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

FEB 21 2013

Jeffrey Childers, Project Manager
California Desert District Office
Bureau of Land Management
22835 Calle San Juan de Los Lagos
Moreno Valley, California 92553

Subject: Draft Environmental Impact Statement for the Proposed Stateline Solar Farm Project, San Bernardino County, California (CEQ #20120368)

Dear Mr. Childers:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the Proposed Stateline Solar Farm Project. 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.

EPA continues to support increasing the development of renewable energy resources in an expeditious and well planned manner. Using renewable energy resources such as solar power can help the nation meet its energy requirements while reducing greenhouse gas emissions. We encourage BLM to apply its land management and regulatory authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health.

On September 6, 2011, EPA provided extensive formal scoping comments for the project, including detailed recommendations regarding purpose and need, range of alternatives, cumulative impacts, biological and aquatic resources, and other resource areas of concern.

Based on our review of the DEIS, we have rated the project and document as *Environmental Concerns – Insufficient Information* (EC-2) (see the enclosed "Summary of EPA Rating Definitions"). We were pleased to note avoidance of highly sensitive resources, such as the two major drainage channels emanating from the south end of nearby Metamorphic Hill. We also commend the early agency coordination, and consideration of stakeholder comments, that resulted in the evaluation of 7 alternatives, including 4 solar farm configurations. We were also pleased to note that all 4 solar farm configuration alternatives include the addition of over 23,000 acres to the existing Desert Wildlife Management Area.

Notwithstanding the positive aspects of the proposed project, EPA is concerned about the project's potential impacts to waters of the US, site hydrology, groundwater, air quality, tribal resources, desert tortoise, as well as about the cumulative impacts associated with the rapid development in the Ivanpah Valley from energy and transportation projects.

EPA generally recommends that analyses of key resource areas, such as jurisdictional waters of the United States, as well as identification of compensatory mitigation lands, be completed as early as possible, for integration into a DEIS. This information is important to determine a project's viability, avoid potential project delays, and assist in identifying the least environmentally damaging alternative. Such analyses are incomplete in the subject DEIS.

Regarding jurisdictional waters of the US, EPA agrees that Ivanpah Lake is an interstate water between California and Nevada and is, therefore, by definition, a jurisdictional water of the US. Tributaries to Ivanpah Lake, that are, themselves, not interstate waters, may also be jurisdictional waters subject to Clean Water Act Section 404 regulations if they have a significant nexus to the interstate water. We recommend that the FEIS include the results of a US Army Corps of Engineers-conducted significant nexus evaluation for all non-interstate tributaries to Ivanpah Lake. The FEIS should quantify the potential impacts to waters of the US, discuss the steps that would be taken to avoid and minimize such impacts, and include an outline of the requirements of a compensatory mitigation plan, as necessary.

EPA is also concerned that grading and compacting the site will result in significant impacts to ephemeral washes and vegetation without commensurate benefit to soil stability. Ephemeral washes provide a wide range of functions that are critical to the health and stability of desert ecosystems and wildlife. We recommend that avoidance of the on-site drainages be maximized through design modifications to the photovoltaic array layout. To further minimize disruption of the site's hydrology, we recommend consideration of the extent to which vegetation could be maintained under a higher-profile tracking panel with greater ground clearance than the proposed 18 inches.

In light of multiple reasonably foreseeable projects relying on the Ivanpah Valley Groundwater Basin, and uncertainty in recharge rates, we recommend that the FEIS include confirmation of an alternative water supply and conditions for its use. To inform the selection of the appropriate water supply, we suggest including an analysis of the associated impacts to groundwater-dependent vegetation.

With respect to adverse air quality impacts resulting from the two year construction period, we recommend requiring more stringent mitigation measures, phased construction, and early coordination among multiple project construction schedules in the vicinity of the project to minimize adverse air quality impacts in the region.

Because the Ivanpah 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, as well as other sensitive species. In coordination with USFWS, the FEIS should identify sufficient lands for habitat compensation for the project's impacts, in order to ensure that compensatory lands are of comparable or superior quality and are suitable compensation for the unique habitat on the project's site.

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

Please note that, as of October 1, 2012, 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).

If you have any questions, please contact me at (415) 972-3843 or contact Tom Plenys, the lead reviewer for this project. Tom can be reached at (415) 972-3238 or plenys.thomas@epa.gov.

