Thank you for your comment, Raymond Hiemstra.

The comment tracking number that has been assigned to your comment is SEDDsupp20140.

Comment Date: January 27, 2012 16:38:15PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20140

First Name: Raymond
Middle Initial:
Last Name: Hiemstra
Organization:
Address: 214 19th st #5
Address 2:
Address 3:
City: Huntington Beach
State: CA
Zip: 92648
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment:

Comment Submitted:

I support the use of zoning for for the permitting of solar facilities. There is plenty of land available for solar facilities using only the zones proposed for solar use in the draft plan. Solar facilites should not be built in areas that are outside of the proposed zones except on private property.

Thank you for your comment, Ian Black.

The comment tracking number that has been assigned to your comment is SEDDsupp20141.

Comment Date: January 27, 2012 16:48:03PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20141

First Name: Ian
Middle Initial:
Last Name: Black
Organization: enXco, Inc.
Address:
Address 2:
Address 3:
City:
State:
Zip:
Country:
Privacy Preference: Don't withhold name or address from public record
Attachment: enXco SDPEIS Comment Letter 27 Jan 2012 Final.pdf

Comment Submitted:

27 January 2012

U.S. MAIL & INTERNET FORM

Solar Energy Draft PEIS
Argonne National Laboratory
9700 S. Cass Avenue, EVS/240
Argonne, IL 60439

Re: Comments of enXco, Inc. on the Supplement to the Draft Solar Programmatic Environmental Impact Statement

To whom it may concern:

Thank you for the opportunity to comment on the Supplement (SDPEIS) to the Solar Energy Development Draft Programmatic Environmental Impact Statement (PEIS) prepared by the U.S. Department of Energy, Energy Efficiency and Renewable Energy Program (DOE) and the U.S. Department of the Interior, Bureau of Land Management (BLM) pursuant to the National Environmental Policy Act (NEPA).

enXco, Inc. is one of the oldest and largest full service renewable energy companies in the United States, with more than two decades of experience. enXco undertakes three core activities: development, operations and maintenance, and asset management services. Since 2002, enXco has been an affiliate of EDF Energies Nouvelles, a French company that specializes in renewable energy with a gross installed capacity of over 3,805 megawatts (MW) worldwide.

enXco's development team has successfully developed projects for clients such as Xcel, MidAmerican, PG&E and SDG&E. To date, enXco has developed nearly 2,000 MW of wind projects and has 89 MW of solar photovoltaic (PV) capacity in operation or under construction in the United States and Canada. enXco has multiple solar PV projects under application on BLM-administered lands.

enXco headquarters are located in San Diego, California, with regional development offices in Minneapolis, Minnesota; San Ramon, California; Portland, Oregon; and Denver, Colorado. enXco also operates a state-of-the-art Operations Control Center in Chandler, Minnesota, monitoring nearly 3,000 turbines across the nation. The company has over 800 employees located in 17 states.

1. Introduction and Summary of Comments

In this letter, enXco has chosen to focus its comments on areas which are of particular relevance to its own projects, namely, the pending projects exemption and certain new restrictions

proposed within the Riverside East and Dry Lake SEZs. Those comments are detailed in the pages below.

However, there are a series of other concerns enXco shares with most if not all of its industry peers regarding other aspects of the SDPEIS, which are separately addressed by the comments of the solar trade organizations to which we belong. Specifically, enXco favors the BLM-preferred Modified Solar Energy Development Program Alternative of the SDPEIS over its Modified SEZ Program Alternative. enXco shares industry concerns over the proposed variance determination process as well, which in our opinion should be driven by consideration of BLM's existing "conflict" criteria of Instruction Memorandum 2011-061, rather than by the criteria proposed in the SDPEIS, which would greatly reduce the likelihood of ever obtaining a variance approval. We also favor addressing desert tortoise impacts on a case-by-case basis instead of by prescriptive quantitative criteria and connectivity maps that appear to have little foundation in existing studies and that, in any event, are likely to change far too frequently to be hard-wired into such a high-level program. Finally, we believe the creation of new SEZs should occur more often than every five years, with a clear right for developers to propose new SEZs outside of regional efforts such as the Desert Renewable Energy Conservation Plan.

2. Pending Applications

The SDPEIS states that pending applications will be subject to "continued processing under existing policies,"[1] including the February 2011 Instruction Memoranda (Nos. 2011-059 to 2011-061). enXco supports the exclusion of pending applications from the terms of the PEIS and its Record of Decision (ROD). However, the SDPEIS does not clearly state the pending projects exemption and some provisions actually contradict it. enXco therefore respectfully requests the following clarifications.

a. Clarify ambiguous language

The SDPEIS states that pending projects will continue to be processed under "existing regulations and policies." However, the PEIS will itself become "existing policy" upon issuance of its ROD. enXco therefore recommends:

- clearly defining "existing regulations and policy" to mean regulations and policies in effect prior to adoption of the PEIS ROD; and

[1] Table 1.7-1, page 1-9.

- adding language to the PEIS and its ROD expressly stating that pending projects are not subject to the PEIS before or after issuance of its ROD, and will instead be processed as though the "no action" alternative had been adopted.

To avoid similar confusion, enXco also recommends qualifying the following provision, "The ROD for the Solar PEIS will recognize all previously approved solar projects"[2] by adding the following clause: "and will expressly exclude pending projects from its terms."

b. Delete express contradictions and modify implicit contradictions

Some language in the SDPEIS contradicts the pending projects exemption and should be deleted. For example, the following provision assumes the PEIS ROD would apply to pending projects:

> Pending applications on lands proposed as exclusion areas for utility-scale solar energy development in the Final Solar PEIS are likely candidates for denial. Upon issuance of the Solar PEIS ROD, the BLM may deny pending applications to the extent such applications overlap with exclusion areas identified in the ROD for the protection of ecological, cultural, visual, or other specified resource values.[3]

enXco recommends deletion of this language because it undermines the pending projects exemption. FLPMA, the 43 C.F.R. Part 2800 regulations, and BLM's February 2011 Instruction Memoranda already provide BLM with the tools it needs to reject pending applications.

Other provisions of the SDPEIS contradict the pending projects exemption by implication. For example, by stating that the BLM may deny pending applications *before* adoption of the PEIS, the following statement creates a presumption that the PEIS will apply to pending projects *after* its adoption: "The BLM may decide to deny pending solar applications before completion of the Solar PEIS ROD if the BLM has a supportable, rational basis."[4] enXco therefore requests replacement of this sentence with the following: "Although BLM will not apply the Solar PEIS to pending solar applications, the BLM still may decide to deny pending solar applications if the BLM has a supportable, rational basis on other grounds."

---

[2] Page 1-12, line 18.
[3] Page 1-11, lines 14-18.
[4] Page 1-10, lines 24-25.

c. Specify how to implement the pending projects exemption

Although the pending projects exemption is a clear concept, its application is less clear, particularly with regard to substantive resource matters. Because the PEIS is a prospective document intended to regulate and facilitate solar development applications submitted after 30 June 2009, enXco recommends the following additions to the SDPEIS to ensure proper implementation:

- language stating that the PEIS maps do not apply to approved or pending project sites unless the approved project is cancelled or the pending project application is withdrawn or rejected. We recommend overlaying approved and pending project boundaries on each of the PEIS maps with a legend item summarizing this concept.

- language stating that neither the maps nor the resource determinations of the PEIS are to inform pending project NEPA analyses, which shall instead independently assess project-specific resource issues on a case-by-case basis.

3. New SEZ Restrictions and Boundary Changes

a. New Riverside East SEZ restrictions and designations

enXco respectfully requests reconsideration of several new restrictions and designations within the Riverside East SEZ.

i. Height restrictions

enXco's 2 May 2011 comment letter on the Draft PEIS discussed at length why the proposed Visual Resource Management (VRM) designations for the Riverside East SEZ are too stringent. The new VRM design features proposed in the SDPEIS also go too far.

Limiting all development within VRM Class II lands, and all solar development within VRM Class III lands, to 10 feet or less[5] would result in unintended adverse consequences without appreciably reducing visual impacts. The design feature would prohibit more efficient tracking PV technologies (which can reach heights of 7.5 meters (25 feet)), resulting in larger project footprints and a corresponding increase in environmental impacts. Moreover, the roughly 15-foot height difference between fixed and tracking PV technologies does not appreciably alter

[5] Page C-58, lines 13-19.

visual resource impacts, particularly when they are viewed from a distance or from above, as in the case of Joshua Tree National Park. Such issues should be addressed on a case-by-case basis instead.

The same holds for another newly proposed design feature requiring the undergrounding of transmission lines in all VRM Class II lands.[6] Undergrounding of transmission lines is often suggested as a form of visual mitigation. But the practice is frequently rendered infeasible by the greater biological, cultural, air quality and noise impacts of construction, the difficulty of access for maintenance, and the roughly 8- to 9-fold additional expense, as the BLM has itself concluded with regard to the Desert Sunlight project. Please refer to the Desert Sunlight ROD, attached hereto as Exhibit A, for a full explication of the infeasibility of undergrounding transmission lines within the Riverside East SEZ. Instead, a programmatic design feature requiring the co-location of transmission lines on the same poles where feasible would be a better solution, as proposed in enXco's 2 May 2011 comment letter on the Draft PEIS.

Finally, limiting all vertical structures to 100 feet or less within VRM Class II and III lands presents significant engineering challenges when conducting voltages as high as those generated by utility-scale solar projects. In many cases a 100-foot limit would be infeasible. Because such limitations vary by project, enXco recommends replacing the 100-foot limitation with a case-by-case standard based on minimum high-voltage engineering standards.

ii. Undevelopable streambeds

Figure C.2.2-2 of the SDPEIS depicts a streambed within the pending Desert Harvest project and the McCoy Wash as "undevelopable," without any justification. However, the wash on the Desert Harvest project site has already been stemmed by a berm constructed along the southern boundary of the approved Desert Sunlight project and no longer flows through the Desert Harvest project site. The designation therefore should be removed.

Categorically prohibiting development over the McCoy wash is overly restrictive. The McCoy Wash is subject to the jurisdiction of the California Department of Game and the U.S. Army Corps of Engineers, agencies that have well-developed regulatory programs for the comprehensive management of jurisdictional streams. Whether development should be allowed to occur across a portion of the McCoy Wash and how it should be mitigated should instead depend on the specific resources associated with the stream as they relate to a given project's site

[6] Page C-344, lines 6-10.

plan, as determined by that project's NEPA review and by the CDFG and the U.S. Army Corps of Engineers.

iii. Wilderness Characteristics

Figure C.2.2-3 of the SDPEIS depicts approximately 11,925 acres of the eastern side of the Riverside East SEZ as having wilderness characteristics based on a 2011 wilderness inventory that is not included in the SDPEIS. enXco questions this designation in light of its apparent departure from the 2010 VRI Class III designation of the same lands and the DPEIS' corresponding proposal not to manage the lands under VRM Class II or III. We also question whether the lands really can be deemed to embody the "naturalness[] and outstanding opportunities for either solitude or primitive and unconfined recreation"[7] required of wilderness when the lands lie in such close proximity to the approved Blythe Solar project, the Blythe Airport and the Town of Blythe.

If the designation remains, however, we recommend that the wilderness characteristics lands identified within the Riverside East SEZ be managed to allow solar development without further restrictions beyond those already identified in the Draft PEIS. A wilderness characteristics designation is an inventory decision, not a management decision. As BLM's own guidance recognizes, a land use plan may "emphasiz[e] other multiple uses as a priority over protecting wilderness characteristics."[8]

Page C-76 the SDPEIS states that, as a result of the new wilderness characteristics designation, "additional analysis of the visual values of these areas may be needed to determine if adjustments to the SEZ-specific mitigation identified in the Draft Solar PEIS are warranted." If the additional visual analysis results in a conclusion that the areas should be designated as "VRM Class II or III consistent," stringent and prohibitively costly visual resource mitigation requirements would apply to this area. Solar energy resource values and uses would be forgone or adversely affected as a consequence, which speaks directly to one of four important factors to consider when deciding whether to prioritize other uses as a priority over wilderness characteristics.[9]

The solar energy resource value of the SEZ lands in question is clear. The Riverside SEZ identifies BLM-administered lands best suited for solar development, based on both energy and

[7] IM No. 2011-154, (25 July 2011); Attachment 1, pp. 4-8.
[8] IM No. 2011-154, (25 July 2011); Attachment 2, p. 1.
[9] IM No. 2011-153 (25 July 2011); Attachment 2, p. 2.

environmental considerations, and refined through public comment after publication in the Federal Register.[10] As such, it is a concrete manifestation of the national energy priorities expressed in the Energy Policy Act of 2005, Executive Order 13212, and Secretarial Order 3285A1. Since its identification, the Riverside East SEZ has already been reduced by 23 percent, with a substantial portion of the remainder subject to exceedingly stringent visual VRM Class II and Class III resource management design standards, even though there is a general consensus among both industry and conservationist groups that it is an appropriate area for solar development. Further reductions or restrictions within arguably the most important of all the SEZs (and perhaps the only remaining SEZ large enough to accommodate multiple projects) run the real risk of undermining the national energy priorities the SEZ embodies. We therefore recommend against further restricting development in the Riverside East SEZ on the basis of the 2011 wilderness characteristics inventory. This approach is consistent with BLM's wilderness characteristics guidance. Moreover, BLM could offset the management decision by prohibiting development in the adjacent wilderness characteristics lands lying outside the SEZ, as identified by the same inventory.

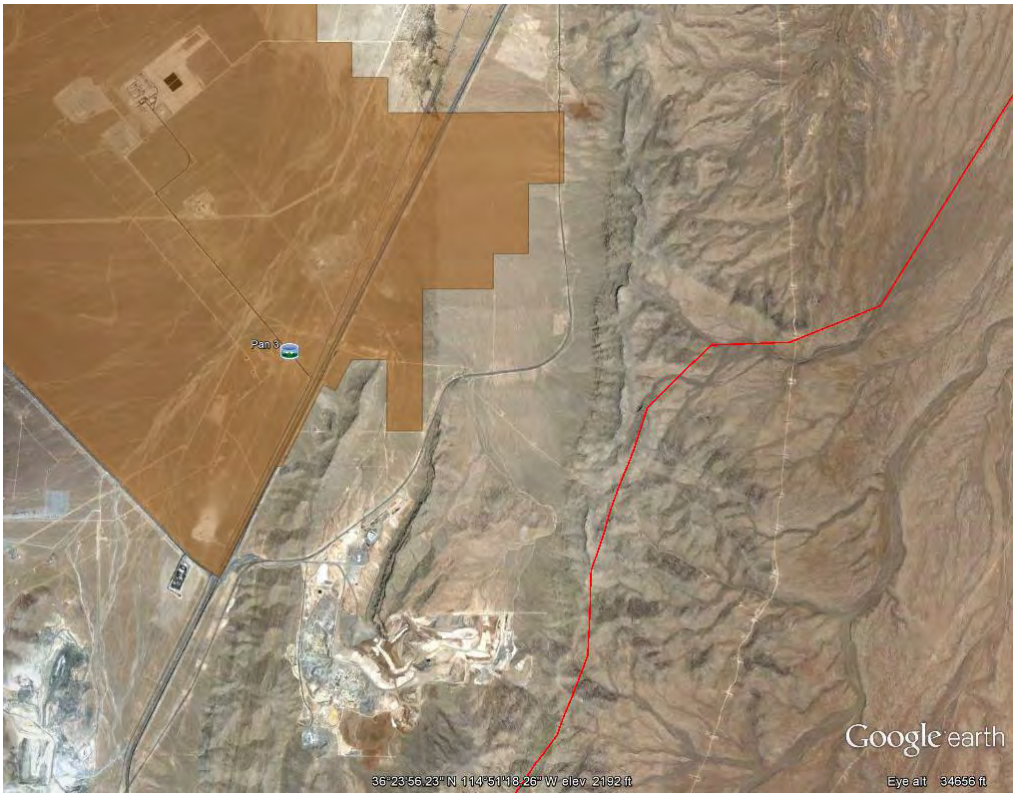
b. Dry Lake SEZ Boundary Change

The SDPEIS proposes removing the portion of the Dry Lake SEZ lying southeast of I-15 due to concerns regarding potential impacts to the Old Spanish National Historical Trail.[11] However, as the KMZ files for the Draft PEIS attest, this portion of the originally proposed Dry Lake SEZ is almost entirely screened from the Old Spanish National Historical Trail by an intervening ridge of the Dry Lake Range (See Figure 1, below). In addition, the trail turns east and away from the SEZ at approximately the same point it reaches the portion of the original SEZ lying southeast of I-15. Moreover, if a viewer follows the trail at ground level on Google Earth, the few mountain-top locations along the trail where the SEZ can be viewed reveal the SEZ lands *west* of the I-15; lands to the east of the I-15 for the most part remain obscured from view due to their close proximity to the base of the intervening ridge. Figures 2 and 3 below illustrate this effect by showing where the trail is visible (in red) from the I-15 (Figure 2) and from the eastern edge of the original SEZ (Figure 3). Because the lands east of I-15 for the most part cannot be seen from the Old Spanish National Historical Trail (and in fact appear to be less visible than the rest of the SEZ), enXco requests their reincorporation into the Dry Lake SEZ.

[10] 74 FR 31307.
[11] C-169, lines 24-27.

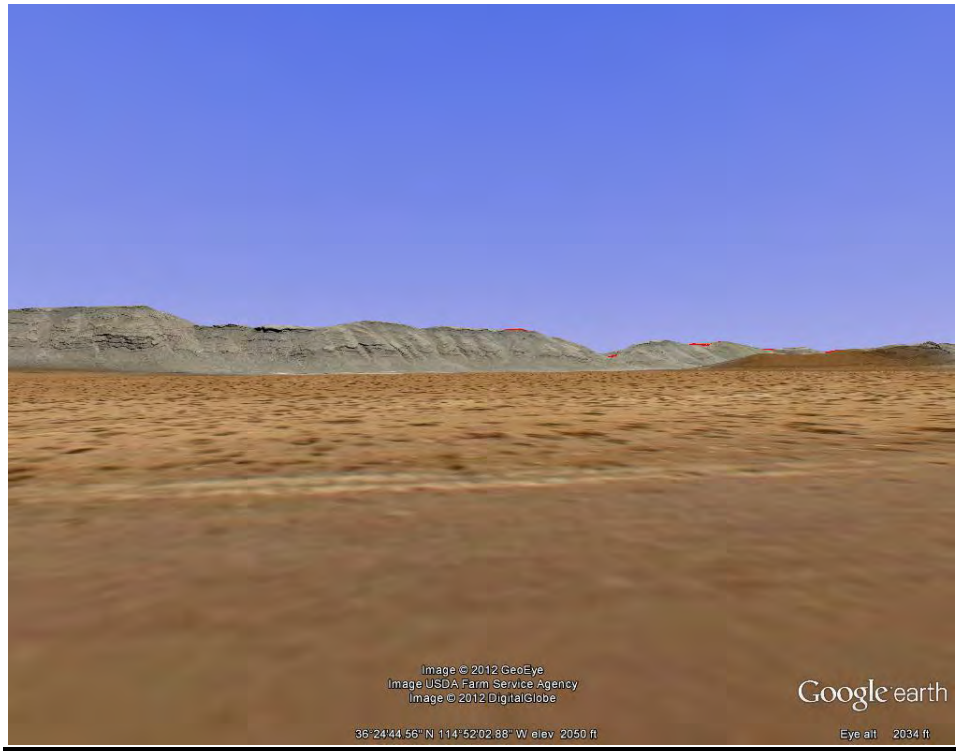
Figure 1

Originally Proposed Dry Lake SEZ and Old Spanish National Trail



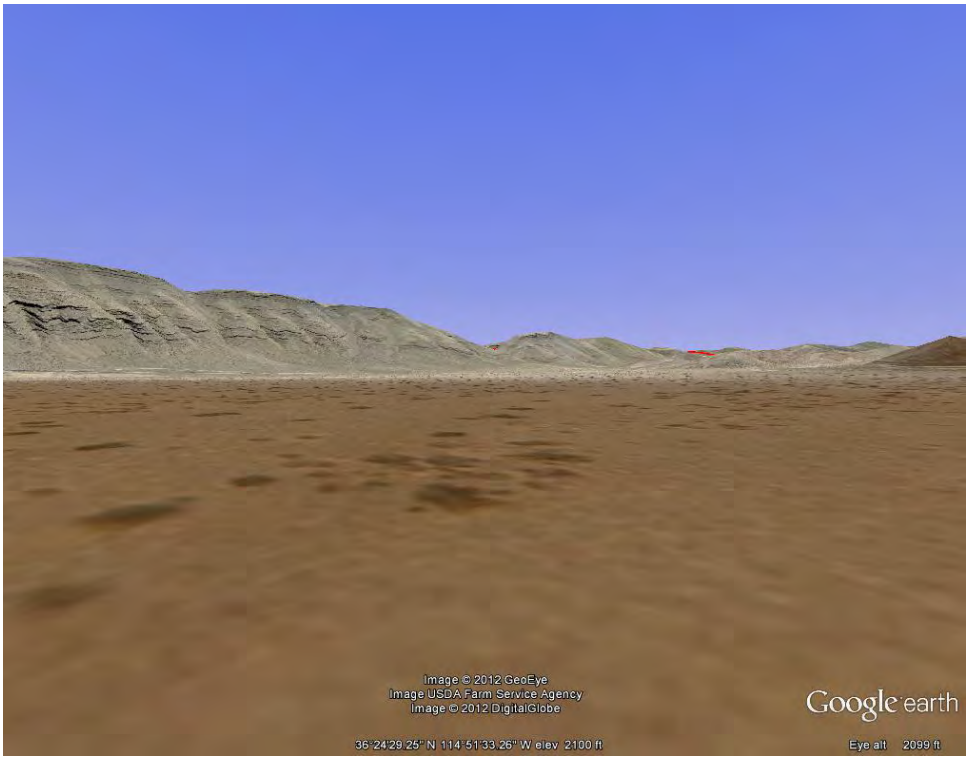
Source: Draft PEIS KMZ Files.

Figure 2
Example of Old Spanish National Trail Segments Visible from I-15



Source: Draft PEIS KMZ Files.

Figure 3
Example of Old Spanish National Trail Segments Visible from
Eastern Edge of Original Dry Lake SEZ



Source: Draft PEIS KMZ Files.

4. Conclusion

enXco sincerely appreciates the efforts of BLM and DOE to promote environmentally responsible solar energy development of BLM-administered lands through the PEIS process. The important modifications we have discussed above will ensure that the PEIS meets the mandates of the Energy Policy Act of 2005, Executive Order 13212, and Secretarial Order 3285A1 by expediting and prioritizing solar development without compromising environmental values, a balance which the multiple use mandate of FLPMA is ideally suited to strike.

Thank you for your time and consideration.

Sincerely,

Ian Black // acb

Ian Black
Solar Development
enXco - an EDF Energies Nouvelles Company

Enclosures

Exhibit A: Feasibility of Undergrounding Transmission Lines

Exhibit A

Feasibility of Undergrounding Transmission Lines

33 percent RPS deadline in 2020. There would have to be a significant acceleration of installation of both distributed and non-distributed generation to meet the goals defined in California's RPS. Large-scale projects play an important role in meeting these goals.

Conclusion. A distributed solar alternative was eliminated from detailed discussion because it does not respond to the BLM's purpose and need for the Proposed Action, which is to respond to Desert Sunlight's application for a ROW grant to construct, operate, and decommission a sPV facility on public lands in compliance with FLPMA, BLM ROW regulations, and other federal applicable laws. Additionally, the Energy Policy Act of 2005 established a goal for the Secretary of the Interior to approve 10,000 MW of non-hydropower renewable energy projects located on public lands. The Act reflects Congress's conclusion that installation of renewable energy technologies on public lands capable of producing at least 10,000 MW is appropriate. Given the current state of the technology, only utility-scale renewable energy generation projects are reasonable alternatives to achieve this level of renewable energy generation on public lands. Furthermore, the BLM has no authority or influence over the installation of distributed generation systems, other than on its own lands.

4.2.9 Underground Installation of Gen-Tie Lines

Underground transmission lines at 230 kV have been installed or are planned to be installed in California by Pacific Gas & Electric Company (its Northeast San Jose, Tri-Valley, and Jefferson-Martin Projects) and by San Diego Gas & Electric Company (its approved Otay Mesa and Sunrise Powerlink Projects). These lines, or portions of them, have been installed underground either due to congested urban areas where there is inadequate space for overhead high voltage lines, or (in the case of Tri-Valley and Jefferson-Martin) to reduce visual impacts in scenic areas.

While underground lines would reduce the visual effects of the transmission lines, they have several disadvantages with respect to their environmental impacts. The impacts are driven mostly by construction disturbance. The construction of underground transmission lines requires substantial ground disturbance to install the trench and cables. The least amount of disturbance would occur when installing the gen-tie line within a paved roadway. However, when adding the lengths of all three gen-tie line alternatives, there are only approximately 6 miles out of a total of approximately 30 miles that would fall within a paved roadway. The remaining 24 miles would be within a dirt road or undisturbed desert.

The trench for a 230-kV line could vary from about 3 feet to 6 feet wide depending on the configuration of the cables within the trench. A construction work area from 25 to 50 feet wide is required parallel to the trench for construction equipment, resulting in temporary disturbance to habitat. In unpaved areas, the area above the trench (generally a 20 or 25-foot-wide road) would have to remain clear and accessible for the life of the project, a permanent loss of habitat.

In addition, First Solar provided a report entitled "Gen-Tie Undergrounding Report; Desert Sunlight Solar Farm Project" (First Solar, 2011), which summarized underground installations in the U.S. and presented potential design for the underground gen-tie. The report also listed additional concerns, including the potential for third-party construction damage to the buried facilities, concerns about additional time required to repair the line in the event of an outage, and

limitations on expansion for future additional lines. Cost is also a major concern to the developer, since construction of underground transmission lines costs up to 8.5 times more than overhead lines. These increased costs negatively affect the Project's financial viability, especially when coupled with the considerable technical and environmental risks involved with underground transmission line design.

The First Solar report presents a concern about underground lines: that expansion of the capacity of a transmission line, or addition of future circuits, would be more difficult. The report also explains that the addition of future circuits could be accommodated by increasing cable spacing or constructing a larger duct bank (leaving empty spaces for future cables), or by construction of a parallel duct bank separated by an adequate distance to allow heat dissipation. These approaches would also increase construction cost.

Underground transmission lines are less accessible than overhead lines, so line maintenance is more challenging. It is more difficult to know where an outage has occurred, so outages of an underground line can be more time-consuming both to find the problem and to repair it.

Conclusion. BLM and the CPUC have evaluated the information included in First Solar's report and have determined that, based on the Agencies' own experience, expertise and research, undergrounding DSSF's Gen-Tie Lines would be infeasible. Although the technology for underground transmission lines is available and has been used to reduce visual impacts and to avoid overhead construction through congested areas by major utilities in California, the increased environmental impacts that would result in other resource areas does not justify the use of undergrounding in this case. Specifically, the lack of adequate paved roadways for installation of the Gen-Tie Lines serving the DSSF would result in substantially greater impacts in biological resources, cultural resources, air quality, and noise than for the overhead gen-ties. The additional costs and technical risks associated with undergrounding also make it undesirable under these conditions. As a result, the underground gen-tie alternative has been eliminated from detailed consideration.

~~4.3 Environmentally Preferred Alternative~~

~~The environmentally preferred alternative would be the No Project Alternative with Plan Amendment to Identify the Area as Unsuitable for Solar Development (Alternative 5). This alternative would not allow development of the proposed project or other solar energy generating projects and would have no impacts on the ground within the Project Study Area. However, this alternative would not allow the development of renewable energy, which is a national priority. As such, this alternative was not chosen in full by the BLM, rather, a portion of the alternative was approved which made the remainder of the Project Study Area unavailable to solar development due to resource conflict.~~

~~4.4 Agency Preferred Alternative / Selected Alternative~~

~~The BLM's preferred alternative is the Proposed Action Alternative with Land Use Plan Amendment (Alternative 1) – SF-B, GT-A-1, and Substation A with Access Road 2; or~~

Thank you for your comment, Elizabeth Cross.

The comment tracking number that has been assigned to your comment is SEDDsupp20142.

Comment Date: January 27, 2012 16:56:11PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20142

First Name: Elizabeth
Middle Initial:
Last Name: Cross
Organization:
Address:
Address 2:
Address 3:
City:
State:
Zip:
Country:
Privacy Preference: Don't withhold name or address from public record
Attachment:

Comment Submitted:

Please PLEASE do NOT open up ANY public lands to PRIVATE for profit corporations for solar development. There are other ways to make the needed switch to sustainable energy resources.

Thank you!

Thank you for your comment, Steve Saway.

The comment tracking number that has been assigned to your comment is SEDDsupp20143.

Comment Date: January 27, 2012 17:12:56PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20143

First Name: Steve
Middle Initial:
Last Name: Saway
Organization:
Address: 533 Suffolk Drive
Address 2:
Address 3:
City: Sierra Vista
State: AZ
Zip: 85635
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Solar PEIS January 27 comment letter.docx

Comment Submitted:

January 27, 2012

533 Suffolk Drive
Sierra Vista, AZ 85635

Solar Energy Draft PEIS
Argonne National Laboratory
9700 S. Cass Avenue
EVS/240
Argonne, IL 60439

Dear Sir:

I have reviewed the Supplement to the Draft Solar Programmatic Environmental Impact Statement (PEIS) and offer the following comments.

1. Since the Solar PEIS process began, I have participated in each opportunity for public comment. I wish to refer back to my previous comments submitted on July 14, 2008; July 8, 2009; September 14, 2009; and May 2, 2011. I stand by the concerns and suggestions included in those documents and believe they are still largely relevant to this stage of the process. In this letter, I will highlight some specific concerns and bring forward some new information for your consideration.

2. The Supplement identifies the preferred alternative as the Modified Solar Energy Development Program Alternative. This alternative provides flexibility to identify additional solar energy zones (SEZs) and allows for utility scale solar development in variance areas outside of SEZs. I concur with the proposed protocol for identifying new SEZs (section 2.2.2.2.5) and the intent to use the Arizona RDEP process for identifying new or expanded SEZs. It should be noted that the RDEP's emphasis on use of previously disturbed lands has been well received and should result in less controversy and conflict with other public land values. Regarding the selection of variance areas outside of SEZs, I believe this is best done at the state and field office level, not at the national Solar PEIS level. For example, in Figure 2.3-1, the Supplement identifies about 3.4 million acres of Arizona BLM lands available for solar application outside of SEZs for the Modified Solar Development Program. However, of these lands, a large portion (west and southwest of the Gillespie SEZ) has been identified in the Lower Sonoran Draft Resource Management Plan (RMP) as avoidance areas for utility scale renewable energy development, i.e., these are high and moderate sensitivity areas (please refer to Map 2-7e, Alternative E, Utility Scale Renewable Energy Conflict Areas, in the Draft RMP). See also Appendix N, Analysis for Renewable Energy Sensitivity, in the Draft RMP. Info on the Draft RMP is available at this link: http://www.blm.gov/az/st/en/fo/lower_sonoran_field.html. Thus, I recommend the BLM rely on the Arizona RDEP to identify appropriate variance areas outside of SEZs. The Arizona RDEP process not only looks at

previously disturbed lands, but also looks across multiple jurisdictions and could result in a broader range of suitable lands for solar energy development. Conceivably, it could facilitate joint agreements between the BLM and Arizona State Land Department for solar development on BLM and State Trust Lands that are adjacent to each other.

3. Regarding the Supplement, Table 2.2-1 (Revised Areas for Exclusion under the BLM's Modified Solar Energy Development Program), I believe additional exclusion areas should be identified as follows: (a) High Value Recreation Settings; (b) Transportation and Public Access Routes; (c) Areas of Known Mineral Deposits, and (d) High Value Conservation Lands. This is particularly important since BLM will use incentives to steer developers to use the SEZs, thus making it critical that exclusion areas are properly identified to avoid conflicts with other public land uses and values. Also, item 29 in Table 2.2-1 could be revised as follows to allow greater flexibility to identify exclusion areas: Individual additional areas identified by BLM State or field offices as requiring exclusion due to ecological, conservation, cultural, mineral, recreational, or public access concerns. In my view, a good example of Arizona BLM lands that should qualify for exclusion are those identified at this link: http://www.sonoranheritage.org/.

4. In my previous comments, I identified concerns with the location and impacts of the Gillespie SEZ. The recent release of the Lower Sonoran Draft RMP offers additional reasons to reconsider the Gillespie SEZ. They are: (1) the location of this SEZ is within lands identified as avoidance areas for utility scale renewable energy development (see Map 2-7e cited in para 2 above); (2) the SEZ is located within a proposed Special Recreation Management Area (see Map 2-12e, Alternative E, Recreation Management); and (3) the SEZ is located on and adjacent to the proposed Agua Caliente Back Country Byway, (see Map 2-16e, Alternative E, Special Designations). (Please see also Appendix N, Analysis for Renewable Energy Sensitivity, in the Draft RMP.) In the Supplement, Table 2.2-1 (Revised Areas for Exclusion under the BLM's Modified Solar Energy Development Program) indicates that SEZs would be excluded from Special Recreation Management Areas and National Back Country Byways. It should also be noted that Appendix C (section C.2.1 Gillespie) in the Supplement identifies a significant number of adverse impacts of the Gillespie SEZ, including the following: "Inventoried off-highway vehicle routes in the SEZ would be closed to recreational use; there could be a loss of recreational use in the nearby WAs and SRMA." The potential closure of Agua Caliente Road and other inventoried routes is a major concern of mine. I belong to a hiking club that enjoys hiking and camping in the BLM lands south and west of the Gillespie SEZ, including the Woolsey Peak and Signal Peak Wilderness Areas (which are components of the National Landscape Conservation System). It is critical that public access is retained along Agua Caliente Road and along these inventoried routes, as they are the primary access routes to these wilderness areas. These routes are also important for the grazing permittee to access lands within grazing allotments that lie south of Agua Caliente Road. The Appendix C does not specifically address mitigation measures for potential loss of these access routes,

but it should. Agua Caliente Road is an improved county road that provides critical access to BLM lands and private property along its 49 miles. Please see my comment letters of May 2, 2011 and September 14, 2009, which identified key access routes that must remain open for public access. Appendix C is silent on any mitigation measures to ensure continued public access along these routes, and frankly, this appears to trivialize the public's need for access and recreational use in this area.

5. In summary, I would like to offer the following suggestions regarding the Gillespie SEZ:

a. Delete the Gillespie SEZ from further consideration based on its inconsistency and incompatibility with the Lower Sonoran Draft RMP (including its inconsistency with stated exclusion areas identified by the Supplement) and based on the numerous concerns and adverse impacts identified by public comments. Development of infrastructure in this area will affect the integrity and scenic values of the landscape, degrade the view shed of nearby wilderness areas and the Sonoran Desert National Monument, fragment open space and wildlife corridors, create more risk of invasive weeds and PM-10 dust issues, and could close public access routes that are critical for public land users who visit and recreate along Agua Caliente Road. The fact that the Gillespie SEZ lies in the Phoenix Active Management Area (AMA) will constrain the permitting process for groundwater use and would seem to argue that suitable locations for SEZs should exclude AMAs.

b. Another option is to delete the Gillespie SEZ from the Solar PEIS and defer further study to the Arizona RDEP process. Possibly, the RDEP process could find a more suitable location north of the Agua Caliente Road using a combination of BLM and State Trust Lands.

c. If the ultimate decision is made to retain the Gillespie SEZ in the Solar PEIS, then please consider adjusting the boundaries of the Gillespie SEZ so that its footprint excludes Agua Caliente Road and inventoried routes that go south from it. It should be noted that moving the Gillespie SEZ further north of Agua Caliente Road would reduce the distance needed to connect the SEZ to its transmission line.

