

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

November 14, 2013

Frank McMenimen, Project Manager
Bureau of Land Management
1201 Bird Center Drive
Palm Springs, California 92262

Subject: Draft Supplemental Environmental Impact Statement for the Proposed Palen Solar Electric Generating System Riverside County, California (CEQ # 20130221)

Dear Mr. McMenimen:

The U.S. Environmental Protection Agency has reviewed the Draft Supplemental Environmental Impact Statement for the proposed Palen Solar Electric Generating System (PSEGS). Our review and comments are provided pursuant to the National Environmental Policy Act, the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

On December 11, 2009, the EPA submitted scoping comments on the Palen Solar Power Project (PSPP), initially proposed as a 484 megawatt parabolic trough facility. The EPA also reviewed and prepared comments on the Draft Environmental Impact Statement and the Final Environmental Impact Statement for the PSPP Project on July 12, 2010 and June 13, 2011, respectively. The EPA rated the DEIS as *Environmental Concerns - Insufficient Information* (EC-2) due to concerns about potential impacts to aquatic and biological resources, facility siting, and the effectiveness of proposed mitigation measures. We encouraged the Bureau of Land Management to select the *Reduced Acreage Alternative*, which would reduce the project size to 375 MWs, and allow for greater protection of resources. While the 2011 FEIS addressed many of our DEIS comments, we continued to have concerns regarding site hydrology, cumulative air quality impacts, and the availability of adequate compensatory mitigation lands.

We appreciate the efforts of BLM, the Applicant, and its consultants to discuss and respond to our previous comments on the 2010 DEIS and 2011 FEIS. We understand that the revised Palen Solar Electric Generating System (PSEGS) utilizes a different type of technology (500 MW power tower facility) that includes a new generation tie (gen-tie) line, telecommunications cable, and the addition of a natural gas supply line to deliver natural gas to the PSEGS from the existing Southern California Gas distribution system. We are pleased to see that the DSEIS incorporates additional mitigation measures to limit air quality impacts, including the development of an Air Quality Construction Mitigation Plan. In addition, we are pleased to see that the project owner will either prepare a Groundwater-Dependent Vegetation Monitoring Plan for monitoring the effects of groundwater pumping on vegetation, or a geologic and groundwater investigation to determine whether regional aquifer or the perched aquifer influences groundwater dependent ecosystems. We were also pleased to see a decrease in water use, reduction in the number of proposed evaporation ponds from four to two, and that the heliostat field will remain largely free of grading, with no additional drainage channels required to control runoff.

Based on our review of the DSEIS, we have rated the project and document as *Environmental Concerns - Insufficient Information* (EC-2). Please see the enclosed "Summary of EPA Rating Definitions." EPA is

most concerned about the potential impacts to site hydrology, groundwater, air quality, cultural resources, and biological species, including the desert tortoise and avian species. In addition, we are also concerned about the cumulative impacts associated with the rapid development of energy and transportation projects in the Chuckwalla Valley. Because the Chuckwalla Valley provides rich habitat and supports a diversity of mammals, birds, and reptiles, we recommend that the Applicant and BLM continue to work with the U.S. Fish and Wildlife Service to protect habitat connectivity for the desert tortoise and other sensitive species and identify appropriate lands for habitat compensation. We encourage the avoidance of on-site drainages to the maximum extent possible. Finally, the FEIS should further describe the estimation of direct and indirect impacts on the stabilized and partially stabilized dunes and sand transport corridor from the project components and fencing and include these estimates in compensatory mitigation measures.

In the enclosed detailed comments, we provide specific recommendations regarding the analyses and documentation needed to assist in assessing potential significant impacts from the proposed Project, and avoiding and minimizing adverse impacts. We are available to further discuss all recommendations provided.

Please note that EPA Headquarters no longer accepts paper copies or CDs of EISs for official filing purposes. Submissions on or after October 1, 2012, must be made through the EPA's new electronic EIS submittal tool: e-NEPA. To begin using e-NEPA, you must first register with the EPA's electronic reporting site - https://cdx.epa.gov/epa_home.asp. Electronic submission does not change requirements for distribution of EISs for public review and comment, and lead agencies should still provide one hard copy of each Draft and Final EIS released for public circulation to the EPA Region 9 office in San Francisco (Mail Code: CED-2).

The EPA appreciates the opportunity to provide input on this proposed Project. We are available to discuss all comments and recommendations provided. If you have any questions, please contact me at (415) 972-3521 or contact Anne Ardillo, the lead reviewer for this project. Anne can be reached at (415) 947-4257 or ardillo.anne@epa.gov.

