Thank you for your comment, Patrick Maguire.

The comment tracking number that has been assigned to your comment is SEDDsupp20123.

Comment Date: January 27, 2012 14:52:34PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20123

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Attachment: Dixieland PEIS Variance Request.pdf

Comment Submitted:

MAINSTREAM
RENEWABLE
POWER

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January 25, 2012

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

Comments on the Supplement to the Draft Solar PEIS

Dear Agencies:

Mainstream Renewable Power ("Mainstream") is a developer of renewable onshore and offshore solar and wind energy projects. Mainstream currently has operations in eight countries on four continents with over 8,500 MW under development. In California, this development includes two major wind energy projects on Bureau of Land Management ("BLM") managed lands. California represents a strategic and important focus for Mainstream's development portfolio.

Mainstream also supports the efforts of the Department of Energy ("DOE"), the BLM and all the co-operating agencies in supporting the goal for the responsible development of renewable energy in the western United States. Mainstream shares this objective through sensible siting and conscientious development.

When reviewing any development proposal, Mainstream takes great care in identifying and analyzing prospective site characteristics. When reviewing potential solar sites, Mainstream evaluates its compatibility with surrounding land uses and whether residual impacts to the environment are minimized. After much detailed analysis, Mainstream believes that it has found such a potential solar development site. This site is unique in that it retains excellent solar resources, has apparently minimal environmental impacts, is on land largely previous disturbed, is adjacent to transmission rights-of-way, substations and other solar developments, and has no other apparent public use.

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We have reviewed the proposed Solar Development Area Maps and find that this excellent potential solar development site has not yet been specifically identified. The site is; however, in the vicinity of the Imperial East Proposed Solar Energy Zone. The characteristics of the proposed solar development site are as follows:

- Project Name – Dixieland Solar Project
- BLM Ref – CACA053143
- Land Owner – United States Department of the Interior, managed by the BLM
- Acreage – 240 acres
- Location – County of Imperial, California (13 miles west of the City of El Centro)
- Address – North of Strobel Road, south of Evan Hewes Highway and west of the Foxglove Canal and Dixie Drain No.4
- Section – T16S R11E, Sec. 11 & 12 and T16S R12E, Sec. 18
- APN's – 034360074000, 51260018000, 034360040000
- Map – See enclosed

Mainstream appreciates that given the smaller project acreage, this site would not be suitable as an independent Solar Energy Zone; however, we believe that the proposed site is an excellent candidate to be included as a variance area.

Prior to such review, it must be noted that the Dixieland application to the BLM was submitted in May 2011, the first application screening meeting took place on May 20th 2011 and the second on August 4th 2011, all prior to the publication of the Supplement to the PEIS. In your Answer to Questions section, you define "pending applications" as applications on file with the BLM before publication of the Supplement, including applications for lands within proposed SEZs filed before June 30, 2009. "New" applications are those applications filed within proposed SEZs after June 30, 2009, and any application filed after the publication of the Supplement. The application was processed in accordance with applicable BLM instructional memorandums and the application was formally accepted by the BLM Field Office at El Centro on October 7, 2011. Since the application was received and "on file" prior to the publication of the supplement, it should be considered a pending application; however, further clarification may be necessary.

In addition to being an "application on file", Mainstream requests that the Dixieland Project site be included as a variance area in the proposed Solar PEIS. Additional supporting factors include:

- The surrounding area is a hub for existing and permitted solar and geothermal electricity generation
    - Imperial Irrigation District ("IID") Dixieland Substation is one mile north
    - IID's proposed 230kV Transmission Line crosses the Dixieland Project site boundary (anticipated construction date of 2012/13)
    - SDG&E Imperial Valley Substation is located approximately six miles southeast of the project site
    - Union Pacific Railroad tracks share the northern site boundary
    - Foxglove Canal and Dixie Drain No. 4 share the eastern site boundary
    - The existing Southwest Powerlink and proposed Sunrise Powerlink are located approximately three miles south of the project site
    - BLM Classification – Limited with Type III Application accepted

- There are at least two other major solar projects planned on adjacent lands
    - Centinela Solar Project, south and west of the Dixieland site
    - Imperial Valley Solar Project, west of the Dixieland site

- In order to accommodate the flexibility described in the program objectives, the modified program alternative allows for utility-scale development in variance areas outside of the Solar Energy Zones and exclusion areas in accordance with a proposed variance ordinance. As the draft Solar PEIS document indicates, there are twenty-nine categories of lands that would be excluded from solar development. None of these categories are found at the proposed Dixieland Solar Project site. Moreover, the site is:
    - Project to accommodate a PV Array system of approximately 20MW total.
    - Site is not within the BLM-administered lands considered off-limits to development. Rather the site has been serialized by BLM as CACA053143
    - Lands have a slight east slope of approximately 1%
    - Solar isolation levels are greater than 7.0 kWh/m2/day
    - The Dixieland site is not in or adjacent to designated critical habitat, special management areas, wilderness study areas or Areas of Critical Environmental Concern (ACECs)
    - Preliminary biological assessments indicates that the site has no apparent critical habitat for any threatened or endangered species

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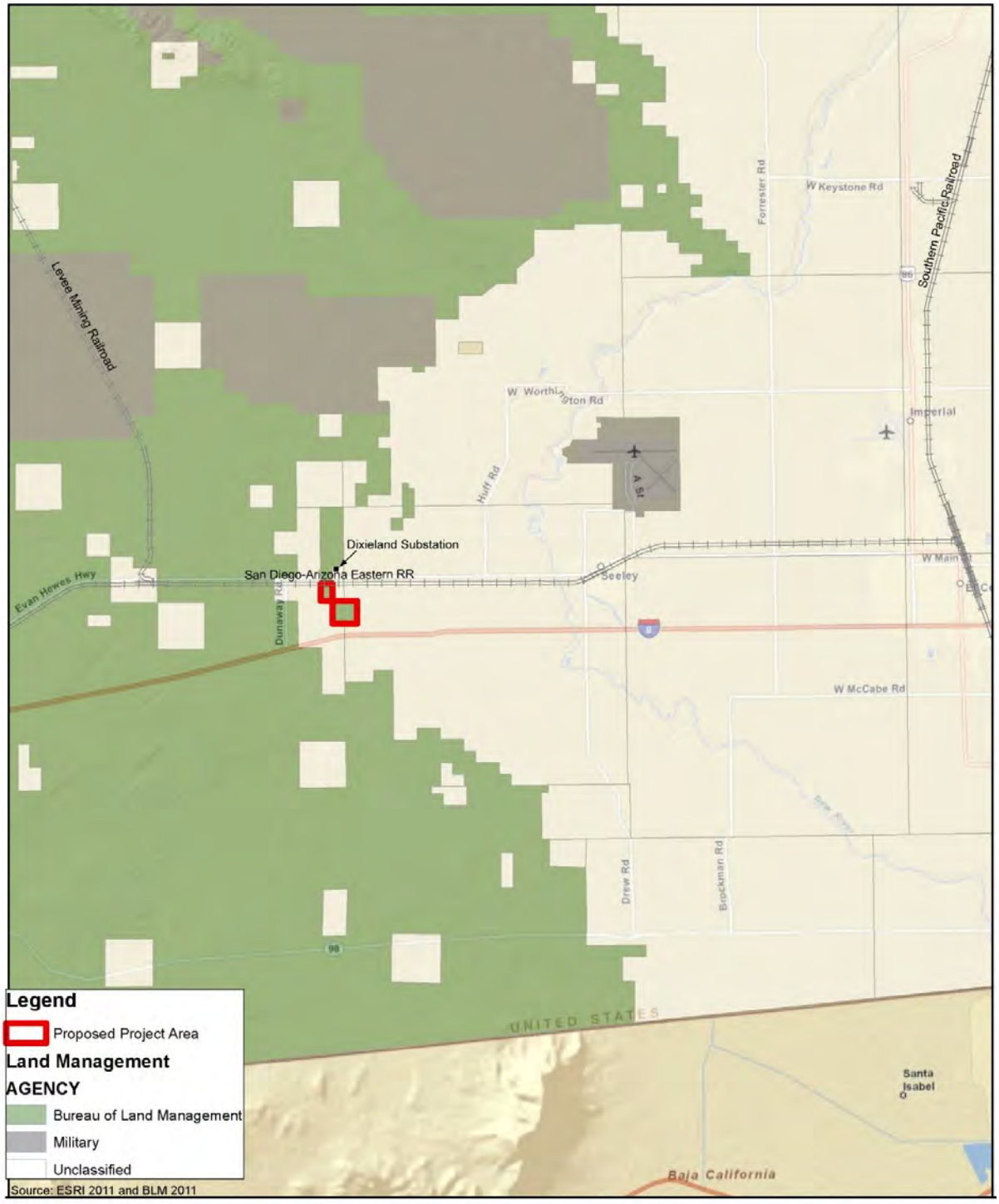
- The site is not a right-of-way exclusion areas or avoidance area
- The site is not a special recreational management area or other special use area
- Although not required for PV array installation, the site is adjacent to water supplies

According to the map published by the Argonne National Laboratory, dated October 2011, titled "BLM-Administered Lands in California Available for Application for Solar Energy ROW Authorizations under the Modified BLM Alternatives Considered in the Supplement", the Dixieland Project site appears not to have been included in Lands Available for Application – Modified Program Alternative (Variance Areas). For all the reasons stated above, including that the project application has already been accepted by the BLM, Mainstream believes the proposed PEIS can be enhanced with the inclusion of this Dixieland Project site.

We appreciate the opportunity to comment of the proposed Solar PEIS and are available at any time to discuss further the recommendations included in this transmittal. Should you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Patrick Maguire
Vice President Development


Legend
Proposed Project Area
Land Management
AGENCY
Bureau of Land Management
Military
Unclassified
Source: ESRI 2011 and BLM 2011
Dixieland Substation
San Diego-Arizona Eastern RR
Levee Mining Railroad
Southern Pacific Railroad
Evan Hewes Hwy
Dunaway Rd
Huff Rd
Forrester Rd
W Keystone Rd
W Worthington Rd
Imperial
A St
Seeley
W Main St
W McCabe Rd
Drew Rd
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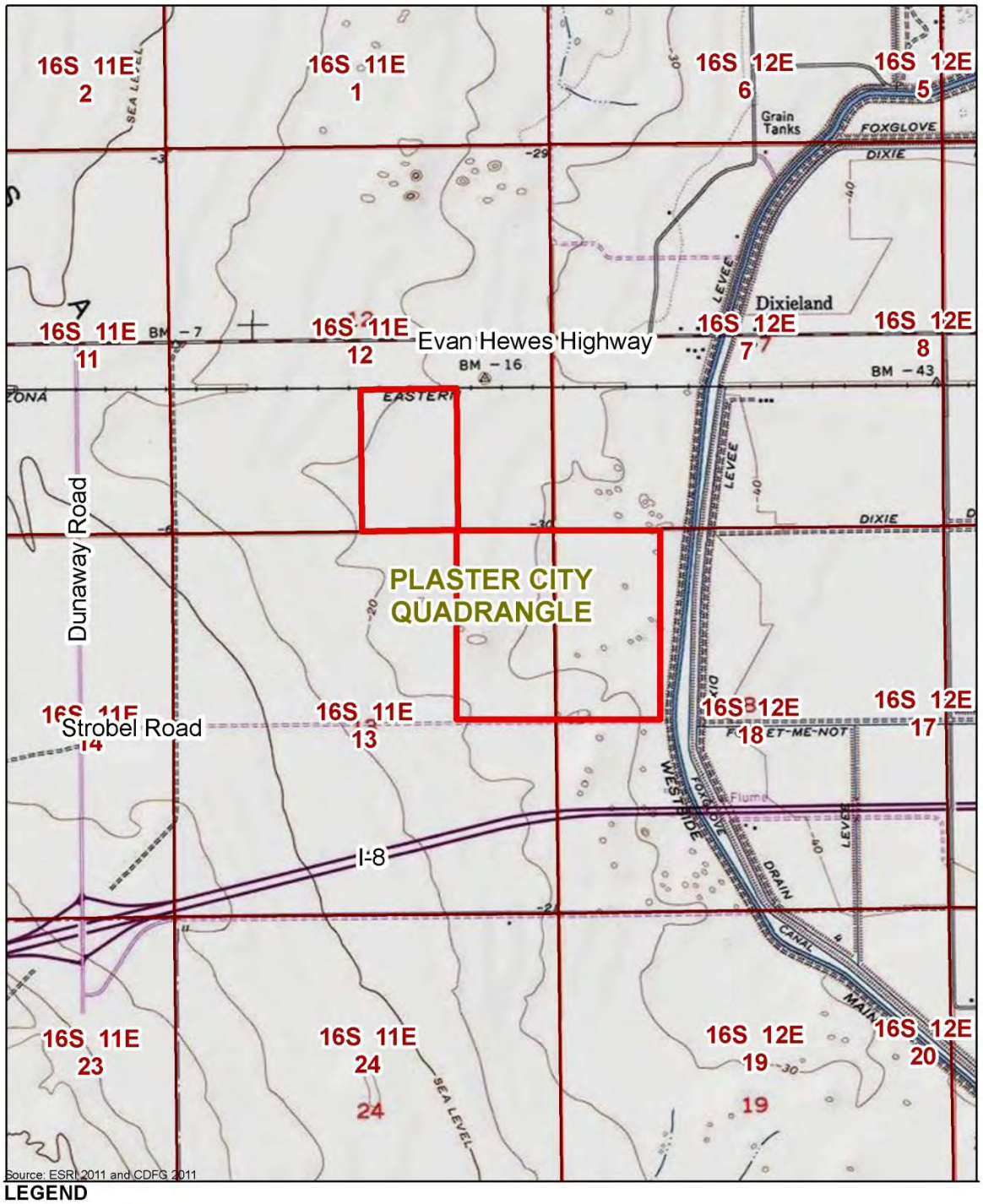

LEGEND

Proposed Project Area

Miles

0 0.125 0.25 0.5 0.75 1

RMT

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Figure 4: Panoramic Views of the Project Site

Northern Project Parcel

Southern Project Parcel

Figure 5: Panoramic Views of the Project Site

Dixie Drain #4, Looking South with Southern Parcel on Right with Berm

Union Pacific Railroad on Northern Boundary of North Project Parcel

Thank you for your comment, Gary Werner.

The comment tracking number that has been assigned to your comment is SEDDsupp20124.