Thank you for the opportunity to submit these comments. Please keep my name on your mailing list for future updates and notices of public comment periods.

Sincerely,

//signed//

Steve Saway

Thank you for your comment, Ann McPherson.

The comment tracking number that has been assigned to your comment is SEDDsupp20144.

Comment Date: January 27, 2012 17:26:16PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20144

First Name: Ann
Middle Initial: K
Last Name: McPherson
Organization: U.S. Environmental Protection Agency
Address: Region 9, CED-2
Address 2: 75 Hawthorne Street
Address 3:
City: San Francisco
State: CA
Zip: 94105
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: EPAComments.SolarSDPEIS.01.27.12.PDF

Comment Submitted:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 27 2012

Department of the Interior
Bureau of Land Management
Attn: Ms. Linda Resseguie
BLM Solar PEIS Project Manager
1849 C Street, N.W., Room 2134LM
Washington DC, 20240

Subject: Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States [CEQ# 20110361]

Dear Ms. Resseguie:

The U.S. Environmental Protection Agency (EPA) has reviewed the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States, including Arizona, California, Colorado, Nevada, New Mexico, and Utah. Our review was conducted pursuant to Section 309 of the Clean Air Act, the National Environmental Policy Act, and the Council on Environmental Quality NEPA implementing regulations (40 CFR Parts 1500-1508).

EPA recognizes the challenges associated with the development of the new Solar Energy Program and we strongly support the Bureau of Land Management (BLM) and Department of Energy (DOE) in this endeavor. In light of this undertaking and the large number of solar and other renewable energy projects that have been proposed in the Pacific Southwest, we were very pleased to enter into a Memorandum of Understanding with BLM last month to coordinate and cooperate on the NEPA process for renewable energy projects on federal lands administered by BLM in California, Arizona, and Nevada. Accelerating the pace of solar energy development on public lands in America will help meet the nation's energy demand, while reducing the amount of greenhouse gas emissions necessary to do so. To minimize adverse consequences and streamline project deployment, such projects should be directed away from areas of high conflict and sensitive resources, and towards areas of low conflict, including previously disturbed, degraded, or contaminated lands, sites adjacent to such lands, and locations that minimize the need for construction of new roads and transmission lines. This is consistent with the goals of recent Presidential directives designed to expedite the processing of renewable energy and infrastructure development projects through more efficient and effective permitting and environmental reviews. BLM's programmatic approach provides an excellent venue for thoughtful planning to avoid and minimize unnecessary environmental trade-offs at the project level.

We are pleased to see that the Supplement addresses several of the issues raised in our previous comments. Most importantly, BLM has made substantial progress in characterizing critical components of the new Solar Energy Program and in better identifying those areas within the Solar Energy Zones (SEZs) that are best suited for utility-scale solar energy development. Of significance, BLM has modified its preferred alternative to ensure that SEZs are not located in high conflict areas, reducing the number of zones from 24 to 17 and the corresponding acreage from 677,384 to 285,417 acres. The Supplement also establishes a protocol for identifying new SEZs in the future and discusses incentives designed to make development inside SEZs more attractive to industry.

Printed on Recycled Paper

However, we do have some concerns, and look forward to working with you on these issues. These concerns are addressed further in the enclosed detailed comments. For example, EPA recommends that BLM focus on identifying and incorporating disturbed, degraded or contaminated lands into the new Solar Energy Program. According to the Supplement, the identification of disturbed or previously disturbed sites is listed as a factor that will be considered in both the proposed identification protocol for new SEZs, as well as the proposed variance application process (pg. 2-29; 2-35). We recommend that more emphasis be placed on identifying and on siting future projects on disturbed, degraded, and contaminated lands, and that BLM and DOE offer additional incentives for development on such sites. We also recommend that BLM and DOE work with the Bureau of Indian Affairs to engage tribal governments to determine if there is interest in developing future SEZs on tribal land in light of recent proposed regulations for surface leases of trust land for energy and other uses.

Based on our review, we have rated the document as *Environmental Concerns - Insufficient Information* (EC-2). We appreciate the opportunity to provide comments on the Supplement to the Draft PEIS, and look forward to working closely with BLM and DOE to address the issues that we have identified. If you have any questions, please contact me at 415-972-3843, or contact Ann McPherson, the lead reviewer for this project. Ann can be reached at 415-972-3545 or mcpherson.ann@epa.gov.

Sincerely,

Enrique Manzanilla, Director
Communities and Ecosystem Division

Enclosures: Summary of EPA Rating Definitions
Detailed Comments

Cc: Jim Kenna, State Director, Bureau of Land Management, California State Office
Amy Lueders, State Director, Bureau of Land Management, Nevada State Office
Ray Suazo, State Director, Bureau of Land Management, Arizona State Office
Jesse Juen, State Director, Bureau of Land Management, New Mexico State Office
Juan Palma, State Director, Bureau of Land Management, Utah State Office
Helen Hankins, State Director, Bureau of Land Management, Colorado State Office
Tracey A. LeBeau, Director, U.S. Department of Energy, Office of Indian Energy Policy and Programs
Steve Black, Counselor to Secretary of the Interior, U.S. Department of the Interior
Janea Scott, Special Assistant to the Counselor, U.S. Department of the Interior
Michael Picker, Senior Advisor on Renewable Energy Facilities, State of California Governor's Office
Karen J. Atkinson, Director, Indian Affairs, U.S. Department of the Interior

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 SUPPLEMENT TO THE DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR SOLAR ENERGY DEVELOPMENT IN SIX SOUTHWESTERN STATES, JANUARY 27, 2012

Variance Process

EPA supports BLM's proposal to reevaluate the need for additional SEZs in the variance areas at least every five years. Focusing solar development within SEZs offers many benefits, including reducing environmental impacts and streamlining the environmental review and permitting process. The establishment of new SEZs should better enable BLM's field offices to guide projects to more suitable locations. According to the Supplement, the variance process for projects proposed to be sited outside of SEZs includes two pre-application meetings, submission of a ROW application, submission of a Plan of Development, and various BLM coordination activities (pgs. 2-33 to 34). We are unclear, however, how the variance process specifically differs from BLM's current procedures for processing ROW applications.

Recommendations:
Clarify in the Final PEIS how the variance process will differ from the methods that BLM currently uses to process ROW applications. For example, the Final PEIS should describe whether future applications for projects located in SEZs would receive priority attention over applications in variance lands. If a proposed project does not utilize disturbed, degraded or contaminated variance land, BLM should consider requiring the developer to evaluate project alternatives within an SEZ in the applicant's Plan of Development and, if appropriate, in the project level NEPA analysis.

Greater Focus on Disturbed, Degraded, and Contaminated Lands

In our previous comments on the Draft PEIS, EPA committed to provide a list of contaminated sites tracked in our databases that are located in or near BLM-administered lands considered in the Solar PEIS. We have identified 25 sites, including two sites within the boundaries of the Solar Energy Development Alternative, using the boundaries presented in the Draft PEIS. Ten of the 25 sites are located within two miles of the Solar Energy Development Alternative area and one site is located within one mile of the Dry Lake SEZ. These sites are included in a table at the end of these Detailed Comments. Other federal, state, tribal, and local agencies, as well as the public, may be able to identify additional sites that should be considered for solar development.

Recommendations:
Expand the search for disturbed, degraded, and contaminated lands to include public, private, and tribal lands.

Work with the Nevada Department of Environmental Protection and other state agencies to examine recently active, but currently closed, mine sites on BLM land suitable for solar energy development and publish these sites in the Final PEIS.

Consider creating an Internet-based portal to allow for continuous input from other federal, state, tribal, and local agencies and the public, aimed at identifying lands that are disturbed, degraded or contaminated. Use this portal to begin to create a comprehensive inventory of such sites so that developers can be directed to these sites in the future.

Extend the same incentives designed to steer development to SEZs to disturbed, degraded or contaminated sites.

Include the list of contaminated sites identified by EPA in the Final PEIS, along with additional information about the sites and a preliminary determination as to their suitability for solar development.

Consider whether the boundaries of the Dry Lake SEZ should be adjusted to incorporate the site on EPA's list of contaminated sites that is located 0.65 miles from that SEZ.

Add the following sentence as a footnote to the RE-Powering America's Land Initiative on page 2-35: "EPA and other parties have or will continue to characterize and cleanup these sites to ensure they are protective for people."

Processing of Existing Solar ROW Applications

As of August 15, 2011, there were 79 pending solar applications. According to the Supplement, BLM intends to continue to process all pending applications that meet due diligence and siting requirements under BLM's current policies, and that pending applications on lands proposed as exclusion areas are likely candidates for denial.

We believe that future efforts should be focused on the designation of new SEZs and the identification of disturbed, degraded, and contaminated lands. Not allowing projects in exclusion areas will allow state and federal agencies to be more selective about lands to be utilized for development and should provide BLM with a better opportunity to evaluate the effectiveness of the Solar Energy Program.

Recommendations:
Disclose in the Final PEIS the numbers of pending applications that are located within the SEZs, variance lands, and exclusion areas, and include maps to illustrate the locations of the active ROW applications.

Provide clear and strong preference to project applications in SEZs with few resource constraints and on disturbed, degraded, and contaminated lands.

Competitive Bidding

The Supplement states that BLM may, through rulemaking, establish a competitive process that results in the immediate issuance of a ROW lease authorization to the successful bidder (pg. 2-23).

Recommendation:
Describe the competitive process in the Final PEIS more fully and clarify when the appropriate environmental analysis would be completed.

SEZ-Specific Action Plans – Appendices C.1 to C.6

EPA appreciates the inclusion of action plans for each of the SEZs, describing the changes that have been made to the SEZs, as well as outlining the additional information that will be collected (Appendix C.1 to C.6). According to the Supplement, some of the items identified in the action plans will be completed by BLM and presented in the Final PEIS. Data collection efforts not completed by BLM, however, would likely be required of developers as part of site-specific tiered analysis for future projects.

Recommendation:
Clarify in the Final PEIS when data will be collected in conjunction with the SEZ-specific action plans and how that data will be integrated into the decision-making process and/or presented if it is collected subsequent to the publication of the Final PEIS. For example, explain how stakeholders will be informed of newly designated 'non-development' areas in the SEZs.

The first section of each SEZ-specific action plan includes a summary of potential impacts identified in the Draft PEIS, followed by recommendations for additional data collection. Some recommendations on additional data collection are applicable to most, if not all, of the SEZs. EPA recommends one addition to the Water Resources section of each SEZ-specific action plan, as noted below.

Recommendation:
Include a functional assessment of waters of the U.S. to evaluate and disclose the existing condition of such waters and any potential adverse effects from solar development.

We are pleased to see that 'non-development' areas have been specified in many SEZs to avoid surface water features. Due to the scale of the maps, however, it is difficult to tell the size of these areas relative to the water resources they are protecting, or whether a buffer has been included in the area specified as 'non-development.'

Recommendations:
Provide more detailed information in the Final PEIS on the avoidance of surface water features, particularly as it relates to 'non-development' areas within SEZs, including whether or not a buffer has been included in such areas.

Establish 100-foot buffer zones[1] to avoid adverse impacts to water quality or hydrology of streams, wetlands and riparian areas. Larger buffers may be necessary depending on resources, landscape position, and surrounding land use.

[1] A 100-foot buffer for waters was proposed in the West Chocolate Mountains Renewable Energy Evaluation Area DEIS (June 2011).

Revised Transmission Analysis – Appendix C.7.1

We are pleased to see that BLM proposes to complete additional analyses of transmission needs for the SEZs being carried forward in the Final PEIS. According to the Supplement, this analysis will address transmission access issues associated with the SEZs and the extent of new transmission development that might be needed to support solar energy generation within the SEZs (pg. C-321). While the Supplement contains a commitment that the Final PEIS will include a more detailed evaluation of the transmission needs and impacts for anticipated solar development within the SEZs (pg. 2-25), it does not commit to addressing impacts associated with anticipated transmission line development (Section C.7.1).

Recommendation:
Include in the Final PEIS a general description of the types of impacts associated with upgrading transmission infrastructure or building new lines, along with a commitment that future project-specific NEPA analyses will address such impacts during the review of the proposed solar energy facilities.

Water Resources Action Plan – Appendix C.7.2

We appreciate the inclusion of the Water Resources Action Plan (Appendix C.7.2), which outlines seven main action plan items relating to water resources that apply to all SEZs going forward. We are pleased to see that the WRAP states that a planning-level inventory of water resources will be presented in the Final PEIS, as we recommended previously. The WRAP lists products that will be developed and sources of information that will be utilized for this inventory, such as Google Earth links to specific datasets.

Recommendations:
EPA recommends that BLM also utilize Google Earth to assist in mapping waters by including aerial photo interpretation at an appropriate scale.

Specify in the Final PEIS when the Floodplain Determinations, Jurisdictional Waters Determinations, and Significant Ephemeral Waters Determinations will be completed and how this information will be integrated into the decision-making process for the SEZs, particularly if these items are completed after the publication of the Final PEIS.

The WRAP states that the following seven SEZs will benefit from a more quantitative analysis of groundwater impacts including: Afton, Amargosa Valley, Brenda, Dry Lake, Dry Lake Valley North, Imperial East, and Riverside East. We support BLM's commitment to perform quantitative analyses of the potential drawdown impacts in certain SEZs; however, it is not clear how the seven SEZs listed in Section C.7.2 were selected for analysis. Our Draft PEIS comments expressed concern regarding groundwater impacts in the Escalante Valley and Milford Flats South SEZs, where subsidence has already been observed in association with excessive groundwater withdrawal. Development of a numerical groundwater model is listed in the SEZ-specific WRAP for Escalante Valley and Milford

Flats South, and we suggest clarification as to whether this is a different level of modeling than that described in Section C.7.2, or whether the two SEZs were inadvertently left off the list.

Recommendations:
Clarify in the Final PEIS whether additional groundwater modeling will be conducted in the Escalante Valley and Milford Flats South SEZs and if this is part of the general WRAP, or SEZ-specific action plans.

Perform additional quantitative analyses for the Escalante Valley and Milford Flats South SEZs.

Identify in the Final PEIS the criteria used to determine when a quantitative analysis is appropriate for an SEZ, and consider including situations where water availability is already limited to the point that wet-cooling options would not be feasible as one criterion.

Groundwater Impacts

EPA believes that there is the potential for adverse impacts to the long-term availability of groundwater in many SEZs, considering the quantities needed for maximum build-out and the potential impacts associated with pumping groundwater in these basins.

Recommendations:
Clearly identify in the Final PEIS the quantity of groundwater withdrawal allowable in each SEZ, and describe impacts associated with lowering of the water table.

Consider further restrictions on solar technology within SEZs in exceptionally arid regions, such as Afton, by limiting development to low water-use technologies such as photovoltaic systems.

EPA is particularly interested in the groundwater withdrawal in the Amargosa Valley SEZ. Groundwater withdrawals for construction and operation at full build-out capacity far exceed the available groundwater supply in this SEZ. Moreover, the basin is currently over-allocated and groundwater withdrawals have been curtailed due to restrictions protecting water rights at Devils Hole. In addition, it is currently not possible to model the extent that continued groundwater pumping will impact water levels at Devils Hole and Ash Meadows National Wildlife Refuge.[2] Regional groundwater models indicate that groundwater levels at Devils Hole are steadily declining and may reach critical levels in the near future. Small declines in spring discharge or changes in water temperature or water chemistry resulting from groundwater withdrawals in the basin may affect threatened and endangered species at Ash Meadows NWR. Consequently, it is likely that full build-out would have significant impacts to groundwater resources and groundwater-dependent species.

[2] Draft Environmental Impact Statement for the Amargosa Farm Road Solar Energy Project. See internet address: http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/las_vegas_field_office/energy/amargosa_farm_road3.Par.28872.File.dat/Chapter%204%20-%20Environmental%20Effects.pdf

Recommendation:
Given the over-appropriation of groundwater resources and the presence of special-status species, particularly in Ash Meadows NWR, EPA recommends that BLM eliminate the Amaragosa Valley SEZ and exclude this land from further development.

Air Quality

Our comments on the Draft PEIS recommended that additional information on Dust Abatement Plans and soil stabilization techniques be included in the Final PEIS to address potential adverse air quality impacts predicted by air quality modeling. The action plans presented in Appendix C, however, do not address the data gaps that we have referenced. In fact, the Supplement states that no additional air quality information is needed for any of the SEZs. EPA is concerned about cumulative impacts of fugitive dust, and we reiterate our recommendation to document the potential for cumulative air quality impacts of solar energy development, particularly on Class I areas. Fugitive dust mitigation techniques may fall within the scope of the design features, which will be updated in the Final PEIS. If this is the case, we look forward to seeing this additional information at that time.

Recommendations:
Present further information in the Final PEIS on Dust Abatement plans and soil stabilization techniques.

Document in the Final PEIS the potential for cumulative air quality impacts related to solar energy development, particularly on Class I areas.

Wind erosion is a major issue in the planning area. Construction of large solar energy projects could result in an increase in wind-borne particulate matter, which can lead to dust storms. Dust particles in the air can lead to a number of respiratory problems, asthma especially. Children, in particular, have greater sensitivities to various environmental contaminants, including air pollutants. Construction emissions could exacerbate existing conditions, such as asthma, for children, the elderly, and those with existing respiratory or cardiac disease. EPA suggests that BLM consult with the U.S. Department of Agriculture to identify soils that may be vulnerable to wind erosion. Any areas or regions that are determined to be particularly susceptible to wind erosion should be excluded from development, and this exclusion criterion should be added to Table 2.2-1. We suggest utilizing the New Mexico Wind Erosion Prediction Guide[3] to gain an understanding of the wind erosion process and how to identify areas that are susceptible to wind erosion.

Recommendations:
Consult with the USDA to identify soils that may be vulnerable to wind erosion and exclude from development areas that are determined to be particularly susceptible from development.

Consider including 'lands with vulnerability to wind erosion' as an exclusion criterion in Table 2.2-1.

[3] See Internet address: http://www.nm.nrcs.usda.gov/technical/fotg/section-1/references/weq-prediction-guide.html

Environmental Justice

In our comments on the Draft PEIS, EPA raised concerns over the methodology used to identify potential low-income and minority communities located near proposed SEZs, and we made several recommendations to improve the analysis. We recommended that BLM remove the state-wide analysis and utilize a lower threshold for the SEZ-specific analysis to define low-income and minority populations that are meaningfully greater than the state average. The SEZ-specific action plans, however, state that no additional information is needed regarding environmental justice issues.

Recommendations:
Revise and update the EJ analysis to provide more accurate analysis of impacted areas and comparisons with state demographics, both for minority percentages and low-income rates.

Include additional design features that address EJ concerns in the Final PEIS.

Cumulative Impacts

The Supplement discusses cumulative impacts briefly in Section 2.3.5, incorporating by reference the cumulative impact analysis presented in the Draft PEIS. The Supplement states that the cumulative impacts analyses for individual SEZs will be updated in the Final PEIS. Overall, BLM expects direct and indirect impacts, and therefore cumulative impacts, to be of lesser magnitude than was contemplated in the Draft PEIS. The Supplement also states that cumulative impacts may be more concentrated and/or severe within individual SEZs than was described in the Draft PEIS. In most cases, little or no information was presented in the Draft PEIS in support of these conclusions, nor were thresholds identified to determine significance.

Recommendations:
Address EPA's comments on the Draft PEIS concerning the cumulative impacts analysis, as presented in our comments on the Draft PEIS.

Describe the condition of the resource(s) and the time required for the resource(s) to recover from the impact of the proposed action, in conjunction with other past, present, and reasonably foreseeable future actions, in the Final PEIS.

Provide data to support the Supplement's assumption that direct, indirect, and cumulative impacts would be small to minor based on mitigation, as well as the Supplement's conclusion that cumulative impacts are likely to be of lesser magnitude than was contemplated in the Draft PEIS.

DOE's Proposed Programmatic Environmental Guidance

DOE's Proposed Programmatic Environmental Guidance is also presented in the Supplement. Using the guidance, DOE will select where to make technology and resource investments to minimize the environmental impacts of solar technologies. A second element of the guidance allows DOE to establish

environmental mitigation recommendations for project proponents who are seeking financial assistance from DOE. EPA is pleased to have the opportunity to review DOE's Proposed Programmatic Environmental Guidance and offers the following recommendations regarding Section 3.2.4, Water Resources and Erosion Control, as detailed below. We suggest replacing the word 'consider' and revising the language as follows:

- Bullet #1: **Give precedence to** technologies that minimize water use.
- Bullet #2: **Promote** sustainable use of water resources through appropriate technology selection **and implementation of** conservation practices that **protect and preserve the function, acreage, and quality** of the existing natural water bodies (including streams, wetlands, ephemeral washes, **microyphyll woodlands,** and floodplains, as well as groundwater aquifers).
- Bullet #4: Avoid locations that would involve impacts on surface water bodies, ephemeral washes, playas, **microphyll woodlands,** and natural drainage areas (including groundwater recharge areas).
- Bullet #11: **Contact the U.S. Army Corps of Engineers to discuss the reach and extent of waters of the U.S. on the proposed project site. Present a reasonable range of onsite and offsite alternatives and an analysis that evaluates alternatives to avoid impacts to waters in compliance with Section 404 of the Clean Water Act.**
- Bullet #12 (new): **Avoid impacts to waters of the U.S., including indirect impacts to waters of the U.S. located off the project site.**

EPA Tracked Sites located in the No-Action Alternative, as defined by the Draft PEIS.

Program	EPA_ID/ BF ACRES Property ID	Site ID/ BF Grant IDs	Site Name	Latitude	Longitude
Federal Superfund	NMD980750020	600911	LEE ACRES LANDFILL (USDOI)	36.711100	-108.092100
Abandoned Mine Land	NMD986684231	604718	STEPHENSON - BENNETT MINE	32.403000	-105.402000
Abandoned Mine Land	NM0001408608	605033	HORIZON POTASH MINE	32.425000	-103.760000
Abandoned Mine Land	UTN000802138	802138	OPERATION MINE SHAFT	37.772000	-113.171000
Abandoned Mine Land	CO0008969974	801727	CORKSCREW AND GRAY COPPER GULCHES	37.921000	-106.343000
Abandoned Mine Land	UTN010161078	801847	PIONEER 3-STAMP MILL	37.134000	-113.222000
Landfill	1554	0	Garfield County/John's Valley LF	37.821390	-112.383612
Abandoned Mine Land	UTD980667208	800679	MONTICELLO RADIOACTIVELY CONTAMINATED PROPERTIES	37.863880	-109.333610
Abandoned Mine Land	COD983801069	801336	GREAT WEST GOLD AND SILVER	38.382000	-107.043000
Abandoned Mine Land	UT0012605880	801913	BULLION CANYON MILLS	38.427000	-112.286000
Abandoned Mine Land	CO0000286203	801536	LONDON MINE	39.273000	-105.862000
Landfill	1534	0	Millard County LF	39.308334	-112.472779
Abandoned Mine Land	CO0001411347	801566	UPPER ANIMAS MINING DISTRICT	37.844000	-107.571000
Abandoned Mine Land	UT0001910793	801607	TINTIC STANDARD REDUCTION MILL	39.958000	-110.146000
Abandoned Mine Land	UT0010221516	801869	OPHIR MILLS AND SMELTER	40.221000	-112.153000
Landfill	930	0	Apex Regional LF	36.401670	-114.865180
Abandoned Mine Land	CA4141190567	903786	BLACKROCK MINE	37.362000	-117.605000
Landfill	192	0	Landers Disposal Site	34.240480	-116.381520
Abandoned Mine Land	AZ0000307959	905040	AMERICAN LEGION MINE	35.192000	-113.938000

Landfill	187	0	Kern Valley LF	35.750000	-118.433334
Abandoned Mine Land	NVD981989627	903042	UNITED MINING CORP.	39.313000	-118.353000
Landfill	1794	0	Sunrise Landfill	36.141201	-114.999080
Abandoned Mine Land	NVD000626531	903992	BARRICK GOLD STRIKE MINE - BLM	39.513000	-114.038000
Abandoned Mine Land	CAD980496863	901736	ATLAS ASBESTOS MINE	36.321660	-120.586700
Abandoned Mine Land	CA0000878058	905138	SISKON MINE	41.581000	-122.359000

EPA Tracked Sites located in the Solar Energy Development Program Alternative, as defined by the Draft PEIS.

Program	EPA_ID/ BF ACRES Property ID	Site ID/ BF Grant IDs	Site Name	Latitude	Longitude
Landfill	930	0	Apex Regional LF	36.401670	-114.865180
Landfill	192	0	Landers Disposal Site	34.240480	-116.381520

EPA Tracked Sites located near (2 miles or less) Solar Energy Zones, as defined by the Draft PEIS.

Program	EPA_ID/ BF ACRES Property ID	Site ID/ BF Grant IDs	Site Name	Latitude	Longitude
Landfill	930	0	Apex Regional LF	36.401670	-114.865180

EPA Tracked Sites located near (15 miles or less) the Solar Energy Development Program Alternative, as defined by the Draft PEIS

Program	EPA_ID/ BF ACRES Property ID	Site ID/ BF Grant IDs	Site Name	Latitude	Longitude
Federal Superfund	NMD980750020	600911	LEE ACRES LANDFILL (USDOI)	36.711100	-108.092100
Abandoned Mine Land	NMD986684231	604718	STEPHENSON - BENNETT MINE	32.403000	-105.402000
Abandoned Mine Land	NM0001408608	605033	HORIZON POTASH MINE	32.425000	-103.760000
Abandoned Mine Land	UTN000802138	802138	OPERATION MINE SHAFT	37.772000	-113.171000
Abandoned Mine Land	CO0008969974	801727	CORKSCREW AND GRAY COPPER GULCHES	37.921000	-106.343000
Abandoned Mine Land	UTN010161078	801847	PIONEER 3-STAMP MILL	37.134000	-113.222000
Landfill	1554	0	Garfield County/John's Valley LF	37.821390	-112.383612
Abandoned Mine Land	UTD980667208	800679	MONTICELLO RADIOACTIVELY CONTAMINATED PROPERTIES	37.863880	-109.333610
Abandoned Mine Land	COD983801069	801336	GREAT WEST GOLD AND SILVER	38.382000	-107.043000
Abandoned Mine Land	UT0012605880	801913	BULLION CANYON MILLS	38.427000	-112.286000
Abandoned Mine Land	CO0000286203	801536	LONDON MINE	39.273000	-105.862000
Abandoned Mine Land	CA4141190567	903786	BLACKROCK MINE	37.362000	-117.605000
Abandoned Mine Land	AZ0000307959	905040	AMERICAN LEGION MINE	35.192000	-113.938000
Landfill	187	0	Kern Valley LF	35.750000	-118.433334
Abandoned Mine Land	NVD981989627	903042	UNITED MINING CORP.	39.313000	-118.353000
Abandoned Mine Land	NVD000626531	903992	BARRICK GOLD STRIKE MINE - BLM	39.513	-114.038
Landfill	1794	0	Sunrise Landfill	36.141201	-114.999080

Thank you for your comment, Nick Hont.

The comment tracking number that has been assigned to your comment is SEDDsupp20145.

Comment Date: January 27, 2012 17:28:29PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20145

First Name: Nick
Middle Initial:
Last Name: Hont
Organization: Mohave County, Arizona
Address: P.O. Box 7000
Address 2:
Address 3:
City: Kingman
State: AZ
Zip: 86401
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Solar Energy Draft PEIS 1.27.12_1.pdf

Comment Submitted:

Please see attached.

MOHAVE COUNTY
DEVELOPMENT SERVICES

P. O. Box 7000 Kingman, Arizona 86402-7000 3250 E. Kino Ave, Kingman www.co.mohave.az.us Telephone (928) 757-0903 FAX (928) 757-3577

Nicholas S. Hont, P. E.
Department Director

Michael P. Hendrix, P. E.
Deputy County Manager

January 27, 2012

Solar Energy Draft PEIS
Argonne National Laboratory
9700 S. Cass Avenue – EVS/240
Argonne IL 60439

Dear Sir:

Mohave County appreciates the opportunity to comment on the Supplement to the Solar Programmatic Environmental Impact Statement. Our comments are below; please call me if you have any questions.

The Draft Solar PEIS as originally published proposed that 4,485,944 acres of BLM administered land would be available for application under the Solar Development Program. In the Supplement to the Draft Solar PEIS this number has been reduced to 3,397,007 acres, a reduction of 1,088,907 acres or approximately 24 percent. This is a significant reduction. Figure 2.3-1 demonstrates that a significant portion of the lands in the state of Arizona that are affected by the PEIS are located in Mohave County.

It appears that Mohave County may be affected by this reduction more significantly than any other county in the state. Private land in Mohave County accounts for only approximately 18 percent of its area, with BLM and Forest Service land accounting for approximately 61 per cent. This reduction in the lands that would be available for application may make it more difficult for Mohave County to attract renewable energy projects, and thereby conflict with the county's development plans and economic development policies.

Mohave County requests that the lands within its boundaries that were proposed in the original Draft Solar PEIS be retained and not reduced as proposed in the Supplement.

Thank you again for this opportunity

Sincerely,

Nicholas S. Hont

Nicholas S. Hont, P.E.
Director

bh

cc: Mike Hendrix, P.E., Deputy County Manager, Public Works & Development Services
Ron Walker, County Manager

Thank you for your comment, Donald Burnette.

The comment tracking number that has been assigned to your comment is SEDDsupp20146.

Comment Date: January 27, 2012 17:28:38PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20146

First Name: Donald
Middle Initial: G
Last Name: Burnette
Organization: Clark County
Address: Manager's Office
Address 2: 500 S. Grand Central Parkway, 6th floor
Address 3:
City: Las Vegas
State: NV
Zip: 89155
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: ClarkCounty-supplement to Draft Prog EIS-Solar Energy.pdf

Comment Submitted:

To whom it may concern:

Clark County would like to take this opportunity to provide comments on the Supplement to the Draft Programmatic Environmental Impact Statement (PEIS).

In April of 2011, Clark County commented on the initial draft of the PEIS. As was stated then, Clark County supports the goals of the PEIS to facilitate utility scale solar development on federal lands while minimizing environmental, social, and economic impacts. Being located in Southern Nevada, the County has one of the premier solar resources in the world, and solar development has the potential to provide clean renewable electricity to the region and much needed economic benefit to the County.

In reviewing the Supplement to the PEIS, Clark County would like to express appreciation for the efforts of the Bureau of Land Management and the Department of Energy in modifying this document to address Clark County's previous concerns. The County believes that the BLM Preferred Alternative (Modified Program Alternative) offers the most flexibility while still ensuring the protection of sensitive lands.

Consistent with the goals of the PEIS, the document should facilitate responsible development of solar energy. Clark County will continue to work with BLM to ensure that future solar development is not in conflict with the use of public lands for wildlife and resource protection, recreation, tourism, and community enjoyment as well as being consistent with the goals and principals of our land use plan.

Office of the County Manager

500 S Grand Central Pky 6th Fl • Box 551111 • Las Vegas NV 89155-1111
(702) 455-3530 • Fax (702) 455-3558

Donald G. Burnette, County Manager
Jeffrey M. Wells, Assistant County Manager • Randall J. Tarr, Assistant County Manager • Edward M. Finger, Assistant County Manager

January 27, 2012

Bureau of Land Management
Solar Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue, EVS/240
Argonne, IL 60439

Re: Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States

To Whom It May Concern:

Clark County would like to take this opportunity to provide comments on the Supplement to the Draft Programmatic Environmental Impact Statement (PEIS).

In April of 2011, Clark County commented on the initial draft of the PEIS. As was stated then, Clark County supports the goals of the PEIS to facilitate utility scale solar development on federal lands while minimizing environmental, social, and economic impacts. Being located in Southern Nevada, the County has one of the premier solar resources in the world, and solar development has the potential to provide clean renewable electricity to the region and much needed economic benefit to the County.

In reviewing the Supplement to the PEIS, Clark County would like to express appreciation for the efforts of the Bureau of Land Management and the Department of Energy in modifying this document to address Clark County's previous concerns. The County believes that the BLM Preferred Alternative (Modified Program Alternative) offers the most flexibility while still ensuring the protection of sensitive lands.

Consistent with the goals of the PEIS, the document should facilitate responsible development of solar energy. Clark County will continue to work with BLM to ensure that future solar development is not in conflict with the use of public lands for wildlife and resource protection, recreation, tourism, and community enjoyment as well as being consistent with the goals and principals of our land use plan.

Sincerely,

Donald G. Burnette
Clark County Manager

/NAL:rmt

BOARD OF COUNTY COMMISSIONERS
SUSAN BRAGER, Chair • STEVE SISOLAK, Vice-Chair
LARRY BROWN • TOM COLLINS • CHRIS GIUNCHIGLIANI • MARY BETH SCOW • LAWRENCE WEEKLY

Thank you for your comment, Robert Weisenmiller.

The comment tracking number that has been assigned to your comment is SEDDsupp20147.

Comment Date: January 27, 2012 17:40:04PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20147

First Name: Robert
Middle Initial: B
Last Name: Weisenmiller
Organization: California Energy Commission
Address: 1516 9th St., MS 31
Address 2:
Address 3:
City: Sacramento
State: CA
Zip: 95814
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: CEC DFG Solar PEIS COMMENTS 01-27-12.doc

Comment Submitted:

CALIFORNIA ENERGY COMMISSION
1516 Ninth Street Sacramento, California 95814
Main website: www.energy.ca.gov

DEPARTMENT OF FISH AND GAME
1416 Ninth Street Sacramento, California 95814
Main website: www.dfg.ca.gov

January 26, 2012

Shannon Stewart, Bureau of Land Management
Solar Energy Draft PEIS
Argonne National Laboratory
9700 S. Cass Avenue – EVS/240
Argonne, Illinois 60439

Dear Ms. Stewart:

The California Energy Commission (Energy Commission) and the California Department of Fish and Game (Fish and Game) (or collectively, "the Agencies") appreciate this opportunity to comment on the Supplement to the Draft DOE-BLM Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Solar DPEIS or DPEIS) released in October 2011. The Energy Commission and Fish and Game are cooperating agencies in the development of the PEIS and have provided ongoing input, most recently as comments on the DPEIS on April 29, 2011. Our joint comments here are once again limited to the areas in California addressed by the Solar DPEIS.

The Renewable Energy Action Team (REAT) Agencies, which include the United States Fish and Wildlife Service, the United States Bureau of Land Management (BLM), the Energy Commission, and Fish and Game, initiated development of the Desert Renewable Energy Conservation Plan (DRECP or Plan) to accelerate the permitting and development of new renewable energy projects, while conserving natural communities, and associated species and their habitats. The synergies of this effort were most recently reinforced through the Memorandum of Understanding (MOU) Between the Department of the Interior and the State of California on Renewable Energy, signed by Department of Interior Secretary Salazar and Governor Brown on January 13, 2012. MOU Objectives 4 through 10 explicitly address the DPEIS and DRECP, by requiring the REAT agencies to integrate and coordinate the development of both processes.