Sincerely,

/S/ Connell Dunning for

Kathleen Martyn Goforth, Manager
Communities and Ecosystems Division

Enclosures: Summary of EPA Rating Definitions
EPA's Detailed Comments

Cc: Ashleigh Blackford, U.S. Fish and Wildlife Service
Luke Sapada, U.S. National Park Service

U.S. EPA DETAILED COMMENTS ON THE DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT
STATEMENT FOR THE PROPOSED PALEN SOLAR ELECTRIC GENERATING SYSTEM RIVERSIDE COUNTY,
CALIFORNIA, NOVEMBER 14, 2013

Aquatic Resources

Drainages, Ephemeral Washes and Site Hydrology

The Draft Supplemental Environmental Impact Statement states that the heliostat field will remain largely free of grading and that no drainage channels would be required to control site runoff. Existing depressions for drainages will remain after surface preparations are complete and natural drainage waters are expected to continue to occupy these ephemeral washes. Grading required would be designed to promote storm water flow across the site, as it occurs in a pre-project condition, and be limited to certain roads, development pads, and work areas (pg. 4-19.4). At some washes, limited grading could be required to allow the heliostat installation equipment and mirror washing machines access to the solar fields. Heavy to medium grading, however, would be performed within each plant's solar power tower and power block areas, the switchyard, and work areas.

The applicant proposes to use structures such as check dams, stone filters, diversion berms, diversion channels, bypass channels, swales to direct stormwater flow, minimize erosion, and accommodate sheet flow from storm events. In addition, the DSEIS states that storm drainage channels could be lined with a non-erodible material such as compacted rip-rap, geo-synthetic matting, or engineered vegetation. According to the DSEIS, a Drainage, Erosion, and Sedimentation Control Plan will be prepared and implemented (pgs. 2-16; 4.19-5).

Recommendations:

The U.S. Environmental Protection Agency supports utilizing existing natural drainage channels on site and recommends using natural features, such as earthen berms or channels, for site drainage rather than rip-rap or concrete-lined channels, when feasible.

Include the finalized Drainage, Erosion, and Sedimentation Control Plan for the construction and operational phases of the project in the Final Environmental Impact Statement to facilitate assessment of impacts and effectiveness of mitigation measures.

Natural washes perform a diversity of hydrologic, biochemical, and geochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition and dissipate the energy associated with flood flows. Ephemeral washes also provide habitat for breeding, shelter, foraging, and movement of wildlife. Many plant populations are dependent on these aquatic ecosystems and adapted to their unique conditions. The potential damage that could result from disturbance of flat-bottomed washes includes alterations to the hydrological functions that natural channels provide in arid ecosystems, such as adequate capacity for flood control, energy dissipation, and sediment movement; as well as impacts to valuable habitat for desert species.

In our June 13, 2011 comment letter, EPA recommended that drainage reports and plans include designs to minimize impacts to habitat downstream. The proposed Project is located on an alluvial fan where flash flooding and mass erosion could cause significant impacts. High volume storm events have the potential to cause damage, as has been seen in other nearby solar project projects under construction.

Recommendations:

Describe the design features that will be employed, during both construction and operation phases, to ensure that storm events will not result in damage or alteration of the hydrology at the site and to downstream areas.

Describe the maintenance program necessary to prevent significant offsite erosion and offsite damage.

Mitigation commitments should be structured to include adaptive management in order to minimize the possibility of mitigation failure.

Recommendation:

The FEIS should include the response to be taken by the Bureau of Land Management if a substantial mitigation failure is detected. This could include conditioning the right-of-way approval to require the applicant to restore any severely impacted watersheds that may result from mitigation failure.

According to the DSEIS, the Palen Solar Electric Generating System (PSEGS) Project would impact ephemeral washes and their associated sensitive vegetation communities, including approximately 373 acres of jurisdictional waters of the State subject to the California Department of Fish and Wildlife's Lake and Streambed Alteration Agreement Program (pg.3.18-19). An application for a SAA with CDFW for purposes of altering the terrain and installing channels was submitted in November 25, 2009 for the Palen Solar Power Project (PSPP) (pg 3.18-19). EPA understands that a supplemental delineation was conducted to address the new and altered linear facilities, including the natural gas pipeline and transmission line for the PSEGS. In August 2013, the project owner provided a CDFW Lake or Streambed Alteration Agreement Amendment Notification package to the California Energy Commission for review. According to the DSEIS, the solar field for the PSEGS project would occur within the Disturbance Area of the approved PSPP project and would rely on the November 25, 2009 delineation (CEC Final Staff Assessment for PSEGS¹ Part A, pg. 4.2-29). Compliance with the requirements of the SAA is identified as an Applicant Proposed Measure (pg. 5-2).

Recommendations:

Provide an update on the status of the Streambed Alteration Agreement. Include the final requirements in APM BIO-21, Mitigation for Impacts to State Waters.