Comment Date: January 27, 2012 15:23:33PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20124

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Attachment: PEIS_-Supplement_-_PNTS_Comments_-27Jan2012.pdf

Comment Submitted:

Partnership for the National Trails System

222 S. Hamilton #13 Madison, WI 53703 Phone: (608) 249-7870
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Sustaining Our Trail Resouces

January 27, 2012

VIA ELECTRONIC SUBMISSION (http://solareis.anl.gov/involve/comments/index.cfm)

Linda J. Resseguie
Solar Energy Draft PEIS
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Re: Comments on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (DOE/EIS-0403D-S

Dear Ms. Resseguie:

The Partnership for the National Trails System (PNTS) commends the efforts of the Bureau of Land Management (BLM) to respond to the many public comments on its draft solar programmatic environmental impact statement (Draft PEIS) by drafting a generally strong Supplement, which elevates protections for natural and cultural resources. We are pleased to see the withdrawal from consideration, or the substantial reduction of, several proposed solar energy zones (SEZs) which, if developed, would have impacted significant natural and cultural resources. We also commend the BLM for conducting thorough National Environmental Policy Act reviews of SEZs, requiring Class II or III cultural resource inventories of project areas proposed in variance applications, and requiring consultation under the National Historic Preservation Act as part of the analysis of new SEZs. Our comments on the Supplement focus on what we see as still inadequate protections for current and potential units of the National Trails System.

We believe, as many others do, that all federal agencies, including the BLM, should work with other public and private entities to achieve significant reduction of energy use through greatly improved efficiency and conservation as a top national priority. Stabilization and reduction of energy use by government, corporations, and individuals -- as has been achieved in California for 30 years -- should be done before embarking on building vast new energy production systems on public lands. We also believe that BLM should play a role, with other federal agencies, in promoting and facilitating "distributed energy production" – the generation of energy through local technologies close to where the energy is used – rather than relying solely on large-scale energy production and transmission systems. Energy policy should seek the elegance of minimizing rather than maximizing energy use; should seek to conserve rather than to expend resources as a first operating principle.

Interests of the Partnership

The Partnership for the National Trails System is a tax-exempt, non-profit federation of 34 non-profit organizations that work in direct partnership with Federal and state agencies to help sustain and manage America's 30 national scenic and historic trails. The Partnership exists to foster information exchange among the trail organizations, to provide skill-building training for volunteers and staff, to coordinate their public policy advocacy, and to advise Federal agency managers about issues relating to the National Trails System.

The Partnership was incorporated in 2001 and received tax-exempt 501(c)3 status from the Internal Revenue Service in 2003.

I. BLM should treat national scenic and historic trails as equal units of the National Landscape Conservation System.

We strongly applaud and support the decision to exclude all units of the National Landscape Conservation System (NLCS), including the national scenic and historic trails, from areas to be considered for solar energy development. Despite this decision the national scenic and historic trails are inadequately protected in the draft Solar PEIS.

When Congress designated the **National Landscape Conservation System** (Conservation System) it explicitly recognized that the system shall include each area that is "designated as a national scenic trail or national historic trail designated as a component of the National Trails System" 16 U.S.C. § 7202(b)(1)(D). Additionally, the Supplement acknowledges that national scenic and historic trails (NSHTs) are units of the Conservation System [Supplement at 1-10] and BLM Instruction Memorandum (IM) 2011-061 states that solar "development must… be consistent with protection of areas and resources of national interest, including the BLM National Landscape Conservation System." However, at the same time, the Supplement and the IM propose to lessen protections for NSHTs relative to other components of the Conservation System, a prescription we find inconsistent with Congress' intent. For instance, while both documents consider other units of the Conservation System to be areas of "High Potential for Conflict," they consider NSHTs to be areas of only "Medium Potential for Conflict" because of their "linear nature" [Supplement at I-10] and the idea that they "have resource conflicts that can potentially be resolved" [IM].

Recommendation:

- While the origin of this discrepancy between NSHTs and other units of the Conservation System is not the Supplement itself, we recommend that the BLM remedy this inconsistency in the treatment of units in the Supplement by elevating high potential route segments of national historic trails (NHTs) and national scenic trails (NSTs) to "High Potential for Conflict."

II. BLM should increase the width of the avoidance area for national scenic and historic trails.

The Supplement states that the standard avoidance width for NSHTs is 0.25 miles, except where a corridor of a different width has been established [Supplement at 2-16]. We commend BLM on establishing a minimum avoidance corridor for NSHTs, but given the importance of their landscape setting for the integrity and significance of NSHTs, and the dramatic visual impacts that utility scale solar developments have on resources that surround them, we believe BLM should add protections for trails beyond that narrow corridor. Such protections should be commensurate with the most

up-to-date strategies for protecting NSHTs, such as those included in the draft environmental impact statement/resource management plan (Draft EIS/RMP) revision recently published by the Lander Field Office of the BLM in Wyoming. For example, the preferred alternative in the Draft EIS/RMP prescribes specific physical and visual protections for trails at 0.25 mile, 1 mile, 3 miles, 5 miles, and more than 5 miles, depending on the development activity.

Recommendations:

- Using BLM's Visual Resource Management System, protections for NSHTs against impacts from utility scale solar energy development should include, at a minimum, limitation of visual contrasts to "weak contrast" for national scenic trails and for high potential route segments of national historic trails.
- BLM should consistently require mitigation measures that reduce visual impacts to current and potential (e.g., West Fork of the Old Spanish National Historic Trail) NSHTs. Such measures could include imposing limits on the height of power poles, promoting non-penetrating and low profile racking/panel photovoltaic systems, and, where appropriate, using low visibility fencing, such as black fencing in lieu of uncoated galvanized fencing, and golf netting.
- Because transmission lines servicing the solar installations can also cause direct and indirect impacts to trails, BLM should require applicants to align power poles within existing easements and rights-of-way for existing power lines, where feasible.
- Where applicable, BLM should require developers to explore agreements with adjacent landowners to eliminate transmission line crossing of public lands in locations where they could directly or indirectly impact national scenic trails and high potential route segments of national historic trails.

III. BLM should consider modifying additional SEZs to reduce impacts to NHTs.

As mentioned above, we commend BLM for removing or modifying several proposed SEZs to reduce impacts to significant resources. However, we believe that BLM should re-examine the extent of adverse impacts of some remaining SEZs to NHTs, given the NHTs' national significance and inclusion in the Conservation System, and modify those SEZs accordingly.

Recommendations:

We recommend that BLM modify the following SEZs to reduce impacts to national historic trails:

- *De Tilla Gulch*: We commend BLM for suggesting inventory and viewshed analysis to help determine potential impacts to the Old Spanish NHT and the West Fork of the Old Spanish Trail from this SEZ. Yet, we feel that the strong visual impacts to the trails that are guaranteed within approximately 5 miles of the SEZ remain unacceptable. Therefore, we recommend that BLM push, at a minimum, the southeastern boundaries of the SEZ back at least 2.5 miles, as well as implement strong mitigation measures to further reduce visual impacts.
- *Dry Lake:* We commend BLM for dramatically reducing the size of this proposed SEZ, in part to avoid impacts to significant cultural resources. However, we still recommend that BLM move the southeastern boundary of the SEZ to the west of I-15 to help reduce impacts to the Old Spanish Trail/Mormon Road site, which is listed in the National Register as a district.

IV. BLM should conduct a Class II cultural resources inventory of at least 10% of each currently proposed SEZ.

We strongly support BLM's recommendation for the use of Class II sample surveys to better understand cultural resources located within proposed SEZs. However, we feel that 5% minimum survey coverage, as planned for SEZs in Arizona, California, and Nevada [Supplement at 2-22] is inadequate. This inadequacy is illustrated by the fact that data collection efforts recommended to reduce uncertainty about potential impacts from several of the proposed SEZs (e.g., Brenda, Gillespie, Imperial East, Riverside East, Antonito Southeast, De Tilla Gulch, Dry Lake Valley North, Gold Point) involve acquiring a 10% sample of each SEZ [Supplement at C-19, C-36, C-51, C-77, C-96, C-112, C-203, C-218].

Recommendations:

- BLM should require consistent Class II sampling of, at a minimum, 10% of current SEZs. This information should be used to help guide solar development away from areas of significant cultural resources and/or to enact avoidance and mitigation strategies.
- BLM should require consistent Class II sampling of, at a minimum, 20% of future proposed SEZs to help ensure avoidance of areas of significant cultural resources. This increased percentage of inventory should be feasible with future funding allocations and longer planning time, and it will provide a more accurate model of the probable locations of significant cultural resources.

Conclusion

When planning for large-scale solar energy development on federal public lands, the BLM must consistently prioritize the protection of outstanding natural, historic, and cultural resources, including—but not limited to—significant concentrations of prehistoric and historic archaeological sites, national scenic and historic trails, and Native American traditional cultural properties and sacred sites.

We appreciate the opportunity to provide these comments and we look forward to participating further in the PEIS process. Please contact me at (608) 249-7870 with any questions or concerns regarding these comments.

Sincerely,

Executive Director
Partnership for the National Trails System

Thank you for your comment, Kathleen Zimmerman.

The comment tracking number that has been assigned to your comment is SEDDsupp20125.

Comment Date: January 27, 2012 15:24:35PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20125

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Attachment: NWF comments on Solar DPEIS Supplement FINAL.pdf

Comment Submitted:

NATIONAL WILDLIFE FEDERATION

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2995 Baseline Road, Suite 300 Boulder, CO 80303 www.nwf.org

January 27, 2012

Draft Solar Energy Programmatic EIS
Argonne National Laboratory
9700 South Cass Avenue -- EVS/240
Argonne, Illinois 60439

Delivered via electronic and regular mail

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

To Whom It May Concern:

These comments are submitted on behalf of the National Wildlife Federation (NWF). NWF appreciates the opportunity to submit these comments to the Department of Energy and the Bureau of Land Management [hereinafter Agencies]. NWF is submitting these comments today via electronic mail and forwarding a copy separately by mail.

As an organization, NWF represents the power and commitment of four million members and supporters joined by affiliated organizations in 48 states and territories and the District of Columbia. NWF and its affiliates have a long history of working to conserve the wildlife and wild places in the West. Many members of NWF and its affiliates use the lands and resources that will be impacted by utility-scale solar energy generation facilities constructed on federal public lands; they also use and enjoy wildlife resources that may be impacted by construction of these facilities on other federal lands, as well as state, private and tribal lands.

NWF also recognizes that climate change poses an enormous threat to both the human environment and the earth's biologic diversity. For that reason, NWF has called for a rapid transition to energy sources other than fossil fuels that contribute to greenhouse gas (GHG) emissions and climate change. The generation of electricity via solar energy, including utility-scale facilities, is an important component of that transition. Without immediate and decisive steps to curb GHG emissions, the long-term survival of many wildlife species is in jeopardy.

INTRODUCTION

NWF supports the Agencies' decision to supplement the *Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States* [hereinafter DPEIS] released last year. The Supplement clearly reflects a willingness to respond to comments submitted by both conservationists and industry proponents. It also demonstrates the complexity of both promoting such a land-intensive use and conserving vital fish and wildlife habitats. NWF believes the Agencies truly are committed to developing a strategy for siting utility-scale solar energy generation facilities that meets both of those goals.

As NWF stated in its comments on the DPEIS, NWF wholeheartedly endorses the designation of Solar Energy Zones (SEZs). The SEZs represent a new approach on the part of BLM, one where the agency more fully exercises its authority to promote and manage commercial activities on public lands. NWF believes that this approach will avoid the fragmentation of important wildlife habitats that has occurred as a result of other commercial activities on public lands, such as oil and gas drilling. The concentration of development in the SEZs promotes the consolidation of related infrastructure (e.g., roads, transmission lines) resulting in less total land disturbance and reduced costs to both industry and consumers. NWF also believes that this approach will increase support for renewable energy projects by reducing opposition from other public land users.

NWF is happy to see that the Supplement modifies the BLM's preferred alternative as identified in the DPEIS in several respects. The Supplement proposes to:

1) eliminate from consideration several SEZs that were unacceptable either because of potential impacts on environmental resources, including fish and wildlife, or because the SEZs were unworkable for industry;
2) re-configure several SEZs in order to avoid conflicts with environmental resources;
3) clarify incentives for projects constructed within SEZs;
4) expand the categories of environmental resources that would be protected from solar energy development;
5) require BLM to conduct site-specific environmental impact analyses when individual locations and proposed uses are identified;
6) improve consultation with Tribes; and
7) commit BLM to the preparation of regional mitigation plans to compensate for the unavoidable loss of some public lands resources.

In its comments on the DPEIS, NWF also urged BLM to abandon the provisions of the preferred alternative which made 22 million acres of public land available for utility-scale solar energy generation facilities outside the SEZs. The Supplement does modify the methodology by which lands outside designated SEZs would be made available to development. Developers seeking to site projects outside SEZs would be required to seek a "variance." Alternatively, the Supplement identifies criteria for the designation of additional SEZs. So, the Supplement no longer states that 22 million acres of public land

will be openly available to the construction of utility-scale solar energy generation facilities. However, counting the lands where either variances may be granted or new SEZs designated, there is still 18-20 million acres of public land "on the table."

NWF remains concerned that the variance process as outlined in the Supplement is not restrictive enough to preserve the integrity of the SEZs. The SEZs are intended to prevent a hodge-podge of projects and transmission lines across the landscape. The variance process could undermine that goal. Instead of sorting through requests for variances, NWF urges BLM to devote its limited resources to the ongoing processes in California, Arizona, Colorado, and Utah to designate additional SEZs.

SPECIFIC COMMENTS

The Variance Process

NWF understands the appeal of providing sufficient flexibility to accommodate the "perfect" project even though it would be constructed outside an SEZ. Unfortunately, the variance process as currently proposed does not limit its reach to utility-scale solar energy generation facilities proposed for "perfect" sites on already-disturbed lands with little or no fish and wildlife values but with ready access to transmission and plentiful water. The variance process merely states that BLM will "consider" a number of factors when evaluating variance applications. Those factors include "[d]ocumentation that the project will be located in an area with low resource values and where minimal conflict with adjacent lands is likely." However, nothing in the variance process described in the Supplement specifically prohibits BLM, after due consideration, from granting a variance for a solar farm next to a backcountry trout stream, a project that might require the construction of miles of transmission and roads through valuable fish and wildlife habitat. Industry proponents have assured NWF that they have no interest in seeking variances for such locations. So, there would be little harm in clarifying that variances will only be granted for projects that can be brought online quickly, where the applicant has sufficient capital and access to markets, and the project will have very limited effects on other public lands resources because the resources already are significantly and permanently impacted by other human activities and infrastructure at or near the site.

The Competitive Process

NWF supports BLM's commitment to establish a competitive bidding structure for rights-of-way on public lands to construct utility-scale solar energy generation facilities. BLM is obligated to secure fair market value for the use of public resources. However, the competitive bidding process for access to lands within the SEZs must not become a deterrent to development within the SEZs. NWF urges BLM to develop a competitive bidding system that is extremely "user-friendly." BLM might also consider a bidding structure where cash bonuses or other bid components could be paid out over time so that the successful bidder could devote more financial capital initially to designing and building out the projects.