Sincerely,

Kathleen Martyn Goforth, Manager
Communities and Ecosystems Division

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

cc: Aaron Allen, North Coast Branch Chief, US Army Corps of Engineers
Ray Bransfield, United States Fish and Wildlife Service
Shankar Sharma, California Department of Fish and Game

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED STATELINE SOLAR FARM PROJECT, SAN BERNARDINO COUNTY, CALIFORNIA, FEBRUARY 21, 2013

Aquatic Resources

Waters of the United States

Additional jurisdictional information is needed. The DEIS states that Ivanpah Lake is considered to be "Waters of the U.S." under the jurisdiction of US Army Corps of Engineers, and that washes that drain into the dry lake may also be under the jurisdiction of USACE (p. 2-42); however, Section 3.19 states that "Section 404 and 401 would only be applicable to the project if the USACE has jurisdiction. Although a final determination has not been made, preliminary information (Allen 2011) suggests that USACE will not assert jurisdiction." The document further states in Section 5.0 that Ivanpah Lake is an interstate water and subject to 404 jurisdiction, but that, because it is not a traditional navigable water (TNW), ephemeral washes tributary to the lake would not be subject to 404 jurisdiction.

EPA agrees that Ivanpah Lake is an interstate water between California and Nevada and is, therefore, by definition, a jurisdictional water of the United States. Tributaries to Ivanpah Lake that are, themselves, not interstate waters, may also be jurisdictional waters subject to Clean Water Act Section 404 regulations if they have a significant nexus to the interstate water. It is EPA's longstanding national position that there is no regulatory requirement that tributaries have a significant nexus to a TNW to be considered jurisdictional, if they have a significant nexus to an interstate water (*i.e.*, Ivanpah Lake).

The document references a jurisdictional delineation (LSA 2011) that surveyed transect intersections with ephemeral washes and included drainage mapping based on high-resolution photos. None of this information appears to be included in the DEIS or appendices, even though it would be useful for demonstrating jurisdiction and illustrating the location and extent of the drainage network that would be graded from the site.

EPA is also concerned about the indirect impacts to the tributaries downstream of the site leading to Ivanpah Lake, as well as indirect impacts to Ivanpah Lake itself. The ephemeral waters traversing the project site drain to Ivanpah Lake, and the preferred alternative (Alternative 3) is immediately adjacent to it. The DEIS fails to assess the indirect impacts to Ivanpah Lake from the proposed project. Indirect effects could include, but are not limited to: 1) changes in hydrology and sediment transport into Ivanpah Lake; 2) increases in volume and velocity of polluted stormwater from impervious surfaces on the project site; 3) decrease in water quality from the impairment of ecosystem services such as water filtration, groundwater recharge, and attenuation of floods; 4) disruption of hydrological and ecological connectivity from the Clark Mountains to Ivanpah Lake; and 5) decreases in biodiversity and ecosystem stability. Reducing potential discharges into waters should reduce the indirect effects to Ivanpah Lake and its tributaries.

Recommendations:

Include information in the FEIS resulting from a USACE significant nexus evaluation, including identification of ephemeral drainages and non-interstate tributaries to Ivanpah Lake that are determined to be subject to CWA Section 404 regulations.

The FEIS should include a copy of the 2011 jurisdictional delineation, including any maps of the drainage network with and without an overlay of the project footprint and anticipated impacts.

Reduce discharges into waters, as described in detail below, to reduce indirect effects to Ivanpah Lake and its tributaries.

Projects that propose to fill waters of the U.S. subject to CWA Section 404 are required to demonstrate that the alternative for which USACE approval is sought is the least environmentally damaging practicable alternative (LEDPA), taking into account cost, existing technology and logistics in light of the overall project purpose (40 CFR 230). Consistent with the CWA Section 404(b)(1) Guidelines (Guidelines), the LEDPA determination is made based on an alternatives analysis. Action alternatives analyzed in the DEIS would avoid the two largest washes located in the Project Study Area, but would impact 130 to 178 acres of ephemeral drainages on the site. Following a significant nexus determination by USACE and identification of jurisdictional drainages, an alternatives analysis will be needed to identify the LEDPA. A compensatory mitigation plan must be prepared to offset any impacts to waters that are determined to be unavoidable.