To the extent any aquatic features that could be affected by the Project are determined not to constitute waters of the US, EPA recommends that the FEIS characterize the functions of such features and discuss potential mitigation. In addition to the proposed mitigation measures that would avoid and minimize direct and indirect impacts to desert washes, EPA recommends that the FEIS evaluate and commit to the following actions:

- Implement all practicable opportunities to further reduce the footprint of project elements (parking, buildings, roads, etc.);
- Configure the project, including placement of heliostat support structures, roads and ancillary facilities, to avoid ephemeral washes and dry wash woodlands to the maximum extent possible;

¹ http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-07C/TN200442_20130910T145445_Palen_Solar_Electric_Generating_System_FSA_Part_A.pdf

- Minimize the number of road crossings over washes and design necessary crossings to provide adequate flow-through during storm events.

Fencing

The DSEIS does not provide information about the effects of security fencing and desert tortoise fencing on drainage systems. Fencing can interfere with natural flow patterns by entraining debris and sediment. Fence design should address hydrologic criteria, as well as security performance criteria.

Recommendation:

Describe, in the FEIS, where permanent fencing will be used and describe the potential effects of fencing on drainage systems. Ensure that the fencing proposed for this project will meet appropriate hydrologic performance standards.

Compensatory Mitigation

We are pleased that the DSEIS includes a comprehensive list of Applicant Proposed Measures within Appendix C. According to the list, several APMs will be implemented to minimize and mitigate for direct and indirect impacts to aquatic resources and biological resources, including compensatory mitigation land acquisition based on previously established ratios. The DSEIS does not, however, indicate that specific compensation lands are available. In light of the numerous energy and transportation projects under construction or proposed in the Chuckwalla Valley, the availability of land to adequately compensate for environmental impacts to resources such as state jurisdictional waters, vegetative communities, Mojave fringe toad lizard and desert tortoise habitat, may not be easily identifiable and may serve as a limiting factor for development.

Recommendation:

Identify compensatory mitigation lands or quantify, in the FEIS, available lands for compensatory habitat mitigation for this project.

The DSEIS states, “The Applicant voluntarily has committed to implementing nearly all of the mitigation measures that are identified in the Palen Solar Power Project Plan Amendment /FEIS as APMs for the Palen Solar Electric Generating System” (pg. 4.1-24). As written, it is unclear exactly which mitigation measures the applicant intends to commit to. Some of the mitigation measures listed in the PSPP PA/FEIS would, when implemented, avoid, minimize and/or reduce impacts from the PSEGS.

Recommendations:

Specify which mitigation measures from the PSPP PA/FEIS the Applicant is no longer committed to implementing.

Discuss any additions, revisions, or elimination of the current APMs.

Consider stringent mitigation measures, when identified, to ensure appropriate compensation for direct and indirect impacts from the proposed Project.

Finally, APM BIO-29 (Project Construction Phasing Plan) provides compensation mitigation information for the total project disturbance area and proposes a two phase implementation of mitigation. For the proposed disturbance areas, mitigation ratios and mitigation securities are referenced in other documents, multiple tables, and within other APMs. In conjunction with APM BIO-29, the DSEIS indicates that Table 1, Table 2, and Table 3 in the CEC Amendment to Final Decision will be updated to reflect proposed area of disturbance and current costs; however, these tables are not included in the DSEIS.

Based on the information presented in the DSEIS, it is difficult to get a clear understanding of the overall compensatory mitigation strategy.

Recommendations:

Update and incorporate, in the FEIS, compensatory mitigation proposals (including quantification of acreages, estimates of species protected, costs to acquire compensatory lands, etc...) for unavoidable impacts to aquatic and biological resources, as described in APM BIO-29.

Describe, in the FEIS, how these mitigation measures will be made an enforceable part of the project's implementation schedule. The FEIS and Record of Decision should discuss mechanisms and incorporate proposed conditions for certification

Groundwater

As discussed in the PSPP PA/FEIS, stakeholder groups are concerned that project-related groundwater use could affect the adjacent Palo Verde Mesa Groundwater Basin (PVMGB) by inducing flows from the Colorado River into that basin. However, available data by Palo Verde Irrigation District (PVID) does not support this hypothesis. Groundwater flow from the Colorado River through the Palo Verde Valley Groundwater Basin (PVVGB) into the northern PVMGB is averted by PVID's irrigation drains, which prevent any such underflow from occurring (pg.4.19-3).