We offer these general observations in response to the Supplement in order to continue our role in the promotion and enhancement of the state and federal efforts in the arena of environmentally sensitive development of renewable energy.

Recent Revisions to Proposed Solar Energy Zones and Potential SEZ Expansions

The adjustments of the DPEIS and the Solar Energy Zones (SEZs) that have been made in the Supplement largely comport with what is under consideration for the DRECP. The REAT will integrate the final boundaries of the Imperial East (unchanged in the Supplement) and newly delineated Riverside East SEZ as we adjust the Renewable Energy Study Areas (RESAs) of the DRECP, which were presented to stakeholders in October 2011. These RESAs are currently being further refined, after which portions of them will become Development Focus Areas (DFAs) to be presented in the Development Alternatives of the joint DEIS/EIR scheduled for public environmental review by the third quarter of 2012. The analysis and recommendations by BLM for further studies of resources on BLM lands, identified on the basis of response comments to the DPEIS and listed in Appendix C of the Supplement, will be incorporated in our reviews. We look forward to the continued use of emergent PEIS information to augment the DRECP process.

The DRECP Preliminary Conservation Strategy identified five RESAs. These RESAs include polygons nearly identical to the Imperial East and Riverside East SEZs, and also include a RESA near Owens Lake in Inyo County and two RESAs (West Mojave and Barstow) in the Western Mojave Desert. These latter RESAs have been delineated in concordance with both representatives of renewable energy industry and other stakeholders to focus development in suitable portions of the Western Mojave. In general terms, the identification of this level of acreage within DFAs (current RESAs exceed 3,500,000 acres) is expected to accommodate anticipated demand for some time. The REAT recognizes the need to build in mechanisms to allow further expansions if needed and likely will be addressing this during the further development of the DRECP. Consideration of additional SEZs beyond those in the Supplement should occur as part of the DRECP process. Consequently, the Agencies believe the Solar PEIS should not facilitate development outside of DRECP DFAs through any type of a variance process that has not been adopted by the DRECP.

Proposed PEIS Variance Process

The Supplement reduces the acreages available for development in the Modified Program Alternative in California from more than 1,700,000 acres to less than 1,400,000 acres, and provides an initial outline of a process through which

applicants may still apply for variances that would allow development in these areas that are outside of the two current SEZ boundaries.

The DRECP is an integrative process that places due consideration of the long-term conservation of species, their habitats and the natural communities of which they are part. The Plan will have a reserve design component within which areas most suited for mitigation and enhancement will be identified. In addition, the Plan will designate the DFAs as primarily responsive to energy development needs. This integrative design by necessity evaluates the relative ecological values of lands outside of DFAs that nevertheless may be eligible for energy development, and creates scaled mitigation "costs" to offset impacts to environmental resources. The success of ecologically sound conservation planning for the 22,587,000-acre Plan Area, which will include the entirety of the PEIS lands, other federal lands that are outside of BLM's jurisdiction, and non-federal lands, is dependent on a consistent method for evaluating and mitigating impacts on all Plan Area lands, including those outside of SEZs and DFAs. Consequently, integrated planning will best be served if the methods for siting outside of SEZs or DFAs in California continue to be developed through the DRECP. The concepts in the draft variance process proposed in Section 2.2.2.3 of the Supplement will be useful in the establishment of review protocols for these areas.

Integration of the Solar PEIS and the DRECP in California

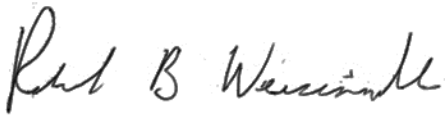
The DRECP Planning effort is scheduled to be complete in 2013 and continues to move forward with the hard work and collaboration among the State, BLM and USFWS.

The BLM California Office (BLM-CA) has committed to and has initiated scoping for a California Desert Conservation Area (CDCA) amendment that would allow BLM to consider plan amendments for recommending additional conservation and development that align with the DRECP and the DRECP Conservation Strategy. This plan amendment is being incorporated into the joint EIS/EIR process that will advance in the second quarter of this year.

The Supplement acknowledges the DRECP as the foundation for possible amendments to the CDCA Plan and three Resource Management Plans, and for identification of additional SEZs by BLM-CA. This formal acknowledgment of the DRECP's role in the implementation of the PEIS is important, but further formalization of this linkage in the form of a standardized protocol will be necessary in order to ensure that the PEIS and DRECP are truly integrated. For the proposed BLM variance process, the Supplement acknowledges the DRECP only in a context for general coordination, in a statement that "….[C]onsideration should be given to … coordination with California REAT agencies" (pg. 2-39). At a minimum, a more definitive protocol should be established that would prevent any possible disconnect between applicant initiation of any BLM PEIS variance

application and draft DRECP designations for conservation of specific areas. In any period of time between start of the Solar Energy Development in Six Southwestern States project and the DRECP, any significant siting actions or processes should be closely coordinated with the REAT. We also continue to recommend that when the final iteration of the PEIS is adopted, its implementation is closely coordinated with DRECP development and implementation, through the direct participation of the BLM California Office in the REAT.

In closing, the Agencies thank you for the opportunity to comment on the Supplement to the DPEIS. The State of California values the evolving partnership with the federal agencies and individuals who participate with the REAT, and with the Department of the Interior. The Agencies remain committed to work with BLM and the BLM California Office, to coordinate our joint planning processes and efforts to responsibly and efficiently site and permit renewable energy facilities in California.



ROBERT B. WEISENMILLER
Chair
California Energy Commission

KEVIN W. HUNTING
Chief Deputy Director
California Department of Fish and Game

Thank you for your comment, Sean Gallagher.

The comment tracking number that has been assigned to your comment is SEDDsupp20148.

Comment Date: January 27, 2012 17:41:00PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20148

First Name: Sean
Middle Initial:
Last Name: Gallagher
Organization: K Road Power
Address: 1 Embarcadero Center
Address 2: Suite 360
Address 3:
City: San Francisco
State: CA
Zip: 94111
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: K Road comments on Supp Draft SPEIS.doc.docx

Comment Submitted:

kRoad Calico

January 27, 2012 **VIA INTERNET**

Solar Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue, EVS/900
Argonne, IL 60439

Re: Comments of K Road Power on the Supplemental Draft Solar PEIS

K Road Calico Solar (K Road) is pleased to submit these comments on the Supplemental Draft Solar PEIS.

K Road supports the comments filed jointly today by the Solar Energy Industries Association ("SEIA"), the Large-scale Solar Association ("LSA"), and the Center for Energy Efficiency and Renewable Technologies ("CEERT")(collectively, the "Solar Industry Comments").

K Road also supports the comments filed jointly today by a group of conservation, utility and solar developer stakeholders ("Joint Comments"). However, K Road provides additional comment, in the nature of clarification, on one point. To the extent that there is any ambiguity in the Joint Comments, K Road clarifies that the existing and any future amendments to the Calico Solar Project's approved Right of Way Grant should be treated in the same manner as pending applications, i.e. under existing processes, rather than subject to those applicable to "new" applications under the SPEIS. For instance, the proposed prohibition on "new" applications in the Pisgah area after the SPEIS Record of Decision is issued does not apply to existing or future amendments to Calico's previously approved Right of Way Grant. See fn. 6 in the Joint Comments and fn. 7 in the Solar Industry Comments. Nothing in the Joint Comments should be read to the contrary. This is certainly the way that BLM has treated amendments to previously approved Right of Way Grants to date,[1] and should continue to be the case for such amendments. BLM should provide clarity on this point in the Final SPEIS.

Best Regards,

Sean Gallagher
K Road Calico Solar

[1] BLM issued a Notice of Intent to Prepare a Supplemental Draft EIS for the Calico project in October 2011, and has placed the amendments to the Calico ROW Grant on its 2012 Renewable Energy Priority List, http://www.blm.gov/wo/st/en/prog/energy/renewable_energy/2012_priority_projects.html.

Thank you for your comment

The comment tracking number that has been assigned to your comment is SEDDsupp20149.

Comment Date: January 27, 2012 17:41:16PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20149

First Name: [Withheld by requestor]
Middle Initial:
Last Name: [Withheld by requestor]
Organization:
Address: [Withheld by requestor]
Address 2:
Address 3: [Withheld by requestor]
City: [Withheld by requestor]
State: [Withheld by requestor]
Zip: [Withheld by requestor]
Country: [Withheld by requestor]
Privacy Preference: Withhold name and address from public record
Attachment:

Comment Submitted:

As a citizen, taxpayer and one very much involved in my state's (Maryland) and my country's public lands, I would like to comment on your agency's solar plan for the next 20 years.

Last year, I was aware that BLM drafted a Solar Energy Development Programmatic Environmental Impact Study. It is my understanding that your agency did make some important changes last fall (October). However, the areas identified were few. My understanding was that projects located in solar energy zones will be prioritized for development.

Basically, your agency has left open the possibility that solar development might still occur on more than 20 million acres of BLM lands through the "variance process".
Variances should be the exception, not the rule, for future solar development. Development should not occur in an area unless conflicts with wildlife and other important natural resources can be avoided or offset by purchasing other conservation lands and restoring other important habitat.

Your website states one of its missions is to "protect the health, diversity, productivity of our public lands for future generations." If we are going to allow solar and other new forms of green energy to be developed let us do it right.
We have so messed up with our fossil fuels and destroyed so much of our environment. Let's do this right……

Solar projects in appropriate zones will require less environmental analysis reduce the cost to developers for offsetting unavoidable impacts and will encourage development of transmission lines to get solar power to our businesses and homes. Basically, development in proper solar zones will be more efficient, less costly, provide more certainty for developers and conservationists, and the power produced will be wildlife friendly.

Why not make better use of this country's degraded lands such as brownfields and old mining sites. By recycling degraded areas rather than using more sensitive and ecologically rich can preserve important wildlife habitats and protect valuable natural resources.

So, We should minimize wildlife and other important natural resources. Limit variances for projects outside the zones (make them an exception; not norm.)
And, we should require developers to avoid, minimize and mitigate any unavoidable effects on wildlife by promoting wildlife friendly solar development.

Thanks you for reading my views and I would appreciate be apprised of future developments in this matter.

Sincerely,

Thank you for your comment

The comment tracking number that has been assigned to your comment is SEDDsupp20150.

Comment Date: January 27, 2012 17:41:40PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20150

First Name: [Withheld by requestor]
Middle Initial:
Last Name: [Withheld by requestor]
Organization:
Address: [Withheld by requestor]
Address 2:
Address 3:
City: [Withheld by requestor]
State: [Withheld by requestor]
Zip: [Withheld by requestor]
Country: [Withheld by requestor]
Privacy Preference: Withhold name and address from public record
Attachment:

Comment Submitted:

As a citizen, taxpayer and one very much involved in my state's (Maryland) and my country's public lands, I would like to comment on your agency's solar plan for the next 20 years.

Last year, I was aware that BLM drafted a Solar Energy Development Programmatic Environmental Impact Study. It is my understanding that your agency did make some important changes last fall (October). However, the areas identified were few. My understanding was that projects located in solar energy zones will be prioritized for development.

Basically, your agency has left open the possibility that solar development might still occur on more than 20 million acres of BLM lands through the "variance process".
Variances should be the exception, not the rule, for future solar development. Development should not occur in an area unless conflicts with wildlife and other important natural resources can be avoided or offset by purchasing other conservation lands and restoring other important habitat.

Your website states one of its missions is to "protect the health, diversity, productivity of our public lands for future generations." If we are going to allow solar and other new forms of green energy to be developed let us do it right.
We have so messed up with our fossil fuels and destroyed so much of our environment. Let's do this right……

Solar projects in appropriate zones will require less environmental analysis reduce the cost to developers for offsetting unavoidable impacts and will encourage development of transmission lines to get solar power to our businesses and homes. Basically, development in proper solar zones will be more efficient, less costly, provide more certainty for developers and conservationists, and the power produced will be wildlife friendly.

Why not make better use of this country's degraded lands such as brownfields and old mining sites. By recycling degraded areas rather than using more sensitive and ecologically rich can preserve important wildlife habitats and protect valuable natural resources.

So, We should minimize wildlife and other important natural resources. Limit variances for projects outside the zones (make them an exception; not norm.)
And, we should require developers to avoid, minimize and mitigate any unavoidable effects on wildlife by promoting wildlife friendly solar development.

Thanks you for reading my views and I would appreciate be apprised of future developments in this matter.

Sincerely,

Thank you for your comment, Michael Powelson.

The comment tracking number that has been assigned to your comment is SEDDsupp20151.

Comment Date: January 27, 2012 17:43:08PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20151

First Name: Michael
Middle Initial:
Last Name: Powelson
Organization: The Nature Conservancy
Address: 821se 14th Avenue
Address 2:
Address 3:
City: Portland
State: OR
Zip: 97214
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: SOLAR PEIS MITIGATION LETTER 120127.pdf

Comment Submitted:

See attachment

January 27, 2012

Mr. Bob Abbey
Director
Bureau of Land Management
Solar Energy PEIS
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439

Dear Mr. Abbey:

Thank you for the opportunity to comment on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development (SDPEIS). Our organizations greatly appreciate the tremendous effort BLM has undertaken in the development of the draft PEIS and the subsequent Supplement, to create a solar development program. However, a critical aspect of a comprehensive solar development program is essentially absent, that of mitigation.

Mitigation, and specifically compensatory mitigation, provides an essential opportunity to protect the health of the nation's land, waters, and wildlife, while facilitating cost-effective, efficient and timely development of our nation's energy resources. To best meet the nation's conservation and energy development goals requires creating a mitigation program that is transparent, systematic, based on sound science, and addresses clear conservation priorities. Many (if not all) of the elements of a comprehensive mitigation program BLM is already using, developing or exist. The BLM/DOE Solar PEIS provides an opportunity to mesh these elements together under a consistent policy framework. The goal is clear policies establishing how compensatory mitigation is integrated into project NEPA documents and BLM decisions for all projects, leading to increased effectiveness and accountability of offsite mitigation while providing project developers, agency staff, and stakeholders with greater certainty regarding mitigation objectives and methods for implementing offsite mitigation. BLM appears to rely on the project proponent to design and develop mitigation proposals with little advance guidance, leading project developers to spend significant time and money developing a plan with very little idea of what will ultimately be required. And for a variety of reasons, project developers are not appropriate entities to design and implement compensatory mitigation.

The PEIS should define a mitigation *framework* that captures the mitigation hierarchy and drives siting and mitigation. The undersigned recommend that the mitigation hierarchy, i.e. avoid, minimize and offset, should be the guiding principle in establishing a mitigation framework and a subsequent compensatory mitigation program. These recommendations are principally focused on "offsets," i.e. compensatory offsite mitigation, however it is important that the entire mitigation hierarchy by addressed in the PEIS.

The primary and most important basis of a mitigation framework, and the basis for a compensatory mitigation program, is an understanding of the ecological attributes of the lands under consideration. We r**ecommend** the PEIS commit to using landscape-scale and finer scale ecological assessments that articulate the ecological health, status and/or condition of the species, habitats, migration corridors, and related values, e.g. recreation, across the landscape of potential development and any subsequent mitigation, i.e. the geographic scope of the PEIS. The PEIS should specifically commit, at a minimum, to incorporating and using existing and ongoing ecological analysis, especially those of its own creation and those of the affected States. Much of this information is currently available or under development by the BLM (and sister DOI agencies and contractors), States, and organizations like The Nature Conservancy and Natureserve. This includes BLM's Rapid Ecological Assessments (REAs), products created for the PEIS by Argonne and others, products produced by BLM's Assessment, Monitoring and Inventory (AIM) efforts, the California Desert Renewable Energy Conservation Plan (DRECP), BLM's Restoration Design Energy Project in Arizona, State Wildlife Plans, State Decision Support Systems (DSS), The Nature Conservancy's Mojave eco-regional assessment and West Mojave least conflict analysis.

A mitigation framework within the PEIS should seek to avoid ecological impacts to the greatest extent possible, especially to resources that cannot be mitigated or are declining – avoiding impacts by proper siting based on ecological analyses is the surest, easiest and best way to avoid subsequent mitigation demands. Significant impacts to habitat that supports special functions and values may simply not be replaceable through mitigation and therefore the best course may be to avoid those areas altogether. We recommend the PEIS identify specific lands where development should not occur. This list should be expanded to exclude development where there are ecological or other resources that are not mitigatable, declining, limited or rare, and should take into account the cumulative effects of development in determining these attributes.

After avoidance, a mitigation framework within the PEIS should seek to minimize ecological impacts through project design, and require Best Management Practices (BMPs) that specifically seek to minimize impacts during construction, operation, maintenance, and decommissioning, including implementing appropriate conservation measures related to timing and conduct of project activities. While the PEIS has extensive discussion of project siting, construction and operational BMPs, it provides little ecological and subsequent monitoring criteria to ensure that impacts are minimized to the greatest extent possible, especially to groundwater. The PEIS should establish clear ecological benchmarks that developers are to address in project development and operation.

The last facet of a mitigation framework is compensation for residual impacts (direct and indirect effects that are not avoided or minimized on-site) by providing replacement habitats, restoration of habitats, or other benefits, e.g. management actions that provide conservation benefits. The mitigation hierarchy recognizes that offsite mitigation is an inherently uncertain undertaking, which means that compensatory mitigation is sought only after efforts to avoid and minimize the impacts have been addressed. Inclusion of a compensatory mitigation program in the PEIS is the most efficient, cost-effective way to ensure the mitigation hierarchy is fully addressed within the mitigation framework.

A robust compensatory mitigation program consists of six elements:

1. An ecological baseline upon which unavoidable impacts are assessed.
2. A transparent mechanism or methodology to assess & quantify unavoidable impacts over the life of the impacts.
3. A consistent methodology to translate the impacts into dollars, i.e. mitigation investments.
4. A structure to hold, prioritize and apply mitigation investments. At a minimum the structure should include BLM, the USFWS, and State Fish and Game agencies – we recommend that key stakeholders be represented as well, including counties and conservation, sportsmen and recreation organizations.
5. A prioritization, e.g. conservation plan, as to where and how mitigation investments should be made to address impacts while seeking the highest return on investment.
6. Monitoring to ensure mitigation investments are adequate relative to impacts over the life of the impacts, with a feedback loop to ensure the mechanism to assess and quantify the impacts and the methodology to translate the impacts into mitigation investments adequately reflect sufficient mitigation.

We recommend the PEIS, at a minimum, include the establishment of a compensatory mitigation program that encompasses the six elements listed above, including at a minimum, attributes for each element that inform how they would be structured and implemented.

Thank you for your consideration of our comments. We look forward to working with BLM on creating a mitigation framework and specifically regional mitigation plans that ensure protection of our countries critical natural resources while allowing the robust development of solar energy.

Sincerely,

Robert Bendick
Director, U.S. Government Relations
The Nature Conservancy

Gary Taylor
Legislative Director
Association of Fish and Wildlife Agencies

Steve Williams
President
Wildlife Management Institute

Boone & Crockett Club

Miles Moretti
President/CEO
Mule Deer Foundation

Pamela Pride Eaton
Deputy Vice President for Public Lands
The Wilderness Society

Thank you for your comment, Virgil Moose.

The comment tracking number that has been assigned to your comment is SEDDsupp20152.

Comment Date: January 27, 2012 17:57:09PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20152

First Name: Virgil
Middle Initial:
Last Name: Moose
Organization: Big Pine Paiute Tribe of the Owens Valley
Address: PO Box 700
Address 2:
Address 3:
City: Big Pine
State: CA
Zip: 93513
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Big Pine Paiute Tribe comments on Supplement Solar PEIS----1-27-12.pdf

Comment Submitted:

BIG PINE PAIUTE TRIBE OF THE OWENS VALLEY
Big Pine Paiute Indian Reservation

January 27, 2012

Shannon Stewart
Bureau of Land Management
Washington Office
Washington, D.C.

RE: Comments on the *Supplement to the Draft Programmatic Environmental Impact Statement (EIS) for Solar Energy Development in Six Southwestern States (Supplement) (BLM/DES 11–49, DOE/EIS–0403D–S),* and related draft *Programmatic Agreement (PA)*

Dear Ms. Stewart:

Please accept the following comments from the Big Pine Paiute Tribe of the Owens Valley (Tribe). By letter dated June 9, 2011, the Tribe also submitted comments on the *Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States, December 2010 (PEIS)*, and related draft Programmatic Agreement (PA). The Tribe received a PA for this project in February 2011, but no subsequent versions of the PA for Tribal comment were ever received.

Unfortunately, the Supplement did not address most of the Tribe's comments. Most importantly, the Supplement did not add a "distributed generation" alternative to the PEIS, even though this was requested by the Tribe and many other commenters, including the EPA. Without this viable alternative for solar energy development, only a narrow field of false choices is presented by the BLM. The Supplement was an opportunity to address this major failing of the draft PEIS, but this NEPA document remains inadequate in its range of alternatives. The Tribe's draft PEIS comments on this issue (on page 2 of the Tribe's June 9, 2011 letter) still stand for the Supplement:

> "BLM's Solar Energy Development Program Alternative (the Preferred Alternative), Solar Energy Zone Program Alternative, and the No Action Alternative do not provide a true range of alternatives for solar energy development in the United States. The PEIS rejects distributed generation and widespread development of rooftop solar as an alternative even though this would be a true alternative to utility-scale solar development on BLM lands. The justification was the non-mandate from the Energy Policy Act of 2005 and DOI Secretarial Order 3285A1. However, the DOI Secretarial Order requires the study of the best locations of utility-scale renewable energy projects; it doesn't mandate that these projects must be built on BLM lands. Distributed generation and widespread rooftop solar development needs to be an alternative in this PEIS."

Big Pine Tribal Office
P.O. Box 700 • 825 South Main Street • Big Pine, CA 93513
Phone: 760-938-2003 • Fax: 760-938-2942

General Comments:
Large-scale solar projects should not be built on desert lands that are not disturbed, degraded, or contaminated, i.e., brownfields

The deserts of southwestern United States are places where life has successfully evolved despite harsh conditions and where Native Americans learned to adapt and live in harmony. For a variety of reasons, many people value these open and generally intact landscapes. There is much to be learned from these unique places, which could be forever destroyed by short-sighted human disruption.

California's minimally disturbed desert landscapes are inappropriate for solar development because, in part, of the biological resources they contain and the ease with which the resources may be destroyed. The scientific literature is replete with articles discussing the fragility of desert landscapes, including in California. Many habitats in California's deserts evolved slowly, responding to gradual climate changes occurring since the end of the last ice age. Ancient biological resources such as the desert tortoise, pupfishes, creosote bush clones, and relatively undisturbed cryptogamic surfaces persist in places. It is well documented in the scientific literature that recovery from disturbances is slow (see for examples: Webb, R. H. and H. G. Wilshire (eds.) 1983. Environmental effects of off-road vehicles: Impacts and management in arid regions. Springer-Verlag. New York., and Belnap, J., S. L. Phillips, J. E. Herrick, and J. R. Johansen. 2007. Wind erodibility of soils at Fort Irwin, California (Mojave Desert), USA, before and after trampling disturbance: Implications for land management. Earth Surface Processes and Landforms 32(1):75-84). Furthermore, following major disturbances, full recovery to prior conditions is unlikely: what's lost is lost forever, at least from the human timeframe.

There is still a lot to learn about life and ecosystems on earth, and California deserts harbor organisms and undergo processes as yet unknown to science. A principal tenet of conservation biology is keeping all the parts. For example, botanists who study California's desert flora acknowledge "that the Mojave Desert remains a floristic frontier and that we still have an incomplete understanding of its flora in general" (Elvin, M., A. Sanders, and J. Andre. 2012. *Monardella* in the Mojave – A status update on our knowledge of the genus. Abstract, California Native Plant Society Conservation conference, January 2012, http://www.cnps.org/cnps/conservation/conference/2012/pdf/cnps2012-presentation_abstracts.pdf). In addition to botanical resources, the desert contains animals, including arthropods (a group likely to have innumerable taxa as yet undescribed) and cryptogams, which are known to be vitally important to ecosystem health, water dynamics, and nutrient cycling.

Modified Solar Energy Development Program Alternative (BLM Preferred Alternative)

This alternative is inadequate because it leaves over 20 million acres of non-disturbed, non-brownfield desert lands open to industrial-scale solar development. The **Revised Areas for Exclusion** under this Alternative should also include all areas which *are not* brownfields. However, this is was not included in the Areas for Exclusion, thus threatening millions of acres of land better preserved for its cultural and environmental resources.

As the Tribe stated in its June 9, 2011 letter for the draft PEIS:

> "Recommendations of Independent Science Advisors for The California Desert Renewable Energy Conservation Plan (DRECP):
>
> **Principles for Siting and Designing Renewable Energy Developments**
>
> **Maximize Use of Already Disturbed Lands**—To the greatest degree possible, site all renewable energy developments on previously disturbed land (areas where grading, grubbing, agriculture, or other actions have substantially altered vegetation or broken the soil surface), and site all linear facilities within or alongside existing linear rights-of-way, paved roads, canals, or other existing linear disturbances, so long as this does not create complete barriers to wildlife movements or ecological flows. Habitat fragmentation and impediments to wildlife movements are among the greatest threats to desert communities and species, and maximizing habitat connectivity is essential to climate change adaptation. The combined effects of both new and existing linear features on wildlife movement should be mitigated with appropriate crossing structures or corridors to facilitate wildlife movement (p.vi)."

The variance areas near the Big Pine Indian Reservation, located east of the Reservation, near the base of the Inyo Mountains, and in the lava flow blackrock country south of the Reservation, are exactly the same as the designations for solar development presented in the draft PEIS (see Attachment 1). These lands are regarded as traditional Tribal territory. The Owens Valley Paiute cultural landscape would be permanently harmed if large-scale solar development were to occur in the designated variance areas. The Modified Solar Energy Development Program Alternative (BLM Preferred Alternative) should be rejected, and the Tribe is opposed to all variance areas in all six southwestern states of the project.

Modified SEZ Program Alternative

The Tribe also does not recommend the Modified SEZ Program Alternative because these areas are not brownfields and will severely impact environmental and cultural resources. In California, the Pisgah and Iron Mountain SEZs were removed from consideration, but the Imperial East and Riverside SEZs were retained with slight modifications. The modifications did not negate the Tribe's opposition to these two SEZs for environmental and cultural reasons as stated in the Tribe's letter of June 9, 2011, on the draft PEIS.

The Amargosa Valley, Dalmar, Dry Lake, East Mormon Mountain, Escalante Valley, Gold Point, Milford Flats, Millers, and Wah Wah Valley SEZs should also be eliminated because of Native American concerns as expressed in the ethnographic analyses posted on the Solar Energy Development PEIS webpage: http://solareis.anl.gov/documents/ethnographic/index.cfm .

In order to comply with NEPA regulations (40 CFR 1502.14: (a) "Rigorously explore and objectively evaluate all reasonable alternatives)," the BLM needs to include a Distributed Generation Alternative, which would be a reasonable and least environmentally destructive alternative.

Conclusion

The Supplement did not correct the problems of the draft PEIS, and did not address the Tribe's comments on including the reasonable alternative of Distributed Generation in its analysis. The Supplement also did not exclude all areas which are not brownfields according to the Environmental Protection Agency's *RE-Powering America's Land: Siting Renewable Energy on Potentially Contaminated Land and Mine Sites*.

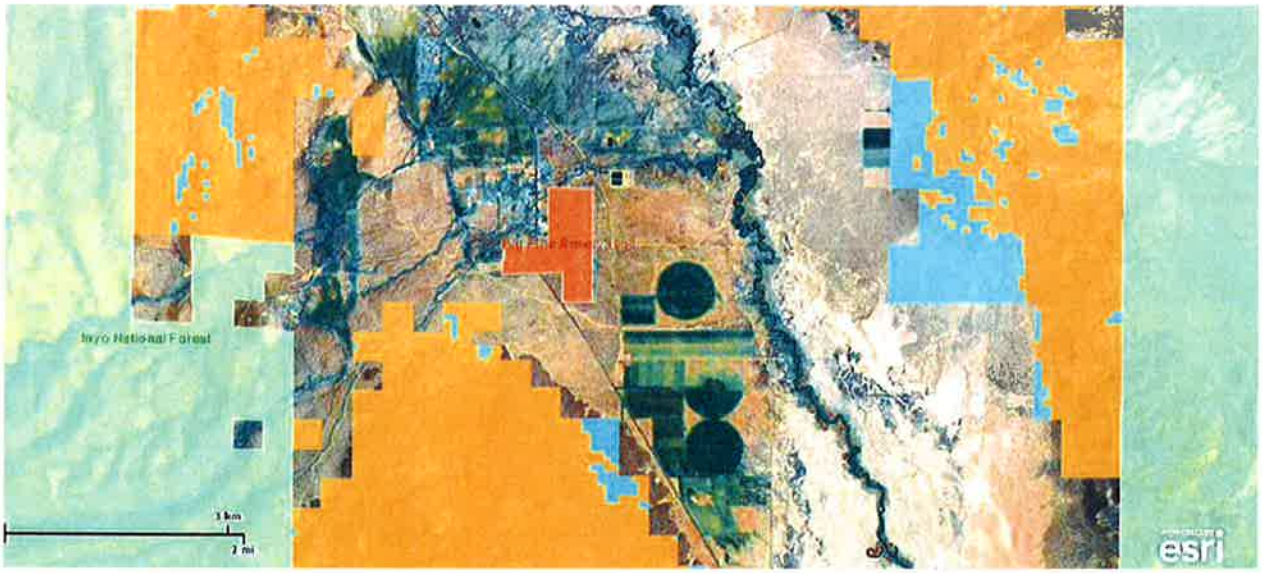
As stated in the Tribe's June 9, 2011, letter on the draft PEIS:

> "The Big Pine Paiute Tribe strongly favors well-planned solar energy development over the continued reliance on fossil fuels and nuclear power. The Tribe believes distributed generation and a massive effort to build and subsidize rooftop solar installations should be at the forefront of United States energy policy in cooperation with tribes."

Sincerely,

Virgil Moose
Tribal Chairperson

ATTACHMENT 1



Variance Areas (in blue) near the Big Pine Paiute Reservation proposed for large scale solar development under the *Modified Solar Energy Development Program Alternative (BLM Preferred Alternative)*.

Thank you for your comment, Harvey Sherback.

The comment tracking number that has been assigned to your comment is SEDDsupp20153.

Comment Date: January 27, 2012 18:03:23PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20153

First Name: Harvey
Middle Initial: S
Last Name: Sherback
Organization: none
Address: 2037 Vine Street
Address 2: ----
Address 3: ----
City: Berkeley
State: CA
Zip: 94709
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment:

Comment Submitted:

January 27, 2012

California's Solar Powered Aqueduct System Featuring The Central Valley's Delta-Mendota Canal

America's coal fired, oil fired, natural gas and nuclear power plants use more than 185 billion gallons of fresh water daily in the generation of greenhouse gas producing electricity. Only agriculture uses more water.

As you know, photovoltaics consumes no water and produces no greenhouse gasses over their 20-t0-40 year life-cycle. This is very important as we reluctantly face the unsettling prospect of worldwide climate destabilization.

In 2010 the Department of Water Resources partnered with the University of California to explore the feasibility of putting solar panels "along or over" California's Aqueduct System.

Solar panels can cover, run alongside or be floated along the canals on flat pontunes. Why ruin pristine desert lands, especially in the Mojave Desert, when there are hundreds of miles of these canals are already in place.

For example, there is California's Delta-Mendota Canal. Its purpose is to replenish the San Joaquin River with Delta water.

Construction period: 1946-1951
Length: 117 miles

Typical section:
Bottom width: 100 feet
Side slope: 3:01
Water depth: 14.3 feet

The Delta-Mendota Canal is mostly concrete-lined and is operated by the United States Bureau of Reclamation and the Delta-Mendota Water Authority.

Aerial Photo: Delta-Mendota Canal

http://www.flickr.com/photos/amenfoto/3285100067/

Aerial Photo: Delta Mendota Canal with windmills in the Diablo Foothills.

http://www.flickr.com/photos/amenfoto/3285469699/

The 117 mile Delta-Mendota Canal is ideally situated in a sunny desert-like environment.

Because of its proximity to the existing power grid, little or no new land would be required to connect the Canal's photovoltaic canopy to the Path 15 transmission line corridor. Close proximity to the grid means that less electricity is lost during transmission.

Water is life!

The Delta-Mendota photovoltaic canopy project can be seen as a pilot concept for other out of state applications. It would also act as a "stimulus" to California's scientific and engineering community, providing an opportunity to develop new, cost-effective green technologies.

This project is unique among alternative energy projects because it is designed to protect California's water resources, while delivering clean, renewable electricity.

Harvey Sherback
Berkeley, California

Thank you for your comment, Joni Bosh.

The comment tracking number that has been assigned to your comment is SEDDsupp20154.

Comment Date: January 27, 2012 18:09:23PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20154

First Name: Joni
Middle Initial:
Last Name: Bosh
Organization: self
Address: 3708 E. Cholla
Address 2:
Address 3:
City: Phoenix
State: AZ
Zip: 85028
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment:

Comment Submitted:

The revised PEIS is an improvement over the original. Removing some lands from approved zones, such as the Pisgah in California and Bullard Wash in Arizona, makes great sense. I would have removed even more areas. So, too, does establishing a clear process for identifying lands outside of the zones

However, degraded lands such as mining sites, brownfield sites and abandoned/exhausted farming lands should be available for development BEFORE pristine wildlands.ANY solar development, inside or outside of a zone, must be consistent with BLM wildlife policy with tough and protective mitigation measures that get enforced.

There is more than enough land included in the current list of zones to satisfy years of solar energy development. There is really no reason to look at other lands, less suitable, through a variance process.

The agency should focus on those sites with the best chance of widespread support, develope a clear plan for mitigation and have no or little impact on our nation's waters, wildlife and unique scenic treasures.

Thank you for your comment, Laurie Hietter.

The comment tracking number that has been assigned to your comment is SEDDsupp20155.

Comment Date: January 27, 2012 18:12:46PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20155

First Name: Laurie
Middle Initial:
Last Name: Hietter
Organization: Panorama Environmental, Inc.
Address: One Embarcadero Center
Address 2: Suite 740
Address 3:
City: San Francisco
State: CA
Zip: 94111
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Soda Mountain PEIS Comment Letter 27January 2012.pdf

Comment Submitted:

Please see attached comment letter. The letter will also be sent by certified mail.
Laurie Hietter

PANORAMA
ENVIRONMENTAL, INC.
One Embarcadero Center, Suite 740
San Francisco, CA 94111
650.373.1200 • www.panoramaenv.com

27 January 2012

U.S. MAIL & INTERNET FORM
Solar Energy Draft PEIS
Argonne National Laboratory
9700 S. Cass Avenue, EVS/240
Argonne, IL 60439

Re: Comments on the Supplement to the Solar Energy Development Draft Programmatic Environmental Impact Statement

To whom it may concern:

Thank you for the opportunity to comment on the Supplement (SDPEIS) to the Solar Energy Development Draft Programmatic Environmental Impact Statement (PEIS) prepared by the U.S. Department of Energy, Energy Efficiency and Renewable Energy Program (DOE) and the U.S. Department of the Interior, Bureau of Land Management (BLM) pursuant to the National Environmental Policy Act (NEPA).