Recommendation:
Prepare a CWA 404(b)(1) alternatives analysis that incorporates avoidance and minimization measures for jurisdictional ephemeral drainages. Alternatives that would avoid and minimize impacts to waters of the U.S. should include solar array installation methods that would preserve some or all of the jurisdictional drainages. The CWA 404(b)(1) alternatives analysis and any proposed compensatory mitigation to offset unavoidable impacts should be included in the FEIS.

Drainages, Ephemeral Washes and Site Hydrology

Natural washes perform a diversity of hydrologic, biochemical, and geochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. 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.

EPA is concerned that grading and compacting the site will result in significant impacts to ephemeral washes and vegetation without commensurate benefit to soil stability. The action alternatives include grading and compacting the entire project footprint and installation of stormwater basins upstream and downstream of the site. These measures are included to prevent erosion on site and downstream sedimentation; however, EPA expects that, without established flow paths and increased vegetative roughness, the graded site could experience *increased* erosion. The applicant's own modeling results demonstrated that, under a 100-year flood scenario, there could be scour around solar array support piles of 4.1 feet without the basins and up to 2 feet with the basins (p. 4.19-11); however, neither scenario would destabilize the arrays because of the depth and number of support piles.

Because the basins are designed to capture only the 1.2 year storm (p. 2-9), it is anticipated that a significant number of storms would exceed basin design capacity and cause sheet flow across the graded site, resulting in surface erosion. We recognize that alluvial fans are dynamic systems, but, based on aerial imagery dating back to 1994, it appears that many of the ephemeral drainages on the site have remained relatively static for nearly two decades and may not pose an imminent threat to solar arrays placed in their proximity. Given all of the above, grading the entire site, including over a hundred acres of ephemeral drainages, may not be necessary to prevent significant damage to solar arrays from erosion.

Recommendations:
To avoid and minimize direct and indirect impacts to desert washes, EPA recommends that the FEIS:

- Evaluate and commit to utilizing designs that would retain all ephemeral drainages, or at least those that have remained relatively stable, and site solar arrays outside of these areas. Solar arrays close to drainages could be installed using deeper support posts to help ensure they remain stable in the event the adjacent channel moves.
- Reconcile the proposed commitment to avoid placing solar arrays "within 100 feet of any significant onsite drainage" (p. 2-16) with plans to grade and compact the entire site. Apply this measure to ephemeral drainages on-site that have remained relatively static for two decades.
- Evaluate and commit to minimizing the number of road crossings over washes and designing necessary crossings to provide adequate flow-through during storm events;
- Discuss the benefits of maintaining some or all of the ephemeral washes, including preserving important habitat, retaining ephemeral wash functions, potentially reducing erosion, reducing construction costs, and improving the implementation and success of closure plans after the site is retired from operation.
- Demonstrate that downstream flows would not be adversely impacted due to proposed changes to natural washes resulting from the proposed "disc-and-roll" and "cut and fill" methods.
- Include the finalized drainage plan to facilitate assessment of impacts and effectiveness of mitigation measures.

As proposed, all action alternatives would use PV modules in linear arrays, and would only require 18 inches of clearance above the ground surface (p. 2-5). It is our understanding that other PV solar companies have proposed designs that reduce the need for site clearing and grading by mounting PV panels at sufficient height above ground to maintain vegetation, which could also minimize drainage disturbance, the need for site grading and generation of fugitive dust.

Recommendation:
The FEIS should evaluate mounting PV panels at sufficient height above ground to maintain vegetation and minimize drainage disturbance. Quantify acreage that would not require clearing and grading as a result. Compare these results to existing alternatives, and incorporate project design changes into site design and conditions of certification, accordingly.

Fencing

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

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

Review the National Park Service's published article[1] on the effects of the international boundary pedestrian fence on drainage systems and infrastructure, and discuss in the FEIS how such issues are adequately addressed with this project.

Floodplain Hazards

Executive Order 11988 Floodplain Management requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains. According to the DEIS, the project site is located in a Federal Emergency Management Agency (FEMA) Flood Zone D, or area "where flood hazards have not been mapped" (p. 3.19-2). Based on hydrologic study and modeling completed by the applicant, the alluvial fan on which the project is located can be subject to intense water flows and can be affected by stormwater flows from six sub watersheds (p. 4.19-11). As previously mentioned, scour depths of up to 4.1 feet could occur during a 100 year flood.