Information presented in the CEC Final Staff Assessment for PSEGS, Part A¹ (pg. 4.9-54) appears to contradict the information in the DSEIS. According to the PSEGS FSA, "the USGS has indicated that the Palo Verde Mesa Groundwater Basin (PVMGB) and the Chuckwalla Valley Groundwater Basin (CVGB) lie within a basin tributary to the Colorado River and that wells drawing groundwater could be considered withdrawing water from the Colorado River Aquifer. The groundwater model developed by Worley-Parsons (2009) suggests the subsurface flow from CVGB to PVMGB could be reduced as much as 32 afy after 3 years of construction and 30 years of operation of the approved PSPP project. The reduction in flow to the PVMGB could likely increase flow from the Colorado River into the PVMGB. Because the modified PSEGS project would use a reduced amount of water during both construction and operation activities with the same proposed groundwater supply system as the approved PSPP project, staff believes that Conditions of Certification SOIL&WATER-14 (Mitigation of Impacts to the Palo Verde Mesa Groundwater Basin) and SOIL&WATER-17 (Estimated of Surface Water Impacts) would also apply to the modified PSEGS project." We note that these measures have been incorporated in the DSEIS Appendix C.

Recommendations:

Clarify whether there is a subsurface connection between the PVMGB and the Colorado River. Estimate the impacts associated with withdrawing groundwater that is recharged by the Colorado River.

Clarify whether or not an entitlement to water from the Colorado River aquifer would be needed. This information should be presented in the FEIS and the ROD.

For APMs SOIL&WATER-14 and SOIL&WATER-17, clarify what thresholds would trigger implementation of these measures.

Air Quality

As the DSEIS indicates, the eastern Riverside County portion of the Mojave Desert Air Basin is designated as non-attainment for the state ozone and PM₁₀ standards. The MDAB is designated as attainment or unclassified for all federal criteria pollutant national ambient air quality standards and for the state CO, NO₂, SO₂, and PM_{2.5} (pg. 3.2-1). According to the DSEIS, PSEGS construction could cause exceedances of the 1-hour and 24-hour NAAQSs for NO₂ and PM_{2.5}, respectively. Operation of the PSEGS would contribute to existing exceedances of the PM₁₀ standards (24-hour and annual) and the PM_{2.5} (24-hour) standard (pg. ES-5, Table 1).

An air dispersion model was used to assess potential air quality impacts from the proposed Project's construction and operation. BLM adjusted the resulting fugitive dust emissions values with a more conservative emission factor for cut/fill activities and dust control efficiency rating. We approve of this methodology. EPA notes that the background ambient air concentration used in the model for 24-hour PM_{2.5} was 35.4_{ug/m³} which exceeds federal standard of 35 _{ug/m³}. We understand this value was obtained in 2011 from the Indio monitoring station in the Salton Sea Basin, which is in nonattainment. While the DSEIS indicates that the Limiting AAQS used was the most stringent of the state or federal standards (Table 3.2-2, pg 3.2-3), we question whether this value adequately represents the background ambient air concentration in the MDAB. Therefore, we recommend that BLM identify a number of existing monitoring sites and provide a rationale for choosing the one that is most representative of the project area's conditions, considering the density of emission sources, the terrain, and meteorological factors.

Recommendation:

Examine whether a more appropriate monitor location exists, considering the density of emission sources, terrain, and meteorological factors. If such a location can be identified, the BLM should consider whether the use of PM_{2.5} background concentrations from this monitor location would affect the potential significance of the project's air quality impacts.

According to the DSEIS, traffic during construction could peak at up to 40 daily truck trips and 4,622 one-way vehicle trips per day. In light of the nonattainment status, vehicular traffic during the 33-month construction phase, the close proximity of a federal Class I area, and the numerous projects proposed in the area, all feasible measures should be implemented to reduce and mitigate air quality impacts to the greatest extent possible.

Recommendations:

Ensure that mitigation measures in the DSEIS are implemented on a schedule that will reduce construction emissions to the maximum extent feasible. Consider additional mitigation measures as described below.

Include, in the FEIS and ROD, all mitigation measures proposed in the DSEIS and any additional measures adopted.

Describe, in the FEIS, how these mitigation measures will be made an enforceable part of the project's implementation schedule. We recommend implementation of applicable mitigation measures prior to, or concurrent with the commencement of construction of the project.

Additional mitigation for non-road and on-road engines

EPA recommends incorporating the South Coast Air Quality Management District's Rule 403 to ensure best available and enhanced dust control measures that will limit impacts from PM₁₀. We also note AQ-SC-5 recommends Tier 3 engines, if available (pg.C-27). EPA supports incorporating mitigation strategies to reduce or minimize fugitive dust emissions, as well as more stringent emission controls for PM and ozone precursors for construction-related activity.