Panorama Environmental, Inc. submits this comment letter on behalf of the applicant for the proposed 350 MW Soda Mountain Solar Project located approximately 5 miles southwest of Baker, California on both sides of Interstate Highway 15 (I-15) in San Bernardino County, California (CACA-049584).

While the programmatic comments of the solar trade organizations will address most concerns regarding the PEIS as it relates to the Soda Mountain Solar Project, there are two matters of particular importance to the project that we would like to address in detail, namely, the pending projects exemption and the desert tortoise connectivity areas map.

Pending Applications

The SDPEIS states that pending applications filed prior to 30 June 2009 will be subject to "continued processing under existing policies," including the February 2011 Instruction Memoranda (Nos. 2011-059 to 2011-061) (SDPEIS Table 1.7-1, page 1-9). We support the exclusion of pending applications from the terms of the PEIS and its Record of Decision (ROD). However, the SDPEIS does not clearly state the pending projects exemption, and some provisions actually contradict it. We therefore respectfully request the following clarifications.

Clarify Ambiguous Language

The SDPEIS states that pending projects will continue to be processed under "existing regulations and policies". However, the PEIS will itself become "existing policy" upon issuance of its ROD. We therefore recommend:

- clearly defining "existing regulations and policy" to mean regulations and policies in effect prior to adoption of the PEIS ROD; and

- adding language to the PEIS and its ROD expressly stating that pending projects are not subject to the PEIS before or after issuance of its ROD, and will instead be processed as though the "no action" alternative had been adopted.

Delete Express Contradictions and Modify Implicit Contradictions

Some language in the SDPEIS contradicts the pending projects exemption and should be deleted. For example, the following provision assumes the PEIS ROD would apply to pending projects:

> Pending applications on lands proposed as exclusion areas for utility-scale solar energy development in the Final Solar PEIS are likely candidates for denial. Upon issuance of the Solar PEIS ROD, the BLM may deny pending applications to the extent such applications overlap with exclusion areas identified in the ROD for the protection of ecological, cultural, visual, or other specified resource values (SDPEIS Page 1-11, lines 14-18).

We recommend deletion of this language because it undermines the pending projects exemption. The Federal Land Policy and Management Act of 1976, the 43 C.F.R. Part 2800 regulations, and BLM's February 2011 Instruction Memoranda already provide BLM with the tools it needs to reject pending applications.

Other provisions of the SDPEIS contradict the pending projects exemption by implication. For example, by stating that the BLM may deny pending applications before adoption of the PEIS, the following statement creates a presumption that the PEIS will apply to pending projects after its adoption: "The BLM may decide to deny pending solar applications before completion of the Solar PEIS ROD if the BLM has a supportable, rational basis" (SDPEIS Page 1-10, lines 24-25). We therefore request replacing this sentence with the following: "Although BLM will not apply the Solar PEIS to pending solar applications, the BLM still may decide to deny pending solar applications if the BLM has a supportable, rational basis on other grounds."

To avoid similar confusion, we also recommend qualifying the following provision, "The ROD for the Solar PEIS will recognize all previously approved solar projects" by adding the following clause: "and will expressly exclude pending projects from its terms." (SDPEIS Page 1-12, line 18).

Specify How to Implement the Pending Projects Exemption

Although the pending projects exemption is a clear concept, its application is less clear, particularly with regard to substantive resource issues. Because the PEIS is a prospective document intended to regulate and facilitate solar development applications submitted after 30 June 2009, we recommend the following additions to the SDPEIS to ensure proper implementation:

- an express statement that PEIS maps do not apply to approved or pending project sites unless the approved project is cancelled or the pending project application is withdrawn or rejected. We recommend overlaying approved and pending project boundaries on each of the PEIS maps with a legend item summarizing this concept.

- an express statement that neither the maps nor the resource determinations of the PEIS are to inform pending project NEPA analyses, which shall instead independently assess project-specific resource issues on a case-by-case basis.

Desert Tortoise Conservation Areas and Proposed Connectivity Areas

The SDPEIS includes a map depicting "Desert Tortoise Conservation Areas and Proposed Connectivity Areas." (SDPEIS Figure 2.3-1, page 2-44). We request that the proposed connectivity area overlaying the Soda Mountain Solar Project in the valley between the Soda Mountains south of Baker, west of the Mojave National Preserve (MNP), be removed for the following reasons:

1. No tortoise were found in the proposed connectivity area after recent protocol surveys;
2. The proposed connectivity area is surrounded by regional barriers to tortoise movement;
3. There is little, if any, opportunity for migration through the proposed connectivity area; and
4. The Soda Mountain Solar Project would not preclude migration through the valley.

No Tortoises

No tortoises were found on the site after conducting protocol-level surveys (RMT and URS 2010) (see discussion of field surveys below). Separate from the surveys, the closest historical tortoise

observations documented in database queries, input from local resource specialists (including BLM biologists), are approximately 16 miles to the north, 14 miles to the east, and 28 miles to the southwest of the study area (RMT and URS 2010). The results of the surveys and database queries are on file with the California Desert District Office under CACA-049584.

Recent Field Surveys

The lands in and around the proposed connectivity area west of the Mojave National Preserve (MNP) were extensively inventoried for the presence of sensitive vegetation and wildlife species for the Soda Mountain Solar Project. A protocol-level desert tortoise field survey consisted of 100% coverage belt transects spaced at 33 ft within a 6,770-acre study area. In addition to 100% coverage of the study area, Zones of Influence (ZOI) transects were also performed, which are defined as the areas where tortoise on adjacent lands may be indirectly affected by the Project. ZOI transect locations were developed and approved in consultation with biologists from the Barstow BLM Field Office and were in areas containing suitable tortoise habitat based on Geographic Information System (GIS) aerial mapping, Digital Elevation Model (DEM) mapping, and field observations of suitable habitat within the study area. The ZOI were surveyed with transects spaced at 100 ft, 300 ft, 600 ft, 1,200 ft, and 2,400 ft intervals, where applicable.

To validate the accuracy of the protocol surveys, biologists conducted an additional intensive Quality Assurance/Quality Control (QA/QC) survey on 5% of the study area. This intensive survey effort was composed of 100% coverage using belt transects with spacing reduced to 10 ft width and was conducted in randomly-chosen, representative habitats within the study area. QA/QC transects were conducted perpendicular to the initial transect survey direction in order to maximize tortoise detection. A comparison was then made between data recorded from transects during the 100% survey effort (33 ft belt transects) with data obtained during the intensive QA/QC survey effort (10 ft belt transects)(RMT and URS 2010).

Regional Barriers to Tortoise Movement

The proposed connectivity area in the Soda Mountains area is surrounded by barriers to tortoise movement. Figure 1 shows the topography of and around the proposed connectivity area. The south and east portion of the connectivity area is bounded by I-15, which serves as an effective barrier to tortoise movement to the south and east, as does the Rasor Road Off Highway Vehicle Area (Figure 2). The Soda Mountains surround the proposed connectivity area and serve as a barrier to tortoise movement from the connectivity area to the north, east and west. Moreover, Baker Sink, part of a north-south low topography feature and desert wash complex located to the east of the connectivity area, and Soda Lake, the dry playa Baker Sink drains into, have also been identified as areas of low potential for tortoise occurrence (Hagerty et al. 2010). In

combination, I-15, the Soda Mountains, Baker Sink and Soda Lake all serve as formidable barriers to tortoises migrating into or out of the MNP, with the perimeter of the proposed connectivity area surrounded by one or another barrier to migration.

A recent National Park Service article (Hagerty and Tracy 2011) corroborates this conclusion with a genetic study determining that the Soda Mountains and Baker Sink serve as effective barriers to desert tortoise migration and indicating that the area around the Soda Mountain Solar Project site has a low probability of tortoise occurrence, with likely connectivity pathways located well north, east, south and west of the Soda Mountain Solar Project site (Figure 3).

No Connection

But for the barriers mentioned above, the proposed connectivity area might seem to be a logical corridor to the MNP because of its proximity, and it is on this basis that the proposed connectivity area appears to be drawn: to provide connectivity northwards from the Cronese Basin Area of Critical Environmental Concern, through the portion of the Soda Mountain Solar Project site lying to the northwest of I-15, and then eastwards under I-15 and into the MNP (Figure 2).

Given the barriers mentioned above, however, it is highly unlikely that desert tortoises would traverse the narrow bottlenecks at the southern and northern extremes of the proposed connectivity area to make use of it as a migration corridor. The southern extreme is approximately 200 feet wide at its narrowest point, bounded by the I-15 to the southeast and mountainous terrain to the northwest. The northern extreme is even more limited, apparently relying on a 100-foot wide culvert under I-15 to allow movement eastwards into the MNP, as stated above. And even if such narrow entrance/exits to the proposed connectivity area were feasible migration routes, they lead directly into the Baker Sink and its substantial desert wash complex, which act as a barrier to migration (Hagerty et al. 2010; Hagerty and Tracy 2011).

Project Not a Barrier to Migration

Finally, even if the proposed connectivity area were viable, the proposed Soda Mountain Project would only occupy a small portion, leaving substantial habitat for migration, if it occurs.

Conclusion

We sincerely appreciate the efforts of BLM and DOE to promote environmentally responsible solar energy development of BLM-administered lands through the PEIS process. Our comments above seek to further those efforts by clarifying the pending projects exemption and requesting

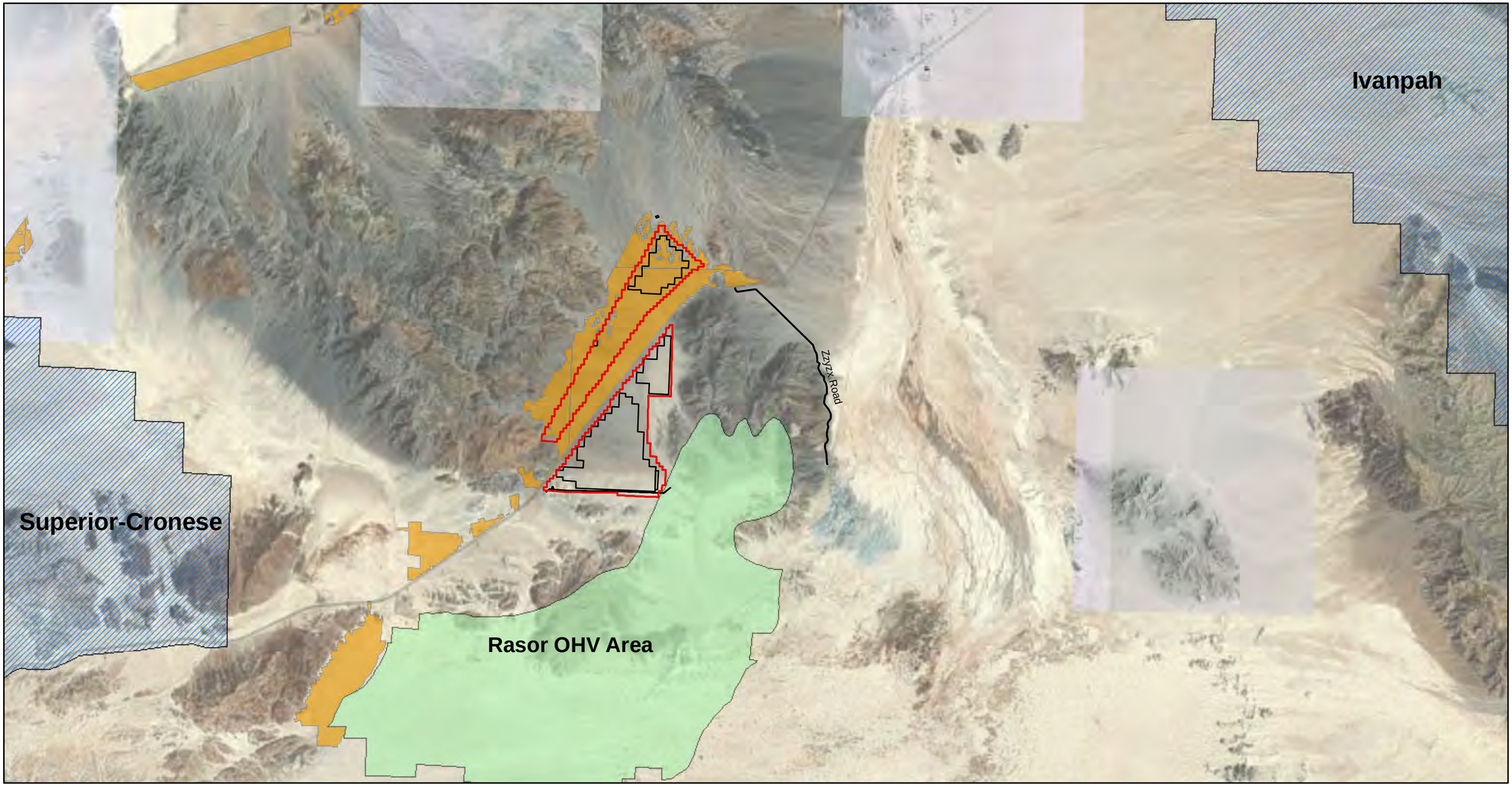
removal of a desert tortoise connectivity designation that lacks factual support. Thank you for your time and consideration.

Sincerely,

Laurie Hietter
Principal
Panorama Environmental, Inc.

Enclosures

Figure 1: Relief Map
Figure 2: Desert Tortoise Connectivity and Land Use
Figure 3: Desert Tortoise Occurrence
Exhibit A: References



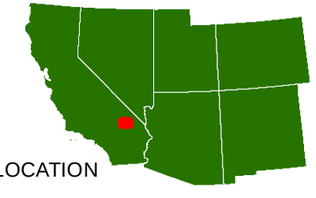
LEGEND

- PROPOSED PROJECT AREA BOUNDARY
- PROJECT FACILITY FOOTPRINTS
- DESERT TORTOISE CONNECTIVITY AREA
- DESERT TORTOISE CRITICAL HABITAT
- RASOR OHV AREA

0 0.5 1 2 3 4 Miles

N

SHEET LOCATION



PROJECT: SODA MOUNTAIN SOLAR PROJECT

SHEET TITLE: DESERT TORTOISE CONNECTIVITY AND LAND USE

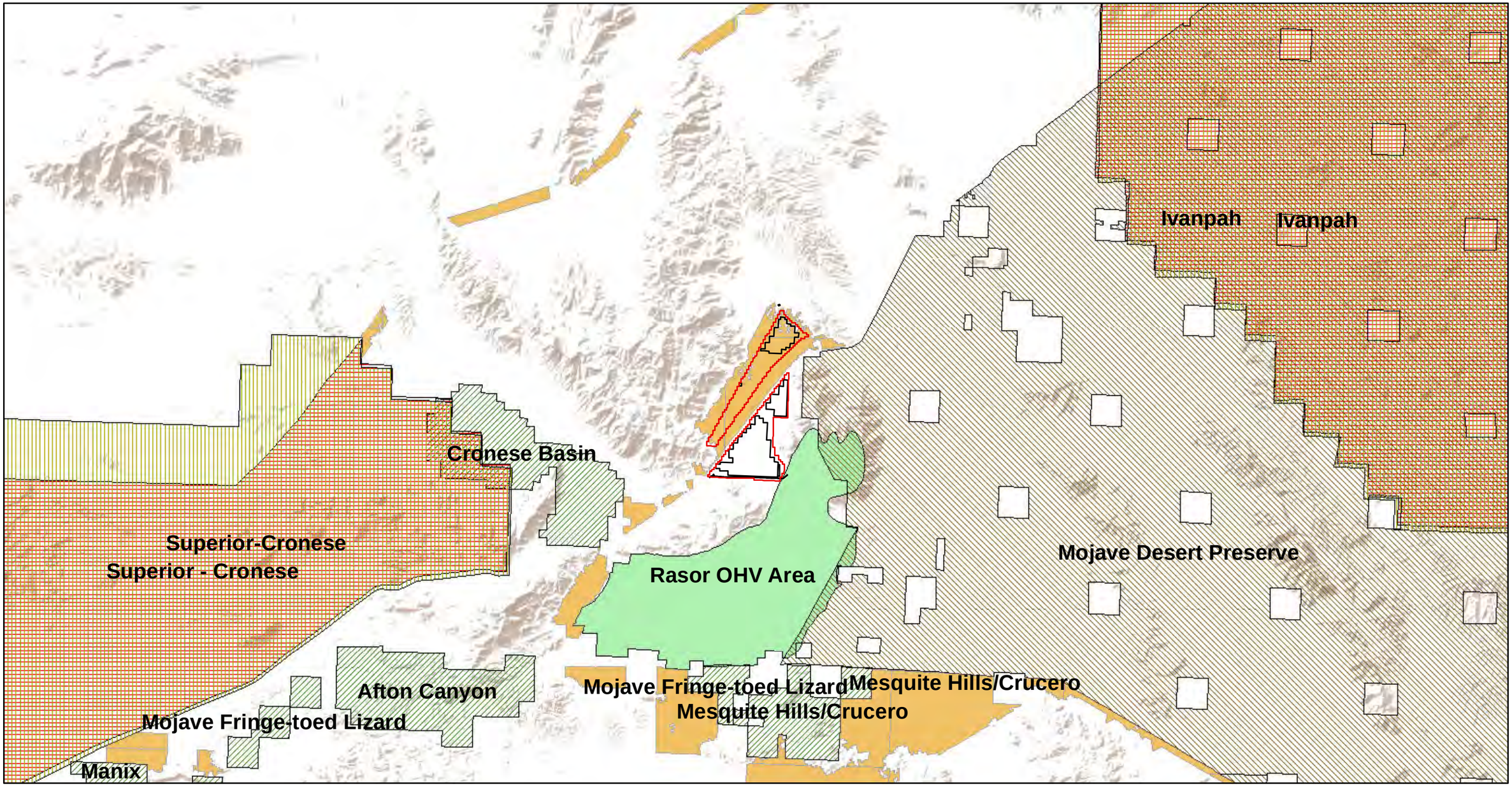
DRAWN BY: fongc

DATE PRINTED: 1/27/2012

PANORAMA ENVIRONMENTAL, INC.

4 West Fourth Ave.
Suite 303
San Mateo, CA
94402
www.panoramaenv.com

Figure 2: Land Use



LEGEND

- PROPOSED PROJECT AREA BOUNDARY
- PROJECT FACILITY FOOTPRINTS
- DESERT TORTOISE CONNECTIVITY AREA
- ACEC
- CHU
- DWMA
- National Park
- RASOR OHV AREA

0 1.25 2.5 5 7.5 10 Miles

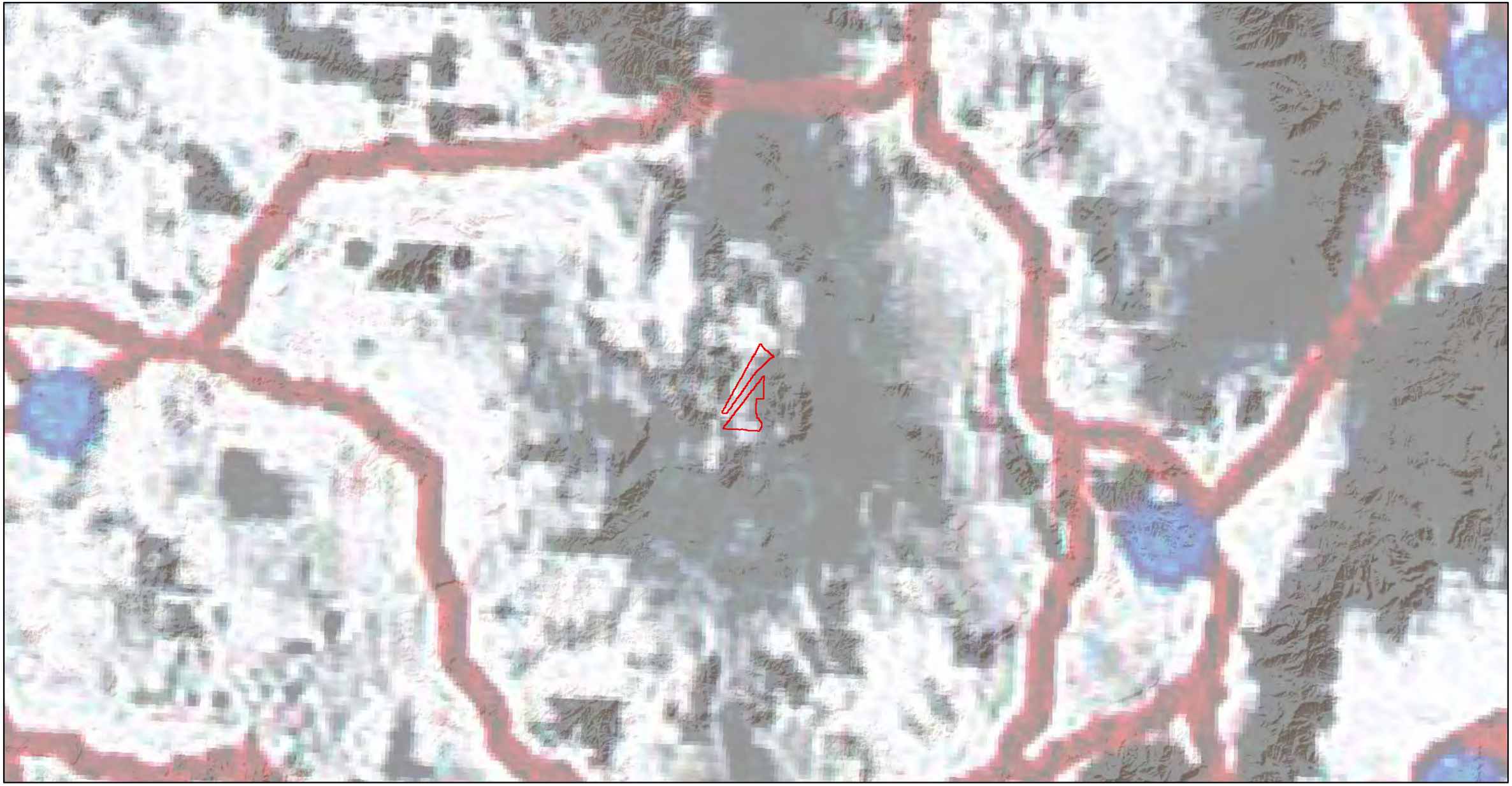
N

SHEET LOCATION

PROJECT:	SODA MOUNTAIN SOLAR
SHEET TITLE:	DESERT TORTOISE CONNECTIVITY AND LAND USE
DRAWN BY: fongc	DATE PRINTED: 1/20/2012

PANORAMA ENVIRONMENTAL, INC.
4 West Fourth Ave.
Suite 303
San Mateo, CA
94402
www.panoramaenv.com

Figure 3: Probability of Tortoise Occurrence near Soda Mountain Solar Project Area



LEGEND

Source: Hagerty et al. 2010

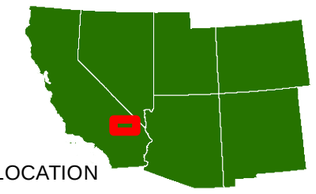
Project_Area5

Gradient of grey (floating values) indicate probability of desert tortoise occurrence. Black indicates lowest probability (0) while white indicates highest probability (1). Red lines indicate least cost paths between pairs of sampling locations. Blue dots represent the 25 population centroids

0 2 4 8 12 16 Miles

N

SHEET LOCATION



PROJECT:	SODA MOUNTAIN SOLAR
SHEET TITLE:	DESERT TORTOISE CORRIDORS
DRAWN BY: fongc	DATE PRINTED: 1/20/2012

PANORAMA ENVIRONMENTAL, INC.
4 West Fourth Ave.
Suite 303
San Mateo, CA
94402
www.panoramaenv.com

Exhibit A

References

Hagerty, B.E. and C.E. Tracy. 2011. "A History of Desert Tortoise Movement: A view through the window of population genetics," *in* Mojave National Preserve Science Newsletter March 2011, Number 1

Hagerty, B.E., Nussear, K.E., Esque, T.C., and Tracy, C.R. 2010. "Making molehills out of mountains: landscape genetics of the Mojave desert tortoise," Published in Landscape Ecology, Volume 26, Number 2, 267-280, DOI: 10.1007/s10980-010-9550-6/.

RMT, Inc. and URS. 2010. *Final 2009 Desert Tortoise Survey Report: Soda Mountain Solar Project.* Original report prepared By URS Corporation, Final Report prepared by RMT, Inc.

USGS. 2009. "Modeling Habitat of the Desert Tortoise (*Gopherus agassizii*) in the Mojave and Colorado Deserts, California, Nevada, Utah, and Arizona," Draft Open File Report 2009-__, prepared by K.E. Nussear, T.C. Esque, R.D. Inman, L. Gass, K.A. Thomas, C. S.A. Wallace, J.B. Blainey, D.M. Miller, and R.H. Webb.

Thank you for your comment, Bryan Faehner.

The comment tracking number that has been assigned to your comment is SEDDsupp20156.

Comment Date: January 27, 2012 18:35:44PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20156

First Name: Bryan
Middle Initial: M
Last Name: Faehner
Organization: National Parks Conservation Assocation
Address: 777 6th St. NW
Address 2: Suite 700
Address 3:
City: Washington
State: DC
Zip: 20001
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Final NPCA et al. Supplemental Draft Solar PEIS Comments 1.27.12.pdf

Comment Submitted:

National Parks Conservation Association • Mojave Desert Land Trust • Morongo Basin Conservation Association

January 27, 2012

Secretary Ken Salazar
Department of the Interior
1849 C Street, NW
Washington DC 20240

Secretary Stephen Chu
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Re: Supplement to the Solar Energy Development Draft Programmatic Environmental Impact Statement

Dear Secretaries Salazar and Chu:

The National Parks Conservation Association (NPCA), Mojave Desert Land Trust (MDLT) and Morongo Basin Conservation Association (MBCA) appreciate the opportunity to submit comments on the Supplement to the Solar Energy Development Draft Programmatic Environmental Impact Statement (PEIS).

NPCA, the leading private voice for the parks, is a national non-profit well-represented in the Southwest with offices in Arizona, Colorado, California, Nevada and Utah. We represent 600,000 supporters who care deeply about America's shared natural and cultural heritage preserved by the National Park System. Tens of thousands of our supporters have already contacted you requesting that agencies be "smart from the start" by working to ensure that new solar energy infrastructure is appropriately located away from National Park Service (NPS) units and critical conservation lands.

The Mojave Desert Land Trust conserves land with important biological, cultural and scenic values. MDLT's work helps to secure the biodiversity, beauty and integrity of healthy desert ecosystems for future generations to enjoy. MDLT has over 1300 members and has protected over 32,000 acres of desert land through acquisition, land stewardship and strategic partnerships.

The Morongo Basin Conservation Association is a 501(c) 4, community-based, California Nonprofit Corporation, incorporated in 1969 and dedicated to preserving the economic and environmental welfare of the Morongo Basin. MBCA has a vision that many residents of California's Morongo Basin share: healthy environment, rural character, prosperous communities and cultural wealth. MBCA has over 1000 members throughout California's High Desert Region.

Our three organizations continue to support the Modified Solar Energy Zone (SEZ) Alternative that would focus development within discrete low-conflict lands. We believe that it best balances the need to make lands available for new solar energy infrastructure, while ensuring that national park units, other protected lands and sensitive desert landscapes are conserved. If the agencies select the Modified Preferred Alternative, which would allow for new development on approximately 20 million acres of Bureau of Land Management (BLM) lands outside SEZs and around parklands, then strong protective measures must be put in place.

Accordingly, we believe the "precautionary principle" should be applied to help ensure that park resources and lands surrounding landscapes that may impact them are conserved. NPCA believes that this do no harm until you know more approach, which is reflected in the Administration's goal of being "smart from the start" should mean that inherently high-conflict public lands within 15-miles of units of the National Park System should be excluded from consideration unless the NPS determines they are in fact appropriate for consideration under the proposed "variance" process.

This policy would help deter controversial projects in the future, so that mistakes made in the past relating to the permitting of poorly sited solar facilities near parks, do not occur again. We strongly believe that this is an entirely reasonable and sensible precaution to help ensure that America's national parks and their sensitive resources are preserved unimpaired for future generations to enjoy.

To be clear, our groups strongly applaud the Department of Interior (DOI) and Department of Energy (DOE) for their efforts to bolster solar energy generation in the United States and improve planning and evaluation of utility-scale solar energy development facilities on BLM lands. Solar energy is one of our countries most promising renewable energy sources in transitioning away from America's current reliance on coal-fired power plants that contribute to unhealthy air quality in many of our nation's national parks. Establishing smart environmental policies and mitigation strategies for solar energy projects will contribute to bringing clean, renewable solar energy to market more quickly.

We believe that bringing more solar energy on-line and protecting park resources and critical desert landscapes is not mutually exclusive. However, it's critical that close coordination between the NPS, stakeholders and local gateway communities, takes place. Our groups have worked with community leaders, local elected officials and stakeholders to educate and inform affected parties about this process and implications, and we have encouraged their participation. Still, some residents and stakeholders, especially from the California Desert, may not have the financial means to participate in this important national level discussion, have felt disassociated from this process and are concerned about impacts to national park units and resources their communities depend on. We thank DOI and DOE for their recent effort to better engage and listen to the concerns of local stakeholders who live in park gateway communities, so that conflict is reduced and concerns are addressed.

We appreciate the hard work the departments and agencies have put into preparing the Solar Energy PEIS and hope that our concerns and suggestions, which are more broadly presented below, are carefully considered.

I. Improvements Have Been Made to Proposed SEZs, But More SEZs Are Needed

The Modified Solar Energy Zone (SEZ) Alternative poses the least potential harm to parks because it would focus solar development within identified SEZs (or "zones") that would help avoid needless conflicts with the 37 park units located in proximity to BLM lands identified in the PEIS. It would also bring solar energy facilities on-line faster, while better preserving broader ecological landscapes anchored by our national parks. Furthermore, it would also allow for the creation of new SEZs as necessary after an additional environmental review and public comment.

We thank DOI and DOE for removing and reconfiguring earlier proposed SEZ's away from national park units, wildlife corridors and pristine desert lands. The removal and/or reconfiguration of the Iron Mountain SEZ, the Pisgah SEZ, the Riverside East SEZ, the Amargosa Valley SEZ and the Red Sands SEZ are major improvements that we greatly appreciate.

Our groups recognize that the 285,000 acres identified within the currently proposed zones may not be sufficient and that the creation of new zones in well-studied, appropriate locations is needed. At this time, we recommend that the BLM prioritize work to identify appropriate lands within known locations such as the Chocolate Mountains, West Mojave and the Daggett Triangle in California. Additionally, we believe that California's Desert Renewable Energy Conservation Plan (DRECP) process should be used to identify future California SEZs and modify current SEZs because this process has had extensive stakeholder input, is habitat focused and has a great deal of information about rare and sensitive species.

We also recommend that DOI and DOE partner with the Department of Defense (DOD) to identify military lands that may be suitable for solar development and for becoming new SEZs. The DOD recently announced that it had examined lands in southern California and found that approximately 50,000 acres are suitable for solar development, but other military lands in southwestern states should also be considered. We believe that the creation of DOD/DOI zones and the addition of other appropriate zones should help reduce the need for public lands outside of zones by providing known, incentivized lands with high insolation and minimum conflict. DOI and DOE should work in partnership with other federal departments and agencies to inventory lands in order to identify disturbed properties that may be more appropriate for new zones. Finally, consideration should be given for consolidating state lands and exchanging them for disturbed lands closer to load centers.

II. The Preferred Alternative and Variance Process Need Major Improvement to Ensure the Preservation of Units of the National Park System

Our three organizations oppose the Modified Solar Energy Development Program Alternative, which is the preferred alternative, because it would allow for 20 million acres of BLM lands

outside of SEZs to be made available (via the "variance" process) for applicants to pursue construction of solar energy facilities. We continue to believe that making lands available outside of the SEZs is unnecessary and, more importantly, contrary to the Administration's underlying goal of instituting a proactive planning framework to expedite solar energy development. Moreover, due to the increased potential for resource conflicts, there would likely be additional (and avoidable) administrative costs for DOI, as well as extra costs, time, and uncertainty for companies attempting to acquire permits. In sum, we believe allowing for solar development within the 20 million acres of BLM lands identified for variance is quite simply a distraction and would shift focus and resources away from instituting an effective and common-sense process laid out under the Modified Solar Energy Zone (SEZ) Alternative that holds so much potential.

If the preferred alternative were to be selected in the final Record of Decision (ROD), we insist that a number safeguards are put in place to help ensure that park resources, including park scenery, wildlife and wildlife corridors, night skies and water, are protected for future park visitors to enjoy. Because the development of solar infrastructure near national park units is inherently high-conflict, we believe that public lands within 15-miles of units of the National Park System should be excluded from consideration unless the NPS determines they are appropriate for consideration under the proposed "variance" process. Our groups recognize that the proposed variance process was developed to allow for greater flexibility to identify and develop low-conflict locations for solar development, but lands near NPS units will likely rarely meet these criteria.

As currently proposed, hundreds of thousands of acres of variance lands lay directly adjacent or near national park units, and could be available for application. The development of these variance lands could present multiple negative impacts including, but not limited to, disrupting wildlife corridors, negatively impacting tourism, degrading the visitor experience, harming ecologically core lands, impacting park water sources, impairing scenic vistas, and inducing inappropriate development on private in-holdings within park boundaries.

In its current form, variance would allow project applications adjacent to National Parks, on pristine desert habitat, and would re-introduce many of the conflicts associated with the no action alternative. Those include a scattered approach to developing renewable energy which could fragment landscapes, encourage de-facto zones along right-of-way corridors, and negatively impact communities and wildlife. We believe that developing a robust system of incentivized zones represents the best alternative to reduce conflict by providing consensus-based locations to direct industry towards.

Importantly, we think that DOI and DOE insufficiently stress that variance is a lesser priority for siting new solar development and that applicants should be directed towards utilizing low-conflict, consensus-based SEZs. Variance should be the rare exception to SEZs and strong incentives and disincentives should be in place to focus utilities away from the proposed 20 million acres of variance lands.

We also believe that variance should be strengthened to include all stakeholders, including the public at large, at pre-application meetings to assess proposals. If an applicant seeks to build a

solar project, it makes sense to introduce the proposal to neighboring communities whose livelihoods could be impacted, before the BLM accepts a full application.