Recommendations:
Describe, in the FEIS, how BLM's action would be consistent with the provisions of Executive Order 11988.

Provide, in the FEIS, a detailed description of the current FEMA floodplain, and include results of consultation with FEMA, if appropriate.

Groundwater

We are concerned about the potential significant groundwater drawdown and cumulative impacts to the Ivanpah Valley Groundwater Basin (IVGB) associated with the construction phase of the proposed project in conjunction with the reasonably foreseeable projects in the vicinity.

EPA supports the project's proposal to minimize water use during operations by eliminating water use for panel washing (p. 2-9); however, construction of the proposed 300 MW project would require 1,900 acre-feet (AF) over a period of 24 months from the IVGB (p. 4.19-2). While a positive basin balance of 530 to 1,845 AF/yr is estimated during construction, the DEIS notes that there are wide ranging estimates for recharge from precipitation and from returns (p. 4.19-5). Mitigation measure MM WAT-2 would require the applicant to identify an alternative water source for the project if the proposed water withdrawal were found to be causing unacceptable adverse impacts; however, there does not appear to be a requirement, or trigger event, for its use.

Recommendations:
The FEIS should identify the alternative non-IVGB water source, as recommended by MM WAT-2, and analyze potential impacts to groundwater and air quality (e.g. from transportation) that could result from its use. Clarify the circumstances under which this alternative water supply would be used.

Address, in the FEIS, what mitigation measures would be taken, and by whom, should groundwater resources in the basins become overextended to the point that further curtailment is necessary due to, for example, additional growth, the influx of large-scale solar projects, drought, climate change, or the utilization of existing or pending water rights in the basin.

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[1] National Park Service, August 2008, Effects of the International Boundary Pedestrian Fence in the Vicinity of Lukeville, Arizona, on Drainage Systems and Infrastructure, Organ Pipe Cactus National Monument, Arizona.

Commit, in the FEIS and ROD, to no water use for solar panel washing during operations, and describe any measures that will be used to clean the solar panels, if applicable.

The DEIS notes that groundwater drawdown at proposed wells could range from 0.63 to 3.18 feet. Long-term declines in local wells have already ranged from 4 to 5 feet (p. 4.19-71). As prior BLM NEPA documents have noted, even modest drawdowns of 0.3 feet can adversely affect vegetation if groundwater drops below the effective rooting levels for a sustained period of time.[2] A drop in groundwater levels could also impact neighboring wells, lower the water table, and adversely affect groundwater-dependent vegetation and woodlands. MM WAT-3 discusses measures to be taken if water levels decline five feet or more below the projected baseline trend at nearby private wells (p. 4.19-90); however, the likelihood of these scenarios is not analyzed.

Recommendation:
Include, in Section 4.19 of the FEIS, a numerical analysis, based on expected pumping rates and drawdown conditions mentioned above, of the anticipated drop in groundwater levels and associated impacts to groundwater-dependent vegetation.

Air Quality

EPA is concerned about the direct, indirect and cumulative impacts of construction and fugitive dust emissions associated with the project. The DEIS includes estimated emissions for criteria pollutants and description of the mitigation measures that will be implemented to reduce the adverse air impacts identified in the DEIS; however, even with implementation of these mitigation measures, peak daily and annual construction emissions are predicted to exceed Mojave Desert Air Quality Management District's thresholds of significance from October 2014 thru October 2016 for oxides of nitrogen (NO_x) and particulate matter 10 microns or less in size (PM_{10}) (p. 4.2-3).

According to the DEIS, the project area is in nonattainment for Federal and state PM_{10} standards as well as state ozone standards (p. 3.2-3). In light of the nonattainment status, the 40 daily truck trips and 130 construction vehicles expected during the construction phase, 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 DEIS, and additional mitigation measures that go beyond those in the DEIS (see recommendations, below), are implemented on a schedule that will reduce construction emissions to the maximum extent feasible.

Include, in the FEIS and ROD, all mitigation measures proposed in the DEIS and any additional measures adopted. Include tables for construction and operational phases, comparing criteria pollutant emissions before and after newly proposed mitigations.

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, at a minimum, concurrent with the commencement of construction of the project.