We recommend that the applicant and BLM commit to implementing best available emission control technologies for construction, ahead of the California Air Resources Board's in-use off-road diesel vehicle regulations, regardless of fleet size.² EPA began phasing-in Tier 4 standards for non-road engines in 2008;³ however, the DSEIS does not mention the availability of Tier 4 non-road engines. The use of such engines would result in an approximately 90% reduction in NO_x and PM emissions as compared to Tier 3.

Recommendations:

The FEIS should discuss, and include emission tables for, various classifications of on-road and non-road engines, highlighting emission levels for PM₁₀, PM_{2.5} and NO_x.

The FEIS should indicate the expected availability of Tier 3 and Tier 4 engines for the construction equipment list provided on page 4.2-3.

The FEIS and ROD should commit to using non-road construction equipment that meets Tier 4 emission standards, when available, and best available emission control technology, for construction that occurs prior to Tier 4 standards availability.

The FEIS should update the tables in the Section 4.2 impact analysis to reflect the additional criteria pollutant emissions reductions that would result from using Tier 4 engines for each component of project construction.

All applicable state and local requirements, and the additional and/or revised measures listed below, should be included in the FEIS, and the FEIS and ROD should include a condition that the applicant incorporate the following measures into construction contracts:

Mobile Source Controls:

- Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations.

Administrative controls:

- Identify where implementation of mitigation measures is rejected based on economic infeasibility.
- Prepare an inventory of all equipment prior to construction, and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking.⁴ Where appropriate, use alternative fuels.
- Develop a construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.

² See CARB's Factsheet at: http://www.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf

³ See EPA website: <http://www.epa.gov/nonroad-diesel/2004fr/420f04032.htm#standards>

⁴ Suitability of control devices is based on: whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.

Cumulative Air Quality Analysis

As presented in the DSEIS, the geographic scope considered for potential cumulative impacts to regional air quality is the MDAB. PSEGS-related construction activities would result in short or long-term emissions of PM₁₀, NO_x and VOC and would contribute to existing exceedances of the state ozone and/or PM₁₀ AAQs. Therefore, any cumulative project that would occur at the same time as construction or operation of the PSEGS that emits PM₁₀ or NO_x and VOC could contribute to a cumulative air impact. (pg. 4.2-8). There could be exceedances of federal standards as well.

Recommendations:

Estimate, in the FEIS, the cumulative emissions from the proposed Project combined with the present and reasonably foreseeable projects highlighted in Table 4.1-1. Develop, in consultation with the SCAQMD, a phased construction schedule for projects that will undergo construction concurrently in order to minimize violations of local, state or federal air quality regulations. Consider phased construction on-site to ensure air quality standards are not exceeded.

Based on the evaluation of cumulative emissions, consider whether additional mitigation measures would be needed. If the project would affect the ability of other foreseeable projects to be permitted, the FEIS should discuss this.

Comparison of the BLM Emission Estimates with the State CEC Licensing Process

We note that that emission estimates in the DSEIS differ from emissions presented in the CEC's proceedings. The DSEIS Table 4.3-2 presents GHG emissions at 97,490 metric CO₂e per year (MT CO₂e/yr), while the CEC's Final Staff Assessment (FSA) Table 3 (of Part C, Appendix Air-1) has an estimate of 77,720 MT CO₂e/yr.⁵ FSA Part C, Appendix AIR-1, contains Table 3, which summarizes the GHG emissions at 77,720 MT CO₂e per year. Based on CEC's listed emission sources, the CEC appears not to include delivery and employee vehicles, as listed in the DSEIS.

Based on a comparison of emissions from the main combustion sources (i.e., boilers, fire pumps, generators), there are discrepancies in the magnitude of each. Specifically, BLM's start-up boilers' GHG estimates (which are the CEC's auxiliary boilers) are 57,594 MT CO₂e/yr, which is compared to the CEC's 37,659 MT CO₂e/yr of GHG emissions. Likewise, there are notable differences between the BLM's and CEC's GHG estimates for the emergency generators and fire pumps.

In discussions with the CEC (as part of EPA's permits oversight activities), we confirmed that the CEC has worked closely with the Applicant and the SQAQMD regarding the emission estimates, potential to emit, and potential operating scenarios including potential fuel usage and hours of operation. In theory, the CEC and SCAQMD's potential to emit values represent the worst-case, permitted emissions that would be allowable. Therefore, presuming the BLM's emission estimates are based on the same pool of data, it is unclear why there are such discrepancies in GHG emission estimates.

Onsite and offsite emission estimates (i.e., NO_x, VOC, CO, PM₁₀, PM_{2.5}, SO_x) are summarized in Table 4.2-7 of the DSEIS and Air Quality Table 9 in the CEC's FSA (Part C). We note differences between the BLM and CEC estimates for these pollutants as well.

Recommendation:

Provide a basis for the discrepancies between the CEC and BLM emission estimates. Update the air modeling analysis presented in the FEIS, if needed.