III. Proposed Variance Lands Put Numerous NPS Units at Risk

Our three organizations have identified locations currently proposed for variance that present high resource conflict to National Parks, park gateway communities, and/or natural or cultural resources and should be made exclusion areas and off-limits to new solar development. This list indicates foreseeable conflicts that would likely occur within proposed variance lands if solar projects were proposed. Threatened parks include:

Mojave National Preserve in CA

- Variance lands proposed in Ivanpah Valley on both sides of the California/Nevada state line provide significant conflict due to the potential taking of desert tortoise for Ivanpah Solar and the multiple development projects proposed including solar projects, an international airport, a gas pipeline, an agricultural inspection station, and a recently approved high speed rail. The cumulative impacts of these foreseeable projects, the dense population of tortoises, and the significant take of desert tortoises associated with Ivanpah Solar should preclude this area from variance applications.
- Lands north, east, and west of Clark Mountain should be excluded. This exclave of Mojave National Preserve protects Joshua Tree woodland, Pinyon-Juniper woodland, and diverse barrel cactus-Yucca transition zone. The lands directly north of this unit are proposed for variance and for a designated energy corridor connected to the Ivanpah Valley to the east. The Joshua tree, yucca covered lands proposed for variance are surrounded on three sides by wilderness, and adjoin the boundary of Mojave National Preserve. These lands provide habitat for desert tortoise and may be a significant refuge for the California population of the Gila monster. We oppose variance lands in this area and the proposed energy corridor directly adjacent to the Preserve's boundary. We recommend energy transmission lines be routed along the nearby energy corridor to the south along the Interstate 15 right-of-way.
- Nearly 9,000 acres of variance is proposed directly adjoining Mojave National Preserve south and west of Baker. The Preserve forms the Southern boundary of the variance while the northern boundary is close to the proposed Soda Mountain Wilderness Area. This area is home to desert tortoise and kit fox and is an important habitat for dune dwelling species such as the Mojave fringe-toed lizard. This area is unique for its spring wildflower blooms of purple verbena and its hanging dune systems, which are sand dunes that form on mountain sides creating unique micro-habitats. Desert tortoise is present in this area.
- Variance lands located east of Nipton in Nevada along the SR 164 corridor cover dense, old growth Joshua tree, yucca, and black brush forest. Scientists believe expansive black brush cover may take 15,000 years to develop. This area is one of the most significant black brush stands in the Mojave. This site provides uninterrupted views of Mojave National Preserve's New York Mountains to the south and west.

Joshua Tree National Park in CA

- Lands surrounding Joshua Tree National Park to the east of the city of Twenty-nine Palms and to the south and east of the Marine Corps Air/Ground Combat Center have been identified as variance lands for future solar development under the Solar PEIS Supplement's

preferred alternative. Solar development on these lands would interrupt some of Joshua Tree National Park's critical wildlife corridors as identified by the SC Wildlands report, "A Linkage Design for the Joshua Tree/Twenty-nine Palms Connection." This development could also ultimately undermine local and regional tourism by denigrating the park's natural resources which are closely linked to gateway communities' tourist economies. In fact, in 2010, the 1.4 million visits to Joshua Tree National Park contributed almost 60 million dollars into local gateway communities. In a 2010 University of Idaho Visitor Use Study, visitor groups stated that protecting Joshua Tree National Park's views without development (90%) and wildlife (81%) were either important or extremely important to them. Solar development on these variance lands could disrupt wildlife corridors and mar scenic vistas that, in turn, would interfere with the key reasons tourists visit the Joshua Tree National Park and the High Desert Region of California. A map showing these wildlife linkages is attached to these comments and further illustrates how solar development in this area could harm regional planning efforts to protect critical connectivity corridors, as well as visitor experience at Joshua Tree National Park.

Another concern related to the designation of variance lands is the considerable financial investment that has been undertaken by local, regional and national land trust organizations. In the California desert, the Mojave Desert Land Trust is a landscape scale conservation partner to the NPS, BLM, DOD and the California Department of Fish & Game. To date, MDLT has invested more than $18.6 million to acquire 36,400 acres of land within desert national parks and designated wilderness areas managed by the BLM. MDLT has conveyed to the United States approximately 13,800 acres of public land valued at $6.2 million. Approximately $14 million of these acquisitions were completed with private donations. The consideration of variance lands may well impact MDLT's conservation investments to date and the wildlife linkages that keep them connected. This will have a significant and negative impact on both their existing investments and their ability to secure future funding.

<u>Death Valley National Park in CA and NV</u>

- Variance proposed on Death Valley National Park's eastern boundary, surrounding Devil's Hole and Ash Meadows National Wildlife Refuge, and along the Amargosa River corridor should be excluded. This region includes hundreds of thousands of acres along Death Valley's boundary and encircling Ash Meadows. The Amargosa Valley SEZ was reduced by 80% due to resource conflicts, and is recommended for complete removal. It is home to an overdrawn aquifer, the largest wetland in the Mojave, and the second highest concentration of endemic species in North America.

<u>Grand Canyon National Park in AZ</u>

- The remote lands north of the park all the way to the southern Utah border are a diverse and spectacular landscape, and seem unlikely to be a great place to locate a solar energy facility. The people who visit these lands for recreation enjoy the vast, primitive and undeveloped open space that has become rare, even in the West. The lands that the Secretary of Interior recently withdrew from new uranium claims, especially, are not where we would like to see industrial development of any kind. The Grand Canyon watershed is fragile, and not completely understood, and we ask that the uranium mining withdrawal areas, at least, have any variance lands removed. The setback from the National Park, as well as from Grand Canyon-Parashont National Monument, should be a good long distance.

- There is one variance area parcel south and very near to the Grand Canyon – this should be removed. It is just outside the south parcel of the uranium withdrawal, and within 10 miles of the park.

Wupatki National Monument in AZ

- There are variance land designations on BLM land adjacent to the east boundary of the monument, some south, and one north. Industrial development within the beautiful long-vista views of visitors to the monument would degrade the visitor experience at this monument.

Fort Bowie National Historic Site in AZ

- There are small parcels of variance lands immediately north of Ft. Bowie National Historic Site that could cause problems if solar plants were developed there. They are also pretty close to a BLM designated wilderness and are part of an important wildlife corridor between the Chiricahua and Dos Cabezas Mountains. Especially because of this wildlife corridor, we ask that all variance lands south of the Dos Cabezas Mountains Wilderness Area near the border of the Coronado National Forest be removed.

Saguaro National Park in AZ

- Variance lands adjacent to the northwest corner of the park's Rincon unit are in a horse-property residential area – a solar plant situated between a high-price neighborhood and a part of the park popular with horse riders and hikers would face insurmountable opposition. Between this park unit south to the BLM's Las Cienegas National Conservation Area is an important wildlife corridor that has been the focus of a multi-agency and private partner effort to protect; likewise an inappropriate place for variance lands.
- Southwest of the Tucson Mountain unit of the park are variance lands where solar plants would be clearly visible from both the park and from the Arizona-Sonoran Desert Museum – transmission line proposals in this area have faced stiff opposition from local residents, local governments and conservationists. Nearby variance lands, just south of these, are likewise ill-suited for development as they are adjacent or close to Tucson Mountain Park, a county-owned natural resource park.

Glen Canyon National Recreation Area in AZ and NV

- There are many variance lands around this vast recreation area – they should be removed, at least using a 15-mile from the border rule, and more properly farther than that because of the remote and beautiful landscape.

Lake Mead National Recreation Area in NV and AZ

- Likewise, there are way too many variance lands around this large recreation area, and because of its proximity to Las Vegas they will lure speculators into thinking they are appropriate for development. Most are not, and will be controversial, so it is best that they are eliminated from solar development consideration upfront and as a part of this process.

Great Basin National Park in NV

- The scattered variance parcels around the park, with a large amount near the town of Baker, are inappropriate for solar development. The ecologically important and scenic Spring

Valley, which is viewable just west of the 13,063-foot Wheeler Peak within the park, should be made off-limits to new solar.

Carlsbad Caverns National Park in NM

- The many scattered variance lands to the north of the park, at least to Highway 408 and perhaps father, should be removed.

White Sands National Monument in NM

- To the east of the monument, between highways 82/70 and 54, there should be no variance lands.

El Malpais National Monument in NM

- The variance lands to the monument's northwest, and immediate south, should be removed.

Chaco Canyon Culture National Historic Park in NM

- Variance lands to the park's north, and along the access road, Chaco Canyon Road (Highway 57), if developed, would seriously harm this special culturally important landscape, as well as the visitor's experience of this remote and magnificent remnant of an amazing ancient civilization.

Mesa Verde National Park in CO

- Solar development on variance lands to the north (on both sides of Highway 160) would impact everyone who visits this popular tourist attraction.

Great Sand Dunes National Park in CO

- Variance lands to the south of the park, across Highway 150, should be removed so as to avoid development that would impact the park and its visitors.

Hovenweep National Monument in CO and UT

- To the southeast and to the west, variance lands should be removed from the monument unit located in Utah.

Natural Bridges National Monument in UT

- Variance lands in all directions around this monument should be removed, especially those lands between the monument and Manti-La Sal National Forest.

Capitol Reef National Park in UT

- The many variance lands in the remote and rugged locations east of this park should not be promoted for industrial solar development and so should be removed.

National Historic Trails

- The routes of the Old Spanish National Historic Trail and the Juan Bautista de Anza National Historic Trail, both managed by programs of the National Park Service, should be protected from new solar development. Accordingly, we believe that variance lands of at least 5 miles on either side of the center line should be excluded from consideration. This is to both

protect viewsheds from the trails (and it could logically be a farther distance based on viewshed analysis) and because these trails have active constituencies that are concerned by industrial energy development along these routes.

- Other historic trails, stage roads, and stage routes, both those so designated by NPS or identified by state agencies or other competent authorities, could also cause conflict with proposed solar development. It seems prudent to remove a similar corridor protecting these trails from the variance lands. For instance, trails that have been mapped by Arizona State Parks include: El Camino del Diablo, Zuni-Hopi Trail, Mormon Honeymoon Trail, Palatkwapi Trail, Beale Wagon Road, Coronado's Route, General Crook Road, Chavez Trail, Overland Road, Hardyville Road, Ehrenberg Road, Phoenix Stage Roads, Black Canyon Stage Road, Kearny's Route, Butterfield Stage Route (which is currently under study for potential designation as a National Historic Trail), Cooke's Wagon Road (Mormon Battalion) and Santa Cruz Route.

IV. Proposed Variance Lands Put Threatened and Endangered Species and Other Sensitive Lands at Risk

Our three organizations share the concerns represented in the comment letter submitted by The Wilderness Society, NRDC, Sierra Club and other organizations that argue

> "the list of exclusion areas (Table 2.2-1) should be modified to include additional sensitive resources, especially citizen-proposed wilderness and all BLM-identified lands with wilderness characteristics, including those that the BLM is not currently managing to protect those characteristics."

We also agree with them that desert tortoise connectivity areas should be altogether excluded from variance. Additionally, we support their comments regarding permanent protections for non-development lands in Riverside East SEZ and the exclusion of variance lands in the former Pisgah Zone, on Catellus lands donated to BLM for conservation unless granted permission from The Wildlands Conservancy, and in areas identified as "Ecologically Core" by The Nature Conservancy.

We support and urge the further removal of roadless areas, areas without existing transmission, and those demonstrating wilderness characteristics in and outside of zones. Finally, our groups support BLM's no development areas within Riverside East and Amargosa Valley SEZ. These areas represent unique assemblages of desert forest known as microphyll woodlands, important desert tortoise populations and migration corridors, and regionally important water resources; consequently they each present high conflict for development.

V. More Effort Should Be Made to Engage Affected NPS Gateway Communities

National Parks are crucial economic drivers in rural gateway communities and present widely supported and well-branded locations to enact the Administration objectives such as America's Great Outdoors, Landscape Connectivity and Let's Move. Throughout the Southwest, small communities partner with and benefit from their association with National Parks. Parks bring tourists to these communities, creating job opportunities associated with serving visitors and with

supporting park operations. National Park employees live and reinvest in these communities, creating a positive economic and social feedback loop.

Our three groups have worked closely with many rural gateway communities, and many residents have publicly commented that projects proposed on these lands will create conflicts for water resources, diminish their quality of life, and impair scenic vistas that encourage destination tourism. Small communities throughout the Southwest have been beset with applications for renewable energy projects. While some may be supportive, relatively few applications for wind and solar occur in close proximity to larger desert communities. This places disproportionate responsibility and burden for small communities to shoulder the impacts of these projects. Examples of small communities surrounded by variance include Baker, Shoshone, Tecopa, Amargosa Valley, Wonder Valley, Landers and Twenty-nine Palms. We recommend that BLM exclude variance lands surrounding communities that consider variance to be economically harmful or in conflict with their vision for community well-being.

Shoshone and Tecopa have become the Southern Gateway to Death Valley and are supported by tourism to Death Valley National Park, the Amargosa River and Canyon and several adjacent wilderness areas. The Wild and Scenic Amargosa River flows through these communities and provides water for homes, recreation, and creates a riparian corridor home to resident and migrant bird species, rare, endangered, and endemic fish, frogs and mammals.

The Morongo Basin (Morongo Basin, Yucca Valley, Joshua Tree and Twenty-nine Palms) has a regional planning process called the Morongo Basin Open Spaces Group. This group has identified key wildlife connectivity corridors on proposed variance lands east of Twenty-nine Palms between Joshua Tree National Park and the Sheephole Wilderness Area (attached is the map). The Morongo Basin and the surrounding regional economy benefit greatly from the 1.4 million annual visits to Joshua Tree National Park. Recent data suggests that the park annually contributes 58.8 million dollars to the regional economy and creates 800 jobs.

Desert Center is surrounded by the Riverside East SEZ, and is home to residents who have consistently opposed industrial development in their backyards. Multiple projects have been approved in this area and other projects, including the country's largest landfill and a groundwater pump storage project, are pending.

In sum, we believe that the BLM should consider the impact that proposed projects will have on human and natural communities within an affected radius. Similarly, they should consider the cumulative impact multiple foreseeable projects in an identified area and time horizon have on resources and adjacent communities.

VI. Scientific Uncertainty Supports Need for Strong Mitigation and a Cautious Approach

To protect the long-term ecological integrity of national park units, DOI and DOE should closely consider both direct and cumulative impacts from potential new solar infrastructure. This is especially important due to the lack of information relating to desert species, vegetation, the cycling of nutrients and water and other areas of biological science where great uncertainty

exists. As such, we strongly urge the DOI and DOE to embrace the precautionary principle for those sensitive lands surrounding park units and potentially used as habitat by the Desert Tortoise, Amargosa Vole, Amargosa Toad, Mojave Ground Squirrel and other state and federally listed endangered species. We believe any mitigation plan included with the proposed construction of a solar project should address the full range of potential impacts, including light pollution and other impacts that could degrade the experience of park visitors, on desert resources and be made available for review and public comment early in the review process.

VII. Conclusion

We believe that the DOI and DOE should give further consideration to the Modified Solar Energy Zone (SEZ) Alternative that would focus development within discrete low-conflict lands. We believe that it best balances the need to make lands available for new solar energy infrastructure, while ensuring that national park units, other protected lands and sensitive desert landscapes are conserved. If the agencies select the Modified Preferred Alternative, we insist that public lands within 15-miles of units of the National Park System should be excluded from consideration unless the NPS determines they are appropriate for consideration under the proposed variance process. As we've already stated, this policy would help deter controversial projects in the future, so that mistakes made in the past relating to the permitting of poorly sited solar facilities near parks, do not occur again.

The Solar Energy Development PEIS will set the stage for guiding where new solar development takes place on public lands for decades to come. A thoughtful and long-term planning approach is essential to avoid needless conflict and harm to our priceless national park treasures. While some progress has been made, we continue to have serious concerns. It is essential that DOI and DOE not lose focus on being "smart from the start" as this process moves closer towards a ROD.

Units of America's National Park System were set aside for preservation so that future generations can enjoy what park visitors do today. Historian Wallace Stegner wrote that America's "National parks are the best idea we ever had. Absolutely American, absolutely democratic, they reflect us at our best rather than our worst." It is both DOI's and DOE's duty to ensure that America's greatest idea is not needlessly harmed by an important energy resource our nation desperately needs and that we so strongly support. It is not an either/or dilemma, and we remain committed to working with you to make this effort successful.

Thank you for considering our comments.

Respectfully,

David Lamfrom
California Desert Senior Program Manager

Kevin Dahl
Program Manager, Arizona Field Representative

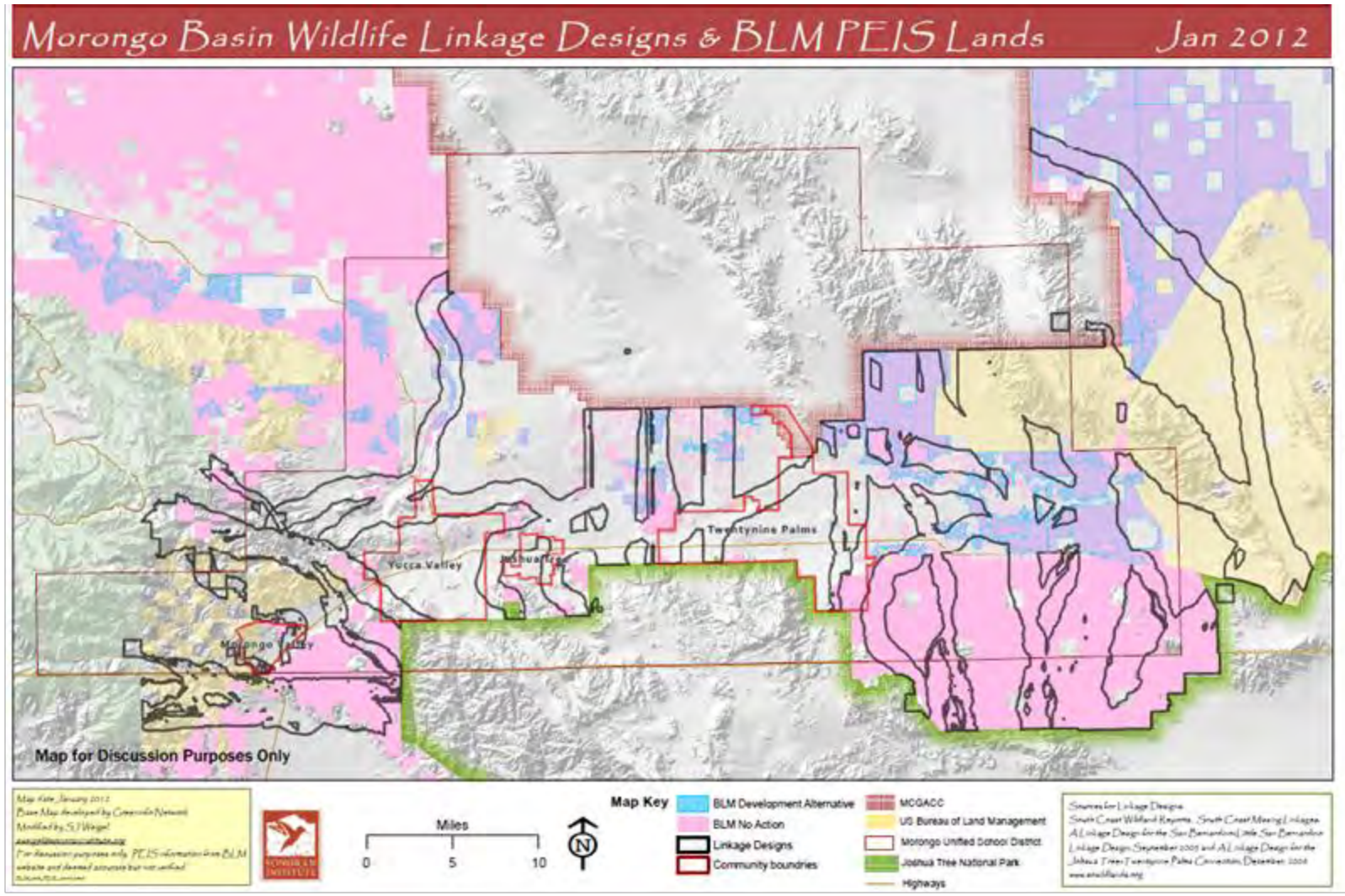
Seth Shteir
California Desert Field Representative

Lynn Davis
Senior Program Manager, Nevada Field Office

Bryan Faehner
Associate Director for Park Uses

Laraine Turk
President
Morongo Basin Conservation Association

Nancy Karl
Executive Director
Mojave Desert Land Trust


Morongo Basin Wildlife Linkage Designs & BLM PEIS Lands
Jan 2012
Yucca Valley
Twentynine Palms
Map for Discussion Purposes Only
Miles
0
5
10
Map Key
BLM Development Alternative
BLM No Action
Linkage Designs
Community boundries
MCGACC
US Bureau of Land Management
Morongo Unified School District
Joshua Tree National Park
Highways

Thank you for your comment, Erin Lieberman.

The comment tracking number that has been assigned to your comment is SEDDsupp20157.

Comment Date: January 27, 2012 18:40:46PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20157

First Name: Erin
Middle Initial:
Last Name: Lieberman
Organization: Defenders of Wildlife
Address: 1130 17th St NW
Address 2:
Address 3:
City: Washington
State: DC
Zip: 20036
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Western States DoW Comment Letter 1 27 12 FINAL.pdf

Comment Submitted:

January 27, 2012

The Honorable Ken Salazar
Secretary of the Interior
U.S. Department of the Interior
1849 C Street, S.W.
Washington, D.C. 20240

RE: Comments on the Notice of Availability of the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States. 76 Fed. Reg. 66958 (Oct. 28, 2011)

Dear Secretary Salazar:

Thank you for the opportunity to comment on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Western States ("PEIS"). These comments supplement and amplify issues raised in a separate comment letter that Defenders of Wildlife ("Defenders") and the Sierra Club jointly submitted with NRDC, The Wilderness Society, and a number of other conservation organizations.

As we transition toward a clean energy future, it is imperative for our future and the future of our wild places and wildlife that we strike the proper balance between addressing the near-term impact of large scale solar development with the long-term impacts of climate change on our biological diversity, fish and wildlife habitat, and natural landscapes. To ensure that the correct balance is achieved, we need smart planning for renewable power that avoids and minimizes adverse impacts on wildlife and wild lands and effectively compensates for remaining, unavoidable impacts. We believe the Bureau of Land Management ("BLM") has taken an important, and impressive, step toward developing a framework for solar development on public lands that provides certainty for developers and necessary assurances for the conservation community. We are particularly pleased to see BLM's commitment to the concept of Solar Energy Zones; avoidance of high conflict areas; and incorporation of ongoing planning processes including the Desert Renewable Energy Conservation Plan and Restoration Design Energy Project.

Defenders and the Sierra Club highlighted our concerns on the Draft PEIS in comments submitted, along with 23 other conservation organizations, on May 2, 2011. In particular, we focused on the insufficient analysis of impacts on wildlife and made recommendations for improving upon that analysis and developing a comprehensive mitigation framework. Consistent with our recommendations, we are pleased to see BLM is addressing zone specific resource impacts and conducting additional analysis, including development of zone specific action plans for each of the zones that BLM carried forward. Given the scale and scope of development being contemplated under a solar program and the significant risk posed to wildlife, habitat and ecosystems by that development, however, BLM must incorporate

additional analysis and develop a successful mitigation structure and adaptive management framework to ensure the continued viability of wildlife on BLM lands.

Critical to the success of the Solar Energy Program is the need to gather data and conduct rigorous environmental reviews of wildlife impacts at the appropriate spatial and biological scales. Therefore, these comments focus on BLM's authority to manage public lands under the Solar Energy Program consistent with existing BLM wildlife policy. Baseline ecological information should be analyzed and landscape-level (e.g., ecoregional or watershed level) solar energy development and conservation strategies should be developed and integrated to achieve specific wildlife management objectives consistent with BLM policy. These objectives can be accomplished through proper siting of projects to avoid and minimize project impacts and through the development and implementation of effective compensatory mitigation plans for unavoidable impacts to species, their habitats, and important natural resources within that landscape. BLM must also adopt a robust and science based adaptive management and monitoring plan to ensure that implemented mitigation measures are effective.

Consistent with sound decision making is timely consultation with the U.S. Fish and Wildlife Service ("FWS") under Section 7 of the Endangered Species Act ("ESA"). Unfortunately, the Supplement provides limited information on the timing or mechanics of project-level Section 7(a)(2) consultations. We offer our comments and recommendations for how BLM should address this issue below.

Lastly, BLM must pay particular attention to the cumulative impacts solar development across 20 million acres will have on Desert Tortoise, a federally listed threatened species. We offer comments specifically tailored to the proposed Desert Tortoise Variance Requirements Option 1 and Option 2, and the proposed Desert tortoise connectivity habitats as shown on Figure 2.2-2. Following the comment period, Defenders intends to work with BLM and FWS on developing adequate protection requirements for projects developed outside of solar energy zones.

I. BLM Should Manage Special Status Species Consistent with Existing BLM Wildlife Policy

As noted in our comments on the Draft PEIS, the Solar Energy Program should be consistent with BLM wildlife policy, the purpose of which is to provide guidance to the agency in the conservation of the species, habitat and ecosystems found on BLM lands. In order to be consistent with agency policy, the Solar Energy Program should conserve habitat and wildlife and result in net conservation benefits to BLM Special Status Species.[1] Establishing measurable wildlife and habitat standards will increase public support for the program and enable the agency to evaluate the effectiveness of conservation and mitigation measures. BLM wildlife policies should be applied to this PEIS and the program it ultimately implements, which the agency has acknowledged is a land use planning process.

[1] These are species which are proposed for listing, officially listed as threatened or endangered, or are candidates for listing as threatened or endangered under the provisions of the Endangered Species Act (ESA); those listed by a State in a category such as threatened or endangered implying potential endangerment or extinction; and those designated by each State Director as sensitive. BLM Manual 6840.01

BLM Special Status Species policy, found in Manual 6480, has two broad objectives: to conserve and recover ESA-listed species and their ecosystems; and to proactively reduce or eliminate threats to Bureau sensitive species in order to minimize the likelihood and need of listing these species under the ESA. To achieve net benefits for Special Status Species, the agency should be able to demonstrate, through programmatic, zone and project analysis and monitoring, that the Solar Energy Program contributes to the recovery of listed species and improves the conservation status of Bureau sensitive species. Risks to Special Status Species must be evaluated and quantified at appropriate spatial, biological, and temporal scales.[2]

Manual 6500 establishes BLM wildlife policy "to manage habitat with emphasis on ecosystems to ensure self-sustaining populations and a natural abundance and diversity of wildlife, fish and plant resources on the public lands." Policy objectives call for the agency to "restore, maintain, and *improve* wildlife habitat conditions" on BLM lands, and to "*increase the amount and quality of habitat available.*" (emphasis added). Wildlife policy is also found within the BLM's Rangeland Health Standards. Agency regulations at 43 CFR, Subpart 4180 state that "[h]abitats are, or are making significant progress towards being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Category 1 and 2 Federal candidate and other special status species."

In addition to BLM policy, under section 7(a)(1) of the ESA, BLM is explicitly obligated to utilize its existing authorities to affirmatively conserve ESA listed species. Section 7(a)(1) is designed to ensure that federal agencies "conserve" listed species, which means to improve the status of a species to the point where it no longer requires the ESA's protection. BLM policy requires developers to implement mitigation measures for impacted species.

We believe the aforementioned BLM wildlife policy and ESA obligations provide clear guidance for the BLM's solar program conservation objectives. Agency wildlife policy should be used to analyze and develop a solar program which will:

- Conserve and help recover ESA-proposed and listed species as well as candidate and other Special Status Species;
- Reduce or eliminate threats to BLM sensitive species and minimize the likelihood of listing these species under the ESA; and
- Ensure viable (i.e., self-sustaining) populations and a natural abundance and diversity of wildlife, fish, and plant resources on the public lands

These goals are achievable through smart planning and design without slowing the development of a growing solar industry or other energy development on BLM lands. In fact, careful planning that directs development away from the most important and sensitive places for wildlife and clarifies mitigation

[2] Analysis at the population level is consistent with BLM policy. For example, the 6840 manual calls for determining the "population condition" of sensitive species, and monitoring "populations and habitats" to determine whether conservation objectives are being met.

objectives will create greater certainty for developers and conservationists by providing clarity with regard to what wildlife management standards must be met and what mitigation measures must be implemented to achieve these outcomes. We believe that BLM should apply this standard to zone and project specific decision making. For example, where sensitive, threatened, and endangered species are present, BLM should demonstrate that development in zones, coupled with necessary mitigation measures, achieve a net conservation benefit.

With these specific goals in place for BLM Special Status Species, remaining impacts on individual species should be minimized and then offset through compensatory mitigation that creates benefits for wildlife in other appropriate locations.

II. BLM Must First Establish Clear and Consistent Conservation Goals for Landscapes Affected by Development or Proposed for New Solar Project Development

BLM and other federal and state agencies and non-profit organizations have conducted regional ecosystem and resource assessments that provide the foundation for evaluating resource conditions and establishing conservation strategies for protecting and restoring wildlife, habitat, and important natural resources. Using this baseline ecological information, landscape-level (e.g., ecoregional or watershed level) conservation strategies should be developed to achieve specific wildlife management objectives consistent with the standards described above – i.e., conservation of sensitive species and net conservation benefits for threatened, endangered, and Special Status Species through proper siting of projects to avoid and minimize project impacts and through the development and implementation of effective compensatory mitigation plans for unavoidable impacts to species, their habitats, and important natural resources within that landscape. It is important that BLM recognize that impacts on wildlife are not uniform. For some localized species, regional management is appropriate. For other wide-ranging species regional mitigation may not be appropriate. We expect BLM to address differing needs in the final EIS. We also ask that BLM provide greater detail on how ongoing conservation planning priorities and Recovery Plans will be incorporated. BLM has not made clear if, and how, design features and mitigation requirements under the Solar Energy Program will be consistent for species covered under those plans. Lastly, BLM should also clarify how the Solar PEIS interfaces with county-level zoning and open space policies.

While BLM is right to support large-scale conservation priorities through Regional Mitigation Plans, all Plans should be directly related to broader regional conservation plans. To achieve this over the long term, BLM should first consider existing State Wildlife Action Plans (SWAPS), current BLM wildlife management requirements and policies (discussed above), existing RMPs, and other relevant regional or local conservation plans. In addition, the BLM should work collaboratively with appropriate Landscape Conservation Cooperatives to obtain the benefit of local and regional knowledge regarding resource conditions and current wildlife management goals and strategies, as well as incorporating strategies for climate adaptation into specific regional mitigation plans. BLM and the FWS should work collaboratively to define a clear set of shared conservation priorities that guide decisions about where to develop and where to invest in conservation and/or restoration in the context of existing wildlife management strategies.

Ideally, the final PEIS would include maps associated with each SEZ that identify potential priority areas for habitat protection and restoration (i.e. Regional Mitigation Plans) consistent with established wildlife and natural resource management goals. This approach will help developers, conservationists, and state and federal wildlife agencies better understand how zone and project impacts will be mitigated and the associated costs of project development. It will also facilitate analysis of cumulative effects of solar energy development on landscapes and improve coordination among the varied interests who are affected.

The final PEIS should also identify species priorities for land and water acquisition for wildlife and plants that BLM already knows are likely to be affected by planned solar projects. Such an approach will create the certainty to allow more parties to develop mitigation options in advance before mitigation is needed. As discussed above, investments should be in priority conservation areas as determined by state wildlife action plans, regional conservation strategies, recovery plans, Nature Conservancy ecoregional assessments, or other credible analysis or plans that identify the areas of greatest ecological significance, and at a meaningful scale.

III. BLM Should Manage for Wildlife Consistent with Existing Policy Through Landscape Level Analysis that Addresses Conservation Objectives Through Proper Zone and Project Site Selection, Project Design, Effective Compensatory Mitigation, Consistent Monitoring, and Adaptive Management

A. BLM Should First Seek to Find Ways to Avoid Impacts Entirely and Minimize Additional Impacts through Project Design and Configuration

As is true with any project that could affect sensitive resources, agencies should seek first to find ways to avoid impacts entirely, minimize additional impacts through project design and configuration, and effectively mitigate those impacts that cannot be avoided. We believe that avoidance and effective mitigation can accomplish a net conservation benefit for BLM Special Status Species. It is important for BLM to acknowledge that where avoidance, minimization, and compensatory mitigation remain inadequate to achieve BLM wildlife policy objectives, development should not precede at either the project or zone level until this deficiency has been remedied.

In the draft PEIS, BLM failed to establish mitigation goals or requirements for resource impacts. Instead, the draft PEIS stated that mitigation will minimize impacts, but offered no supporting analysis. *See, e.g.*, DPEIS, p. ES-18 (Impacts to groundwater and surface water flow systems, water contamination, water quality degradation by runoff or excessive withdrawals "can be effectively mitigated"; DPEIS, pp. 5-24, 5-25, 5-26 (mitigation measures would reduce the level of impacts to soils from site characterization, construction, operations and decommissioning); DPEIS 5-41 (mitigation measures relating to site design, storm water, and avoidance of critical landscapes would reduce impacts relating to altered hydrology); DPEIS, pp. 11.1-61, 11.2-62,11.4-64 (land disturbance impacts to water resources "will be minimized"); DPEIS, Tables 5.10- 1, 5.10-2, 5.10-3, 5.10-4 (claiming an ability to mitigate impacts to ecological resources). In other cases, assertions that impacts can or will be

effectively mitigated are contradicted by statements elsewhere in the DPEIS. *See, e.g.*, DPEIS Tables 5.10-1, 5.10-2, 5.10-3, 5.10-4 (noting that overall it is relatively difficult to mitigate impacts to ecological resources).

While we understand that the specific mitigation requirements, and the actual ability to mitigate significant impacts to environmental resources, will not be known until BLM reviews specific projects, neither the draft nor the Supplement address which mitigation measures will be implemented, and if they prove to be ineffective, that other mitigation measures will be put in place. Effective mitigation should be based on landscape level analysis at a scale that is appropriate to the geographic area and resources of concern for a particular solar energy zone or project.

The final PEIS must contain analyses that estimate how or to what extent mitigation will reduce impacts – BLM must show whether and how mitigation will work, must provide a more accurate assessment of environmental effects and must temper its conclusions that impacts will be mitigated when it does not have supporting data. In addition, in describing an approach to mitigation BLM must address an adequate avoidance-minimization-mitigation hierarchy based, in part, on the risk to a species from ineffective or failed mitigation (e.g., low success with mitigating for desert tortoises). In particular, mitigation measures should be specific to the wildlife species and other resource impacts that will occur. BLM offices need a clear standard for review of mitigation projects that require a clear description and quantification of wildlife impacts and offsets.

B. BLM Must Develop Clear Guidelines and an Effective Strategy to Mitigate Those Impacts that Cannot be Avoided

Understanding that in certain circumstances impacts cannot be avoided, and that where BLM determines that unavoidable adverse impacts can be addressed through habitat restoration and/or acquisition and the project can proceed, BLM must adopt a consistent approach to compensatory mitigation.

A compensatory mitigation hierarchy should follow the approach below.

1. *Where compensatory mitigation is warranted, lands and resources should be acquired and/or restored on the same landscape and, more importantly, in the same ecosystem or watershed that will be impacted by the project or development.* The purpose of mitigation is to avoid, minimize, and compensate for project impacts on wildlife, wild lands, and important natural resources. To ensure the continued viability of affected species and/or provide a net conservation benefit toward achieving recovery of candidate, threatened, and endangered species, compensatory mitigation should be targeted toward actions that will improve habitat and/or resources, preserve connectivity, and produce other benefits for wildlife populations in the affected area. For most projects, this is likely to be in the same watershed or landscape as the project to be mitigated. For wide-ranging species, this may not necessarily be the case. However, all compensatory mitigation should be designed and developed consistent with existing wildlife management plans (e.g., SWAPs) and the wildlife management policies and objectives for BLM stipulated above.