Mitigation
The Supplement states that "regional mitigation plans" will be developed for each SEZ (Supplement at 2-24), but contains little information about what these mitigation plans will include. While NWF recognizes the difficulty of developing comprehensive mitigation plans in the context of a programmatic document, it would be useful to establish some criteria for the content of these plans.

Due to the nature of utility-scale solar energy generation facilities, the efficacy of mitigation measures is severely limited (*see* DPEIS Table 5-10-2 at 5-95). The only truly effective mitigation will be to close lands to this development. Little can be done on-site except to reclaim those resources disturbed during construction – roads and staging areas that are no longer necessary once the facility is up and running. Regional mitigation plans will most likely have to address off-site mitigation.

NWF believes that no off-site mitigation proposal should be accepted without a thorough assessment of: the availability of other habitat, the feasibility of long-term restoration/enhancement/protection of alternative habitat, and the adequacy of funding to sustain the alternative habitat for the life of the project (including time required for final reclamation standards to be achieved). NWF has seen too many examples where industry has offered to "throw some money" at the problem without any analysis of the extent of the wildlife impacts or the availability of effective mitigation remedies.

NWF is heartened to see that BLM intends to ensure that any mitigation lands are protected to provide enduring conservation benefits and that as part of its environmental review of future projects, BLM will evaluate the success of its previous mitigation efforts. However, BLM should also make clear that risk of mitigation failure must not be borne entirely by fish and wildlife. BLM should state that all regional mitigation plans will establish binding thresholds for fish and wildlife losses; that reaching the thresholds will have consequences for both new and existing projects; and that lack of monitoring data is not an excuse to continue existing projects and authorize new ones.

Tribal Consultation
The Supplement states that:

> Processes under way will build upon government-to-government consultation undertaken between the BLM and Indian Tribes regarding the Draft Solar PEIS. The BLM ***expects*** these actions will continue through completion of the Solar PEIS, signing of the ROD, and beyond, as the agency considers project-specific solar applications to be reviewed under the policies 18 established by the national solar program.

Supplement at 2-82, *emphasis added.* Government-to-government consultation is an obligation mandated by both statute and treaty. Rather than "expect" consultation to continue, BLM is obligated to "ensure" consultation continues.

BLM conducted an ethnographic study for the SEZs located in Nevada and Utah, including information related to traditional uses of plants and animals, trails, and sacred

sites, to enable BLM to minimize impacts on cultural resources. Prior to the preparation of the Final Solar PEIS, BLM states it will contact other tribes not included in the study to ensure the inclusion of tribal traditional uses and cultural resources in other SEZs in other states (Supplement at 2-82). NWF urges BLM to pursue and fulfill fully this objective.

BLM acknowledges that individual SEZ action plans contain data gaps, stating:

> The BLM will prioritize the collection of additional data and analysis in those SEZs that are most likely to be developed in the near future. Some of the items identified in the action plans will be completed by the BLM and presented in the Final Solar PEIS. Data collection not completed by the BLM (as part of the Final Solar PEIS or through other efforts) would likely be required of developers as part of site-specific tiered analysis for future projects.

Supplement at C-1. Appendix C also indicates that substantial data gaps exist in regards to cultural resources and cultural inventory assessments for the SEZs. BLM is obligated to ensure these inventories are conducted for site-specific projects and that government-to-government consultation with tribes is carried out. Consultation and cultural resource assessments should aim to avoid, or at the very least minimize, the impacts of solar projects to cultural resources.

Designated SEZs

In its comments on the DPEIS, NWF pointed out that several of the SEZs identified in the DPEIS included vital habitats for Greater sage-grouse and big game species. These observations were based upon GIS data supplied by state wildlife agencies. While a couple of these SEZs have been modified and no longer include these habitats, there are several that remain of concern to NWF.

De Tilla Gulch SEZ in Colorado, as originally proposed in the DPEIS, contains both elk severe winter range and pronghorn winter concentration areas (Supplement at C-101). The Supplement states that pronghorn seasonal ranges have been excluded but does not address the severe winter range for elk (*Id.* at C-102).

The Gold Point SEZ in Nevada contains habitat for the Greater sage-grouse. The Supplement states that "pre-disturbance surveys" will be conducted within this SEZ for sensitive species, including sage-grouse, (Supplement at C-211 to C-214) and that "suitable" habitats will be mapped. The Supplement does not indicate that these habitats will be excluded from development. The same is true of the Milford Flats South SEZ in Utah where the SEZ includes sage-grouse habitat and the proposed transmission corridor would cross brood-rearing habitat. The Wah Wah Valley SEZ in Utah still includes significant sage-grouse habitat.

Several of the proposed SEZs include lands that provide movement corridors for Desert bighorn sheep.[1] BLM acknowledges this important wildlife use; yet, with the exception of suggested limits on fencing, nothing in the SEZ-Specific Design Features for SEZs includes measures to ensure these routes retain their value as movement corridors. BLM must identify these corridors and commit to effective conservation measures. For all SEZs, requiring that migratory bottlenecks are not created within these corridors both on and off the SEZs should be part of the program components described in the DPEIS in Appendix A and in Specific Design Features.

CONCLUSION

As an organization, NWF wants the SEZ strategy for development on public lands to succeed. To be successful, NWF recognizes that the SEZs must work not just for conservation of fish and wildlife habitat but also for industry proponents and for BLM itself. Once the DPEIS is finalized NWF urges BLM to continue to collect site-specific information regarding resources at risk and potential impacts so that processing applications for projects within SEZs can be as streamlined as possible. The collection of this data can also help inform the designation of additional SEZs. NWF supports BLM's decision to focus some attention on the transmission issues associated with getting solar power onto the grid. Transmission access could be a serious roadblock to the viability of the SEZs and to individual projects. Both the collection of additional information on impacts and the availability of transmission will make the SEZs more workable for industry proponents.

NWF also urges BLM to tighten the variance process so that there remain adequate incentives to drive development to the SEZs and conserve other important public lands resources. Otherwise, fish and wildlife habitat will continue to be "nickel and dimed" away. This is bad for fish and wildlife and for the agency. BLM will continue to have to respond to applications seeking variances across the landscape instead of concentrating its limited resources on permitting projects inside the SEZs. Given that the SEZs identified in the Supplement provide more acreage than is necessary to meet projected demand, it makes no sense for BLM to waste time reviewing applications for projects that are both unwise and unnecessary.

Sincerely,

Kathleen C. Zimmerman
Senior Policy Advisor, Public Lands Program
National Wildlife Federation

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[1] *See, e.g.*, Dry Lake Valley North SEZ in Nevada (Supplement at C-198); Gold Point SEZ in Nevada (Supplement at C-213); Millers SEZ in Nevada (Supplement at C-232); Afton SEZ in New Mexico (Supplement at C-251).

Thank you for your comment, Rob Mrowka.

The comment tracking number that has been assigned to your comment is SEDDsupp20126.

Comment Date: January 27, 2012 15:33:25PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20126

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Attachment: CBD comments on the supplement to the Solar PDEIS - final.pdf

Comment Submitted:

I am submitting a 10-page letter and two attachments via the uploader contained on this page.

CENTER for BIOLOGICAL DIVERSITY Because life is good.

Shannon Stewart, BLM Solar PEIS Project Lead
Solar Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue
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January 27, 2012

Electronically via: http://www.solareis.anl.gov/involve/comments/index.cfm

Subject: Center for Biological Diversity Comments on the Supplement to the Draft Solar PEIS

Dear Ms. Stewart:

Please accept and fully consider these comments on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States ("Supplement") on behalf of The Center for Biological Diversity ("Center"). To avoid repetition, we incorporate by reference our previous comments submitted for Nevada via a Wilderness Society letter dated April 18, 2011 and for California our organizational letter dated May 2, 2011.

The Center is a not for profit international conservation organization dedicated to working through environmental advocacy, science, law and creative media to secure a future for all species, great or small, hovering on the brink of extinction. The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, to comply with legislation and Executive Orders and to assist California and Nevada in meeting legislative mandates for emission reductions. The Center strongly supports the development of renewable energy production, and the generation of electricity from solar power, in particular. However, like any project, solar power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitats, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and lines and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable.

The Center wishes to acknowledge the affirmative response the Bureau of Land Management ("BLM") and Department of Energy ("DOE") have made in the supplement in response to comments we and others submitted to the draft environmental impact statement ("DEIS"). By doing so, you strengthen our commitment to working with you in the planning and development of a viable renewable energy program on the federal public lands.

The BLM should continue to refine the Programmatic Environmental Impact Statement (PEIS) through the Final PEIS and Record of Decision (ROD), carrying forward the zone-based focus and most other elements of the Supplement, and sign the ROD by fall 2012.

While these comments focus on proposals for California and Nevada, many of our comments are wider reaching and apply to the entire six western state planning region.

1. Alternatives

The Center urges the BLM and DOE ("agencies") to select the "Modified SEZ Alternative" ("SEZ alternative"). We base our recommendation on several considerations.

First, the desert lands of the southwest are rich in natural resources and biological diversity as well as providing ecosystem services invaluable to the planet and human society. As such the footprint of industrialized renewable energy plants should be minimized to the maximum extent practical and sited with great care and abundant forethought and planning. Only the SEZ alternative would meet this concern and consideration.

The second comes from an examination of the needs for solar energy development acreage estimated in the agencies' "reasonably foreseeable development scenario"[1] and the acres of potentially developable BLM-administered lands under the alternative analyzed in the PDEIS.[2]

Considering all six states, the acreage in proposed SEZs exceeds the needs of the reasonable foreseeable development scenario by over 71,000 acres. At the same time, the agencies' preferred "modified program alternative" ("preferred alternative") would exceed the projected needs by over 20 million acres.

The SEZ alternative provides a more reasoned template for solar developers to search for appropriate sites for development while protecting pristine federal lands. The preferred alternative, while more restrictive than the "no action alternative", would continue the problems associated with the "fast track process" where solar developers staked out areas for development in a helter-skelter fashion, leading to major conflicts and impacts on native ecosystems and other land uses and users.

The Center realized that the preferred alternative is enlightened by the creation of exclusionary screens[3], a proposed "Variance process"[4], and stricter pre-development requirements found in BLM Instructional Memorandums, but we still feel that a development process focused on previously agreed upon SEZs would better serve the expeditious development of solar renewable energy, focus necessary transmission to load centers preventing transmission route proliferation as well as protect valuable and irreplaceable desert ecosystems. The option for development in variance areas undermines the intended focus on development in SEZs and exponentially complicates transmission planning.

[1] Table 1.6-1
[2] Table 2.3-1
[3] Table 2.2-1
[4] Section 2.2.2.3-1

The agencies' exclusionary screens and variance process, while a great improvement over the current no action scenario, still fail to address important ecological considerations and impacts of solar development on pristine desert lands. Areas of our concern include key desert tortoise habitat that is currently outside Desert Wildlife Management Areas ("DWMA") or Areas of Critical Environmental Concern ("ACEC"), including areas identified as desert tortoise connectivity areas; BLM Sonoran desert tortoise Category I and Category II management units[5] and Habitat Management Areas (also referred to as Wildlife Habitat Management Areas); Unusual Plant Assemblages (UPAs), sage grouse and critical big game habitat not currently identified for protections in Resource Management Plans; areas important for wildlife movements and habitat connectivity; areas with high concentrations of eagles and other raptors; and, lands containing habitat for state and federally listed plant and animal species, and other lands providing habitat for imperiled but unlisted plant and animal species.

The proposed variance process would entail a potential for a high degree of conflict over siting, command a disproportionately high demand of agency resources, complicate transmission planning and threaten the streamlining envisioned for development in SEZs.

Finally, the supplement outlines a process whereby new SEZs could be indentified and created should a need arise.[6] Rather than allow the solar prospecting to continue under the preferred alternative in the "variance areas", the Center feels that developer needs for lands outside the proposed SEZs should be addressed through a new SEZ identification process which instills a bigger picture approach versus the siting of individual developer projects.

2. Desert tortoise

Recent peer-reviewed scientific literature identifies that the effects of the envisioned industrial solar development in the southwest deserts may not be compatible with wildlife conservation, and that is especially true for the Agassiz's desert tortoise (the federally listed threatened Mojave Population).[7] Therefore the agencies should apply a precautionary principle and areas that have been identified by the U.S. Fish and Wildlife Service as essential connectivity areas for desert tortoise[8] should be given the highest level of protection as Areas of Critical Environmental Concern (ACECs). These ACECs should be codified as part of the land management plan amendments required by the PEIS.

With regards to the agencies' question on desert tortoise variance requirements posed in the supplement page 2-35, if variances were to be allowed, we would urge the agencies to select "Option2", strict restrictions for any projects proposed in variance areas within the range of both Mojave and Sonoran desert tortoises.

[5] Identified in: Bureau of Land Management. 1990. Strategy for desert tortoise habitat management on public lands in Arizona. Arizona State Office, Bureau of Land Management, Department of the Interior.
[6] Appendix D
[7] Lovich and Ennen 2011
[8] USFWS 2011

The organization, Basin and Range Watch, recently submitted a proposal for the establishment of an ACEC in the Ivanpah Valley to the BLM for their consideration. Since this supplement envisions amendments to existing Resource Management Plans, the Center wishes to formally endorse this proposal, at least in concept. The Ivanpah Valley has been besieged by ill-placed solar energy developments and proposals. At the same time, it is important habitat for a genetically distinct population of desert tortoises that cross the California-Nevada state line. The conservation and recovery efforts to protect this segment of the desert tortoise population would be advanced by the creation of this ACEC.

The Ivanpah Valley is a unique valley spanning the state line between California and Nevada. Because of this biologically arbitrary boundary, impacts to biological resources from renewable energy developments in different parts of the same valley are evaluated by different states. The Ivanpah Valley is important because it is home to a dense population of the federally threatened desert tortoise as well as rare plan communities. A small portion of the valley in California is designated as a desert tortoise Area of Critical Environmental Concern (ACEC) under the Northern and Eastern Mojave Plan. A portion of federally designated critical habitat is also identified in the southeastern part of the valley.

Surveys on both sides of the state line indicate an extant, robust population of desert tortoise. In fact, the U.S. Fish and Wildlife Service's (FWS) October 10, 2010 Biological Opinion on the Ivanpah Solar Electric Generating Station (ISEGS), which is located in the southwestern part of the valley, states at p. 63: "We recommend that the Bureau amend the California Desert Conservation Area Plan to prohibit large-scale development (e.g., solar energy facilities, wind development, etc.) within the area bounded by Interstate 15, the State line, and Clark Mountains." This recommendation was limited to the land on the California side of the border, because the local office of the consulting agencies' jurisdiction was in California.