⁵ http://docketpublic.energy.ca.gov/PublicDocuments/09-AFC-07C/TN201097_20131101T140712_Palen_Final_Staff_Assessment_Part_C.pdf

Climate Change

Scientific evidence supports the concern that continued increases in greenhouse gas emissions resulting from human activities will contribute to climate change. Effects on weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates can be expected. These changes may affect the proposed Project as well as the scope and intensity of impacts resulting from the proposed Project. Although the DSEIS contains a substantive discussion on greenhouse gases, as well as estimates of carbon dioxide emissions from the construction of the proposed Project, it does not discuss measures to avoid, minimize, or mitigate for the effects of climate change on the proposed Project.

Recommendations:

Considering that the project may be in operation for between 30 - 50 years, the FEIS should discuss how climate change may affect the proposed Project, particularly with respect to groundwater, increased storm flows, and reclamation and restoration efforts.

The FEIS should also discuss how climate change may affect the project's impacts on sensitive species, including the desert tortoise.

Greenhouse Gas Emissions - Construction and Operation Bid Specifications

In soliciting future contracts for project construction and operations, consider including in the FEIS, and adopting in the ROD, the following additional requirements:

- a) Soliciting bids that include use of energy- and fuel-efficient fleets;
- b) Requiring that contractors ensure, to the extent possible, that construction activities utilize grid-based electricity and/or onsite renewable electricity generation rather than diesel and/or gasoline powered generators;
- c) Employing the use of zero emission or alternative fueled vehicles;
- d) Using lighting systems that are energy efficient, such as LED technology;
- e) Using the minimum amount of GHG-emitting construction materials that is feasible;
- f) Using cement blended with the maximum feasible amount of fly ash or other supplemental cementitious materials that reduce GHG emissions from cement production;
- g) Using lighter-colored pavement where feasible; and,
- h) Recycling construction debris to the maximum extent feasible.

Valley Fever

Coccidioidomycosis, (kok-sid-oy-doh-my-KOH-sis), or Valley Fever, is a fungal infection that is almost always acquired from the environment via the inhalation of fungal spores. It can affect humans, many species of mammals and some reptiles.⁶ The fungus, *Coccidioides*, is endemic in the soil of the southwestern United States, Mexico, and parts of Central and South America. *Coccidioides* can live for long periods of time in soil under harsh environmental conditions including heat, cold, and drought.⁷ *Coccidioides* can be released into the air when soil containing the fungus is disturbed, either by strong winds or activities such as farming or construction. Distribution of the fungus is typically patchy, but in some "hot spots," up to 70% of the human population has been infected.

⁶ Coccidioidomycosis, Technical Fact Sheet, The Center for Food Security and Public Health, 2010. Accessed on June 12, 2013, from <http://www.cfsph.iastate.edu/Factsheets/pdfs/coccidioidomycosis.pdf>

⁷ Coccidioidomycosis Fact Sheet, California Department of Public Health. Accessed on June 12, 2013, from <http://www.cdph.ca.gov/HealthInfo/discond/Pages/Coccidioidomycosis.aspx>.

The number of reported Valley Fever cases in the U.S. has risen from less than 5,000 in 2001 to more than 20,000 cases in 2011.⁸ An estimated 150,000 more cases go undiagnosed every year. The majority of reported cases are located in Arizona and California.⁹ The reason for the recent increase in cases, however, is unclear. Dust storms in endemic areas are often followed by outbreaks of the disease. If the dust storms are severe, the fungal spores can be carried outside the endemic area into neighboring counties, where outbreaks follow.¹⁰

According to the Centers for Disease Control and Prevention, workers engaged in soil-disturbing activities in endemic areas should be considered at risk for the disease.¹¹ Occupational groups at risk include farmers, agricultural workers, construction workers and archaeologists. Some groups of people appear to be at increased risk for disseminated disease and can become seriously ill when infected. People at risk for severe disease include those with weakened immune systems, persons with cancer or who are on chemotherapy, or persons who are HIV-infected. Also at higher risk for serious illness are the elderly, persons of African or Filipino descent, and women in the third trimester of pregnancy.

Recommendations:

The FEIS should discuss and evaluate the potential for exposure to the fungus, *Coccidioides*, including susceptibilities of workers and nearby residents to Valley Fever due to soil-disturbing activities of the project.

Workers should be provided with training on the health hazards of Valley Fever via an Environmental Awareness Program. This program should include information about the *Coccidioides* infection rate in the project area and surrounding region.

The Applicant should provide local public health officials with a schedule of project activities that disturb soil.