2. *Where non-federal lands in private ownership are available, the loss of federal lands and resources that provide habitat for threatened and endangered species and sensitive species should be successfully mitigated by the acquisition and permanent protection of currently non-federal lands and resources that provide better than equivalent benefits to wildlife.* BLM should place the highest priority on acquisition, restoration, and long-term management of private lands to mitigate remaining wildlife impacts that cannot be minimized. If newly protected lands are to be held in non-federal ownership, conservation values must be given similar permanent protection through deed restrictions and easements, and funding must be secured for long-term management of these lands. We believe the final PEIS should establish *a preference* for acquisition, restoration and management of private lands versus allocation of mitigation dollars to federal lands, while recognizing that in many cases it will be necessary to pursue mitigation measures on federal lands as well. In some locations such as Nevada, there is inadequate private land available for acquisition so the only possible mitigation is restoration, enhancement and permanent protective management of public lands.

3. *On federal mitigation lands, permanently protect conservation values.* If lands acquired for mitigation purposes are to be transferred to federal ownership, they must be protected from future development. The Supplement states: "To the extent that public lands are used to mitigate for the impacts of solar development whether in or out of the SEZs, the BLM will develop strategies to ensure that any mitigation lands are protected to provide enduring conservation benefits." Supplement, Solar PEIS 2-24, 25. We strongly agree and recognize that certain mitigation options provide these protections. One option by which to do so is to withdraw these lands from use under federal mining and other land use laws and cover them by a plan amendment that ensures long-term protection of their conservation values. This option, however, cannot guarantee protection in perpetuity, upon which the mitigation is based, since new plan amendments can alter the land management. Our preferred option is to require that third parties secure easements or enforcement rights through deed restrictions before property is transferred to federal ownership.

   In either case, this additional protection is necessary because federal lands face extraordinary energy development and other pressures, and mitigation efforts will fail if an acre protected today, in compensation for a loss elsewhere, is developed and made unsuitable to wildlife through some future project or administratively authorized activity. Future mining, energy development, grazing and other non-compatible uses need to be prohibited using legally effective means (e.g. deed restrictions with enforcement rights held by third parties).

   To the extent that mitigation occurs on public lands, BLM must take measures to ensure it is not offering mitigation at below-market costs compared to mitigation options on private lands and that it is not simply using private funding to pay for activities which it (or other agencies) already has an obligation and duty to carry out.

   In particular for endangered species, federal agencies have special duties under the Endangered Species Act to affirmatively use their authorities to promote endangered species conservation. To

prevent the public from essentially subsidizing the costs of mitigation, BLM needs to ensure that private funding does not simply substitute for public funding for land management activities on a parcel now being used to mitigate solar impacts.

4. *On federal and non-federal mitigation lands, require endowments to ensure the perpetual management of mitigation lands.* The protection of land hosting affected wildlife populations or the restoration of such lands to better support wildlife will mitigate impacts only for as long as the wildlife populations endure. The final PEIS should be used to establish guidance on the establishment and transparent operation of regional or other large-scale endowments to maintain mitigation values over time. An established mitigation lands endowment program between the California Department of Fish and Game and the National Fish and Wildlife Foundation is a good model for what is needed under this PEIS. These funds should be set up to serve one or multiple solar development zones. This premise of establishing a perpetual management endowment is well established in federal conservation banking policy and in some state law and policies. It would be inappropriate for BLM to hold private land projects needing Section 10 incidental take permits under the ESA to a higher mitigation standard than for those projects occurring on public lands. We do not believe that such mitigation funds, whether maintained for the management of public or non-public lands, should be held by a federal entity.

5. *Land acquisition is inadequate to meet a net conservation goal and must be supplemented with species restoration and management activities and funding.* Land acquisition by itself may not satisfy a net conservation benefit standard for particular species because it may simply result in the protection of a wildlife resource that is already present or may fail to address current critical stressors affecting the wildlife resource. We believe most mitigation projects should include a significant commitment to restoration and long-term management, allocating mitigation dollars to actions that significantly enhance sensitive, threatened and endangered wildlife and plant populations. Such projects create a positive change in populations that can help offset direct and incidental losses of individuals and local populations on solar development sites. Establishing a priority on management and restoration through this PEIS also creates a clear signal which would incentivize the creation of private mitigation banks to secure and begin implementing such restoration in advance of actual mitigation plans being established for future projects. Permanent retirement of grazing permits should be included among activities that could result in restoration of habitat for affected wildlife.

6. *Improve certainty for developers and improve wildlife benefits by creating expansive service areas for mitigation, pooling mitigation funds and using a transparent and competitive process to allocate resources to affected species conservation efforts*

   Project-by-project development of mitigation formulas and identification of mitigation projects is a wasteful system whose flaws have already been documented in case studies of wetland mitigation and endangered species banking. This process also creates higher costs and lower certainty for companies. In our comments on the Draft, we recommended the final PEIS include explicit direction to ensure that mitigation efforts will be coordinated within a large “mitigation

> service areas" (MSAs) – designed to be consistent with the ecological areas, watersheds, or species habitat needs for the wildlife, habitats, and natural resources to be protected or restored to compensate for project impacts.

We are encouraged to see BLM move forward with proposed Regional Mitigation Plans, a concept similar to the recommended MSAs. We believe these Plans will provide greater incentives for development in proposed and future zones. Consistent with our recommendation, BLM noted that these Plans can be used to "enhance the ability of state and federal agencies to invest in larger-scale conservation efforts that benefit sensitive species…[for] better long-term protection." Supplement Draft EIS, 2-24. To adequately develop effective mitigation plans, BLM will need to conduct landscape level analysis at a scale that is appropriate to the geographic area and resources of concern for a particular solar energy zone or project. Effective off-site mitigation would require sufficient analysis to ensure that proposed off-site mitigation is commensurate with the loss of habitat and ecosystem function in areas proposed for development.

C. Proper Management and Mitigation Require Robust Monitoring and Effective Adaptive Management

A recently published review paper by the United States Geological Survey (Lovich and Ennen 2011) reveals a concerning dearth of information in the body of scientific literature quantifying impacts of large scale solar energy development on wildlife populations. Its findings underscore the need for scientifically sound monitoring and research to be conducted in order to gain a reliable understanding of these impacts. Lovich and Ennen (2011) conclude:

> On the basis of our review of the existing peer-reviewed scientific literature, it appears that insufficient evidence is available to determine whether solar energy development, as it is envisioned for the desert Southwest, is compatible with wildlife conservation…The issue of wildlife impacts is much more complex than is widely appreciated, especially when the various scales of impact (e.g., local, regional, global) are considered. Our analysis shows that, on a local scale, so little is known about the effects USSEDO on wildlife that extrapolation to larger scales with any degree of confidence is currently limited by an inadequate amount of scientific data. Therefore, without additional research to fill the significant information void, accurate assessment of the potential impacts of solar energy development on wildlife is largely theoretical but needs to be empirical and well-founded on supporting science.

In order for management decisions to be adequately informed moving forward, it is crucial that the BLM's nascent Solar Energy Program implement well designed empirical studies that will quantify the impacts of solar development on wildlife populations and their habitats, as well as adequately assess the effectiveness of mitigation measures and strategies that are implemented in an effort to compensate for these impacts.

Effective monitoring, mitigation, and adaptive management are foundational to a successful BLM solar development program; without them, development will be needlessly inefficient, contentious, and

disruptive. Although the Special Status Species analysis performed for SEZs in the Draft PEIS and expanded to cover all alternatives in the Supplement provides a useful screen to highlight conflict areas and make ballpark comparisons of the various alternatives, the detail needed to evaluate the monitoring and adaptive management framework has been deferred until the final PEIS. Our detailed recommendations with respect to Monitoring and Adaptive Management of the Solar Energy Program can be found in Appendix 1.

Data to determine the current condition (i.e., ecological baseline) of wildlife, lands, and resources where solar project development and SEZs are proposed is essential to ensuring that wildlife management goals can be achieved. So, too, is the ability to monitor the effectiveness of mitigation measures in relation to wildlife and resource management goals, and to determine if past investments in mitigation have been effective, adequate, or if mitigation strategies need to change due to past failures or changing resource conditions (e.g., climate change). DOI agencies have too often failed to establish clear and measurable biological objectives in their own work and in requirements of third parties seeking agency approval. The absence of objectives feeds into problems with inadequate monitoring. The result is that too many projects fail to adequately compensate for impacts, and DOI agencies have a poor record of being able to track such performance. While the Draft PEIS lacked assurances that implementation and effectiveness of mitigation measures will be monitored, the BLM did provide additional detail in the Supplement. Monitoring resource conditions and the effectiveness of mitigation efforts is also an essential element in setting mitigation priorities, particularly if mitigation options are viewed across a large Regional Mitigation Plan.

Additionally, to evaluate the cumulative impacts on species and other resources, and to compare impacts of different solar projects, locations and technologies, monitoring protocols should be standardized within the appropriate biological scale for all projects, including transmission and related substations. Some protocols may need to be tailored (and thus different) for different ecosystems, watersheds or species. All monitoring data should be made publicly available in data sets with a common format (recommended by leading scientists who want to conduct studies) that may be easily downloaded and utilized by researchers and the public at large. This transparency will enable timely and robust evaluation of program impacts, efficacy of mitigation measures, and full engagement of the scientific community.

The BLM must use the final PEIS to define the types of outcomes (population size, viability, reproductive performance, age class distribution, etc.) that it will require from mitigation. Additional final PEIS analysis should describe the expected results of mitigation and how it will serve to guide any monitoring program that BLM and applicants implement. “Monitoring is fundamental for ensuring the implementation and effectiveness of mitigation commitments, meeting legal and permitting requirements, and identifying trends and possible means for improvement.” 76 Fed. Reg. at 3849. BLM must establish clear requirements for monitoring and reporting – to the public and the agency – on the success in achieving those goals. The monitoring program should also provide for public involvement. 76 Fed. Reg. at 3851.

It is critical that BLM consider the best available science, previous agency efforts, and a full range of public comments to devise the best system for integrating monitoring, adaptive management, and

mitigation. The recommendations included in Appendix 1 below build off of information and references provided on pages 2-13 and 2-14 of the Supplement, and are intended to flesh out the general elements and structure that would be needed for a scientifically rigorous and defensible strategy.

The Record of Decision for the Jack Morrow Hills Coordinated Activity Plan, prepared by the The Rock Springs WY BLM Field Office, contains an adaptive management approach we believe BLM should incorporate into any adaptive management plan for the Solar Energy Program. Appendix 2 (Implementation, Monitoring, and Evaluation Process) provides the specificity needed to evaluate the planned adaptive management program (and is available on line at http://www.blm.gov/style/medialib/blm/wy/jmhcap/rod.Par.37876.File.dat/02appendices.pdf).

We particularly note the following, as examples of the sort of detail that should be contained in any and all adaptive management plans created pursuant to the Solar PEIS:

- Table A2-1 Resource Management Indicators - p. A2-7 – contains a broad set of indicators
- Table A2-2 Indicator Detail - pp. A2-8 – A2-10 – contains multiple sources for data
- Table A2-3 Measurement Detail - pp. A2-11 – A2-13 – contains measures of change and triggers for management actions
- Figure A2-2 CAP Management Process - p. A2-15 – provides a useful illustration of the adaptive management process

In addition to setting out a comprehensive set of measurements, triggers for action, and a range of actions that will be taken to meet the standards set out below, a defensible monitoring and adaptive management program must be based on a thorough understanding of ecosystem processes based on detailed conceptual models, pilot studies to define sampling intensity and study design, an optimal set of indicators based on a set of accepted criteria, full involvement of a wide range of experts and stakeholders, and a defined framework to correct monitoring and adaptive management as needed. These issues are discussed further in Appendix 1.

Further, BLM must commit to monitoring and adaptive management and criteria for key resources, such as BLM Special Status Species, lands with wilderness characteristics, wild and scenic river segments and ACECs. Indicators can include the status of wilderness characteristics, outstanding river values, and the relevant and important values for which ACECs have been designated in the Final EIS.

D. BLM Must Consider the Impacts of Climate Change in Assessing Impacts from the Solar Energy Program on Wildlife

The warming of the climate due to greenhouse gas emissions underscores the need to rapidly advance deployment of renewable energy sources that do not emit carbon dioxide. At the same time, climate change poses such a threat to species and ecosystems that steps must be taken to ensure that development, even solar energy development, does not further threaten sensitive natural resources or hinder their ability to adapt to a changing climate.

Executive Order 13514 of October 5, 2009, directs all federal agencies to participate in the development of a national adaptation strategy in response to the impacts of climate change. Further, Department of the Interior Secretarial Order No. 3289, as amended, directs the Department to "tak[e] the lead in protecting our country's water, land, fish and wildlife, and cultural heritage and tribal lands and resources from the dramatic effects of climate change that are already occurring…." It further states that the Department "***must*** [emphasis added] … conserve and manage fish and wildlife resources, including over 800 native migratory bird species and nearly 2,000 federally listed threatened and endangered species…." A June 3, 2011 memorandum from the Deputy Secretary of the Interior to Assistant Secretaries and Heads of Bureaus and Offices further directs the completion of a Department-wide climate change adaptation plan by June 4, 2012, consistent with CEQ guidelines and states that:

> Climate change adaptation planning is needed to address the effects of climate change that Impact the Department's mission, programs, operations and assets, including our infrastructure and the land and water resources under our responsibility. Climate change adaptation is a critical complement to climate change mitigation. Climate change mitigation is an important undertaking that the Department is addressing in a number of ways including, in particular, through our support of renewable energy development on public lands.

In 2009, Congress called upon federal, state and tribal agencies to collaborate to develop a national strategy to safeguard fish, wildlife, plants, and their habitats in the face of a changing climate. BLM is a steering committee member on the National Strategy team, along with all the other major federal land, water, and wildlife agencies, and state and tribal natural resource managers. The Strategy, released in draft form on January 20th, provides a framework "to enable natural resource professionals and other decision makers to take action to conserve fish, wildlife, plants and ecosystem functions, as well as the human uses, values and benefits these natural systems provide, in a changing climate."

The Strategy outlines seven key Goals, three of which are relevant to BLM in the siting, development, and mitigation of solar energy generation facilities:

Goal 1: Conserve habitat to support healthy fish, wildlife and plant populations and ecosystem functions in a changing climate. Keys to this strategy include identifying and protecting an ecologically-connected network of lands and waters that will support a diverse array of habitats and wildlife, and allow species maximum opportunity to shift naturally with climatic changes. The Strategy also calls for restoring habitat and establishing new ecological connections where needed.

Goal 2: Manage species and habitats to protect ecosystem functions and provide sustainable cultural, subsistence, recreational, and commercial use in a changing climate. Climate considerations should be incorporated into land management plans at multiple scales, from the local to landscape and state level. Species and habitats vulnerable to climate change should be identified and managed accordingly.

Goal 7: Reduce non-climate stressors to help fish, wildlife, plants and ecosystems adapt to a changing climate. Existing stressors to species and habitats, including habitat loss, fragmentation and degradation, overuse, pollution, invasive species, pests and diseases, should be minimized to the maximum extent

possible. These stressors have been demonstrated to cause imperilment and extinction even in the absence of climate change. Even worse, many of these interact with and are worsened by warming climate conditions.

The BLM should address the issues associated with climate change and implications for water resources, wildlife and their habitats in the context of the final PEIS. Land and water management plans for solar facilities and associated infrastructure should incorporate climate change considerations. Specific adaptation strategies and management direction consistent with the national adaptation strategy and the forthcoming Department-wide climate adaptation plan should be incorporated into specific RMPs as amended by the final solar PEIS.

VI. Consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act is a Prerequisite for Sound Decision Making

We are encouraged to see that BLM is working with the U.S. Fish and Wildlife Service and is moving forward with Section 7(a)(1) and 7(a)(2) consultation. The Supplemental PEIS, however, provides limited information on the timing or mechanics of project-level Section 7(a)(2) consultations. For example, it is unclear how guidance from these programmatic Section 7 consultations will be incorporated into project level Section 7(a)(2) consultations. It is also unclear whether, and if so, how BLM and FWS will seek to integrate programmatic and project-level consultations through tiered or appended consultations. FWS and BLM should provide stakeholders with greater clarity on how they plan to comply with section 7 requirements, so that stakeholders can better anticipate future ESA requirements and provide input as early as possible.

Because the Solar PEIS will affect many listed species, BLM should view it as an opportunity to proactively improve the agency's implementation of the ESA. For example, ESA consultations typically do not link recovery objectives for listed species to section 7(a)(2) effect determinations, conservation measures, and reasonable and prudent measures and alternatives. BLM's section 7 consultation could address this deficiency by ensuring that no solar project approved under the PEIS undermines the recovery goal of any listed species. BLM can also improve its implementation of the ESA by working with FWS to ensure that the agencies properly track the *cumulative* take of any listed species. Doing so will allow BLM to partially verify its ability to achieve a net conservation benefit standard for listed species.

VII. Recommendations for Increasing Desert Tortoise Protection Measures in the Solar PEIS

In its revised recovery plan for the Mojave population of the Desert tortoise,[3] the FWS found that the species continues to face a moderate degree of threat which has increased since it was listed in 1990 as a

[3] U.S. Fish and Wildlife Service. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.

threatened species and since the first recovery plan was finalized in 1994. The FWS also found that the Desert tortoise has a low potential for recovery due to uncertainty surrounding management of threats to the species, and potential conflict with land uses and commercial development within its habitat. New and significant threats have emerged that the 2011 revised recovery plan does not address specifically. The primary of those threats is renewable energy development. Impacts of renewable energy development on Desert tortoises and their habitat could include "…habitat fragmentation, isolation of desert tortoise conservation areas, and the subsequent possibility of restricted gene flow between these areas." (Revised Recovery Plan, Preamble, p. iii). Implementation of a number of the recommended Recovery Actions, as articulated throughout the Plan, would make progress towards reducing threats associated with energy development (Revised Recovery Plan, Preamble, p. ii).

1. *Recovery Action 2.1, Conserve intact desert tortoise habitat* -Recommends that solar project facilities be sited outside Desert Wildlife Management Areas and Areas of Critical Environmental Concern, as well as the development of a cumulative impacts assessment to identify mitigation measures for this type of activity.

2. *Recovery Action 2.9, Secure lands/habitat for conservation* -Recommends conserving sensitive areas that would connect functional habitat or improve management capability of surrounding areas, such as inholdings within tortoise conservation areas that may be open to renewable energy development.

3. *Recovery Action 2.11, Connect functional habitat* - Recommends connecting blocks of desert tortoise habitat, such as tortoise conservation areas, in order to maintain gene flow between populations.

4. *Recovery Action 4.3, Track changes in the quantity and quality of desert tortoise habitat* - Recommends quantifying the loss or restoration of habitat as it relates to potential energy and other projects.

5. *Recovery Action 5.5, Determine the importance of corridors and physical barriers to desert tortoise distribution and gene flow* - This action, in part, would determine the effects of corridors and barriers like energy development, on desert tortoise movement and recovery.

However, the FWS cautions that additions to the Revised Recovery Plan will be necessary and included the following statement: "Still, the plan does not provide a single, comprehensive strategy for addressing renewable energy. To more comprehensively address this threat, the Service will soon add a renewable energy chapter to the living Plan that will act as a blueprint to allow the Service and our partners to comprehensively address renewable energy development and its relationship to desert tortoise recovery." (Revised Recovery Plan, Preamble, p. ii).

Recently a new species of Desert tortoise (*Gopherus morafkai*) has been identified[4] which reduces the distribution of the threatened *Gopherus agassizii* to about 30 percent of its former range. Because the reduction carries implications for species conservation, the authors argue that the Agassiz's desert tortoise may require a higher level of protection under the Endangered Species Act to ensure the level of management that would ensure its chances of survival and recovery.

Recommendations: Unfortunately, solar energy development authorizations and programmatic planning for future solar energy development is proceeding in the absence of a comprehensive strategy for addressing and resolving the issues associated with these activities, even in the Revised Recovery Plan. Thus, proceeding with precaution and erring on the side of conservation is prudent and essential for protection of what remains of the threatened Desert tortoise and its habitat and providing conditions under which it may eventually recover and no longer require the statutory protection afforded by the Endangered Species Act.

With the above in mind, we make the following recommendations for avoiding and minimizing impacts to the Desert tortoise and its habitat in California and adjacent portions of the Ivanpah Valley in NV:

1. Desert Tortoise Conservation Lands. We agree that in the California Desert Conservation Area, Desert Tortoise Conservation lands designated by BLM as Desert Tortoise ACECs (also known as "Desert Wildlife Management Areas" or "DWMAs") should be excluded from solar energy development. The exclusions should also include designated critical habitat and Wilderness Areas. It is equally important that all areas previously acquired by the BLM and other land managers for mitigation to offset impacts to tortoises should be excluded from consideration. Such compensation lands were acquired to offset significant impacts, some of which, like the Fort Irwin expansion, were regionally significant; to develop them now would serve to reverse their intended purposes.

Their development would necessarily require that U.S. Fish and Wildlife Service and associated federal lead agencies reconsider dozens of formal Biological Opinions, which would no longer function under integral assumptions at the time they were drafted. Catellus lands (colloquially known as "railroad lands") acquired by BLM is another category of lands that should be excluded from consideration for solar development, as they were intentionally acquired with conservation as their primary land management objective.

2. Proposed Variance Areas and Desert Tortoise Conservation. BLM seeks comments on two options for management of Variance Areas:

[4] Murphy, R.W., K.H. Berry, T. Edwards, A.E. Leviton, A. Lathrop A, and J.D. Riedle. 2011. The dazed and confused identity of Agassiz's land tortoise, *Gopherus agassizii* (Testudines, Testudinidae) with the description of a new species, and its consequences for conservation. ZooKeys 113: 39–71.

Option 1 – "No special variance application requirements for desert tortoise. The BLM will consider all variance applications within the range of desert tortoise on a case-by-case basis in coordination with the USFWS"; and

Option 2 – "For all applications in variance areas that are within the range of desert tortoise but located outside of proposed connectivity areas (see light blue areas in Figure 2.2-2), the applicant must provide documentation of the Project area has less than or equal to 5 tortoises (>160 mm Midline Carapace Length) per square mile. Based on the USFWS pre project tortoise survey, the point estimate for tortoises needing to be translocated would be less than or equal to 35 tortoises >160 mm Midline Carapace Length). The project is sited in a manner that maintains at least one 3 mile (5 km) wide, minimally disturbed connectivity corridor to ensure that the project does not isolate or fragment tortoise habitat and populations."

Comment on Option 1. This option will lead to continued loss of Desert tortoises and their habitats outside of proposed exclusion areas, described above, including landscape-level connectivity habitats that link conservation areas. Simply relying on USFWS coordination (i.e., Section 7(a)(2) consultation provisions of the ESA) will not provide adequate protection and conservation because the standard under such consultation will only be to avoid jeopardizing the continued existence of the species and avoid adverse modification or destruction of its designated critical habitat. Thus, this option will not contribute to the conservation (recovery) of the Desert tortoise.

This option is inconsistent with the Revised Recovery Plan for the Mojave Population of the Desert Tortoise, which calls for:
1) *Recovery Action 2.9, Secure lands/habitat for conservation* - conserving sensitive areas that would connect functional habitat or improve management capability of surrounding areas, such as in holdings within tortoise conservation areas that may be open to renewable energy development, and
2) *Recovery Action 2.11, Connect functional habitat* - connecting blocks of desert tortoise habitat, such as tortoise conservation areas, in order to maintain gene flow between populations.

The plight of the desert tortoise, more now than ever, requires certainty in coordinated conservation efforts. The 2011 determination that the Threatened population of the desert tortoise (*Gopherus agassizii*) now comprises a second species (*Gopherus morafkai*) suggests that protection of the Agassiz's desert tortoise, which is the species affected by the PEIS, is even more critical now than before the second species was described.

Option 1 is the same as the "No Action" alternative and should be identified as such. We do not support this option.

Comment on Option 2. This option is only partially consistent with the Revised Recovery Plan for the Mojave Population of the Desert Tortoise, which calls for:

1) *Recovery Action 2.9, Secure lands/habitat for conservation* - conserving sensitive areas that would connect functional habitat or improve management capability of surrounding areas, such as inholdings within tortoise conservation areas that may be open to renewable energy development; and
2) *Recovery Action 2.11, Connect functional habitat* - connecting blocks of desert tortoise habitat, such as tortoise conservation areas, in order to maintain gene flow between populations.

This proposed option fails to recognize that genetically important tortoises may occur in low density within otherwise high quality habitats. Desert tortoises may persist in these areas because they are uniquely (perhaps genetically) able to resist environmental factors that may have eliminated "less fit" tortoises, and they may persist because they have natural resistance to disease. To eliminate them because they occur in lower density would be a serious mistake in the context of tortoise recovery. Due to the effects of human activities on Desert tortoise populations and their habitats, and especially considering the documented dramatic decline in Desert tortoise densities throughout many areas within its range in California due to diseases, predation and other human related activities, the proposed criterion of limiting project consideration to areas containing up to five Desert tortoises per square mile may result in loss of otherwise high quality habitat and higher potential populations. Loss of these areas based on consideration of population density alone is insufficient. We do not support Option 2 as proposed, and offer a recommended Modified Option 2, below, that we believe will lead to minimizing loss and risk to Desert tortoises and less controversial outcomes.

Recommendation: Adopt a Modified Option 2.

We recommend that the USGS desert tortoise habitat suitability model and Desert tortoise density be used to provide interim criteria for areas where variance applications will be accepted but also recognize that development of a more detailed model is needed to guide conservation of the species at the appropriate scale required for solar project siting. The USGS desert tortoise habitat suitability model was intended to provide guidance for conservation planning at the range-wide scale, and represents the most comprehensive effort to define suitable habitat for the species to date. The one kilometer cell size used for this analysis and the emphasis on topographical, soil, and meteorological data as predictors make the model useful for predicting at the landscape-scale, but they do not provide the needed precision for analyses at the sub-regional scale or at the solar project sitting level.

Until additional refinement of a habitat model is completed by FWS, the following criteria should be met:

For applications in variance areas that are within the range of desert tortoise but outside of proposed connectivity areas, [as modified by our recommendations in these comments], the applicant must provide documentation of the following:

- Project area has less than or equal to 2 tortoises (>160 mm Midline Carapace Length) per square mile; and

- Where Habitat Potential Index Value is 0.7 or greater, verification that the habitat condition is "highly converted."[5] This verification should be provided through application of science-based models of land conditionor through field inspection.

Our recommended criterion of two adult Desert tortoises per square mile is based on current range-wide density estimates within recovery units that range from three to 36 per square mile.[6]

The predicted habitat suitability rating of 0.7 and above (on a scale of 0 to 1.0) is significant because 95% of the lands with a rating of greater than 0.7 in the USGS habitat suitability model also had confirmed presence of Desert tortoises based on field survey data. This habitat model, based on 10 environmental factors that included soils, vegetation, precipitation, elevation, and topography, is a sufficiently robust, science-based model, for interim land use planning and conservation planning for the Desert tortoise and its habitat, but further refinements are needed to make habitat suitability predictions more accurate and precise, both to protect important habitat as well as to ensure that areas not important for the species are not mis-identified.

Pursuing a model at finer scales would require the use of variables that directly or indirectly assess the resources used by tortoises when selecting habitat, such as presence of plants used for forage, vegetation diversity, density of annuals vs. perennials, and so on In addition, habitat connectivity analyses must be integrated with habitat suitability analyses in order to ensure that the focus is on preserving suitable and occupied habitat that is connected with other population areas as well as to ensure these connectivity areas themselves are preserved to provide meta-population persistence. The USGS desert tortoise habitat suitability model does not account for urban development, habitat destruction/fragmentation, or natural disturbances that have lowered habitat quality in recent years. Thus, we recommend using The Nature Conservancy's (TNC's) Mojave Desert Ecoregional Assessment[7] and the Conservation Biology Institute's Framework for Effective Conservation Management of the Sonoran Desert in California[8] to exclude these lands as having little or no habitat or conservation value. We recognize that it may be necessary to verify the habitat condition through field inspection and to accurately assess the adult Desert tortoise density. We also recognize that modeling of suitable Desert tortoise habitat needs to be refined through further field study and analysis, and that

[5] "Highly converted" refers to urban, suburban and agricultural lands that are heavily altered. While some can support conservation targets, their ecological context is highly compromised.

[6] U.S. Fish and Wildlife Service. 2010. DRAFT Range-wide Monitoring of the Mojave Population of the Desert Tortoise: 2010 Annual Report. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. 49 pp.

[7] Randall, J. M., S.S. Parker, J. Moore, B. Cohen, L. Crane, B. Christian, D. Cameron, J. MacKenzie, K. Klausmeyer and S. Morrison. 2010. Mojave Desert Ecoregional Assessment. Unpublished Report. The Nature Conservancy, San Francisco, California. 106 pages + appendices. Available at: http://conserveonline.org/workspaces/mojave/documents/mojave-desert-ecoregional-2010/@@view.html.

[8] Conservation Biology Institute. 2009. A Framework for Effective Conservation Management of the Sonoran Desert in California. Prepared for The Nature Conservancy. 78 pp. + appendices

updated models should be developed soon and applied to our recommended criteria in Variance Areas as they become available.

Successful recovery of the desert tortoise requires that existing populations and their higher rated habitats are protected from deleterious human impacts. If recovery actions are successful to the point of promoting population increases, lands included in our recommended Modified Option 2 where solar energy development would be inappropriate could be the very areas into which newly recruited tortoises would need to move in response to climate change or simply expand their population in response to successful recovery efforts.

3. Desert Tortoise Connectivity Habitats. Connectivity or linkage habitats for the Desert Tortoise are also addressed by BLM, as follows:

> For all applications in variance areas within the range of desert tortoise and within proposed connectivity areas (see red hatched areas in Figure 2.2-2), siting will be discouraged given anticipated high conflict.[9] However, if a variance application is submitted in this area, applicants will be subject to the translocation limitations and maintenance of minimally disturbed connectivity corridors as described above. In addition, applicants will work with the BLM and FWS to survey an area 3 to 4 times larger than the proposed project area in an attempt to find a suitable project location that meets all of the following criteria:
>
> - Projects will be sited in the lowest tortoise density area surveyed and will not exceed 2 tortoise per square mile.
> - Projects will be sited in locations where native vegetation communities are degraded or soils are compacted, such that habitat restoration potential is low.
> - Mitigation for projects within the tortoise connectivity areas should be prioritized to improve condition within the connectivity area and if these options do not exist, mitigation should be applied toward the nearest tortoise conservation area (e g., Desert Wildlife Management Area [DWMA] or critical habitat).

Comment on Connectivity or Linkage Habitats. The basis for BLM's proposed connectivity habitats was not provided. Thus, it is not possible at this time to provide a complete analysis of the adequacy of the impact minimization provisions. We strongly recommend that BLM's proposed connectivity habitats shown on Figure 2.2-2 be replaced with connectivity or linkage habitats recommended by the FWS in their comments on the Draft PEIS for Solar Energy Development, dated May 6, 2011, and that their recommendations be adopted in the final version of the habitat connectivity map in the Final EIS. Their recommendation is contained on Figure B-2 in the form of a map and narrative. We include it in our comments as Appendix 2. It is important to understand that their recommendations identified lands to be included in a "…minimum linkage design necessary for the conservation and recovery of the Mojave population of the desert tortoise…."

Recommendation: Exclude Desert Tortoise Connectivity Habitat from Development

We strongly recommend that solar energy development be excluded from all Desert tortoise connectivity or linkage habitats identified by the USFWS, except in limited situations where BLM and the USFWS determine that solar energy development may be acceptable on lands that have been developed or highly fragmented and have little or no conservation/recovery value for the Desert tortoise. To identify such lands, we recommend using The Nature Conservancy's Mojave Desert Ecoregional Assessment in combination with the USFWS map of recommended linkage habitats. For areas falling outside their Mojave Ecoregion and within proposed Variance Ares, we recommend that BLM undertake a similar approach in identifying disturbed and highly fragmented lands. We make this recommendation because the Desert Tortoise Habitat Model, considered by the USFWS in developing their recommendation, does not reflect habitat lost or highly degraded or fragmented due to land uses such as urban development, roads, agriculture, mining, etc. We recognize that it may be necessary to verify the habitat condition through field inspection and to accurately assess the adult Desert tortoise density.

We additionally recommend that solar energy development not be allowed in two specific and important Desert tortoise connectivity habitat regions – Pisgah Valley in California and Ivanpah Valley in both California and Nevada. Both these areas are included in the FWS's habitat connectivity or linkage habitat recommendations, and we strongly recommend the remaining habitat in these essential areas be excluded from development.

The Revised Recovery Plan includes the following statement on page 35:

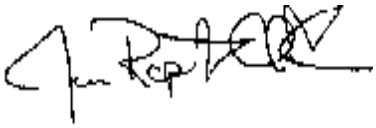
> It should also be recognized that activities occurring on lands beyond the boundaries of existing tortoise conservation areas can affect tortoise populations, important linkages between tortoise conservation areas, and the effectiveness of conservation actions occurring within the conservation area boundaries. Agencies should work within the context of their respective land use plans to determine how to effectively implement recovery actions contained within this plan.

Connecting Desert tortoise conservation areas by maintaining intact landscape-level habitat suitable for maintaining and enhancing Desert tortoise populations and promoting gene flow requires that these areas be conserved and protected. Many of these connecting habitats that link conservation areas are limited in size and functionality by habitat suitability and the effects of existing developments such as highways and canals.

We feel that the second bullet in BLM's proposal for management of connectivity habitats, which attempts to direct proposed projects to lands with degraded or disturbed habitats, has merit, provided that the criteria for what constitutes such land condition be clearly stated and accurately identified. Areas where natural vegetation cover has been significantly altered or removed and soils compacted to the degree that restoration to natural condition would be difficult, at best, should be identified so that project applicants can be directed to consider projects in these areas without compromising the conservation value of the connectivity or linkage habitats.

Thank you for your consideration of these comments. We look forward to seeing them addressed in the Final PEIS.

Sincerely Yours,



Jamie Rappaport Clark
President and CEO
Defenders of Wildlife
1130 17th Street N.W.
Washington D.C. 20036-4604

Michael Brune
Executive Director
Sierra Club
85 2nd Street
San Francisco, CA 94105

Appendix 1: Monitoring and Adaptive Management

Key Concepts

The key concepts that would underpin such a program, outlined in BLM Technical Reference 1730-1 (Elzinga et al. 2001), are presented below in the context of the solar PEIS.

1. **Monitoring is driven by objectives** that describe the desired condition and define what is measured, how well it is measured, and how often it is measured. The purpose of adaptive management is to meet the objective, and the purpose of monitoring is to determine if the objective has been met. In this way, monitoring provides the crucial link between objectives and management.

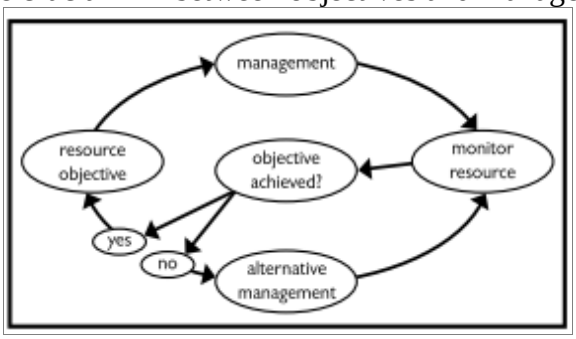


Figure 1: Effective adaptive management and monitoring are interdependent

When monitoring data are inconclusive, however, it becomes impossible to determine whether management is successful, and the adaptive management cycle breaks down.