As the BLM is well aware, the ISEGS project quickly reached its "take" limit of desert tortoises and had to re-initiate consultation with the Service, which resulted in a new Biological Opinion on June 10, 2011. In the new Biological Opinion, the FWS expanded its recommendation to include the whole of the Ivanpah Valley, stating "We recommend that the Bureau amend the necessary land use plans to prohibit large-scale development (e.g., solar energy facilities, wind development, etc.) within all remaining portions of the Ivanpah Valley to reduce fragmentation within the critical linkage between the Ivanpah Critical Habitat Unit and the Eldorado Critical Habitat Unit." (at pg. 92-93). This new recommendation recognizes that the whole valley is important to the survival of this population of desert tortoise, and that the linkage between the Ivanpah Critical Habitat Unit, which is in California, and the Eldorado Critical Habitat Unit, which is in Nevada, must be kept intact. In line with the direction already identified by the FWS, BLM-administered lands within the Ivanpah Valley should be included as an exclusion area for variance applications.

Although BLM is undertaking a new cumulative effects analysis for a portion of the Ivanpah Valley (and which does not include much of the valley in Nevada), it has not finished the analysis. Nor has the BLM developed either a comprehensive bi-state assessment or a long-term management plan for this important valley. Meanwhile, the entire Ivanpah Valley has been nominated as an ACEC, in order to provide further safeguards for the desert tortoise in this

important valley as well as a suite of very rare plants and significant cultural values present there. To avoid further degradation of the valley, we urge that it be excluded from variance applications.

3. Pending solar applications

The agencies' in their supplement propose to handle solar development applications outside of proposed SEZs and submitted before the date of publication of the supplement as pending applications under existing policies.[9] This results in 79 such "pending" applications. This also results in a continuation and perpetuation of a "solar land rush process" that results in poor siting decisions, unintended environmental impacts and often severe cumulative impacts. Such projects are not adequately evaluated as to how they fit into the landscape both environmentally as well as in terms of required transmission infrastructure in the SPEIS and should be considered as part of the base-line.

By essentially "grandfathering" in the proposed class of "pending" applications, the agencies complicate and compound the permitting and approval process, adding additional burdens to scarce agency resources and potentially slowing the permitting process for projects within SEZs and ultimately defeating the purpose of the PEIS.

As a case in point, the pending application process outlined in the supplement[10] artificially imposes an unnecessary process entailing multiple complex steps and conditions. The BLM admits that it has determined that, "in appropriate circumstances, it can rely on the broad discretion it has under FLPMA to deny ROW applications prior to completing the NEPA process if such applications do not meet due diligence requirements and/or environmental criteria. Such decisions must be made with regard for the public interest and be supported by reasoned analysis and an adequate administrative record. Decisions to deny pending applications must be assessed on a case-by-case basis. BLM's denial of an application constitutes a "final agency action" and is therefore subject to administrative appeal to the Interior Board of Land Appeals (IBLA)."[11]

A review of the applications deemed to be "pending"[12] reveals that over 685,000 acres are encumbered by this designation. A vast majority of the 79 pending applications were filed prior to 2010. Taken together, these two facts demonstrate the speculative approach taken in filing these applications and the likely lack of analysis and due diligence that went into them.

The Center requests that the agencies reconsider their current definition of "pending". We suggest a threshold for consideration under existing policies and procedures be the publishing in the Federal Register of a Notice of Intent for the proposed solar development project. Any project lacking a Notice prior to the date that the supplement was noticed in the Federal Register would fall under the decision coming out of the PDEIS process.

[9] Table 1.7-1
[10] Pages 1-10 – 1-12
[11] Page 1-10
[12] Appendix A

4. **Adherence to existing wildlife management policies should be affirmed**

The Solar PEIS should explicitly affirm that BLM land management policies, except where specifically modified in accordance with the Solar PEIS, will continue to guide land management and planning decisions. In particular, we point to current policies guiding the management of wildlife policies on public lands reflected in:

- Manual 6840 on Special Status Species Management for "sensitive" species – i.e., those at-risk, but not yet listed – which directs the BLM to "improve the condition of the species' habitat" or "minimize or eliminate threats affecting the status of the species";
- Manual 6500 on Wildlife and Fisheries Management which focuses on 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 public lands" and further calls for the agency to "increase the amount and quality of habitat available"; and
- Handbook 4180 on BLM Rangeland Health Standards which states 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 all these cases, the BLM's existing wildlife policy requires more than maintenance of the status quo. As such, these same policies apply to decisions affecting the siting, permitting, and development of solar projects on public lands; and the Solar PEIS should reiterate the importance of complying with agency wildlife management policies.

5. Comments on specific proposed SEZs

The Center appreciates the substantive changes made in the proposed SEZs in response to comments that were submitted on the PDEIS. Our previously stated concern about the lack of available ground water to support certain solar technologies remains for all proposed SEZs. We now offer these additional observations on the proposed SEZs as they appear in the supplement.

<u>California</u>

As part of our general concerns about water resources, which are highly important resources in the arid southwest and likely to be further impacted by climate change, we also request that the Amargosa River watershed in California be removed from development consideration because of the innumerable threatened and endangered species that rely upon this watershed for existence (including the endangered Amargosa vole, the critically endangered Devil's Hole pupfish, the endangered Amargosa niterwort, the threatened Ash Meadows gumplant, the endangered least Bell's vireo, the rare Amargosa toad, and the rare Tecopa bird's beak among others) and the Amargosa's federal designation as a Wild and Scenic River in this part of its reach.

We support the agencies' decision to delete both the Pisgah and Iron Mountain SEZs which were included in the original DPEIS. Both of these areas would have had significant conflicts with natural resource values.

The SPEIS proposes the large Riverside East SEZ and within that SEZ identifies "non-development areas". The non-development areas appear to capture parts of, but not the entire important sand transport corridor that originates in Joshua Tree National Park's Pinto basin and flows to the limits of the agricultural areas south of Blythe as well as the Mc Coy wash. Regarding the sand transport corridor, the agencies should exclude additional contiguous areas of the sand transport corridor and sand source areas, for a number of reasons. First, disruption of sand transport corridor functionality near corridor sources affects all downwind resources. Secondly, sand dune habitat is a rare resource on the landscape. The geological and geographical features that result in sand transport and dune formation are extremely limited. The species that have evolved to rely on this unique habitat are also quite rare and typically endemic only to dune systems. In fact the southern most range of the Mojave fringe-toed lizard occurs only in this area, and based on the fact that this population is living in the lowest elevation and most arid part of its range, likely has greater capacity to survive climate changes modeled for the southwest deserts and therefore should be protected. Thirdly, because of the uniqueness of the Aeolian habitat, impacts to sand transport systems are therefore comparatively greater than to other more common habitat types. Impacts to sand transport systems are also much more challenging to mitigate because of the limited habitat type and complex Aeolian requirements that form and maintain the sand transport and dune habitat. Lastly, any facility put in or even adjacent to a sand transport corridor will suffer significant impacts from sand abrasion, require regular clearing of sand from structures, and generally increasing maintenance and operational costs.[13]. Therefore we request that the EIS take a second hard look at the sand transport corridor in the Riverside East SEZ and exclude all areas that help to maintain functionality of that important corridor as development areas. In addition, the microphyll woodlands as identified and mapped in the BLM's Northern and Eastern Colorado Plan (NECO) need to be more closely examined for conservation beyond the McCoy Wash.

As a general matter, significant conservation investments have been made in the California deserts, including the largest nonprofit land acquisition in U.S. history donated to the American people by the Wildlands Conservancy[14]. To BLM alone, over 482,000 acres were donated for conservation purposes. In addition other private lands have been acquired and donated to BLM as mitigation for impacts to rare desert species and habitats. These types of lands should be removed from development consideration because they were purposefully donated to BLM as conservation parcels.

The document states that "BLM will rely on the California DRECP planning effort... and the California West Chocolate Mountains Renewable Energy Evaluation Area (REEA) effort to identify new or expanded SEZs in these planning areas in the near term." (DEIS at 2-28). We encourage the agencies to craft a FPEIS that indeed allows the flexibility of incorporating the DRECP planning effort into California BLM land use plans as an amendment.

Numerous issues that the Center brought up in our California-specific comments on the DEIS remain unaddressed in the supplement and we refer you to those issues from our previous comments including:

[13] The lifespan of these projects also will likely be decreased.
[14] http://wildlandsconservancy.org/conservation_california.html

- Environmental baseline still not adequately described;
- Multiple Use Classes of the land proposed for SEZ and variance lands are not identified nor are the impacts of loss of multiple use in favor of a single use for industrial purposes
- The effects of the disturbance of desert pavement and air quality issues;
- The effects of the proposal on Reserved Water Rights in the California Desert
- Clarification of the Special Recreation Management Areas (SRMAs) issues
- Cumulative Impacts Analysis
- Alternatives Analysis

We request that these issues be addressed.

Nevada

The Center supports the elimination of the Delamar and East Mormon Mountain SEZs.

We offer the following addition comments on some of the remaining SEZs.

Amargosa SEZ
The Center appreciates the positive approach the agencies took in addressing the concerns the Center raised in previous comments. The new boundaries do a much better job at protecting desert ecosystems and rare species.

We remain concerned that nay development in the Amargosa watershed proceed with utmost caution and consideration of the innumerable threatened and endangered species that rely upon this watershed for existence (including the endangered Amargosa vole, the critically endangered Devil's Hole pupfish, the endangered Amargosa niterwort, the threatened Ash Meadows gumplant, the endangered least Bell's vireo, the rare Amargosa toad, and the rare Tecopa bird's beak among others).

Gold Point SEZ
In our comments on the DEIS, we raised the concern about the lengthy proposed transmission corridor which do not appear to have been addressed in the supplement. The assumed new transmission corridor would cross extremely dense Joshua tree woodland and scenic remote BLM areas used for hiking, camping, and other recreational activities, as well as potentially impact the historic mining town of Goldfield. The BLM should include analysis of potential impacts associated with these issues in the FPEIS, as well as measures to avoid, minimize or mitigate such impacts. We offer the suggestion that the transmission line follow the existing roadway that passes through the SEZ.

Millers SEZ
The action plan for the SEZ should include surveys for Tecopa bird's beak, an alkali flat obligate plant that could occur in the southern part of the SEZ or further south, and could be affected by development. It should also include surveys for Wong's pyrig, a springsnail that could occur south of the SEZ and be indirectly affected by groundwater modification.

Further, special considerations are needed in the SEZ's design to avoid and mitigate for impacts on migrating neo-tropical birds that traditionally use the area as a stopping point.

6. The BLM should closely coordinate the PEIS with other BLM planning efforts including the Las Vegas-Pahrump Resource Management Plan revision

As noted in the Supplement, in addition to the PEIS, the BLM is also undertaking efforts to identify renewable energy priority areas such as new SEZs in other ongoing planning efforts, including the Las Vegas-Pahrump RMP revision currently underway. (Supplement at p. 2-32) The BLM should take advantage of these opportunities to use more localized planning efforts to identify low-conflict priority areas for solar development, and the agency should ensure that these efforts are closely coordinated with the PEIS.

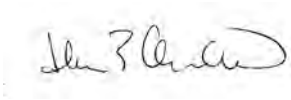
7. The BLM should provide a 60 day public comment period on the Final PEIS

There will be a significant amount of new information in the Final PEIS, including updated SEZ-specific design features, SEZ action plans, cumulative impacts analysis and monitoring and adaptive management protocols. For this reason, the BLM should provide a 60 day public comment period on the Final PEIS. While we continue to encourage the BLM to complete the PEIS in a thorough and timely manner, it is very important that the public be given the opportunity to provide meaningful input on this new information in order to satisfy the requirements of the National Environmental Policy Act. Further, this comment period should not substantially delay the timeline for completion of the PEIS, because BLM's regulations obligate the BLM to provide a 30-day protest period and a concurrent 60-day governor consistency review of land use plan amendments. 40 C.F.R. §§ 1610.5-2; 1610.5-3. The proposed 60-day public comment period would encompass these same timeframes.

In conclusion, the Center thanks the agencies for proposing thoughtful approaches to solar energy development on public lands that will focus appropriate large-scale solar energy development needed to help alleviate the effects of climate change to areas with lower conflicts and adverse impacts to desert ecosystems. This approach will help ensure that the natural and cultural resources of the federal public lands are protected for future generations. We look forward to working with the agencies as you finalize the PEIS over the coming months.

Thank you for your thorough consideration of these comments.

Sincerely yours in conservation,



Rob Mrowka
Ecologist/Nevada Conservation Advocate

Ileene Anderson
Biologist/Desert Program Director

Attachments: (sent separately)

Lovich, J. E. and J.R. Ennen 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. BioScience 61 (12): 982-992.

U.S. Fish and Wildlife Service (USFWS) 2011. BLM Solar Energy Development Program with USFWS-Recommended Desert Tortoise Linkages between Critical Habitat/DWMA Units. (Map) Pgs. 1

Thank you for your comment, Rob Mrowka.

The comment tracking number that has been assigned to your comment is SEDDsupp20127.

Comment Date: January 27, 2012 15:35:31PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20127

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Attachment: Lovich Ennen 2011 Wildlife Conservation Solar Energy Development in the Desert SW.pdf

Comment Submitted:

document 2 of 3

Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States

JEFFREY E. LOVICH AND JOSHUA R. ENNEN

Large areas of public land are currently being permitted or evaluated for utility-scale solar energy development (USSED) in the southwestern United States, including areas with high biodiversity and protected species. However, peer-reviewed studies of the effects of USSED on wildlife are lacking. The potential effects of the construction and the eventual decommissioning of solar energy facilities include the direct mortality of wildlife; environmental impacts of fugitive dust and dust suppressants; destruction and modification of habitat, including the impacts of roads; and off-site impacts related to construction material acquisition, processing, and transportation. The potential effects of the operation and maintenance of the facilities include habitat fragmentation and barriers to gene flow, increased noise, electromagnetic field generation, microclimate alteration, pollution, water consumption, and fire. Facility design effects, the efficacy of site-selection criteria, and the cumulative effects of USSED on regional wildlife populations are unknown. Currently available peer-reviewed data are insufficient to allow a rigorous assessment of the impact of USSED on wildlife.