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[2] Bureau of Land Management and California Energy Commission, March 2010. Staff Assessment and Draft Environmental Impact Statement for Genesis Solar Energy Project, p. C.2-4.

Correct, in the FEIS, references in the DEIS stating the project area is classified as in "serious nonattainment" of the federal PM_{10} ambient air quality standard by replacing with "moderate nonattainment" (see p. 3.2-7).

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 also advocate minimizing disturbance to the natural landscape as much as possible, so that the need for measures to reduce fugitive dust emissions is minimized or eliminated.

While we recognize MM AIR-2 recommends Tier 3 or higher non-road engines (p. 4.2-25), 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.[3] EPA began phasing-in Tier 4 standards for non-road engines in 2008[4]; however, the DEIS 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 those from Tier 3 engines.

Recommendations:

The FEIS should discuss, and include emission tables for, various classifications of on-road and non-road engines, highlighting emission levels for PM_{10}, $PM_{2.5}$ 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.

Evaluate and quantify, in the FEIS, the benefits of maximizing natural vegetation under a higher PV panel option in reducing fugitive dust.

All applicable state and local requirements, the additional measures listed above, and the additional measures resulting from the recommended consultation between the applicant and the MDAQMD (as recommended under MM-Air-2), should be included in the FEIS and ROD.

Cumulative Air Quality Analysis

Cumulative air analyses for construction of the proposed action and eight foreseeable projects showed exceedances of MDAQMD daily and annual thresholds of significance for volatile organic compounds (VOCs), NO_x, carbon monoxide, PM_{10} and $PM_{2.5}$. Four out of five of these pollutants exceeded the threshold by a full order of magnitude (p. 4.2-18). The contribution of the proposed action to cumulative daily construction emission totals ranges from 5.3% to 11.9%. The DEIS concludes the project would have temporary significant and unavoidable NO_x and PM_{10} impacts during construction (p. 4.2-21).

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

[4] See EPA website: http://www.epa.gov/nonroad-diesel/2004fr/420f04032.htm#standards

Recommendations:
Break out by year, in the FEIS, the cumulative construction and operational emissions from the proposed project combined with the eight foreseeable projects highlighted in Tables 4.2-8. We recommend that these annual cumulative emissions data be used to develop, in consultation with the MDAQMD, a phased construction schedule, for projects that will undergo construction concurrently, that will not result in any violations of local, state or federal air quality regulations. EPA recommends incremental construction on-site to ensure air quality standards are not exceeded.

The FEIS should provide technical justification for any determination that a project is too far from the proposed project to contribute to cumulative regional air quality impacts or sensitive receptor impacts. While the DEIS states that a cumulative air quality analysis should be limited to an area within six miles of a project and one-mile for sensitive receptor impacts (p. 4-2.15), the appropriate area to consider depends on the emissions, size of the source, and release height, among other criteria.

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

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.

<u>Biological Resources</u>

Endangered Species and Other Species of Concern

The site supports a diversity of mammals, birds, and reptiles, including special status wildlife species. Project construction would result in permanent and long-term impacts to 2,023 acres, including direct impacts to wildlife by removal and crushing of shrubs and herbaceous vegetation, resulting in loss and fragmentation of cover, breeding and foraging habitat (p. 4.22-2). Indirect effects to wildlife would also occur due to increased fragmentation and reduction of connectivity between wildlife populations (p. 4.22-3). In addition to desert tortoise and Nelson's bighorn sheep, the project study area provides suitable nesting and foraging habitat for golden eagles (p. 4.22-19). The project site is located within 10 miles of 12 known golden eagle nesting territories.

Maintaining habitat connectivity within the Ivanpah Valley was identified as a key issue in the Ivanpah Solar Electric Generating Station Biological Opinion (June 2011). Maintaining and preserving a corridor of undisturbed desert tortoise habitat should be an integral component of the Stateline Solar Project, and any other project located in the Ivanpah Valley.

We understand that the Biological Opinion for this project has not yet been 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, and any relevant documents associated with the ESA Section 7 consultation process, including any Biological Assessments and Biological Opinions, should be summarized and included in an appendix.

Include, in the FEIS, results of discussions with USFWS of whether adequate desert tortoise movement corridors would result for each action alternative, and compare such corridor buffer distances to those under consideration at BLM's nearby Silver State Solar project. Discuss, in the FEIS, how resulting habitat connectivity corridors would be preserved in light of foreseeable projects, including DesertXpress.