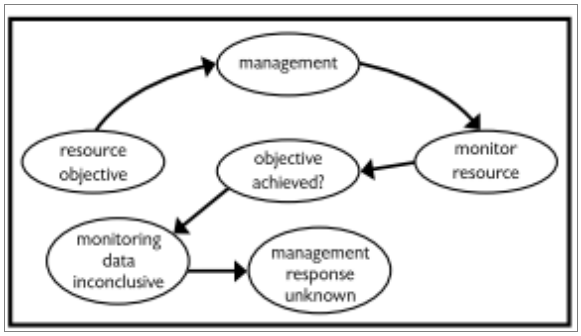


Figure 2: With inadequate monitoring, adaptive management isn't possible

As discussed by Noon (2002), monitoring programs that are intended to assess the effects of a certain type of development should perform three main functions. First, they must be able to discriminate between extrinsic and intrinsic drivers of change in order to be effective, acting as a filter to separate the effects of extrinsic change due to the development of interest from those of other human changes to the ecosystem while at the same time accounting for the three types of natural change: random variation, succession following natural disturbance events, and cyclic variation. Second, they must differentiate changes that can be accommodated from ones that degrade the ecosystem, and to determine the source of these changes. Third, they must identify the sources of negative change specific to the development of interest that cannot be incorporated within the natural dynamics of the system, exceed its resilience, and potentially drive it into a new state. These sources of negative change, or stressors (Suter 1993, Thornton et al. 1993, 1994), drive the formulation of monitoring objectives which in turn drive the selection of indicators.

One of the main goals of the BLM Solar Energy Program is to minimize the environmental, social, and economic impacts of development. Making this goal operational requires breaking it down into more specific objectives that directly relate to biological and abiotic resources. It is critical that these objectives be formulated using a process that incorporates broad scientific consensus and expert involvement from outside as well as within the agency; as noted by Nie and Schultz (2011), "built-in agency biases and political pressures influence what questions are asked in adaptive management, what controversies are avoided, and how information is collected, interpreted, and acted upon."

Villarreal et al. (2011) details the recent development of monitoring objectives for the Barry M. Goldwater Range West, an area located in southwest Arizona that is quite representative of areas that would be open to development under the BLM Solar PEIS. This monitoring plan was developed based on an evaluation of all monitoring plans in the Sonoran Desert region, and refined the monitoring objectives of these plans using a multi-agency process incorporating external stakeholder and scientific input. Comparison of a few of the initial monitoring objectives with those refined by the stakeholder group illustrates the value in developing consensus-based objectives that make management specific, targeted, tangible, and effective:

- "Manage to control invasive species" changed to "Identify (location, source and transmission), assess, eradicate, reduce, mitigate, and/or minimize problematic invasive species."
- "Minimize erosion (wind, water, and others)" changed to "Identify (natural events), avoid, and control problematic erosive and deleterious landscape impacts."
- "Rehabilitate where needed" changed to "Identify, restore and/or enhance degraded or impacted habitats."

We suggest the following **as examples** of additional objectives that relate to environmental impacts from solar development:

- Net conservation benefit or net benefit to recovery standard for all actions taken under the Solar Program that affect listed or candidate species, as measured by direct or indirect measures of population viability.
- Net conservation benefit or net benefit to recovery standard for all actions taken under the Solar Program that affect selected special status species, as measured by direct or indirect measures of population viability.
- No net loss of selected native vegetation cover types from solar projects (e.g. sagebrush, Joshua tree); vegetation loss would be offset by habitat enhancement projects for the same community in adjacent areas.
- No net soil loss or decline in PM-10 air quality standards.
- No net loss of areas that exceed some threshold of biological soil crust cover.
- No significant change in distribution or abundance of termite/harvester ant colonies.
- No significant change in the distribution or abundance of aquatic invertebrates.

2. **Monitoring is distinct from inventory or research;** it lies between the two on a continuum of study effort. The figure below details various study designs that could be associated with evaluation of a prescribed burn. In the figure a single inventory, defined as a point-in-time survey used to determine resource location or condition, is represented by one of the rectangles in the lower half of the figure. Clearly periodic inventories are the building blocks for a monitoring program, but without an overarching sampling design linked to a conceptual model of stressors and indicators, a series of inventories is just that.

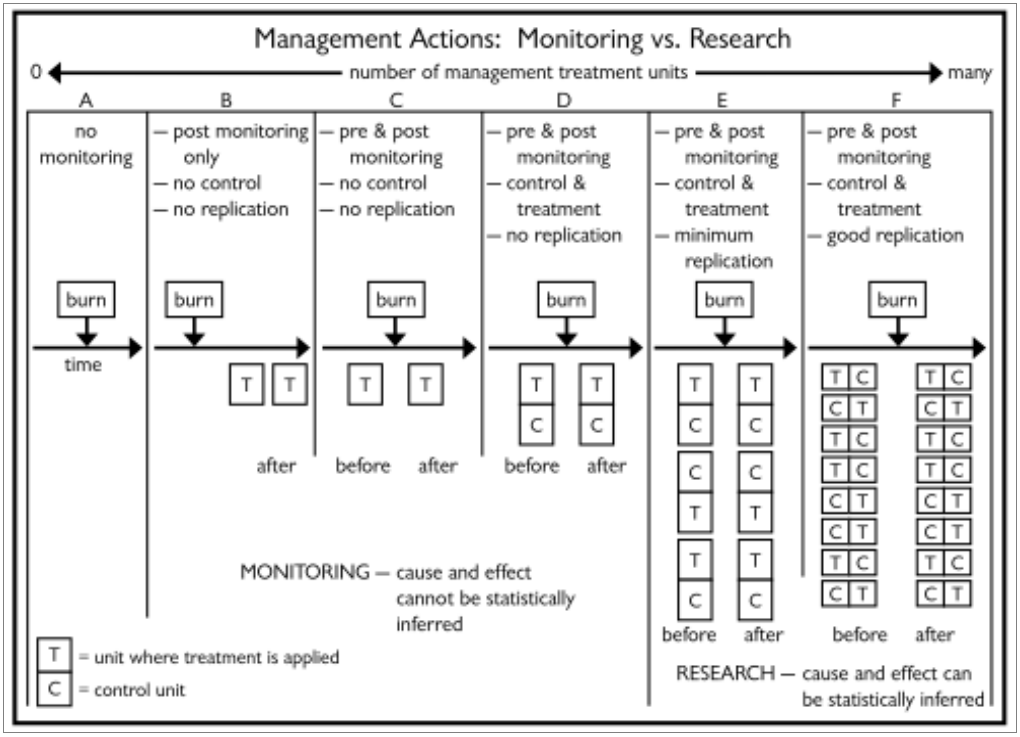


Figure 3: Monitoring is composed of inventories, with a structure informed by research

Monitoring designs are shown in columns B, C, and D of the diagram. The most rigorous is D; in this design, there are inventories before and after management, and these are performed in a treatment area where management occurs as well as in control/reference areas where management and disturbance does not occur. This design, using a set of treatment areas where solar development impacts occur and control areas where they do not, is the only one that would allow the effects of management to be fully explored. However, this level of inference also requires that cause and effect relationships be clearly understood through research studies, as represented by columns E and F. In these columns, treatments (burn areas) and controls (unburned areas) are replicated so the effects of management can be statistically verified. Without this verification there is no way to support that management is having the intended effect, or to rule out that some factor besides management is driving the observed change. So although monitoring programs are composed of repeated inventories, they also require research to validate indicator selection and underlying conceptual models to provide the structure to dictate how inventories occur in time and space. As noted by Noon (2002), by itself a monitoring plan cannot define the causes of change, decide how much change is acceptable, decide on threshold values that would trigger management actions, or avoid false conclusions that biologically meaningful change has occurred. Effective monitoring and adaptive

management requires both baseline data, as provided through sufficient pilot studies, as well as baseline research to inform how the monitoring framework will be defined; it is not possible without all of these components. As stated in the Department of Interior's Adaptive Management Technical Guide (Williams et al. 2009):

> It is thought by many that merely by monitoring activities and occasionally changing them, one is doing adaptive management…adaptive management is much more than simply tracking and changing management direction in the face of failed policies…an adaptive approach involves exploring alternative ways to meet management objectives, predicting the outcomes of alternatives based on the current state of knowledge, implementing one or more of these alternatives, monitoring to learn about the impacts of management actions, and then using the results to update knowledge and adjust management actions. Adaptive management focuses on learning and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable resource systems.

Currently, most lands proposed for development under the BLM solar PEIS do not have sufficient inventory data to establish a baseline. However, BLM has recently introduced a set of Core Terrestrial Indicators to be used in their Adaptive Inventory and Management (AIM) strategy (MacKinnon et al. 2011); data acquisition for these indicators is ongoing or will start soon. These indicators were designed for general monitoring across all BLM lands, and will need to be supplemented with additional ones specific to the solar program. Similarly, despite the dramatic increase in the number of peer reviewed publications on renewable energy in the past two decades, environmental impacts and ecological implications of renewables have been much underrepresented, particularly with respect to utility-scale solar energy (Lovich and Ennen 2011). Research and consensus building to assess the basic impacts of solar power, develop indicators, and define protocols for their measurement should be highest priority, followed by completion of the first inventories for high priority development areas.

In this situation, guiding development to solar energy zones and potentially to focal areas within variance lands provides several advantages:

- By focusing baseline inventory work on selected areas it can be completed as quickly and efficiently as possible.
- By geographically concentrating the standardized, project-level data collection that follows, area-specific data libraries will accumulate that will allow research gaps to be filled, and this will streamline and facilitate future development through increased knowledge of impacts.

3. **Effective monitoring of biological resources must incorporate a mix of indicators** since stressors can be physical, biological, or chemical in nature (Noon 2002). In addition, some ecosystem properties or responses are relatively straightforward to monitor directly, others must be measured indirectly or inferred through surrogates (Leibowitz and Hyman 1999). Elzinga et al. (2001) define two main classes of indicators in reference to monitoring the status of species:

    - Resource monitoring directly quantifies some aspect of a species itself such as population size, average density, cover, or frequency, but has no direct link with the causes of population condition and trend; changes or current status could be the result of other factors besides management.
    - Habitat monitoring assesses how well habitat conditions meet objectives or management standards that are linked to documented relationships between habitat and species from the conceptual model.

    The key to a successful monitoring and adaptive management program is a diverse set of indicators that represent key components, processes, and stressors of ecological and management interest. Indicators should be selected based upon a conceptual model linking stressors and indicators to pathways that affect the structure and function of biological systems (NRC 1995, 2000).

Indicator Selection and Protocol Development

The adaptive management and monitoring section of the Supplement states that the AIM strategy will provide the monitoring foundation for the BLM Solar Energy Program. As stated above, however, additional indicators are needed to monitor impacts, define mitigation, and guide adaptive management for utility-scale solar projects.

The Core Terrestrial Indicators (MacKinnon et al 2011) in the BLM AIM strategy are:

1. Percent cover/proportion of bare ground per unit area.
2. Vegetation composition or percent cover/proportion by species or species group.
3. Percent cover/proportion of non-native invasive plant species.
4. Percent cover/proportion of plant species of management concern.
5. Height of dominant vegetation.
6. Proportion of soil surface in large, inter-canopy gaps.

AIM contingent indicators for specialized uses are:

1. Soil aggregate stability.
2. Significant accumulation of soil toxins.

These vegetation and habitat-based attributes, also known as “coarse filter” attributes, are at least two steps removed from the suite of species that use them; direct use of these to make inference to wildlife requires assumptions that are poorly studied and tenuous for most species (Noon et al. 2009). Creating a defensible monitoring system for the BLM Solar Energy Program would require additional indicators and associated data collection protocols, and these should be developed using a rigorous and inclusive collaborative process like that used for the National Park Service's Mojave Desert Network Vital Signs Monitoring Plan (Chung-MacCoubrey et al. 2008). This objective-driven monitoring system is based on a conceptual model developed with extensive scientific collaboration. The plan used an 8-step approach (not strictly sequential, and likely somewhat iterative) to identify, prioritize, and select indicators for the network of geographically disjunct parks included in the plan. This approach has been adapted below for the BLM Solar PEIS.

1. Identify ecosystem drivers, stressors, and important processes using a linked set of ecological conceptual models developed through multi-disciplinary collaboration between agency staff and research scientists.
2. Conduct a series of small workshops at the field office level to identify important resources, resource threats, management concerns, monitoring objectives and indicators for each.
3. Identify similarities and differences across field offices and summarize indicators, threats, management concerns, and monitoring objectives at the network-level.
4. BLM information review and synthesis at state and federal level.
5. Prioritization of indicators for each field office based on management significance, mandate, and their ability to meet monitoring objectives.
6. National-level scoping workshop, broadly attended by a wide range of stakeholders, to complete scientific review of system-wide indicators and associated information, prioritize indicators based on ecological significance, and define additional research and collaboration to needed to promote range wide conservation of high priority biological indicators (e.g. greater sage-grouse, desert tortoise).
7. Small workshops for field office staff to select an initial “short list” of high-priority indicators.
8. Final small workshop for field office staff to select a final, prioritized list of indicators that are standardized across field offices but also optimized to fit local monitoring needs.

NPS and partner groups completed this indicator selection process and initiated monitoring in the Mojave Desert Network within three years. Although the area monitored by this plan is over 28 times larger than the area associated with the BLM Solar PEIS Modified SEZ Alternative, it is only 40% as large as the area that would be covered by the BLM Solar PEIS Modified SEDP Alternative. Assuming a direct relationship between area covered and time required to initiate monitoring, the process above could be completed quickly for the small subset of lands in the SEZ alternative, the proposed Agua

Caliente and West Chocolate Mountains SEZs, and possibly other variance areas where there is high developer interest. Initiating monitoring on all lands in the Modified SEDP alternative, however, would take over seven years assuming a direct relationship between implementation time and area. This area comparison illustrates the logistical constraints that would come into play if designing a monitoring program for the entire Modified SEDP Alternative, which has 20 million acres distributed over six states, and further supports the need to focus monitoring and development on key areas.

As noted by Noon (2002), the ultimate success of a monitoring program hinges on the selection of appropriate indicators; if the wrong indicators are selected the program will fail, regardless of the level of funding or implementation. Initial criteria for selecting indicators are

- Sensitivity to changes in stressor levels and ecological processes
- Ability to provide information about the status of unmeasured resources
- Cost effectiveness

Additional desirable properties that are evaluated by data from pilot studies and simulations include

- Dynamics that parallel those of the larger environmental component or system of overall interest
- Short-term but persistent response to changes in environmental status
- Accuracy and precision (high signal to noise ratio)
- High likelihood of detecting changes in indicator magnitude with change in environmental status
- Low, or well understood, natural variability, with changes in values due to management or development readily distinguishable from changes due to background variation

BLM must take full advantage of the latest research, data, and analytical techniques in order to efficiently implement monitoring and indicator development for the Solar Program while maximizing cost-effectiveness as well as predictive power. The following recent research and data development projects are directly relevant to indicator development for the BLM Solar PEIS, and are representative of the type of information that must be fully considered in the indicator development process.

- **Frequently acquired, low resolution MODIS or AVHRR imagery to map plant phenology and structure,** using measures of plant growth and vitality in predictive wildlife habitat models for pronghorn (Wallace 2002) and yellow-billed cuckoo (Wallace et al. 2011) as well as to investigate perennial plant cover (Nussear et al. 2009) and plant

species distribution, particularly alien invasive grasses and forbs that exhibit different phenological growth patterns than native species (research ongoing, see page 14 of http://www.arizonanevadaacademyofscience.org/proceedings2008_vol43.pdf for details).

- **Use of AVHRR imagery to detect interannual vegetation change** over time (Li and Guo 2012) could be valuable to determine if plant communities near solar installations are changing relative to similar control areas located away from development.
- **MODIS imagery as a tool to classify grassland condition** by comparing signatures of intact native grassland to degraded grassland and monitoring change over time to locate deteriorating areas (Torregrosa 2011, Jiang et al. 2006).
- **"Fusing" imagery datasets** to achieve higher spatial resolution with frequently-acquired 250 meter and 1 kilometer resolution satellite data mentioned above (Walker et al. 2011) or to combine different types of data as done by Mundt et al. (2006) to map sagebrush using LIDAR and satellite imagery.
- **High-resolution IKONOS satellite imagery to predict habitat structure and seasonal habitat use** by Sonoran pronghorn antelope (Wallace and Marsh 2005).
- **High-resolution aerial and satellite imagery for mapping** invasive weeds, harvester ant mounds, and native vegetation (Yang and Everitt 2010, Fletcher et al. *In Press*, Fletcher et al. 2007).
- **Use of ground-based "phenocams"** along with satellite imagery to track phenological changes in sagebrush vegetation, water availability, plant productivity, then linking these factors to wildlife habitat use as USGS is doing on the Owhyee Plateau in Idaho, Oregon and Nevada (Torregrosa 2011).
- **Repeat Photography** as a monitoring tool to assess landscape and vegetation change over time at established photo points (http://www.nrmsc.usgs.gov/repeatphoto).
- **Airborne LIDAR** acquired from manned aircraft or UAVs (http://www.ars.usda.gov/is/pr/2011/110927.htm) to map vegetation height, bare ground, and biomass (Streutker and Glenn 2006, Mitchell et al. 2011), estimate erosion and dust emission potential after wildfire based on surface roughness (Sankey et al. 2010, Sankey et al. 2011), estimate tree cover (Sankey and Glenn 2011), and classify sagebrush communities (Sankey and Bond 2011).
- **Predictive habitat models** that model habitat suitability as a function readily available bioclimatic and physiographic variables have been used to define suitable habitat for a range of desert species (Boykin et al. 2008, Nussear et al. 2009) maintain habitat connectivity areas for species with limited vagility (Barrows et al. 2011), and predict changes in species distributions due to climate change (Barrows et al. 2011, also see http://www.mojavedesertlandtrust.org/research/2009%20JOTR%20final%20report_20091214.pdf).
- **Analytical methods that estimate wildlife density and abundance** from presence absence, count, or mark-recapture data for direct monitoring of wildlife populations directly or to feed into predictive habitat models (http://warnercnr.colostate.edu/~gwhite/software.html)
- **Predictive spatial models for soil crusts** to facilitate soil crust mapping and monitoring (Bowker et al. 2006).

- **Sediment and dust transport models** to model soil loss and air quality impacts from land disturbance (Sankey et al. 2008, Okin 2008), project the effects of dust deposition (Munson et al. 2010), as well as map sand dunes and model Aeolian sand transport (Hugenholtz et al. 2011).
- **Integration of land use and hydrological models** to simulate the impacts of land use change on channel discharge, evapotranspiration, percolation, surface runoff, transmission losses, water yield, sediment yield and precipitation (Norman et al 2010). This would be useful as a tool to predict impacts of development and to incorporate hydrological considerations into all stages of the solar development process.
- **GPS collar and landscape genetics research to define large mammal movement** patterns in order to site and manage projects to preserve landscape connectivity.
- **Recent efforts to integrate biological data across regions** such as the Western Governors' Association Critical Habitat Assessment Tools, data developed by the Scenario Planning Steering Group of the Western Electricity Coordinating Council, interagency efforts to share data through Landscape Conservation Cooperatives, efforts of NGO groups such as Freedom To Roam and The Wildlands Network should be assessed and relevant data should be incorporated.
- **Integration of previously gathered monitoring data,** such as BLM Ecological Site Descriptions, with newly gathered data using new statistical techniques that deal with data dissimilarities.
- **Use of genetic analyses** to determine population patterns, migration, and use of the landscape by wildlife species (Michels et al. 2001, Epps et al. 2007, Vandergast et al. 2007).

Sampling and Design Considerations

Once indicators are selected a sampling design is needed. This will require collection and analysis of pilot inventory data for all indicators in order to define data collection processes that provide sufficient replication across space and time and have the statistical power to detect biologically significant change. Sampling should be probabilistic so as to allow inference to the target population, and standardized, robust approaches like spatially balanced sampling (GRTS) should be used to maximize data utility. Particular emphasis should be placed on prioritizing sampling methods that are readily and efficiently implemented, but provide precise and unbiased estimates with associated estimates of statistical uncertainty.

Management and Mitigation Triggers

Triggers for management and mitigation sit at the bifurcation of the "healthy" adaptive management diagram at the beginning of the document. If well-defined triggers with appropriate thresholds are not in place for critical resources, management is not and cannot be adaptive. This required component of

adaptive management and monitoring in the BLM Solar Program will require extensive involvement and agreement among a diverse group of experts to develop.

Nie and Schultz (2011) see triggers as a means to bridge adaptive management science and theory with the need for political and legal accountability, providing greater certainty to land managers, politicians, and developers alike by bounding the adaptive management process. Their review of triggers in eight federal adaptive management natural resource plans concludes with five recommendations:

1. Adaptive management must include a clear feedback loop and result in learning that improves future mitigation and management. Methods for feeding information back into a structured decision-making process should be explicit and determined during the design of an adaptive management program.
2. Monitoring programs and triggered mitigation measures should include sufficient detail about desired conditions, what is to be monitored and when, where triggers are set, and what mitigation measures will be implemented over what time frame.
3. Triggers and resulting actions should be explicitly addressed in NEPA analysis, which can limit and/or narrowly define additional NEPA analysis that will be needed.
4. The responsibilities for designing, conducting, interpreting, and funding monitoring should be made explicit and up front, with uncertainties explored through a collaborative engagement process to ensure that monitoring is cost-effective, scientifically valid, and likely to yield useable information about resource effects
5. Decisions about trigger points and trigger mechanisms should be clearly explained and be made transparently; these decisions can be contentious because they hinge on values and priorities, but consensus is mandatory. Triggers can be structured as phased controls or as signals with various priority levels, and part of the consensus process is determining the optimum form of implementation.

Our lack of knowledge of the historic range of natural variation for most indicators makes the identification of triggers difficult. In addition, we lack knowledge of the potential existence of thresholds, or regions of change in the value of a stressor that generate disproportionate change in the value of an indicator or, more seriously, the larger ecological system (Noon 2002). Abrupt, nonlinear changes in ecosystems in response to perturbation have been documented (Connell and Sousa 1983, Knowlton 1992, Estes and Duggins 1995), and changes to new, alternative states have been reported for lake, ocean, reef, and desert ecosystems (Scheffer et al. 2001). In particular, anthropogenic disturbances not consistent with natural disturbance regimes may move ecological systems to unprecedented, alternative states (Holling 1986, Holling and Gunderson 2002). This makes the precautionary principle completely critical when values for triggers are being selected. For example, there is likely an extinction threshold for Mojave desert tortoise with continued habitat fragmentation and loss of habitat connectivity. Any indicator intended to track this must have an associated trigger set at a very conservative level to prevent this threshold from being reached; the more irreversible the potential

environmental loss, the more sensitive the trigger point should be (Noon 2002). These issues make it critical to involve the widest audience of experts and the broadest public process when defining triggers and associated management actions.

Cumulative Effects

Ecological thresholds are strongly related to the concepts of ecosystem resilience and resistance to change, as well as to cumulative effects. Noon (in prep) describes four types of cumulative effects with respect to two stressors A and B: additive, antagonistic, synergistic, and multiplicative.

Box 3.

Types of Cumulative Effects

Consider two stressors, A and B, and their possible interactions:

- Additive: effect = A + B
- Antagonistic: effect < A + B
- Synergistic: effect > A + B
- Multiplicative: effect >> A + B

The first two types work "normally" in that they either contribute together to an ecosystem effect or cancel one another out. Synergistic effects, on the other hand, work together to create an ecosystem effect that is greater than would be expected based on their magnitude, for example ecosystem effects from disturbance of soil and biological soil crusts in combination with invasive exotic plants. Multiplicative effects are even more intense, for example trophic cascades that result from the loss of a species at the base of a food chain.

Given the spatial and temporal extent of disturbance proposed under the BLM Solar PEIS as well as the potential for strong synergistic and multiplicative cumulative effects and the thresholds they introduce, a comprehensive cumulative effects analysis is mandatory for all SEZs and variance areas with strong development pressure. This will require monitoring and adaptive management like that depicted in the fourth scenario in Figure 3 (D), which requires extensive sampling of sufficient paired disturbed and undisturbed sites as implemented in Catlin et al. (2011), albeit on a much larger scale, as well as a

before-after-control-impact (BACI) study design that provides inference to the magnitude of change resulting from cumulative impacts while at the same time accounting for unrelated variation.

Conclusion

In the Supplement to the solar PEIS, BLM has made a commitment to develop an adaptive management and monitoring plan in coordination with potentially affected natural resource management agencies that identifies how impacts will be evaluated, the types of monitoring that will be performed, and science-based thresholds for management and policy modification. The plan will include a process by which changes will be incorporated into the Solar Energy Program, including revisions to policies and design features, and all changes resulting from adaptive management and monitoring will be subject to appropriate land use planning, environmental review, and/or policy development oversight. The plan will incorporate data from specific project evaluations as well as from regional long-term monitoring programs, and data and lessons learned about the impacts of solar energy project will feed back and be incorporated into the BLM's Solar Energy Program in the future.

These strong commitments have been made in the Supplement, but detail on all of the above has been deferred until the FEIS. Delivering on these promises will require an intensive collaborative effort that incorporates the latest science and integrates data over vast areas. These new developments tie in perfectly with ongoing efforts to create a defensible monitoring program across all BLM lands, however, and with proper planning and execution the monitoring and adaptive management program for the BLM Solar Energy Program can serve as both a model and a test bed for future efforts.

References

Barrows, C.W., K.D. Fleming, and M.F. Allen. 2011. Identifying habitat linkages to maintain connectivity for corridor dwellers in a fragmented landscape. Journal of Wildlife Management 75(3): 682–691.

Barrows, C.W., K.D. Fleming, and M.F. Allen. 2011. Sensitivity to climate change for two reptiles at the Mojave–Sonoran Desert interface. Journal of Arid Environments 75(7): 629–635.

Bowker, M. A., J. Belnap, D. W. Davidson and H. Goldstein, 2006, Correlates of biological soil crust abundance across a continuum of spatial scales: Support for a hierarchical conceptual model. Journal of Applied Ecology 43(1): 152-163, available at http://esp.cr.usgs.gov/info/sw/pubs/task1/Bowker_et_al%202006.pdf

Boykin, K.G., D.F. Bradford, and W.G. Kepner. 2008. Habitat Distribution Models for 37 Vertebrate Species in the Mojave Desert Ecoregion of Nevada, Arizona, and Utah. U.S. Environmental Protection Agency, Office of Research and Development (EPA/600/R-08/117) 142 p., available at http://fws-case-12.nmsu.edu/kboykin/publications/Habitat%20Distribution%20Models%2037%20Species-Kepner.pdf

Catlin, J.C., J.G. Carter, and A.L. Jones. (2011) "Range Management in the Face of Climate Change," *Natural Resources and Environmental Issues*: Vol. 17, Article 24., available at http://digitalcommons.usu.edu/nrei/vol17/iss1/24

Chung-MacCoubrey, A. L., R. E. Truitt, C. C. Caudill, T. J. Rodhouse, K. M. Irvine, J. R. Siderius, and V. K. Chang. 2008. Mojave Desert Network vital signs monitoring plan. NPS/MOJN/NRR—2008/057. National Park Service, Fort Collins, Colorado. 125 p., available at http://science.nature.nps.gov/im/monitor/plans/MOJN_MonitoringPlan.pdf

Connell, J. H., and W. P. Sousa. 1983. On the Evidence Needed to Judge Ecological Stability or Persistence. American Naturalist 121: 789-824.

Elzinga, Caryl L.; Salzer, Daniel W.; Willoughby, John W.; Gibbs, James P. 2001. Monitoring plant and animal populations. Malden, MA: Blackwell Science, Inc. 360 p., available at http://www.blm.gov/nstc/library/pdf/MeasAndMon.pdf

Epps, C.W., J.D. Wehausen, V.C. Bleich, S.G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714–724. Available at http://ecoevo.oregonstate.edu/sites/default/files/Epps%20et%20al%20J_Appl_Ecol%202007%20with%20Appendices.pdf

Estes, J. A., and D. O. Duggins. 1995. Sea Otters and Kelp Forests in Alaska - Generality and Variation in a Community Ecological Paradigm. Ecological Monographs 65, no. 1: 75-100.

Fletcher R., J. H. Everitt and L. Drawe. 2007. Detecting red harvester ant mounds with panchromatic QuickBird imagery. J. Appl. Remote Sens. 1:013556.

Fletcher, R., J. H. Everitt, C. Yang, and J. Deloach. *In Press.* Mapping invasive weeds and their control with spatial information technologies. American Society for Photogrammetry and Remote Sensing Proceedings.

Gunderson, L.H., and C.S. Holling. 2002. Panarchy: Understanding Transformations in Human and Natural Systems. Island Press, Washington, DC .

Holling, C.S. 1986. The resilience of terrestrial ecosystems; local surprise and global change. In: W.C. Clark and R.E. Munn (eds.). Sustainable Development of the Biosphere. Cambridge University Press, Cambridge, U.K. Chap. 10: 292-317.

Hugenholtz, C.H., N. Levin, T.E. Barchyn, and M. Baddock. 2011. Remote sensing and spatial analysis of aeolian sand dunes: a review and outlook. Earth-Science Reviews. doi: 10.1016/j.earscirev.2011.11.006. Available at http://people.uleth.ca/~chris.hugenholtz/web/EARTH1742.pdf

Jiang, L. Z. Qin, L. Lu, W. Xie and W. Li. 2006. Monitoring grassland ecosystem degradation using EOS/MODIS data in North China, Proc. SPIE 6366, 63661V (2006); doi:10.1117/12.689414

Knowlton, N. 1992. Thresholds and multiple stable states in coral-reef community dynamics. Am. Zool. 32: 674 / 682.

Leibowitz, S.G., and J.B. Hyman. 1999. Use of scale invariance in evaluating judgement indicators. Environmental Monitoring and Assessment 58:283-303.

Li, L., and X. Guo. 2012. Detecting climate effects on vegetation in northern mixed prairie using NOAA AVHRR 1-km time-series NDVI data. Remote Sens. 2012, 4, 120-134, available at http://www.mdpi.com/2072-4292/4/1/120/

Lovich, J.E., and J.R. Ennon.2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. Bioscience 61(12): 982-992, available at http://www.aibs.org/bioscience-press-releases/resources/current-press-release.pdf

Mitchell, J.L., N.F. Glenn, T.T. Sankey, D.R. Derryberry, M.O. Anderson, and R.C. Hruska. 2011. Small-footprint Lidar Estimations of Sagebrush Canopy Characteristics. Photogrammetric Engineering & Remote Sensing 77(5): 1-10, available at http://bcal.geology.isu.edu/docs/teki/PERS_mitchell_et_al_2011.pdf

MacKinnon, W.C., J.W. Karl, G.R. Toevs, J.J. Taylor, M. Karl, C.S. Spurrier, and J.E. Herrick. 2011. BLM core terrestrial indicators and methods. Tech Note 440. U.S. Department of the Interior, Bureau of Land Management, National Operations Center, Denver, CO. 13p., available at http://www.blm.gov/nstc/library/pdf/TN440.pdf

Michels,E., K. Cottenie, L. Neys, K. De Gelas, P. Coppin And L. De Meester. 2001. Geographical and genetic distances among zooplankton populations in a set of interconnected ponds: a plea for using GIS modeling of the effective geographical distance. Molecular Ecology 10 ;1929–1938. Available at: http://www.nceas.ucsb.edu/~cottenie/publication_files/molecol10,1929.pdf

Mundt, J., D. Streutker, and N. Glenn, 2006. Mapping sagebrush distribution using fusion of hyperspectral and lidar classifications, Photogrammetric Engineering & Remote Sensing,

72(1):47–54.

Munson, S.M., J. Belnap, G.S. Okin. 2011. Responses of wind erosion to climate induced vegetation changes on the Colorado Plateau. Proceedings of the National Academy of Sciences 108: 3854-3859.

NRC (National Research Council). 1995. Review of EPA's environmental monitoring and assessment

program: Overall evaluation. National Academy Press, Washington, D.C.

National Research Council. 2000. Ecological indicators for the nation. Washington, D.C. : National Academy Press.

Nie, M. & C. Schultz. 2011. Decision making triggers in adaptive management: report to USDA Pacific Northwest Research Station, NEPA for the 21st Century Program. 65 p., available at http://www.cas.umt.edu/facultydatabase/FILES_Faculty/1126/Triggers%20Final%20Report%20Nov%202011.pdf

Noon, B.R. In prep. Cumulative Environmental Effects, Thresholds, and Benchmarks.

Noon, B.R. 2002. Conceptual issues in monitoring ecological resources. In: D.E. Busch and J.C. Trexler, (eds.). Monitoring ecosystems: interdisciplinary approaches for evaluating ecoregional initiatives. Island Press, Washington, D.C. Ch 3: 27-71.

Noon, B.R.; McKelvey, K.S.; Dickson, B. G. 2009. Multispecies conservation planning on U.S. Federal Lands. Pg. 51-83 In Millspaugh, J.; Thompson, F.R. (Eds.) Models for Planning Wildlife Conservation in Large landscapes. Academic Press, Burlington, MA., available at www.rmrs.nau.edu/publications/noon_et_al/noon_et_al.pdf

Norman , Laura, Tallent-Halsell, Nita, Labiosa, William, Weber, Matt, McCoy , Amy, Hirschboeck , Katie, Callegary, James, van Riper III, Charles, and Gray, Floyd, 2010, Developing an ecosystem services online decision support tool to assess the impacts of climate change and urban growth in the Santa Cruz Watershed; where we live, work, and play: advanced forum for sustainability development. Available at http://www.mdpi.com/2071-1050/2/7/2044/

Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H., 2009, Modeling habitat of the desert tortoise (Gopherus agassizii) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p., available at http://pubs.usgs.gov/of/2009/1102/

Okin, G.S., 2008. A new model of wind erosion in the presence of vegetation. Journal of Geophysical Research 113: 1-11, available at http://library.casnw.net/upload/20080428112402502 24.pdf

Sankey, J.B., M.J. Germino, and N.F. Glenn. 2009. Aeolian sediment transport following wildfire in sagebrush steppe. Journal of Arid Environments 73: 912–919, available at http://bcal.geology.isu.edu/docs/3Sankey%20et%20al%202009%20Journal%20of%20Arid%20Environments.pdf

Sankey, J. B., N. F. Glenn, M. J. Germino, A.I.N. Gironella, G. D. Thackray (2010), Relationships of aeolian erosion and deposition with LiDAR-derived landscape surface roughness following wildfire, Geomorphology, 119, 135-145.