Keywords: solar energy development, Mojave Desert, Sonoran Desert, wildlife, desert tortoises

The United States is poised to develop new renewable energy facilities at an unprecedented rate, including in potentially large areas of public land in the Southwest. This quantum leap is driven by escalating costs and demand for traditional energy sources from fossil fuels and by concerns over global climate change. Attention is focused largely on renewable forms of energy, especially solar energy. The potential for utility-scale solar energy development (USSED) and operation (USSEDO) is particularly high in the southwestern United States, where solar energy potential is high (USDOI and USDOE 2011a) and is already being harnessed in some areas. However, the potential for USSEDO conflicts with natural resources, especially wildlife, is also high, given the exceptional biodiversity (Mittermeier et al. 2002) and sensitivity (Lovich and Bainbridge 1999) of arid Southwest ecosystems, especially the Mojave (Randall et al. 2010) and Sonoran Deserts, which are already stressed by climate and human changes (CBI 2010). In addition, the desert Southwest is identified as a "hotspot" for threatened and endangered species in the United States (Flather et al. 1998). For these reasons, planning efforts should consider ways to minimize USSEDO impacts on wildlife (CBI 2010). Paradoxically, the implementation of large-scale solar energy development as an "environmentally friendly" alternative to conventional energy sources may actually increase environmental degradation on a local and on a regional scale (Bezdek 1993, Abbasi and Abbasi 2000) with concomitant negative effects on wildlife.

A logical first step in evaluating the effects of USSEDO on wildlife is to assess the existing scientific knowledge. As renewable energy development proceeds rapidly worldwide, information is slowly accumulating on the effects of USSEDO on the environment (for reviews, see Harte and Jassby 1978, Pimentel et al. 1994, Abbasi and Abbasi 2000). Gill (2005) noted that although the number of peer-reviewed publications on renewable energy has increased dramatically since 1991, only 7.6% of all publications on the topic covered environmental impacts, only 4.0% included discussions of ecological implications, and less than 1.0% contained information on environmental risks. A great deal of information on USSEDO exists in environmental compliance documents and other unpublished, non-peer-reviewed "gray" literature sources. Published scientific information on the effects on wildlife of any form of renewable energy development, including that of wind energy, is scant (Kuvlesky et al. 2007). The vast majority of the published research on wildlife and renewable energy development has been focused on the effects of wind energy development on birds (Drewitt and Langston 2006) and bats (Kunz et al. 2007) because of their sensitivity to aerial impacts. In contrast, almost no information is available on the effects of solar energy development on wildlife.

From a conservation standpoint, one of the most important species in the desert Southwest is Agassiz's desert

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tortoise (*Gopherus agassizii*; figure 1). Distributed north and west of the Colorado River, the species was listed as *threatened* under the US Endangered Species Act in 1990. Because of its protected status, Agassiz's desert tortoise acts as an "umbrella species," extending protection to other plants and animals within its range (Tracy and Brussard, 1994). The newly described Morafka's desert tortoise (*Gopherus morafkai*; Murphy et al. 2011) is another species of significant conservation concern in the desert Southwest, found east of the Colorado River. Both tortoises are important as ecological engineers who construct burrows that provide shelter to many other animal species, which allows them to escape the temperature extremes of the desert (Ernst and Lovich 2009). The importance of these tortoises is thus greatly disproportionate to their intrinsic value as species. By virtue of their protected status, Agassiz's desert tortoises have a significant impact on regulatory issues in the listed portion of their range, yet little is known about the effects of USSEDO on the species, even a quarter century after the recognition of that deficiency (Pearson 1986). Large areas of habitat occupied by Agassiz's desert tortoise in particular have potential for development of USSED (figure 2).

Figure 1. Agassiz's desert tortoise (*Gopherus agassizii*). Large areas of desert tortoise habitat are developed or being evaluated for renewable energy development, including for wind and solar energy. Photograph: Jeffrey E. Lovich.

In this article, we review the state of knowledge about the known and potential effects, both direct and indirect, of USSEDO on wildlife (table 1). Our review is based on information published primarily in peer-reviewed scientific journals for both energy and wildlife professionals. Agassiz's desert tortoise is periodically highlighted in our review because of its protected status, wide distribution in areas considered for USSEDO in the desert Southwest, and well-studied status (Ernst and Lovich 2009). In addition, we identify gaps in our understanding of the effects of USSEDO on wildlife and suggest questions that will guide future research toward a goal of mitigating or minimizing the negative effects on wildlife.

Background on proposed energy-development potential in the southwestern United States

The blueprint for evaluating and permitting the development of solar energy on public land in the region, as is required under the US National Environmental Policy Act (USEPA 2010), began in a draft environmental impact statement (EIS) prepared by two federal agencies (USDOI and USDOE 2011a). The purpose of the EIS is to "develop a new Solar Energy Program to further support utility-scale solar energy development on BLM [US Bureau of Land

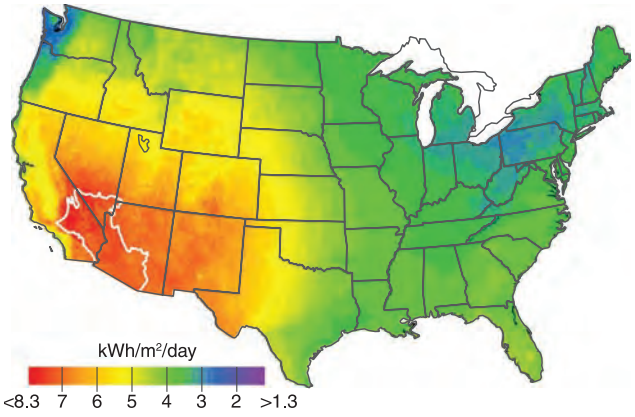

Figure 2. Concentrating solar energy potential (in kilowatt-hours per square meter per day [kWh/m²/day]) of the United States. The map shows the annual average direct normal solar resource data based on a 10-kilometer satellite-modeled data set for the period from 1998 to 2005. Refer to NREL (2011) for additional details and data sources. The white outline defines the approximate composite ranges of Agassiz's (west of the Colorado River) and Morafka's (east of the Colorado River) desert tortoises (Murphy et al. 2011) in the United States, both species of significant conservation concern. This figure was prepared by the National Renewable Energy Laboratory for the US Department of Energy (NREL 2011). The image was authored by an employee of the Alliance for Sustainable Energy, LLC, under Contract no. DE-AC36-08GO28308 with the US Department of Energy. Reprinted with permission from NREL 2011.

Table 1. List of known and potential impacts of utility-scale solar energy development on wildlife in the desert Southwest.

Impacts due to facility construction and decommissioning	Impacts due to facility presence, operation, and maintenance
Destruction and modification of wildlife habitat	Habitat fragmentation and barriers to movement and gene flow
Direct mortality of wildlife	Noise effects
Dust and dust-suppression effects	Electromagnetic field effects
Road effects	Microclimate effects
Off-site impacts	Pollution effects from spills
Destruction and modification of wildlife habitat	Water consumption effects
	Fire effects
	Light pollution effects, including polarized light
	Habitat fragmentation and barriers to movement and gene flow
	Noise effects

Management] -administered lands… and to ensure consistent application of measures to avoid, minimize, or mitigate the adverse impacts of such development" (p. ES-2). As of February 2010, the BLM had 127 active applications for solar facilities on lands that the BLM administers. According to USDOI and USDOE (2011a), all of the BLM-administered land in six states (California, Arizona, Utah, Nevada, New Mexico, and Colorado) was considered initially, for a total of 178 million hectares (ha). Not all of that land is compatible with solar energy development, so three alternative configurations are listed by USDOI and USDOI (2011a) for consideration, ranging from 274,244 to 39,972,558 ha. The larger figure is listed under the *no action alternative* where BLM would continue to use existing policy and guidance to evaluate applications. Of the area being considered under the two action alternatives, approximately 9 million ha meet the criteria established under the BLM's preferred action alternative to support solar development. Twenty-five criteria were used to exclude certain areas of public land from solar development and include environmental, social, and economic factors. The preferred alternative also included the identification of proposed *solar energy zones* (SEZs), defined as "area[s] with few impediments to utility-scale production of solar energy" (USDOI and USDOE 2011a, p. ES-7). By themselves, these SEZs constitute the nonpreferred action alternative of 274,244 ha listed above. Maps of SEZs are available at *http://solareis.anl.gov/documents/dpeis/index.cfm*.

Several sensitive, threatened, or endangered species are being considered within the EIS, but Agassiz's desert tortoise is one of only four species noted whose very presence at a site may be sufficient to exclude USSED in special cases (see table ES.2-2 in USDOI and USDOE 2011a). The potential effects of USSEDO are not trivial for tortoises or other wildlife species. Within the area covered in the draft EIS by USDOI and USDOE (2011a), it is estimated that approximately 161,943 ha of Agassiz's desert tortoise habitat will be directly affected. However, when including direct and indirect impacts on habitat (excluding transmission lines and roads that would add additional impacts; see Lovich and Bainbridge 1999, Kristan and Boarman 2007), it is estimated that approximately 769,230 ha will be affected. Some SEZs are adjacent to critical habitat designated for the recovery of Agassiz's desert tortoise, and this proximity is considered part of the indirect impacts.

On 28 October 2011, while this paper was in press, the BLM and US Department of Energy released a supplement to the EIS (USDOI and USDOE 2011b, 2011c) after receiving more than 80,500 comments. The no action alternative remains the same as in the EIS. The new preferred alternative (slightly reduced to 8,225,179 ha as the modified program alternative) eliminates or adjusts SEZs (now reduced to 115,335 ha in 17 zones as the modified SEZ alternative) to ensure that they are not in high-conflict areas and provides incentives for their use. The new plan also proposes a process to accommodate additional solar energy development outside of SEZs and to revisit ongoing state-based planning efforts to allow consideration of additional SEZs in the future.

The impacts of USSED on wildlife: Effects due to construction and decommissioning

The construction and eventual decommissioning of solar energy facilities will have impacts on wildlife, including rare and endangered species, and on their habitats in the desert (Harte and Jassby 1978). These activities involve significant ground disturbance and direct (e.g., mortality) and indirect (e.g., habitat loss, degradation, modification) impacts on wildlife and their habitat (Kuvlesky et al. 2007). Solar energy facilities require large land areas to harness sunlight and convert it to electrical energy. According to Wilshire and colleagues (2008), photovoltaic panels with a 10% conversion efficiency would need to cover an area of about 32,000 square kilometers, or an area a little smaller than the state of Maryland, to meet the current electricity demands of the United States. Many of the areas being considered for the development of solar energy in the Mojave and Sonoran Deserts are, at present, relatively undisturbed (USDOI and USDOE 2011a).

The extent of surface disturbance of USSED is related to the cooling technology used. Because of the scarcity of water in the desert Southwest region, dry-cooling systems, which consume 90%–95% less water than wet-cooling systems (EPRI 2002), are becoming a more viable option for concentrating solar facilities. Although wet-cooling systems are more economical and efficient, they consume larger amounts of water per kilowatt-hour (Torcellini et al. 2003). Unlike wet-cooling systems, dry-cooling systems use ambient air, instead of water, to cool the exhaust steam from the turbines. However, to achieve a heat-rejection efficiency similar to that in a wet-cooling system, Khalil and colleagues (2006) estimated that a direct dry-cooling system will require a larger footprint and would thus affect more wildlife habitat.

Although we found no information in the scientific literature about the direct effects of USSED on wildlife, the ground-disturbance impacts are expected to be similar to those caused by other human activities in the desert (Lovich and Bainbridge 1999).

Dust and dust suppressants. USSED transforms the landscape substantially through site preparation, including the construction of roads and other infrastructure. In addition, many solar facilities require vegetation removal and grading. These construction activities produce dust emissions, especially in arid environments (Munson et al. 2011), which already have the potential for natural dust emission. Dust can have dramatic effects on ecological processes at all scales (reviewed by Field et al. 2010). At the smallest scale, wind erosion, which powers dust emission, can alter the fertility and water-retention capabilities of the soil. Physiologically, dust can adversely influence the gas exchange, photosynthesis, and water usage of Mojave Desert shrubs (Sharifi et al. 1997). Depending on particle size, wind speed, and other factors, dust emission can physically damage plant species through root exposure, burial, and abrasions to their leaves and stems. The physiological and physical damage to plant species inflicted by dust emissions could ultimately reduce the plants' primary production and could indirectly affect wildlife food plants and habitat quality.

From an operational perspective, dust particles reduce mirror and panel efficiency in converting solar energy into heat or electricity. To combat dust, solar energy facilities apply various dust suppressants to surfaces with exposed soil (e.g., graded areas, areas with vegetation removed, roads). There are eight categories of common dust suppressants used for industrial applications: water, salts and brines, organic nonpetroleum products, synthetic polymers, organic petroleum, electrochemical substances, clay additives, and mulch and fiber mixtures (reviewed in Piechota et al. 2004). In a study conducted in the Mojave Desert in which the hydrological impacts of dust suppressants were compared, Singh and colleagues (2003) reported that changes did occur in the volume, rate, and timing of runoff when dust suppressants were used. In particular, petroleum-based and acrylic-polymer dust suppressants drastically influenced the hydrology of disturbed areas by increasing runoff volume and changing its timing. When it is applied to disturbed desert soils, magnesium chloride ($MgCl_2$), a commonly used salt-based dust depressant, does not increase runoff volume but does, however, increase the total suspended solids loads in runoff (Singh et al. 2003).

Others have highlighted the fact that there is a dearth of scientific research and literature on the effects of dust suppressants on wildlife, including the most commonly used category of dust depressant: brines and salts (Piechota et al. 2004, Goodrich et al. 2008). However, the application of $MgCl_2$ to roads was correlated with a higher frequency of plant damage (Goodrich et al. 2008). Because chloride salts, including $MgCl_2$, are not confined to the point of application but have the ability to be transported in runoff (White and Broadly 2001), the potential exists for a loss of primary production associated with plant damage in the habitats surrounding a solar facility, which could directly affect wildlife habitat.

Mortality of wildlife. We are not aware of any published studies documenting the direct effects of USSED on the survival of wildlife. However, subterranean animals can be affected by USSED, including species that hibernate underground. In the Sonoran Desert portion of California, Cowles (1941) observed that most reptiles in the Coachella Valley hibernated at depths of less than 33 centimeters (cm), with many at considerably shallower depths. Included in his observations were flat-tailed horned lizards (*Phrynosoma mcallii*)—a species of special concern in the region because of solar energy development (USDOI and USDOE 2011a)—and the federally protected Coachella Valley fringe-toed lizard (*Uma inornata*). Even lightweight vehicles like motorcycles are capable of causing greatly increased soil density (soil compaction) at a depth of 30–60 cm as their tires pass over the surface (Webb 1983). These observations suggest that vehicular activities in the desert have the potential to kill or entrap large numbers of subterranean animals (Stebbins 1995) through compressive forces or burrow collapse. Similar or greater impacts would be expected from the heavy equipment associated with the construction activities at an energy facility.