Biological Resources

Endangered Species and Other Species of Concern

The site supports a diversity of mammals, birds, and reptiles, including special status wildlife species. In addition to desert tortoise, the project site provides suitable habitat for Mojave fringe-toed lizards, golden eagles, migratory birds, bats, western burrowing owls, Nelson's bighorn sheep, burro deer, American badgers, and desert kit fox. Project construction would result in direct and indirect impacts to 3,947 acres, including direct impacts to wildlife by eliminating most habitat that provides foraging, cover and/or breeding habitats. In addition, perimeter fencing could cause curtailment of movement, increased vulnerability to predation, entrapment, and increase vehicle interactions with Interstate-10. Indirect impacts to wildlife include increased habitat fragmentation, the spread of invasive non-native plants in surrounding communities, and an increase of desert tortoise predators (pg.4.21-20).

EPA understands that an Endangered Species Act Section 7 formal consultation with the U.S. Fish and Wildlife Service has been initiated but the Biological Opinion for this modified project has not yet been

⁸ Centers for Disease Control and Prevention. December 2012. Fungal pneumonia: a silent epidemic Coccidioidomycosis (valley fever) Fact Sheet. Accessed on June 12, 2013, from <http://www.cdc.gov/fungal/pdf/cocci-fact-sheet-sw-us-508c.pdf>.

⁹ Centers for Disease Control and Prevention. Increase in Reported Coccidioidomycosis – United States, 1998-2011. MMWR 2013;62: 217-221. Accessed on June 12, 2013, from <http://www.cdc.gov/mmwr/pdf/wk/mm6212.pdf>.

¹⁰ Pappagianis, D. & H. Einstein. 1978. Tempest from Tehachapi takes toll or Coccidioides immitis conveyed aloft and afar. West J. Med. 129: 527-530.

¹¹ Coccidioidomycosis. Technical Information. 2008 Centers for Disease Control and Prevention.

finalized. The Biological Opinion will play an important role in informing the decision on which alternative to approve and what commitments, terms, and conditions must accompany that approval.

Recommendations:

The FEIS should provide an update on the consultation process. Any relevant documents associated with the ESA Section 7 consultation process, including Biological Assessments and Biological Opinions, should be summarized and included in an appendix.

Mitigation and monitoring measures that result from consultation with the USFWS to protect sensitive biological resources, including desert tortoise, golden eagles and Mojave fringed-toed lizards, should be included in the FEIS and, ultimately, the ROD.

Include, in the FEIS, results of discussions with USFWS of whether adequate desert tortoise movement corridors would result for each action alternative. Discuss, in the FEIS, how resulting habitat connectivity corridors would be preserved in light of foreseeable projects.

Discuss, in the FEIS, potential impacts to wildlife movement in the area under future climate change scenarios.

Avian impacts

As noted in the DSEIS, the residual impacts of “solar flux” on resident and migratory birds and bats are unknown and un-quantified. The magnitude of these impacts and the feasibility of reducing potential impacts are also unknown at this time. Without further study of the potential hazards presented by solar tower technology, mitigation measures cannot be determined.

EPA acknowledges the uncertainty of this technology regarding avian impacts; however, we remain concerned about this issue since the effects of this technology appear to be unmitigable. Therefore, we support an adaptive management approach in dealing with this issue. According to the DSEIS, APM BIO-16 would require an Avian Protection Plan to monitor the death and injury of birds. This type of information should provide state and federal agencies with a better understanding of potential impacts from solar tower technology, and could potentially reduce future impacts for the PSEGS and other similar projects. In addition, per APM BIO-16C, the project owner will prepare a Bird and Bat Conservation strategy. EPA supports these monitoring efforts. In addition to the proposed actions listed in the DSEIS, we make the following recommendations:

- Review the Ivanpah project monthly compliance reports submitted to the CEC, particularly the descriptions of wildlife and avian impacts. This information may be useful in developing adaptive management strategies that are effective in preventing similar occurrences at the PSEGS.
- The netting over evaporative ponds should be installed correctly with an appropriate-sized mesh to prevent bird entanglements and keep them out of the ponds. Regular maintenance and inspection should be required during construction. Frequency of operation monitoring should be based on when avian species presence is highest (i.e. migration, breeding) as indicated by pre-construction baseline surveys.
- Research additional deterrence methods if the current measures are deemed to be ineffective.

EPA understands that USFWS has suggested that an Eagle Risk Assessment be done before the Notice To Proceed is issued. We support this suggestion.

Recommendations:

Perform an Eagle Risk Assessment to determine whether an Eagle Conservation Plan is warranted.

Identify specific measures to reduce impacts to eagles. Specify in the FEIS how approval of the proposed Project would comply with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Describe compensatory mitigation for golden eagles to reduce the effect of permitted mortality to a no-net-loss standard.