Sankey, J. B., Eitel, J. U. H., Germino, M. J., Glenn, N. F., Vierling, L. A. (2011), Quantifying relationships of burning, roughness, and potential dust emission with laser altimetry of soil surfaces at submeter scales. Geomorphology, 135, 181-190 doi:10.1016/j.geomorph.2011.08.016

Sankey, T.T. and N. Glenn. 2011. Landsat 5 TM and lidar fusion for sub-pixel juniper tree cover estimates. Photogrammetric Engineering and Remote Sensing

Sankey, T.T., and P. Bond. 2011. LiDAR classifications of sagebrush communities. Rangeland Ecology and Management 64, 92-98.

Scheffer, M.; Carpenter, S.; Foley, J. A.; Folke, C.; Walker, B. (2001). "Catastrophic shifts in ecosystems". *Nature* **413**: 591–596.

Streutker, D., and N. Glenn, 2006. Lidar measurement of sagebrush steppe vegetation heights, Remote Sensing of Environment 102:135–145.

Suter (II), G W (1993) Ecological Risk Assessment. Chelsea, MI: Lewis Publishers.

Thornton, K.W., D.E. Hyatt, and C.B. Chapman, eds. 1993. Environmental Monitoring and Assessment Program guide. EPA/620/R-93/012. Research Triangle Park, NC: U.S. Environmental Protection Agency, Office of Research and Development.

Thornton, K.W., G.E. Saul, and D.E. Hyatt. 1994. Environmental Monitoring and Assessment Program: Assessment Framework. EPA/620/R-94/016. U.S. Environmental Protection Agency, Office of Research and Development: Research Triangle Park, NC.

Torregrosa, A., 2011. Geographic Science for Public and Tribal Lands Management. USGS Fact Sheet 2011–3059, available at http://pubs.usgs.gov/fs/2011/3059/fs2011-3059.pdf

Vandergast, A.G., A.J. Bohonak, D.B. Weissman, and R. N. Fisher. 2007. Understanding the genetic effects of recent habitat fragmentation in the context of evolutionary history: phylogeography and landscape genetics of a southern California endemic Jerusalem cricket (Orthoptera: Stenopelmatidae: Stenopelmatus)Molecular Ecology 16: 977–992. Available at http://www.bio.sdsu.edu/pub/andy/Vandergast2007.pdf

Villarreal, M.L., van Riper, Charles, III, Lovich, R.E., Palmer, R.L., Nauman, Travis, Studd, S.E., Drake, Sam, Rosenberg, A.S., Malusa, Jim, and Pearce, R.L., 2011, An inventory and monitoring plan for a Sonoran Desert ecosystem; Barry M. Goldwater Range–West: U.S. Geological Survey Open-File Report 2011–1232, 103 p., available at http://pubs.usgs.gov/of/2011/1232/

Walker, J.L., K.M. de Beurs, and R.H. Wynne. 2011. The use of data fusion products for the analysis of dryland forest phenology. USGS Poster, American Geophysical Union Fall Meeting 2011, San Francisco, CA.

Wallace, C.S.A., 2002, Extracting temporal and spatial information from remotely sensed data for mapping wildlife habitat. Ph.D. Dissertation, Department of Geography and Regional Development (Tucson, Arizona: The University of Arizona).

Wallace, C.S.A., and S.E. Marsh. 2005. Characterizing the spatial structure of endangered species habitat using geostatistical analysis of IKONOS imagery. International Journal of Remote Sensing 26(12): 2607–2629.

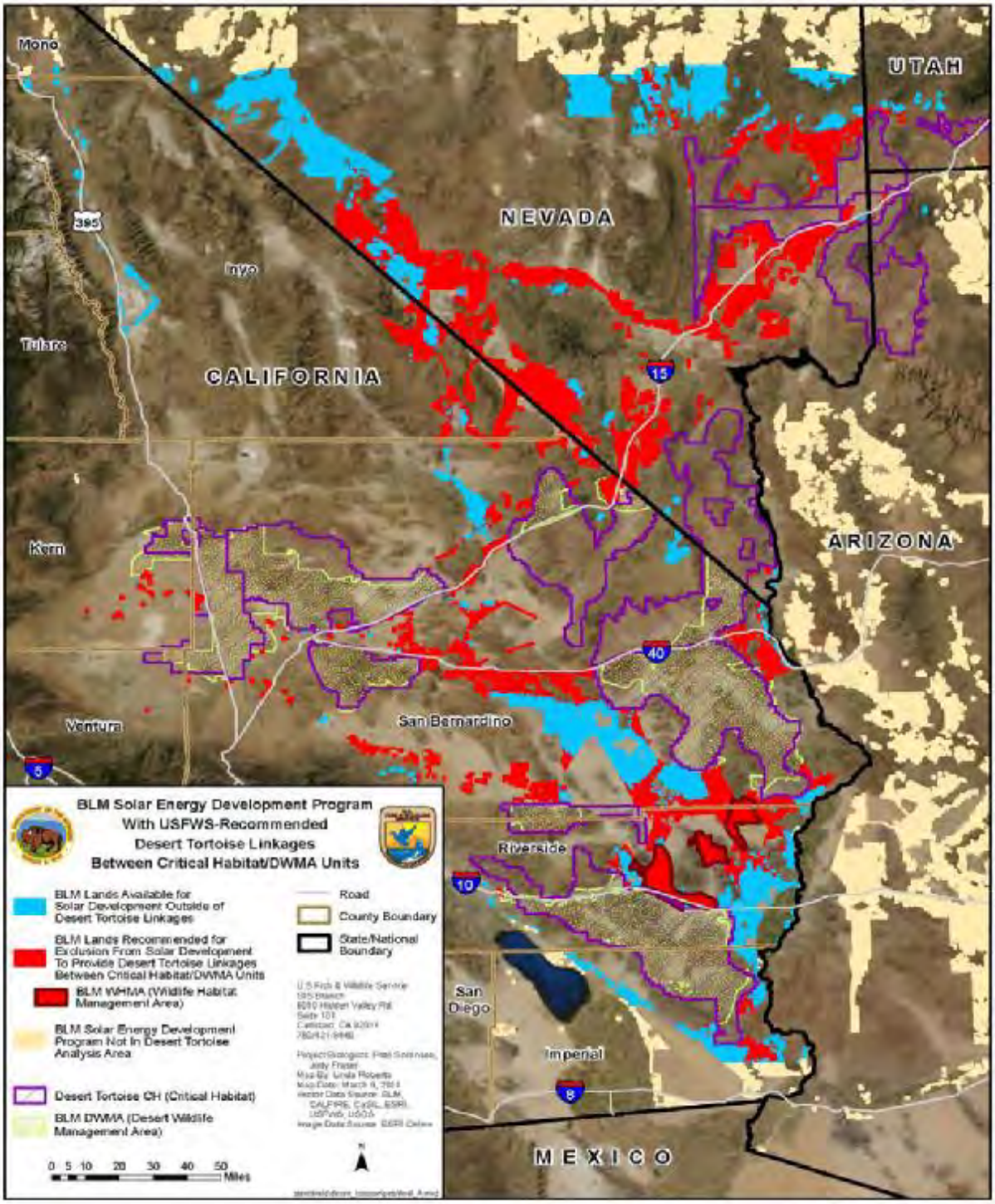
Wallace, C.S.A., M. L. Villarreal, and C. Van Riper. 2011. Mapping landscape phenology preference of yellow-billed cuckoo with AVHRR data. USGS Poster, American Geophysical Union Fall Meeting 2011, San Francisco, CA.

Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. Adaptive management: the U.S. Department of the Interior technical guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC. 72 p., available at http://www.doi.gov/initiatives/AdaptiveManagement/documents.html

Yang, C. and J.H. Everitt. (2010) Mapping three invasive weeds using airborne hyperspectral imagery, Ecological Informatics, Vol. 5, pp. 429-439.

Appendix 2

Figure 1. This figure (FWS Attachment B-2) depicts the FWS proposal for the minimum linkage design (red) necessary for conservation and recovery of the Mojave population of the desert tortoise by connecting Desert Wildlife Management Areas (yellow mottled) and critical habitat units (purple hatched). It represents the intersection of lands proposed by the BLM as open for solar energy development under the preferred alternative (blue) with the linkage design (i.e., modeled predicted desert tortoise habitat, historic gene flow, and select Wildlife Habitat Management Areas) (red). The lands in red are proposed for exclusion from solar energy development by the FWS and are in addition to those the BLM has identified as excluded in the DPEIS.


Mono
UTAH
NEVADA
395
Inyo
Tulare
CALIFORNIA
15
Kern
ARIZONA
40
Ventura
San Bernardino
5
BLM Solar Energy Development Program
With USFWS-Recommended
Desert Tortoise Linkages
Between Critical Habitat/DWMA Units
BLM Lands Available for Solar Development Outside of Desert Tortoise Linkages
BLM Lands Recommended for Exclusion From Solar Development To Provide Desert Tortoise Linkages Between Critical Habitat/DWMA Units
BLM WHMA (Wildlife Habitat Management Area)
BLM Solar Energy Development Program Not In Desert Tortoise Analysis Area
Desert Tortoise CH (Critical Habitat)
BLM DWMA (Desert Wildlife Management Area)
Road
County Boundary
State/National Boundary
0 5 10 20 30 40 50
Miles
Riverside
10
San Diego
Imperial
8
MEXICO

Thank you for your comment, Adrian Field.

The comment tracking number that has been assigned to your comment is SEDDsupp20158.

Comment Date: January 27, 2012 18:46:16PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20158

First Name: Adrian
Middle Initial:
Last Name: Field
Organization:
Address: P.O.Box 665
Address 2:
Address 3:
City: Twentynine Palms
State: CA
Zip: 92277
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Solar Energy PEIS Letter.docx

Comment Submitted:

Comments attached as MS Word Doc.
Thanks you

Solar Energy PEIS Scoping Argonne National Laboratory 9700 S. Cass Ave. – EVS/900 Argonne IL 60439

Re: Scoping Comments on the Solar Energy Development Programmatic Environmental Impact Statement

To Whom It May Concern:

I appreciate the opportunity to comment on the Solar Energy Development Programmatic Environmental Impact Statement (PEIS). My sentiments and comments follow:

1. The PEIS must thoroughly analyze potential economic, material, and nonmaterial impacts to desert communities if the greater desert areas are industrialized with solar energy and transmission projects. Many desert communities depend economically on location- and resource-reliant industries such as tourism; location shooting for film, television, and advertising; recreation, both motorized and nonmotorized; and other cultural activities such as art, historical, and spiritual tours and retreats. Loss of greater-desert viewshed and open space means loss of livelihood for desert communities. Desert communities also increasingly rely on the aesthetic and environmental quality of their setting to attract today's increasingly mobile workforce that has become less geographically tethered and can choose where they live. Retirees are also a significant part of our communities that can choose where they live based on natural amenities and appeal. Therefore, our property values depend on those amenities and that appeal. A diminishment in the quality of desert life will mean income directly lost and future potential thrown away for

our communities. Desert towns will lose their meaning, their heart, and their health if the

surrounding desert is essentially "taken away" by industrialization.

2. The PEIS should include a thorough survey of impacts to

potentially culturally and historically significant lands, including areas developed as part of the historic 1938 Small-Tract Homestead Act that shaped many of the outlying, low-density communities in the Morongo Basin and elsewhere in the Southwest deserts. These unique communities in some cases lie largely intact, but their cultural and historical significance is only recently becoming recognized. Refer for example to the 2008 Wonder Valley Homestead Cabin Festival, which generated interest and participation from its cousin homestead-based communities such as Landers and Johnson Valley (http://homesteadcabin.wordpress.com/) and was featured in the 2008 Architectural Annual issue of Dune Magazine.

3. The PEIS should include consultation with Native American tribal governments to determine whether there are sites or specific areas of particular concern, including sites of traditional religious and cultural significance.

4. The PEIS should study the impacts of increased vehicular traffic and congestion on desert communities, environmental resources, road infrastructure, and public safety during both construction and operational phases of solar and transmission development.

5. The PEIS should study the impacts of worker populations on sensitive desert resources during both construction and operational phases of solar and transmission development.

6. The PEIS should study the impacts on resources that would follow from the introduction of new routes, in view of the known problems caused by off-road vehicle activity and the "invitation" effect of new routes.

7. The PEIS should study impacts on limited water resources

and the effects of competition with desert communities, as well as biological communities, for those resources.

8. The PEIS needs to include the proposed expansion of the Marine Corps Air-Ground Combat Center when considering cumulative and long-term impacts.

9. The PEIS needs to consider how the desert communities' own energy needs will or will not be served by these projects.

10. The PEIS must thoroughly analyze the socioeconomic, security, and environmental effects of remote installations versus locally distributed power and consider alternatives that focus renewable energy development close to the load centers. The impacts and benefits of a comprehensive program involving rooftop solar across the developed Southwest, as well as additional potential energy alternatives, must also be thoroughly analyzed and considered. To single out the desert to bear the brunt of providing energy for the urban areas is an ENVIRONMENTAL JUSTICE issue. To demand sacrifice only of the desert areas and not the load areas is not acceptable!

11. Areas that have already been degraded should be prioritized for consideration for solar and transmission development. No public lands that are basically still relatively undisturbed should be considered for solar energy or transmission use until all degraded lands have been utilized.

12. Removed from any consideration for solar and transmission development should be all protected lands, such as national and state parks, monuments, and preserves; environmentally significant areas such as Designated Wildlife Management Areas and Areas of Critical Environmental Concern; and lands with significant environmental

resource potential such as Wilderness Study Areas, other lands with wilderness

characteristics, and areas that are under consideration as potential wildlife corridors.

13. The PEIS must include a programmatic evaluation of cumulative impacts to Endangered and Listed species, especially the Desert Tortoise.

14. The PEIS must study the potential of construction and operational phases to introduce or encourage invasive vegetation, including *Brassica tournefortii* or Saharan Mustard, not just at project locations but throughout the desert areas, as vehicles are one of the biggest culprits for spreading invasives.

Thank you for your attention to these comments,

Sincerely,

Adrian Field

Thank you for your comment, Robyn Purchia.

The comment tracking number that has been assigned to your comment is SEDDsupp20159.

Comment Date: January 27, 2012 18:48:52PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20159

First Name: Robyn
Middle Initial: C
Last Name: Purchia
Organization: on behalf of CURE
Address: Adams Broadwell Joseph & Cardozo
Address 2: 601 Gateway Boulevard, Suite 1000
Address 3:
City: South San Francisco
State: CA
Zip: 94080
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: 2187-009 - Comments by CURE on Solar SDPEIS.pdf

Comment Submitted:

Attached please find comments from Adams Broadwell Joseph & Cardozo submitted on behalf of California Unions for Reliable Energy.

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
601 GATEWAY BOULEVARD, SUITE 1000
SOUTH SAN FRANCISCO, CA 94080-7037

TEL: (650) 589-1660
FAX: (650) 589-5062
rpurchia@adamsbroadwell.com

DANIEL L. CARDOZO
THOMAS A. ENSLOW
TANYA A. GULESSERIAN
MARC D. JOSEPH
ELIZABETH KLEBANER
RACHAEL E. KOSS
ROBYN C. PURCHIA
ELLEN L. TRESCOTT

OF COUNSEL
THOMAS R. ADAMS
ANN BROADWELL

SACRAMENTO OFFICE
520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4721
TEL: (916) 444-6201
FAX: (916) 444-6209

January 27, 2012

SUBMITTED ELECTRONICALLY *via*
http://solareis.anl.gov/involve/comments/index.cfm

Solar Energy Draft PEIS
Argonne National Laboratory
9700 S. Cass Avenue
EVS/240
Argonne, IL 60439

Re: Comments on Supplemental Draft Programmatic Environmental Impact Statement for Solar Development in Six Southwestern States

To Whom It May Concern:

We are writing on behalf of California Unions for Reliable Energy ("CURE") to provide the Bureau of Land Management ("BLM") with comments on the BLM's proposed Solar Energy Program ("Program") to support utility-scale solar development on BLM administered land. We appreciate the work that BLM has invested in this process, and we enthusiastically support the efforts of the Obama administration to develop renewable energy. These efforts have helped dramatically expand renewable energy while creating thousands of good jobs. We want to see the Obama administration continuing to expand renewable energy and create jobs in a way that is environmentally sustainable over the long term.

Through the Program, the BLM proposes to identify and prioritize development in solar energy zones ("SEZ"). There are two SEZs proposed in California: Imperial East and Riverside East. We have reviewed the Supplement to the Draft Programmatic Environmental Impact Statement ("Supplemental PEIS") prepared pursuant to the National Environmental Policy Act ("NEPA") for the Program and submit the following comments for your consideration.

I. FUTURE ENVIRONMENTAL REVIEW

The Supplemental PEIS states that the BLM is conducting "a thorough environmental review of the proposed SEZs so that future reviews of applications within SEZs can tier to that NEPA analysis, thereby limiting the required scope and effort of additional project-specific NEPA analyses."[1] However, the Supplemental PEIS also states that the Draft Solar PEIS only relies on data that was available to analyze the Program's impacts.[2] To more effectively facilitate future development in SEZs, the BLM has committed itself to collecting additional information to fill in the recognizable "data gaps" in its analysis.[3] We are concerned that the Supplemental PEIS is unclear regarding when the data will be provided and when the public will be provided an opportunity to review and comment on the data and the BLM's analysis of such data. Therefore, the Supplemental PEIS must require these data gaps to be filled in all future, project-specific NEPA analyses that are circulated to the public for review.

Section 101 of NEPA declares it a matter of national policy to preserve important historic, cultural and natural aspects of our national heritage. To achieve this goal, NEPA requires that agencies take a "hard look" at the environmental consequences of a proposed action.[4] "General statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided."[5] ***"[L]ack of knowledge does not excuse the preparation of an EIS; rather it requires the [agency] to do the necessary work to obtain it."***[6]

To comply with NEPA and effectuate its purpose of preserving the important historic, cultural and natural aspects of our heritage, the BLM must require future developers to provide all data identified in the "action plans" and make that data available for public review in future site-specific NEPA documents. This definitive

---

[1] Supplement PEIS, p. 2-20.
[2] *Id.* at p. 2-18.
[3] *Ibid.*
[4] Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989); *Dubois*, 102 F.3d at 1284 (1st Cir. 1996); *see also* S. Fork Band Council of W. Shoshone of Nev. v. U.S. Dep't of the Interior, 588 F.3d 718, 727 (9th Cir. 2009).
[5] Neighbors of Cuddy Mountain v. U.S. Forest Serv., 137 F.3d 1372, 1380 (9th Cir. 1998).
[6] Nat'l Parks & Conservation Ass'n v. Babbitt, 241 F.3d 722, 733 (9th Cir. 2001), *abrogated on other grounds*, Monsanto Co. v. Geertson Seed Farms, 130 S.Ct. 2743 (2010) (emphasis added).

information is necessary for the BLM to take a "hard look" at project-specific impacts within the proposed SEZs and for the public to have an opportunity to review and comment on BLM's analysis. Specifically, additional data is necessary for the BLM to take a hard look at a specific project's impacts on -- at a minimum -- water resources, cultural resources, biological resources, transmission capacity and public health.

A. Additional project-specific and site-specific data is necessary for the BLM to take a "hard look" at any future project's impacts on water resources

The Supplemental PEIS states that use of groundwater for projects proposed within the Imperial East and Riverside East SEZs would deplete the aquifer.[7] Nevertheless, as the Draft PEIS recognizes, water is necessary for the construction, operation and decommissioning of every type of solar technology.[8] Because the use of groundwater within the California SEZs would deplete the aquifer, developers would need to acquire water from other sources or do a more specific assessment before using groundwater resources. The BLM recognizes a data gap in its water resources analysis in the Supplemental PEIS.[9] Therefore, at this time, the BLM has failed to take a "hard look" at project-specific impacts to water resources.

In the Supplemental PEIS, the BLM must require all future project applicants to provide site-specific and project-specific data on a project's proposed use of water resources. This information must be required at the time a project is proposed in order to enable the BLM to conduct a site-specific analysis of impacts on water resources. The BLM must then release its draft analysis of such data in an environmental review document that is circulated to the public for review.

---

[7] Supplemental PEIS, pp. C-39, C-55.
[8] Draft PEIS, pp. 5-38 to 5-39, 5-43, 5-45 to 5-47.
[9] See Supplemental PEIS, p. C-339.

B. Additional project-specific and site-specific data is necessary for the BLM to take a hard look at any future project's impacts on cultural and paleontological resources

The Supplemental PEIS states that potential impacts on significant paleontological and cultural resources are unknown for both SEZs.[10] The Imperial East SEZ is in the midst of a sacred landscape traversed by a network of trails.[11] Indeed, the Quechan Tribe recommended elimination of the Imperial East SEZ altogether because of cultural resources concerns.[12] The Soboba Band of Luiseno Indians and the Quechan also expressed concern over highly sensitive areas within their Tribal Traditional Use Areas in the Riverside East SEZ.[13] The Supplemental PEIS, therefore, recommends additional data collection to reduce the uncertainty about the potential impacts on cultural resources.[14] Therefore, at this time, the BLM has failed to take a "hard look" at project-specific impacts on cultural and paleontological resources.

In the Supplemental PEIS, the BLM must require all future project applicants to provide site-specific and project-specific data on a project's impacts on cultural and paleontological resources. This information must be required at the time a project is proposed in order to enable the BLM to conduct a site-specific analysis of those impacts. The BLM must then release its draft analysis of such data in an environmental review document that is circulated to the public for review.

C. Additional project-specific and site-specific data is necessary for the BLM to take a hard look at any future project's impacts on biological resources

The Supplemental PEIS recognizes that development within both SEZs could adversely affect sensitive habitats both directly and indirectly through project development, habitat degradation and deposition of fugitive dust.[15] The Imperial

---

[10] Supplemental PEIS, pp. C-39, C-56.
[11] *Id.* at pp. C-51.
[12] *Id.* at p. C-40.
[13] *Id.* at p. C-56.
[14] *Id.* at p. C-51, C-77 to C-78.
[15] *Id.* at pp. C-39, C-55.

East SEZ represents suitable habitat for 35 special-status species.[16] The Riverside East SEZ represents suitable habitat for 69 special-status species.[17] The Draft Solar PEIS presented a table of special-status species for which potential impacts must be evaluated prior to development in the proposed SEZs.[18] Because project development within the SEZs has the potential to impact biological resources significantly, the BLM must require project-specific information on species occurrences and use of specific project sites before approving ROW applications. Therefore, at this time, the BLM has failed to take a "hard look" at project-specific impacts on biological resources.

In the Supplemental PEIS, the BLM must require all future project applicants to provide site-specific and project-specific data on a project's impacts on biological resources. This information must be required at the time a project is proposed in order to enable the BLM to conduct a site-specific analysis of those impacts. The BLM must then release its draft analysis of such data in an environmental review document that is circulated to the public for review.

D. Additional project-specific and site-specific data is necessary for the BLM to take a hard look at any future project's impacts from transmission

David Marcus, a former advisor to the California Energy Commission and expert in electricity and energy issues, reviewed the proposed methodology for the transmission analysis. His comments and curriculum vitae are attached as Attachment A. According to Mr. Marcus, the BLM's proposed methodology in the Supplemental PEIS contains numerous errors and does not inform an analysis of transmission access issues and potential capacity.[19] In his opinion, the methodology needs to take into account networked power flows and the existing set of projects that are already queued up for interconnection.[20]

To take a hard look at the transmission needs of proposed projects, the BLM must collect additional data on existing projects and transmission capacity. This

---

[16] *Id.* at p. C-39.
[17] *Id.* at p. C-55.
[18] *Id.* at p. C-45; Draft PEIS, Table 9.1.12.1-1.
[19] Letter from David Marcus, to Robyn C. Purchia, Attorney, Adams Broadwell Joseph & Cardozo (Jan. 26, 2012), pp. 1-3 (Attachment A).
[20] *Id.* at p. 3.

information must be collected on an ongoing basis as projects are proposed and added to the transmission grid. The BLM also must ensure that project-specific NEPA documents collect additional transmission data and take the requisite hard look at potential transmission impacts. Therefore, at this time, the BLM has failed to take a "hard look" at project-specific impacts related to transmission.

In the Supplemental PEIS, the BLM must require all future project applicants to provide project-specific and "real-time" data regarding transmission. This information must be required at the time a project is proposed in order to enable the BLM to conduct a site-specific analysis of potential impacts. The BLM must then release its draft analysis of such data in an environmental review document that is circulated to the public for review.

E. Additional project-specific and site-specific data is necessary for the BLM to take a hard look at any future project's impacts on public health

The Supplemental PEIS did not acknowledge impacts to workers who may be exposed to contaminants in the soil during project construction, operation and decommissioning activities. Site-specific data regarding existing and potential contamination and other hazards is necessary to take a hard look at a project's impacts to public health. Therefore, at this time, the BLM has failed to take a "hard look" at project-specific impacts on public health.

In the Supplemental PEIS, the BLM must require all future project applicants to provide site-specific and project-specific data on a project's impacts on public health from hazards existing and proposed on future project sites. This information must be required at the time a project is proposed in order to enable the BLM to conduct a site-specific analysis of public health impacts. The BLM must then release its draft analysis of such data in an environmental review document that is circulated to the public for review.

II. BLM MUST PREPARE A SUPPLEMENTAL EIS INSTEAD OF A FINAL EIS IF IT MAKES SUBSTANTIAL CHANGES TO THE PROPOSED ACTION

"An agency's NEPA responsibilities do not end with the initial assessment; supplemental documentation 'is at times necessary to satisfy the Act's action-forcing purposes.'"[21] As stated by the United States Supreme Court in *Marsh v. Oregon Natural Resources Defense Council*,

> It would be incongruous . . . with the Act's manifest concern with preventing uninformed action, for the blinders to adverse environmental effects, once unequivocally removed, to be restored prior to the completion of agency action simply because the relevant proposal has received initial approval.[22]

In addition to NEPA's requirement that BLM prepare site-specific project analyses, as described above, NEPA also requires the BLM to prepare a supplemental EIS in certain circumstances. A supplemental EIS ***must*** be prepared if the agency makes "substantial changes in the proposed action that are relevant to environmental concerns" or if "there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts."[23] "This is a low standard."[24] If there is any "substantial question regarding whether a project may have a significant effect," then the BLM must conduct supplemental environmental review.[25] If a proposed project affects environmental concerns in a manner differently than previously analyzed, the change is surely "relevant" to those same concerns.[26]

Here, the BLM states that additional data on mineral resources, visual resources, cultural resources, and transmission will be provided for inclusion in the

---

[21] Price Roads Neighborhood Ass'n, Inc. v. U.S. Dept. of Transp., 113 F.3d 1505, 1509.
[22] Marsh v. Oregon Natural Res. Def. Council, 490 U.S. 360, 371 (1989).
[23] 40 C.F.R. § 1502.9(c)(1).
[24] Klamath Siskiyou Wildlands Ctr. v. Boody, 468 F.3d 549, 569 (9th Cir. 2006).
[25] *Id.*; *see also Price Roads Neighborhood Ass'n*, 113 F.3d at 1509 ("supplemental documentation is only required when the environmental impacts reach a certain threshold-i.e. significant (defined at 40 C.F.R. § 1508.27) or uncertain").
[26] New Mexico ex rel. Richardson v. Bureau of Land Mgmt., 565 F.3d 683, 707 (10th Cir. 2009).

Final PEIS.[27] If the collection of this additional data causes the BLM to make substantial changes to the proposed action or constitutes significant new information relevant to environmental concerns, the BLM must publish a Supplemental PEIS instead of a Final PEIS and circulate the Supplemental PEIS to the public for review.

III. CONCLUSION

In the Supplemental PEIS, the BLM fails to take a "hard look" at project-specific impacts on water resources, cultural resources, biological resources, public health and from transmission. Therefore, the BLM must make clear that all future project applicants must provide site-specific and project-specific data on these resource areas. This information must be required at the time a project is proposed in order to enable the BLM to conduct site-specific analyses of each future project. The BLM must then release its draft analyses in environmental review documents that are circulated to the public for review. Finally, if new information is added to the Supplemental PEIS after the pending comment period, the BLM must publish a Supplemental PEIS instead of a Final PEIS and circulate the Supplemental PEIS to the public for review.

By faithfully complying with the requirements of NEPA, BLM will help ensure that development of renewable energy on BLM land will be sustainable, and the renewable energy potential of the area will be fully realized.

Sincerely,

Robyn C. Purchia/ljl

Robyn C. Purchia

RCP:ljl

Attachment

---

[27] Supplemental PEIS, pp. C-61,C-71, C-77, Appendix C.

ATTACHMENT A

Comments of David Marcus on the “SLT” transmission analysis in the Solar Program Supplemental PEIS

The PEIS says that load flow data is used to "establish normal flow patterns on existing high-voltage lines surrounding the SEZ." (p. C-337.) Normal flow patterns are utterly irrelevant to whether new generation can be interconnected. New interconnections are allowed only if they will not cause overloads under all expected conditions, which includes peak load conditions and N-1 conditions. For the California ISO, interconnection analyses also include N-1/G-1 conditions in which both one major generator and one major facility (transmission line or transformer) are assumed both out at once, while loads are also at peak levels. For other states, N-1 conditions during peak loads may be sufficient. But no utility or system operator assumes that spare capacity can be determined based on "normal" conditions when loads are not at absolute peak levels and all facilities are in service.

Using inadequate methodology, the PEIS concludes that there will be a minimum of 2532 Mw of spare capacity on the Colorado River-Devers-Valley-Serrano transmission path in 2020. (p. C-338). The more detailed analysis shows that the "normal flow" data was actually calculated by PEIS consultants from FERC data and is in no way measured data. The more detailed analysis concludes that "normal flow" on the Palo Verde-Devers-Valley path is only 963 Mw. (Figure 4, p. 22; note that this same figure contains a wildly inaccurate map of 500 kV transmission lines in Southern California, showing non-existent lines between Imperial and Riverside Counties, between San Diego and Orange Counties, between San Diego and Riverside Counties, between Riverside and San Bernardino Counties (Devers-Lugo), and within Imperial, San Diego, Orange, and Los Angeles Counties.) It concludes that there was 1637 Mw of spare capacity on the Palo Verde-Devers line in 2011 and even more spare capacity farther west. (Figure 5, p. 23; this figure has the same wildly inaccurate map of 500 kV transmission as Figure 4.)

The absurdity of the PEIS analysis can be seen in the fact that while the PEIS was concluding that there are thousands of Mw of space on lines from Arizona to California (5738 Mw in 2015 on the Colorado-Devers line, per p. C-338), the CAISO was concluding new potential developments would require new transmission lines west of Devers that would take 7 years to complete. (See attached public document, a redacted copy of the Blythe Solar interconnection study by the CAISO, pp. 11-13 and also 16-17.)

The PEIS supplemental study admits that it doesn't use the “new” standard power flow techniques that real transmission planners have used for decades. (p. 4.) It also admits that it doesn't consider the impact of other queued generators located outside of the particular SEZ. (p. 24.) Finally it admits that it doesn't consider the impact of "multiple line pathway capabilities", which appears to be its contorted way of saying that it ignores the fact that the electrical grid is, in fact, a network. (p. 24, fn. 6.) But the networked nature of the grid is its primary characteristic. To evaluate grid capabilities without taking into account that it is a grid is like saying that because two small towns are connected by a freeway it must be easy to travel between them, while ignoring the large city that uses the same freeway and has rush hours.

The PEIS supplemental study admits that it "does not address all the complexities", but the reality is that it is so far from addressing the reality of the grid that what it does address is meaningless. (p. 24, fn. 6.) The California ISO, facing the real world problem of interconnecting new solar generators to the grid (the 1/12/2012 ISO interconnection queue contains over 39,000 Mw of solar projects), has struggled for years with the issue of how to model transmission availability.

The sad truth is that to have any hope of providing a realistic estimate of existing system capacity, the SLT methodology would need to be completely scrapped and replaced with a methodology that takes into account networked power flows and takes into account the existing set of projects that are already queued up for interconnection. The approximations used to provide the SLT estimates of spare capacity are simply wrong.

RESUME

DAVID I. MARCUS
P.O. Box 1287
Berkeley, CA 94701-1287

June 2011

Employment

Self-employed, March 1981 - Present

Consultant on energy and electricity issues. Clients have included Imperial Irrigation District, the cities of Albuquerque and Boulder, the Rural Electrification Administration (REA), BPA, EPA, the Attorney Generals of California and New Mexico, alternative energy and cogeneration developers, environmental groups, labor unions, other energy consultants, and the Navajo Nation. Projects have included economic analyses of utility resource options and power contracts, utility restructuring, utility bankruptcy, nuclear power plants, non-utility cogeneration plants, and offshore oil and hydroelectric projects. Experienced user of production cost models to evaluate utility economics. Very familiar with western U.S. grid (WSCC) electric resources and transmission systems and their operation and economics. Have also performed EIS reviews, need analyses of proposed coal, gas and hydro powerplants, transmission lines, and coal mines. Have presented expert testimony before FERC, the California Energy Commission, the Public Utility Commissions of California, New Mexico, and Colorado, the Interstate Commerce Commission, and the U.S. Congress.

Environmental Defense Fund (EDF), October 1983 - April 1985

Economic analyst, employed half time at EDF's Berkeley, CA office. Analyzed nuclear power plant economics and coal plant sulfur emissions in New York state, using ELFIN model. Wrote critique of Federal coal leasing proposals for New Mexico and analysis of southwest U.S. markets for proposed New Mexico coal-fired power plants.

California Energy Commission (CEC), January 1980 - February 1981

Advisor to Commissioner. Wrote "California Electricity Needs," Chapter 1 of Electricity Tomorrow, part of the CEC's 1980 Biennial Report. Testified before California PUC and coauthored CEC staff brief on alternatives to the proposed 2500 megawatt Allen-Warner Valley coal project.

CEC, October 1977 - December 1979

Worked for CEC's Policy and Program Evaluation Office. Analyzed supply-side alternatives to the proposed Sundesert nuclear power plant and the proposed Point Concepcion LNG terminal. Was the CEC's technical expert in PG&E et. al. vs. CEC lawsuit, in which the U.S. Supreme Court ultimately upheld the CEC's authority to regulate nuclear powerplant siting.

Energy and Resources Group, U.C. Berkeley, Summer 1976

Developed a computer program to estimate the number of fatalities in the first month after a major meltdown accident at a nuclear power plant.

Federal Energy Agency (FEA), April- May 1976

Consultant on North Slope Crude. Where To? How?, a study by FEA's San Francisco office on the disposition of Alaskan oil.

Angeles Chapter, Sierra Club, September 1974 - August 1975

Reviewed EIRs and EISs. Chaired EIR Subcommittee of the Conservation Committee of the Angeles Chapter, January - August 1975.

Bechtel Power Corporation (BPC), June 1973 - April 1974

Planning and Scheduling Engineer at BPC's Norwalk, California office. Worked on construction planning for the Vogtle nuclear power plant (in Georgia).

Education

Energy and Resources Group, U.C. Berkeley, 1975 - 1977

M.A. in Energy and Resources. Two year master's degree program, with course work ranging from economics to engineering, law to public policy. Master's thesis on the causes of the 1972-77 boom in the price of yellowcake (uranium ore). Fully supported by scholarship from National Science Foundation.

University of California, San Diego, 1969 - 1973

B.A. in Mathematics. Graduated with honors. Junior year abroad at Trinity College, Dublin, Ireland.

Professional Publications

"Rate Making for Sales of Power to Public Utilities," with Michael D. Yokell, in Public Utilities Fortnightly, August 2, 1984.