Destruction and modification of wildlife habitat. Despite the absence of published, peer-reviewed information on the effects of USSED on wildlife and their habitats, a considerable body of literature exists on the effects of other ground-disturbing activities on both ecological patterns and processes that are broadly comparable. Ground-disturbing activities affect a variety of processes in the desert, including soil density, water infiltration rate, vulnerability to erosion, secondary plant succession, invasion by exotic plant species, and stability of cryptobiotic soil crusts (for reviews, see Lovich and Bainbridge 1999, Webb et al. 2009). All of these processes have the ability—individually and together—to alter habitat quality, often to the detriment of wildlife. Any disturbance and alteration to the desert landscape, including the construction and decommissioning of utility-scale solar energy facilities, has the potential to increase soil erosion. Erosion can physically and physiologically affect plant species and can thus adversely influence primary production (Sharifi et al. 1997, Field et al. 2010) and food availability for wildlife.

Solar energy facilities require substantial site preparation (including the removal of vegetation) that alters topography and, thus, drainage patterns to divert the surface flow associated with rainfall away from facility infrastructure (Abbasi and Abbasi 2000). Channeling runoff away from plant communities can have dramatic negative effects on water availability and habitat quality in the desert, as was shown by Schlesinger and colleagues (1989). Areas deprived

of runoff from sheet flow support less biomass of perennial and annual plants relative to adjacent areas with uninterrupted water-flow patterns.

The impacts of roads. Roads are required in order to provide access to solar energy infrastructure. Both paved and unpaved roads have well-documented negative effects on wildlife (Forman and Alexander 1998), and similar effects are expected in utility-scale solar energy facilities. Although road mortality is most easily detected on the actual roadway, the effects of roads extend far beyond their physical surface. In a study of the effects of roads on Agassiz's desert tortoise populations in southern Nevada, von Seckendorff Hoff and Marlow (2002) examined transects along roads with traffic volumes varying from 25 to 5000 vehicles per day. Tortoises and tortoise sign (e.g., burrows, shells, scat) decreased with their proximity to a road. On roads with high traffic volumes, tortoises and tortoise sign were reduced as far as 4000 meters from the roadside. Roads with lower traffic volumes had fewer far-reaching effects.

Another effect of roads in the desert is the edge enhancement of plants and arthropod herbivores (Lightfoot and Whitford 1991). Perennial plants along the roadside are often larger than those farther away, and annual plant germination is often greatest along the shoulders of roads. It is possible that increased runoff due to impervious pavement or compacted soil contributes to this heterogeneity of vegetation in relationship to a road. Agassiz's desert tortoises may select locations for burrow construction that are close to roads, perhaps because of this increased productivity of food plants (Lovich and Daniels 2000). Although this situation suggests potentially beneficial impacts for herbivorous species of wildlife, such as tortoises, it increases their chance of being killed by vehicle strikes, as was shown by von Seckendorff Hoff and Marlow (2002).

Off-site impacts. Direct impacts on wildlife and habitat can occur well outside the actual footprint of the energy facility. Extraction of large amounts of raw materials for the construction of solar energy facilities (e.g., aggregate, cement, steel, glass); transportation and processing of those materials; the need for large amounts of water for cooling some installations; and the potential for the production of toxic wastes, including coolants, antifreeze, rust inhibitors, and heavy metals, can affect wildlife adjacent to or far from the location of the facility (Abbasi and Abbasi 2000). Abbasi and Abbasi (2000) summarized data suggesting that the material requirements for large-scale solar facilities exceed those for conventional fossil-fuel plants on a cost-per-unit-of-energy basis. In addition, water used for steam production at one solar energy facility in the Mojave Desert of California contained selenium, and the wastewater was pumped into evaporation ponds that attracted birds that fed on invertebrates. Although selenium toxicity was not considered a threat on the basis of the results of one study, the possibility exists for harmful bioaccumulation of this toxic micronutrient (Herbst 2006). In recognition of the hazard, Pimentel and colleagues (1994) suggested that fencing should be used to keep wildlife away from these toxic ponds.

The impacts of USSED on wildlife: Effects due to operation and maintenance

This category includes the effects related to the presence and operation of the solar facility, not the physical construction and decommissioning of the same. Some of the effects (e.g., mortality of wildlife and impacts caused by roads) are similar to those discussed previously for construction and decommissioning and are not discussed further.

Habitat fragmentation. Until relatively recently, the desert Southwest was characterized by large blocks of continuous and interconnected habitat. Roads and urban development continue to contribute to habitat fragmentation in this landscape. Large-scale energy development has the potential to add to and exacerbate the situation, presenting potential barriers to movement and genetic exchange in wildlife populations, including those of bighorn sheep (*Ovis canadensis*), deer (*Odocoileus* spp.), tortoises, and other species of concern and social significance. Research conducted on the effects of oil and gas exploration and development (OGED) on wildlife in the Intermountain West provides a possible analog to USSEDO, since comparable data are not available for the desert Southwest. The potential effects on mule deer (*Odocoileus hemionus*) and other wildlife species include impediments to free movement, the creation of migration bottlenecks, and a reduction in effective winter range size. Mule deer responded immediately to OGED by moving away from disturbances, with no sign of acclimation during the three years of study by Sawyer and colleagues (2009). Some deer avoidance resulted in their use of less-preferred and presumably less-suitable habitats.

Despite a lack of data on the direct contributions of USSEDO to habitat fragmentation, USSEDO has the potential to be an impediment to gene flow for some species. Although the extent of this impact is, as yet, largely unquantified in the desert, compelling evidence for the effects of human-caused habitat fragmentation on diverse wildlife species has already been demonstrated in the adjacent coastal region of southern California (Delaney et al. 2010).

Noise effects. Industrial noise can have impacts on wildlife, including changes to their habitat use and activity patterns, increases in stress, weakened immune systems, reduced reproductive success, altered foraging behavior, increased predation risk, degraded communication with conspecifics, and damaged hearing (Barber et al. 2009, Pater et al. 2009). Changes in sound level of only a few decibels can elicit substantial animal responses. Most noise associated with USSEDO is likely to be generated during the construction phase (Suter 2002), but noise can also be produced during operation and maintenance activities. Brattstrom and Bondello (1983) documented the effects of noise on Mojave

Desert wildlife on the basis of experiments involving off-highway vehicles. Noise from some of these vehicles can reach 110 decibels—near the threshold of human pain and certainly within the range expected for various construction, operation, and maintenance activities (Suter 2002) associated with USSEDO. This level of noise caused hearing loss in animals, such as kangaroo rats (*Dipodomys* spp.), desert iguanas (*Dipsosaurus dorsalis*), and fringe-toed lizards (*Uma* spp.). In addition, it interfered with the ability of kangaroo rats to detect predators, such as rattlesnakes (*Crotalus* spp.), and caused an unnatural emergence of aestivating spadefoot toads (*Scaphiopus* spp.), which would most likely result in their deaths. Because of impacts on wildlife, Brattstrom and Bondello (1983) recommended that "all undisturbed desert habitats, critical habitats, and all ranges of threatened, endangered, or otherwise protected desert species" (p. 204) should be protected from loud noise.

Although many consider solar energy production a "quiet" endeavor, noise is associated with their operation. For example, facilities at which wet-cooling systems are used will have noises generated by fans and pumps. As for facilities with dry-cooling systems, only noise from fans will be produced during operation (EPRI 2002). Because of the larger size requirements of dry-cooling systems, there will be more noise production associated with an increase in the number of fans.

Electromagnetic field generation. When electricity is passed through cables, it generates electric and magnetic fields. USSEDO requires a large distribution system of buried and overhead cables to transmit energy from the point of production to the end user. Electromagnetic fields (EMFs) produced as energy flows through system cables are a concern from the standpoint of both human and wildlife health, yet little information is available to assess the potential impact of the EMFs associated with USSEDO on wildlife. Concerns about EMFs have persisted for a long time, in part because of controversy over whether they're the actual cause of problems and disagreement about the underlying mechanisms for possible effects. For example, there is presently a lack of widely accepted agreement about the biological mechanisms that can explain the consistent associations between extremely low-frequency EMF exposure from overhead power lines and childhood leukemia, although there is no shortage of theories (Gee 2009).

Some conclude that the effects of EMFs on wildlife will be minor because of reviews of the often conflicting and inconclusive literature on the topic (Petersen and Malm 2006). Others suggest that EMFs are a possible source of harm for diverse species of wildlife and contribute to the decline of some mammal populations. Balmori (2010) listed possible impacts of chronic exposure to athermal electromagnetic radiation, which included damage to the nervous system, disruption of circadian rhythm, changes in heart function, impairment of immunity and fertility, and genetic and developmental problems. He concluded that enough evidence exists to confirm harm to wildlife but suggested that further study is urgently needed. Other authors suggest that the generally inconsistent epidemiological evidence in support of the effects of EMFs should not be cause for inaction. Instead, they argue that the precautionary principle should be applied in order to prevent a recurrence of the "late lessons from early warnings" scenario that has been repeated throughout history (Gee 2009).

Magnetic information is used for orientation by diverse species, from insects (Sharma and Kumar 2010) to reptiles (Perry A et al. 1985). Despite recognition of this phenomenon, the direct effects of USSEDO-produced EMFs on wildlife orientation remains unknown.

Microclimate effects. The alteration of a landscape through the removal of vegetation and the construction of structures by humans not only has the potential of increasing animal mortality but also changes the characteristics of the environment in a way that affects wildlife. The potential for microclimate effects unique to solar facilities was discussed by Pimentel and colleagues (1994) and by Harte and Jassby (1978). It has been estimated that a concentrating solar facility can increase the albedo of a desert environment by 30%–56%, which could influence local temperature and precipitation patterns through changes in wind speed and evapotranspiration. Depending on their design, large concentrating solar facilities may also have the ability to produce significant amounts of unused heat that could be carried downwind into adjacent wildlife habitat with the potential to create localized drought conditions. The heat produced by central-tower solar facilities can burn or incinerate birds and flying insects as they pass through the concentrated beams of reflected light (McCrary et al. 1986, Pimentel et al. 1994, Tsoutsos et al. 2005, Wilshire et al. 2008).

A dry-cooled solar facility—in particular, one with a concentrating-trough system—could reject heated air from the cooling process with temperatures 25–35 degrees Fahrenheit higher than the ambient temperature (EPRI 2002). This could affect the microclimate on site or those in adjacent habitats. To our knowledge, no research is available to assess the effects of USSEDO on temperature or that of any other climatic variable on wildlife. However, organisms whose sex is determined by incubation temperatures, such as both species of desert tortoises, may be especially sensitive to temperature changes, because small temperature changes have the potential to alter hatchling sex ratios (Hulin et al. 2009).

Pollutants from spills. USSEDO, especially at wet-cooled solar facilities, has a potential risk for hazardous chemical spills on site, associated with the toxicants used in cooling systems, antifreeze agents, rust inhibitors, herbicides, and heavy metals (Abbasi and Abbasi 2000, Tsoutsos et al. 2005). Wet-cooling solar systems must use treatment chemicals (e.g., chlorine, bromine, selenium) and acids and bases (e.g., sulfuric acid, sodium hydroxide, hydrated lime) for the prevention of fouling and scaling and for pH control of the water used in their recirculating systems (EPRI 2002).

Solar facilities at which a recirculating system is used also have treatment and disposal issues associated with water discharge, known as *blowdown*, which is water with a high concentration of dissolved and suspended materials created by the numerous evaporation cycles in the closed system (EPRI 2002). These discharges may contain chemicals used to prevent fouling and scaling. The potentially tainted water is usually stored in evaporative ponds, which further concentrates the toxicants (Herbst 2006). Because water is an attraction for desert wildlife, numerous species could be adversely affected. The adverse effects of the aforementioned substances and similar ones on wildlife are well documented in the literature, and a full review is outside the scope of this article. However, with the decreased likelihood of wet-cooling systems for solar facilities in the desert, the risk of hazardous spills and discharges on site will be less in the future, because dry-cooling systems eliminate most of the associated water-treatment processes (EPRI 2002). However, there are still risks of spills associated with a dry-cooling system. More research is needed on the adverse effects of chemical spills and tainted-water discharges specifically related to USSEDO on wildlife.

Water consumption (wet-cooled solar). The southwestern United States is a water-poor region, and water use is highly regulated throughout the area. Because of this water limitation, the type of cooling systems installed at solar facilities is limited as well. For example, a once-through cooling system—a form of wet cooling—is generally not feasible in arid environments, because there are few permanent bodies of water (i.e., rivers, oceans, and lakes) from which to draw cool water and then into which to release hot water. Likewise, other wet-cooling options, such as recirculating systems and hybrid systems, are becoming less popular because of water shortage issues in the arid region. Therefore, the popularity of the less-efficient and less-economical dry-cooling systems is increasing on public lands. Water will also be needed at solar facilities to periodically wash dust from the mirrors or panels. Although there are numerous reports in which the costs and benefits were compared both environmentally and economically (EPRI 2002, Khalil et al. 2006) between wet- and dry-cooled solar facilities, to our knowledge no one has actually quantified the effects of water use and consumption on desert wildlife in relation to the operation of these facilities.

Fire risks. Any system that produces electricity and heat has a potential risk of fire, and renewable energy facilities are no exception. Concentrating solar energy facilities harness the sun's energy to heat oils, gases, or liquid sodium, depending on the system design (e.g., heliostat power, trough, dish). With temperatures reaching more than 300 degrees Celsius in most concentrated solar systems, spills and leaks from the coolant system increase the risk of fires (Tsoutsos et al. 2005). Even though all vegetation is usually removed from the site during construction, which reduces the risk of a fire propagating on and off site, the increase of human activity in a desert region increases the potential for fire, especially along major highways and in the densely populated western Mojave Desert (Brooks and Matchett 2006).

The Southwest deserts are not fire-adapted ecosystems: fire was historically uncommon in these regions (Brooks and Esque 2002). However, with the establishment of numerous flammable invasive annual plants in the desert Southwest (Brown and Minnich 1986), coupled with an increase in anthropogenic ignitions, fire has become more common in the deserts, which adversely affects wildlife (Esque et al. 2003). For Agassiz's desert tortoise, fire can translate into direct mortality at renewable energy facilities (Lovich and Daniels 2000) and can cause reductions in food and habitat quality. To our knowledge, however, there is no scientific literature related to the effects of USSEDO-caused fire on wildlife.