Sand Dune Transport System

The DSEIS acknowledges that direct impacts to stabilized and partially stabilized dunes include permanent loss of habitat and potential accidental direct impacts to adjacent preserved habitat during construction and operation. 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.

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. The PSPP PA/FEIS states that a numerical sand transport model was developed by BLM to quantitatively assess the area of sand shadow associated with the proposed action and alternatives. The applicant contested the wind shadow area estimates and submitted their own estimate of indirect impacts from wind transport (PSPP PA/FEIS pg. 4.14-2). The DSEIS acknowledges the PSEGS would have residual sand shadow effects to downwind sand dune habitat in the Palen Dry Lake-Chuckwalla sand transport corridor. There is no indication, however, whether the same sand transport model was used to determine the extent of the residual sand shadow. In addition, there is no quantification of the indirect effects to the sand transport corridor. APMs BIO-19 and BIO-20 proposes mitigation ratios for impacts to special- status plants and Mojave fringe-toed lizard respectively, but since there is no acreage quantified for indirect impacts to these species, it is difficult to discern the type and amount of mitigation that will be required.

The PSEGS configuration eliminates the construction of 30-foot high wind fences that were proposed under the PSPP. Elimination of these high fences would allow sand transport to continue in the corridor and, thereby, minimize indirect effects (pg. 4.17-3). We note, however, that the proposed Project will have a 7-foot security fence and desert tortoise exclusion fencing, which is also likely to impede sand transport. In addition, since most sand transport occurs close to the ground through the processes of rolling and saltation (PSPP PA/FEIS pg.4-14.1), the PSEGS components (facility buildings, heliostats, power tower, drainage structures) may also impede sand transport across the project from upwind.

Recommendations:

Discuss whether a sand transport model was used to estimate the residual sand shadow effect to downwind sand dune habitat. If no model was used, discuss the rationale for that decision.

Quantify indirect impacts to the sand transport corridor from the PSEGS Project.

Update the mitigation tables to reflect the indirect impacts acreage and mitigation requirements.

Discuss the effect that other project components (facility buildings, heliostats, power tower, drainage structures) will have on the stabilized and partially stabilized dunes and sand transport corridor.

Discuss the effect that the proposed fencing will have on the stabilized and partially stabilized dunes and sand transport corridor.

Consultation with Tribal Governments

According to the DSEIS, the BLM is engaged in ongoing consultation with Indian Tribes regarding the changes to the solar project proposal that have occurred since May 2011. These consultation efforts are not likely to be completed before the publication of the FEIS. Impacts to cultural resources of importance to Indian tribes have yet to be fully identified and BLM is awaiting the results of ongoing studies (pg.3.4-2). Previous concerns raised by the Tribes included the importance and sensitivity of cultural resources on and near the proposed site, cumulative effects to cultural resources, and significance attached to the broader cultural landscape.

In general, as described in the DSEIS, the impacts to archaeological resources for the PSEGS would be similar to those described in the PSPP PA/FEIS. However, the DSEIS acknowledges that impacts associated with above-ground intrusion onto a flat landscape, such as the 750-foot power towers and heliostat installation, are different from those evaluated in the PSPP PA/FEIS.

According to the DSEIS, additional studies are underway. Upon completion of those studies, a discussion and analysis of potential impacts to cultural resources and significant historic properties, along with any mitigation measures, will be incorporated into the FEIS (pg.4.4-2). According to the DSEIS, any adverse effects that the PSEGS could have on cultural resources would be resolved through compliance with the terms and conditions of the existing Programmatic Agreement. The DSEIS determined that the existing PA, executed and signed on October 7, 2010, is still applicable and will be included as an appendix in the FEIS.

Recommendations:

Describe, in the FEIS, the process and outcome of government-to-government consultation between the BLM and the tribal governments listed on page 5-4.

Discuss issues that were raised, how those issues were addressed in relation to the proposed Project, and how impacts to tribal or cultural resources will be avoided or mitigated, consistent with Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, Section 106 of the National Historic Preservation Act, and EO 13007, Indian Sacred Sites.

Provide an update on the status of the PA. The FEIS should indicate whether the Tribes are in agreement that the PA will reduce impacts to prehistoric and sacred sites to less than significant. We recommend that these measures be adopted in the ROD.

Misc edits

- Page 4.19-4 the grading and drainage plan references Figure 4.19-2. Comment: There is no Figure 4.19-2. Instead, the grading and drainage plan is on Fig. 4.19-1.
- Page 4.2-9 – Comment: SC1 through 11 should read AQ-SC1 through 11.
- There are inconsistencies within the DSEIS regarding the number of construction months. Both 33 and 34 months are used throughout the document. Comment: Specify which number is correct and use it consistently within the document.