Water Resources Control Board (SWRCB): The State Water Resources Control Board (SWRCB), created in 1967, has joint authority of water allocation and water quality protection. This joint authority enables the State Water Resources Control Board (SWRCB) to provide comprehensive protection for California's waters. The mission of the nine Regional Boards is to develop and enforce water quality objectives and implementation plans that will best protect the State's waters, recognizing local differences in climate, topography, geology, and hydrology. Subsurface: Of or pertaining to rock or mineral deposits which generally are found below the ground surface. Sulfur Dioxide (SO₂): Sulfur dioxide is a pungent, colorless, and toxic oxide of sulfur formed primarily by the combustion of fossil fuels. Sulfur dioxide is a respiratory irritant, especially for asthmatics. Sulfur dioxide is a criteria pollutant in its own right, and sulfur dioxide is a precursor of sulfate particles and atmospheric sulfuric acid. T Taphonomy: Taphonomy is the study of the processes by which animal bones and shells and plant and other fossil remains are transformed after deposition. Tertiary: The Tertiary Period marks the beginning of the Cenozoic Era. The Tertiary Period began approximately 65 million years ago and lasted more than 63 million years, until approximately 2.6 million years ago. The Tertiary is made up of 5 epochs: the Paleocene, Eocene, Oligocene, Miocene, and Pliocene. Texture: Texture is the visual manifestation of the interplay of light and shadow created by the variations in the surface of an object or landscape. Toxic: Toxic is defined as poisonous. A toxic substance exerts an adverse physiological effect on the normal functioning of an organism's tissues or organs through chemical or biochemical mechanisms following physical contact or absorption. Palen Solar Electric Generating System Draft SEIS 7-14 July 2013 406 "7. Glossary of Terms Traditional Cultural Properties: Traditional Cultural Properties are areas associated with the cultural practices or beliefs of a living community. These sites are rooted in the community's history and are important in maintaining cultural identity. Traditional Cultural Properties are also referred to as traditional cultural places and places of traditional cultural importance.Trail: A linear route managed for human-powered, stock, or off-highway vehicle forms of transportation or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles. Vandalism (Cultural Resource): Malicious damage or the unauthorized collecting, excavating, or defacing of cultural resources. Section 6 of the Archaeological Resources Protection Act states that "no person may excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public lands or Indian lands...unless such activity is pursuant to a permit issued under section 4 of this Act." Variables: Factors influencing visual perception including distance, angle of observation, time, size or scale, season of the year, light, and atmospheric conditions. Variety: The state or quality of being varied and having the absence of monotony or sameness Viewshed: The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor. Protection, rehabilitation, or enhancement is desirable and possible. BLM Instruction Memorandum No. 2009-167, Attachment 1-7 further defines a viewshed as the area seen from a particular location to the visible horizon. Delineation of the viewshed from the proposed project location must extend out from the top elevation of the proposed facilities rising at the project location expanded out to 5.5 feet elevation above the ground of the visible horizon. Visual Contrast: See Contrast. Visual Quality: See Scenic Quality. Visual Resources: The visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features). Visual Resource Management (VRM): The inventory and planning actions taken to identify visual values and to establish objectives for managing those visual values; and the management actions taken to achieve the visual management objectives. Visual Resource Management Classes: Categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. There are four classes. Each class has an objective which prescribes the amount of change allowed in the characteristic landscape. Visual Values: See Scenic Quality. 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Glossary of Terms W Wetlands: Permanently wet or intermittently water-covered areas, such as swamps, marshes, bogs, potholes, swales, and glades. Wilderness Area: An area formally designated by Congress as part of the National Wilderness Preservation System as defined in the Wilderness Act of 1964 (78 Stat.891), Section 2(c). Wilderness Study Area: A roadless area or island that has been inventoried and found to have wilderness characteristics as described in section 603 of FLPMA and section 2(c) of the Wilderness Act of 1964 (78 Stat. 891). The source for both of these terms is BLM's IMP and Guidelines for Lands Under Wilderness Review (December 1979). Palen Solar Electric Generating System Draft SEIS 7-16 July 2013

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