Light pollution. Two types of light pollution could be produced by solar energy facilities: ecological light pollution (ELP; Longcore and Rich 2004) and polarized light pollution (PLP; Horváth et al. 2009). The latter, PLP, could be produced at high levels at facilities using photovoltaic solar panels, because dark surfaces polarize light. ELP can also be produced at solar facilities in the form of reflected light. The reflected light from USSEDO has been suggested as a possible hazard to eyesight (Abbasi and Abbasi 2000). ELP could adversely affect the physiology, behavior, and population ecology of wildlife, which could include the alteration of predation, competition, and reproduction (for reviews, see Longcore and Rich 2004, Perry G et al. 2008). For example, the foraging behavior of some species can be adversely affected by light pollution (for a review, see Longcore and Rich 2004). The literature is limited regarding the impact of artificial lighting on amphibians and reptiles (Perry G et al. 2008), and, to our knowledge, there are no published studies in which the impacts on wildlife of light pollution produced by USSEDO have been assessed. However, light pollution is considered by G. Perry and colleagues (2008) to be a serious threat to reptiles, amphibians, and entire ecological communities that requires consideration during project planning. G. Perry and colleagues (2008) further recommended the removal of unnecessary lighting so that the lighting conditions of nearby habitats would be as close as possible to their natural state.

Numerous anthropogenic products—usually those that are dark in color (e.g., oil spills, glass panes, automobiles, plastics, paints, asphalt roads)—can unnaturally polarize light, which can have adverse effects on wildlife (for a review, see Horváth et al. 2009). For example, numerous animal species use polarized light for orientation and navigation purposes (Horváth and Varjú 2004). Therefore, the potential exists for PLP to disrupt the orientation and migration abilities of desert wildlife, including those of sensitive species. In the review by Horváth and colleagues (2009), which was focused mostly on insects but included a few avian references, they highlighted the fact that anthropogenic products that produce PLP can appear to be water bodies to wildlife and can become ecological traps for insects and, to a lesser degree, avian species. Therefore,

utility-scale solar energy facilities at which photovoltaic technology is used in the desert Southwest could create a direct effect on insects (i.e., ecological trap), which could have profound but unquantified effects on the ecological community surrounding the solar facility. In addition, there may be indirect effects on wildlife through the limitation of plant food resources, especially if pollinators are negatively affected. As was stated by Horváth and colleagues (2009), the population- and community-level effects of PLP can only be speculated on because of the paucity of data.

Unanswered questions and research needs

In our review of the peer-reviewed scientific literature, we found only one peer-reviewed publication on the specific effects of utility-scale solar energy facility operation on wildlife (McCrary et al. 1986) and none on utility-scale solar energy facility construction or decommissioning. Although it is possible that we missed other peer-reviewed publications, our preliminary assessment demonstrates that very little critically reviewed information is available on this topic. The dearth of published, peer-reviewed scientific information provides an opportunity to identify the fundamental research questions for which resource managers need answers. Without those answers, resource managers will be unable to effectively minimize the negative effects of USSEDO on wildlife, especially before permitting widespread development of this technology on relatively undisturbed public land.

Before-and-after studies. Carefully controlled studies are required in order to tease out the direct and indirect effects of USSEDO on wildlife. Pre- and postconstruction evaluations are necessary to identify the effects of renewable energy facilities and to compare results across studies (Kunz et al. 2007). In their review of wind energy development and wildlife, with an emphasis on birds, Kuvlesky and colleagues (2007) noted that experimental designs and data-collection standards were typically inconsistent among studies. This fact alone contributes measurably to the reported variability among studies or renders comparisons difficult, if not impossible. Additional studies should emphasize the need for carefully controlled before-after-control-impact (BACI) studies (Kuvlesky et al. 2007) with replication (if possible) and a detailed description of site conditions. The potential payoff for supporting BACI studies now could be significant: They could provide answers for how to mitigate the negative impacts on wildlife in a cost-effective and timely manner.

What are the cumulative effects of large numbers of dispersed or concentrated energy facilities? Large portions of the desert Southwest have the potential for solar energy development. Although certain areas are targeted for large facilities because of resource availability and engineering requirements (e.g., their proximity to existing transmission corridors), other areas may receive smaller, more widely scattered facilities. A major unanswered question is what the cumulative impacts of these facilities on wildlife are. Would it be better for wildlife if development is concentrated or if it is scattered in smaller, dispersed facilities? Modeling based on existing data would be highly suspect because of the deficiency of detailed site-level published information identified in our analysis. Except for those on habitat destruction and alteration related to other human endeavors, there are no published articles on the population genetic consequences of habitat fragmentation related to USSED, which makes this a high priority for future research.

What density or design of development maximizes energy benefits while minimizing negative effects on wildlife? We are not aware of any published peer-reviewed studies in which the impacts on wildlife of different USSED densities or designs have been assessed. For example, would it benefit wildlife to leave strips of undisturbed habitat between rows of concentrating solar arrays? Research projects in which various densities, arrays, or designs of energy-development infrastructure are considered would be extremely valuable. BACI studies would be very useful for addressing this deficiency.

What are the best sites for energy farms with respect to the needs of wildlife? The large areas of public land available for renewable energy development in the desert Southwest encompass a wide variety of habitats. Although this provides a large number of choices for USSED, not all areas have the same energy potential because of resource availability and the limitations associated with engineering requirements, as was noted above. Detailed information on wildlife distribution and habitat requirements are crucially needed for proper site location and for the design of renewable energy developments (Tsoutsos et al. 2005). Public-resource-management agencies have access to rich geospatial data sets based on many years of inventories and resource-management planning. These data could be used to identify areas of high value for both energy development and wildlife. Areas with overlapping high values could be carefully studied through risk assessment when it appears that conflicts are likely. Previously degraded wildlife habitats, such as old mine sites, overgrazed pastures, and abandoned crop fields, may be good places to concentrate USSED to minimize its impacts on wildlife (CBI 2010).

Can the impacts of solar energy development on wildlife be mitigated? The construction of solar energy facilities can cause direct mortality of wildlife. In addition, building these facilities results in the destruction and fragmentation of wildlife habitat and may increase the possibility of fire, as was discussed above. Beyond these effects, essentially nothing is known about the operational effects of solar energy facilities on wildlife. Current mitigation strategies for desert tortoises and other protected species include few alternatives other than translocation of the animals from the footprint of the development into other areas. Although this strategy may be appealing at first glance, animal translocation has a checkered history of success, especially for reptiles and amphibians (Germano and Bishop 2008, CBI 2010). Translocation

has yet to be demonstrated as a viable long-term solution that would mitigate the destruction of Agassiz's desert tortoise habitat (Ernst and Lovich 2009, CBI 2010).

Conclusions

All energy production has associated social and environmental costs (Budnitz and Holdren 1976, Bezdek 1993). In their review of the adverse environmental effects of renewable energy development, Abbasi and Abbasi (2000) stated that "renewable energy sources are not the panacea they are popularly perceived to be; indeed, in some cases, their adverse environmental impacts can be as strongly negative as the impacts of conventional energy sources" (p. 121). Therefore, responsible, efficient energy production requires both the minimization of environmental costs and the maximization of benefits to society—factors that are not mutually exclusive. Stevens and colleagues (1991) and Martín-López and colleagues (2008) suggested that the analyses of costs and benefits should include both wildlife use and existence values. 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. This is especially true for threatened species such as Agassiz's desert tortoise. The many other unanswered questions that remain after reviewing the available evidence provide opportunities for future research, as was outlined above.

The shift toward renewable energy is widely perceived by the public as a "green movement" intended to reduce greenhouse-gas emissions and acid rain and to curb global climate change (Abbasi and Abbasi 2000). However, as was noted by Harte and Jassby (1978), just because an energy technology is simple, thermodynamically optimal, renewable, or inexpensive does not mean that it will be benign from an ecological perspective. 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.

Acknowledgments

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Jeffrey E. Lovich (jeffrey_lovich@usgs.gov) is a research ecologist, and Joshua R. Ennen (josh.ennen@maryvillecollege.edu) was a wildlife biologist, both with the US Geological Survey, Southwest Biological Science Center. Ennen is now with Maryville College in Tennessee. The authors are studying the effects of utility-scale renewable energy development on terrestrial vertebrates, especially Agassiz's desert tortoise.

Thank you for your comment, Rob Mrowka.

The comment tracking number that has been assigned to your comment is SEDDsupp20128.

Comment Date: January 27, 2012 15:37:09PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20128

First Name: Rob
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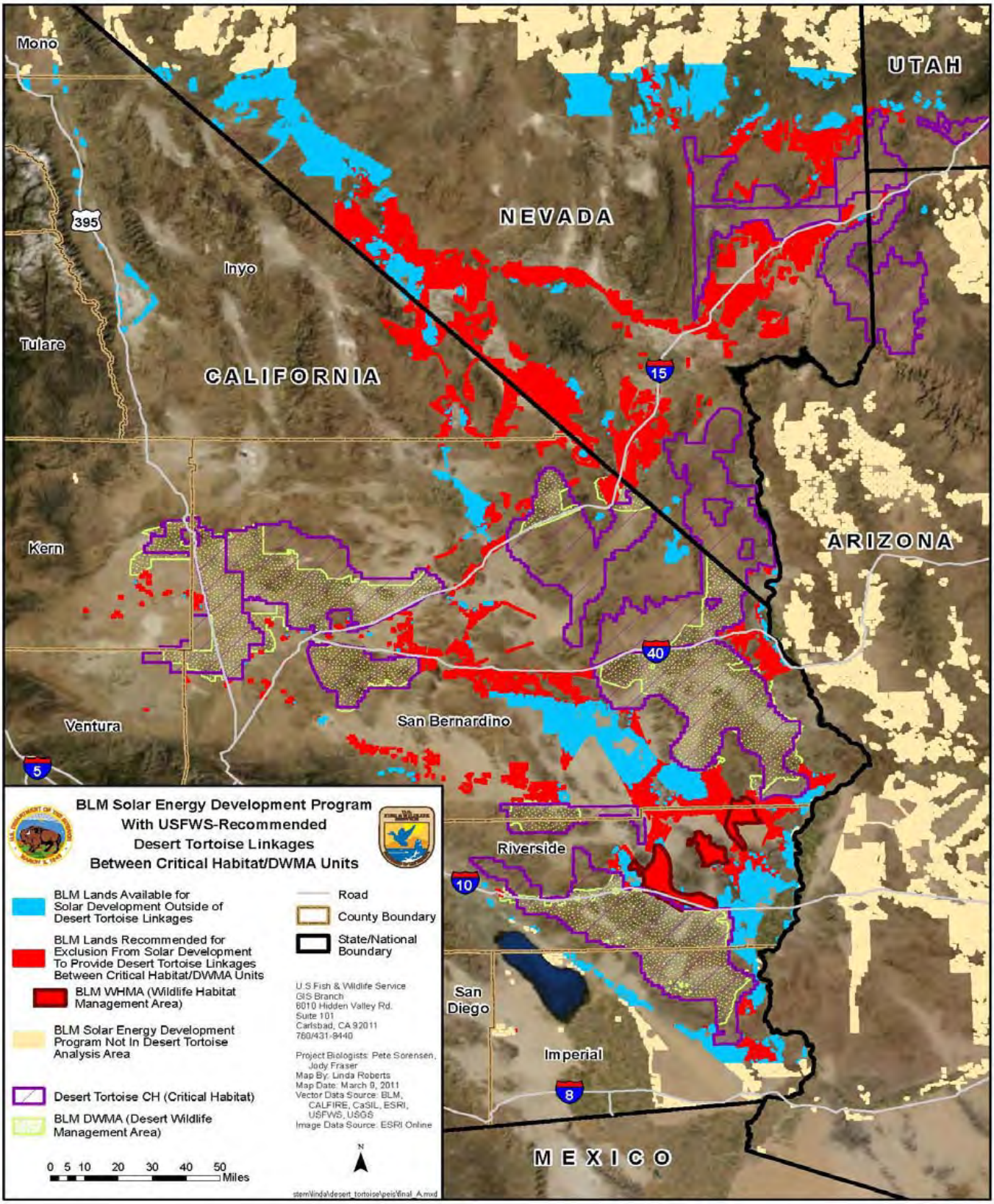
Organization: Center for Biological Diversity
Address: 4261 Lily Glen Ct
Address 2:
Address 3:
City: North Las Vegas
State: NV
Zip: 89032
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: USFWS 2011 Map of DT connectivity areas.pdf

Comment Submitted:

doc 3 of 3


Mono
UTAH
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395
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San Diego
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MEXICO
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)
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State/National Boundary
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U.S Fish & Wildlife Service
GIS Branch
6010 Hidden Valley Rd.
Suite 101
Carlsbad, CA 92011
760/431-9440
Project Biologists: Pete Sorensen, Jody Fraser
Map By: Linda Roberts
Map Date: March 9, 2011
Vector Data Source: BLM, CALFIRE, CaSIL, ESRI, USFWS, USGS
Image Data Source: ESRI Online
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Thank you for your comment, Andrew Wang.

The comment tracking number that has been assigned to your comment is SEDDsupp20129.

Comment Date: January 27, 2012 15:39:07PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20129

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Address 3:
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State: CA
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Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Solar PEIS - SolarReserve comments 27Jan2012.pdf

Comment Submitted:

SOLARRESERVE®

January 27, 2012 Via Internet

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

Subject: Comments by SolarReserve on the Supplemental Draft Solar PEIS

Recognizing the considerable efforts invested by multiple stakeholders in the development of the Solar Programmatic Environmental Impact Statement and its Supplemental Draft (Solar PEIS), and further recognizing BLM's goals to complete the process in 2012, SolarReserve appreciates the opportunity to provide our comments below.

By way of introduction, SolarReserve, LLC – headquartered in Santa Monica, California – is an experienced and entrepreneurial company developing large-scale solar energy projects worldwide. It holds the exclusive worldwide license to the molten salt, concentrating solar power (CSP) tower technology developed by Pratt & Whitney Rocketdyne, a subsidiary of United Technologies Corporation. Since its formation in late 2007, SolarReserve's team of power project professionals have assembled a CSP development portfolio of more than 25 projects featuring its licensed solar technology with potential output of more than 3,000 MW in the United States and Europe; with early stage activities in other international markets including the Middle East, North and South Africa, Australia, China, India and Latin America. SolarReserve is also developing more than 1,500 MW of photovoltaic projects across the United States and internationally. SolarReserve's experienced management team has previously developed and financed more than $15 billion in renewable and conventional energy projects in more than a dozen countries around the world.

SolarReserve's molten salt CSP tower technology was successfully demonstrated in California under a U.S. Department of Energy-sponsored pilot project in the late 1990s. The 10 MW *Solar Two* pilot facility utilized a molten salt receiver designed, engineered and assembled by Rocketdyne, now a part of United Technologies Corporation. SolarReserve's lead project, the 110 MW *Crescent Dunes Solar Energy Project* located on BLM land near Tonopah, Nevada started construction in September of 2011. SolarReserve is also in the final stages of NEPA compliance for the *Quartzsite Solar Energy Project* on BLM land in Western Arizona.