Mitigation and monitoring measures that result from consultation with USFWS to protect sensitive biological resources, including desert tortoise, golden eagles and Nelson's big horn sheep, should be included in the FEIS and, ultimately, the ROD.

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.

Include, in the FEIS, design practices to be followed for the above ground power lines to minimize bird collisions, as necessary. A useful reference for this is the Avian Power Line Interaction Committee document, *Mitigating Bird Collisions with Power Lines: The State of the Art in 1994*.

Include in the FEIS a requirement for the Avian Protection Plan (now called Bird and Bat Conservation Strategies (BBCS)) to be developed using the 2005 Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service Avian Protection Plan Guidelines, as necessary. Include, in the FEIS, practices that reduce the potential for raptor fatalities and injuries from power lines. These practices can be found in the Suggested Practices for Avian Protection on Power Lines: State of the Art in 2006 manual.

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

Compensatory Mitigation

We note that mitigation measure MM Wild-8 provides compensatory mitigation ratios for desert tortoise;

however, the DEIS does not state that specific compensation lands are available (p. 4.4-10). In light of the numerous energy and transportation projects under construction or proposed in the Ivanpah Valley, the availability of land to adequately compensate for environmental impacts to resources such as US and state jurisdictional waters, vegetative communities, golden eagles and desert tortoise, may serve as a limiting factor for development.

Recommendations:
Identify compensatory mitigation lands or quantify, in the FEIS, available lands for compensatory habitat mitigation for this project, as well as reasonably foreseeable projects in Ivanpah Valley.

Clarify the rationale for the 3:1 mitigation ratio for desert tortoise habitat and how this relates to the mitigation ratios recommended by other agencies and to mitigation ratios used for other renewable energy projects in California and Nevada.

Specify provisions to be adopted in the ROD that set out a clear timetable for ensuring adequate compensatory mitigation has been identified, approved and purchased, as appropriate.

The FEIS and ROD should discuss mechanisms and incorporate proposed conditions for certification that would protect into perpetuity any compensatory lands that are selected.

Climate Change

EPA commends the BLM for including estimates of greenhouse gas emissions from construction and operation of the project. The DEIS also includes a qualitative discussion of the potential impacts of climate change on the project.

Recommendation:
Considering that the project is planned to be in operation for 30, and possibly as many as 50, years, the FEIS should include additional details on how climate change may affect the project, particularly its sources of groundwater, reclamation and restoration efforts after construction and decommissioning, and potential increased stormflows through the site and to Ivanpah Lake. The FEIS should also discuss how climate change may affect the project's impacts on sensitive species, including the desert tortoise.

Consistency with the California Desert Renewable Energy Conservation Plan

The California DRECP, scheduled for completion in 2014, is intended to advance State and federal conservation goals in the desert regions while also facilitating the timely permitting of renewable energy projects in California. The DRECP will include a strategy that identifies and maps areas for renewable energy development and areas for long-term natural resource conservation. The proposed project is located in the DRECP boundary area.

Recommendation:
The FEIS should elaborate on the DRECP, and include up-to-date maps illustrating the current boundaries and conceptual alternatives that are relevant to the proposed project. Discuss and confirm any additional requirements and/or conditions that may apply upon approval of the DRECP.

Consultation with Tribal Governments

The DEIS states that BLM contacted 11 Indian Tribes to initiate consultation at the government-to-government level throughout the review of the project (p. 5-4). We note that only the Pahrump Paiute Tribe responded and requested additional information for this project. The DEIS does not expand on the type of information the Tribe requested nor BLM's response to the request. While we commend BLM for initiating consultation in the fall of 2007, the DEIS does not specify whether potential tribal resources are known at this time and whether impacts to such resources as a result of the construction of the solar farm can be satisfactorily mitigated.

BLM has been engaged in multiple projects in the area and has conducted similar consultations. In light of this additional background, the DEIS should discuss whether consultation with Indian Tribes, or discussions with Tribal organizations and individuals, have revealed concern about the importance and sensitivity of cultural resources near the project site, as well as cumulative effects to cultural resources and landscapes.

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. Include relevant outcomes from consultations conducted for the Ivanpah and Silver State Solar projects.

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 Executive Order 13007, *Indian Sacred Sites.*