Our comments are as follows:

Solar Energy Zones

SolarReserve agrees that a designated number of acres set aside for large solar development and properly incentivized with streamlined NEPA compliance requirements, including as examples certainty around consultation under Section 106 of the National Historic Preservation Act and certainty around impact mitigation expectations, will stimulate such development. Given the near term lack of electrical demand in the Desert Southwest and the California-centric demand for renewable energy driven by an aggressive 33% Renewable Portfolio Standard, SolarReserve views the current SEZ acres as a combination of inadequately small and located the wrong places (i.e., distant from California load centers and not designated using appropriate transmission considerations). SolarReserve therefore urges for additional new SEZs to be co-located with transmission

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existing or in development, as such capacity represents one of the single largest hurdles in our work. In addition, we request that the variance process and the new SEZ designation process to be more clearly defined and "workable" in that it should incorporate flexibilty toward new project siting outside of SEZs as market conditions ultimately evolve and improve.

Pending Applications

Given the significant number of existing applications defined as "pending" within the Solar PEIS framework, SolarReserve requests that BLM continue to process these applications under existing policies and Instructional Memoranda, and not to subject them to the forthcoming PEIS Record of Decision. One stark example of this potential treatment is the case of our pending Final EIS and Record of Decision for the *Quartzsite Solar Energy Project* which has already been designated as a BLM Priority Project for 2012 in Arizona. *Quartzsite* has undergone various significant processes for NEPA compliance since 2009 and it would be highly inappropriate at this stage to re-subject the project to future Solar PEIS considerations and requirements.

Technology Restrictions

SolarReserve views as inappropriate the proposed restrictions of 10 feet in height and implementation of only solar PV technology in SEZs. Even with current technology, some types of tracking solar PV technology exceed 10 feet in height. Given that SolarReserve's CSP technology requires a roughly 650 feet high tower, this would mean an automatic exclusion in every case. Moreover, as BLM already understands very well, a determination of visual impact is a highly subjective effort that is required to consider a multitude of factors. Therefore, SolarReserve requests the elimination of both height and technology restrictions, and for associated visual impact evaluations to continue to be made on a case-by-case basis so long as the development is not proposed for an area with existing Visual Resource Management Class 1 or 2 designations.

SolarReserve strives to foster continued strong working relationships within every level of the BLM and DOI as well as with our stakeholder partners. Together with our colleagues in the still nascent utility-scale solar industry, we understand the historic nature and significant positive long-term impacts that the Solar PEIS can generate for a meaningful contribution of clean renewable power generation on public land in the United States…if properly implemented with well-considered and balanced input. Please contact me if you have any questions as this PEIS moves toward completion in 2012.

Sincerely,

Andrew Wang
Director, Development
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Andrew.Wang@SolarReserve.com

Thank you for your comment, Alex Daue.

The comment tracking number that has been assigned to your comment is SEDDsupp20130.

Comment Date: January 27, 2012 15:39:10PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20130

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Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: Supplement to Solar DPEIS Comments - Arizona (TWS and partners 1-27-12).pdf

Comment Submitted:

TWS et. al Arizona comments.

January 27, 2012

Delivered via electronic submission to the BLM Solar PEIS website and U.S. mail (with attachments).

Shannon Stewart, BLM Solar PEIS Project Lead
Solar Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue
EVS/240
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Re: Comments on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Arizona portion)

Dear Ms. Stewart:

Please accept and fully consider these comments on the Arizona portion of the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Supplement) on behalf of The Wilderness Society, Sierra Club – Grand Canyon (Arizona) Chapter, Sonoran Institute, Arizona Wilderness Coalition, Defenders of Wildlife, Sky Island Alliance and the Coalition for Sonoran Desert Protection. Please note that these comments are specific to the Arizona portion of the Supplement – some of the signatory groups are also submitting separate comment letters addressing the other states included in the PEIS as well as overarching policy issues.

Overview

We appreciate the overall direction of the Supplement with its additional focus on guiding solar projects to low-conflict Solar Energy Zones (SEZs) in the Modified Solar Energy Development Alternative. The Department of Interior (DOI) and the Bureau of Land Management (BLM) have shown a strong commitment to zone-based development in both the Supplement and in public statements since the publication of the Supplement. We believe that this focus is critical for both the protection of wildlands and wildlife habitat and for meeting our climate and clean energy goals through the success of responsible and well-sited solar development on public lands. **The BLM should continue to refine the Programmatic Environmental Impact Statement (PEIS) through the Final PEIS and Record of Decision (ROD), carrying forward the zone-based focus and most other elements of the Supplement, and sign the ROD by fall 2012.**

We also appreciate that the BLM has addressed many of the specific recommendations we made on the Draft PEIS regarding the Arizona SEZs in the SEZ action plans in the Supplement. Completing the proposed additional analyses, pre-construction surveys, mapping and other reviews identified in the SEZ action plans will be very important for

the success of low-impact solar development in the SEZs, and the BLM should ensure that these efforts are completed prior to development.

Our comment letter addresses several issues, including the following key issues:

- **Exclusion areas:** The Supplement should be strengthened by adding the following lands to the exclusion list: Citizens' Proposed Wilderness areas, BLM-identified lands with wilderness characteristics that are not managed to protect those characteristics, Sonoran desert tortoise management units (Categories I, II and key areas within Category III, as detailed below); lands in Pima County's Conservation Lands System and Preserve System; lands identified in Pinal County's Open Space Plan; lands in modeled multi-species "Arizona Wildlife Linkages"; lands in proposed 2002 cactus ferruginous pygmy owl critical habitat; and lands in the San Pedro-Wilcox Watershed.
- **Changes to SEZs and proposed SEZ action plans:** We support most of the changes to the SEZs and the SEZ action plans that are included in the Supplement. Key recommendations from our comments on the Draft PEIS that still need to be addressed are highlighted in this letter.
- **Coordination with the Restoration Design Energy Project (RDEP):** The BLM should move forward with the RDEP process in a timely manner and provide the identification and analysis of lands that can be utilized for new solar energy zones or as lands suitable for variance projects consistent with the BLM's Solar PEIS.
- **Visual Resource Management in SEZs:** Given the rapidly evolving nature of solar technologies, the BLM should address visual resource impacts on a project-by-project basis in the SEZs, rather than using the proscriptive height and technology restrictions proposed in the Supplement.

I. The BLM should strengthen the exclusion areas in the Final PEIS.

We appreciate the set of exclusion areas included in the Draft PEIS and the Supplement to limit impacts to sensitive natural and cultural resources. The additional exclusion areas added in the Supplement will also help limit impacts and facilitate responsible solar development. **However, the BLM should also exclude the following areas from development[1]:**

- Citizens' Proposed Wilderness Areas: 174,151 acres.[2] We commend the BLM for significantly reducing the number of acres from the 510,888 acres that were proposed to be open for application in the Draft PEIS. However, all Citizens' Proposed Wilderness (CPW) areas should be excluded from development. Examples of areas that have undergone an exhaustive inventory for opportunities of solitude, primitive recreation, naturalness, and other supplemental wilderness values are described below. These areas, among 28 other CPW Areas (see Attachment 1) represent areas where more than 1,000 acres of the area are in

[1] Detailed rationales for excluding these areas from solar development were included in our May 2, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.
[2] A spreadsheet detailing these areas is included as Attachment 1. GIS data for Citizen's Proposed Wilderness areas are included as Attachment 2.

conflict with the Supplement's identified variance application areas. A number of these areas are currently being considered for legislative enactment as wilderness, therefore reducing conflict with future potential solar development is imperative.

- Yellow Medicine Butte: 7,877 acres of conflict (43% of the unit). The Yellow Medicine Butte CPW unit includes a rugged, volcanic mountain surrounded by an unfragmented expanse of the Lower Colorado Subdivision of the Sonoran Desert. Resting between the Eagletail Mountains Wilderness and Woolsey Peak Wilderness that were protected in 1990, this large unit currently hosts one of the most important desert bighorn sheep populations in the vicinity while providing core and connective habitat for other sensitive species. Accessed by the primitive Agua Caliente Road, visitors enjoy a true desert wilderness experience with a high degree of solitude from developed areas to the north and east.
- Cortez Peak: 10,183 acres of conflict (37% of the unit). Cortez Peak CPW consist of a northwest-southeast trending ridge of volcanic mountains, including deep, intertwined canyons that offer topographic screening and premium opportunities for solitude. The influence of humankind is slight given its remote character within the larger Gila Bend Mountains. Similar to Yellow Medicine Butte CPW and other proximate units, the area provides core and connective habitat for sensitive species, as well as premium opportunities for wilderness experiences by those who visit the area. Flat lands within this unit have significant and irreplaceable values.
- Face Mountain: 20,824 acres of conflict (61% of the unit). Face Mountain is the signature geologic feature within this large CPW, including significant flatlands filled with iconic flora and diverse wilderness recreation opportunities. Hidden inner valleys of pristine Sonoran Desert lie in between the ridgelines, offering visitors a unique wilderness experience of naturalness, solitude, and primitive recreation. Developable flatlands in this unit lie in primarily in the northern portion of the unit, which is critical to sustain the viability of wildlife passage through the Gila Bend Mountains.
- East Belmont Mountains: 17,974 acres of conflict (33% of the unit). This unit is exceptional in that it has retained substantial wilderness characteristics despite its proximity to the greater Phoenix metro area. The proposed unit possesses both outstanding opportunities for solitude and primitive/unconfined recreation as visitors are immediately overcome by the topographical and biological variety. This unit provides critical connection to the Hassayampa River to the east and features several large ephemeral washes that supplement the incredible diversity of the area.

- <u>BLM-identified lands with wilderness characteristics not managed to protect those characteristics</u>;
- <u>San Pedro-Wilcox Watershed (USGS Hydrologic Unit Code 150502):</u> 29,917 acres;
- <u>Kaibab-Paunsagunt Wildlife Corridor</u>: In our comments on the Draft Solar PEIS, we recommended that lands in the Kaibab-Paunsagunt Wildlife Corridor be added

to the exclusion list, as utility scale solar development in this important migratory corridor could easily fragment it and disrupt seasonal deer herd movements, which could not only have detrimental impacts to the deer populations that utilize this area heavily, but could also inhibit genetic exchange between them. Unfortunately, the Supplement did not add this biologically important area to the exclusion list. We again reiterate the importance of adding this area to the exclusion list. Specifically, the area in question that should be added to the exclusion list is north of the Kaibab National Forest's northern boundary and east of Kanab Creek. We also note that this corridor extends into southern Utah and the BLM should consult with the Arizona and Utah Game and Fish Departments to ensure that solar development does not impair the functionality of the corridor.

- Pygmy-owl Proposed Critical Habitat (2002)[3]: We are encouraged that the amount of land identified as available for solar development between the Draft Solar PEIS SEDP Alternative and the Supplement's variance application areas located in the 2002 FWS proposed pygmy owl critical habitat was significantly reduced, from approximately 110,775 acres to 7,523 acres. We reiterate the importance of adding the remainder of these lands, crucial to pygmy owl conservation and recovery, to the exclusion list.
- Sonoran desert tortoise habitat: We note that a recent settlement agreement has the Sonoran desert tortoise on track for a listing decision by the US Fish and Wildlife Service in 2015. If listed as threatened or endangered, a critical habitat designation will also be forthcoming. Therefore, lands identified as important habitat for this declining species should not be identified for possible utility scale solar development. We are encouraged that the amount of land identified as suitable for solar development between the Draft Solar PEIS SEDP Alternative and the Supplement's variance application areas conflicting with mapped Sonoran desert tortoise habitat was reduced from approximately 1,188,911 to 880,875 acres, a 26% reduction. However, there is still a high level of conflict with known habitat of this already-declining and reclusive reptile. Potential future solar development in these areas under the Modified SEDP Alternative's variance application areas could encircle, fragment and thus isolate desert tortoise populations – further contributing to their decline. We recommend removing habitat classified by BLM habitat suitability models as Category I "essential" (28,674 acres in conflict) or Category II "may be essential" (301,513 acres in conflict) from further consideration for solar development in order to avert accelerating their decline, and to also remove modeled or otherwise documented tortoise linkages, including areas in Category III habitat, that serve to maintain a connected metapopulation.
- Pinal County Open Space and Trails Master Plan: We appreciate that in the Supplement the BLM has removed a significant area between Interstate 10 and State Highway 79 from further consideration for solar development. In addition to being proposed open space in Pinal County's Open Space Plan, this area also aligns with Unit 4 of the US Fish and Wildlife Service's proposed cactus ferruginous pygmy owl critical habitat. However, all of the other lands identified

[3] A spreadsheet detailing these areas and numerous other sensitive and protected areas described in this section is included as Attachment 3.

in the Draft PEIS continue to be identified as variance application areas in the Supplement, and additional lands were added that also conflict with the open space plan. Additional areas of conflict include:
    - Existing Open Space: 16,058 acres
    - Proposed Open Space: 62,024 acres
    - Proposed Regional Park: 30,044 acres
- Pima County:
    - Sonoran Desert Conservation Plan: As stated on the Sonoran Desert Conservation Plan website, "The Sonoran Desert Conservation Plan is guiding regional efforts to conserve the best lands and most precious resources for future generations of Pima County residents to enjoy. The Plan combines short-term actions with long-range land-use decisions in Pima County, one of the most biologically diverse counties in the U.S. From cactus-studded deserts to conifer forests, the diverse landscape of Pima County is the home to a million residents from diverse ethnic and cultural backgrounds, and contains a rich diversity of plant and animal life."[4] Lands in the county's Maeveen Marie Behan Conservation Lands System and Open Space Preserve system have been identified via the best available science to protect habitat for multiple threatened and endangered species. Areas within the Maeveen Marie Behan Conservation Lands System that should be excluded from solar development:
        - Important Riparian Areas: 426 acres
        - Biological Core Areas: 3,277 acres
        - Special Species Management Areas: 5,350 acres
        - Multiple Use Management Areas: 8,812 acres
        - Open Space Preserve System: 3,533 acres
    - Ranches purchased for conservation purposes: Stemming from its desire to preserve biologically important lands, as well as ranch conservation, Pima County has purchased ranches throughout the county, most of them within the Conservation Lands System. These purchases typically include some private acreage, as well as state and BLM grazing leases. The County has purchased the private acreage as fee simple lands and continues to hold the leases for the grazing rights on state and BLM lands. BLM lands associated with these ranches that should be excluded from solar development include:
        - Rancho Seco: 2,134 acres[5]
        - Diamond Bell Ranch: 473 acres
        - Buckelew Farms: 188 acres
- Arizona Wildlife Linkages: Following an initial workshop at the Phoenix Zoo in April 2004, nine public agencies and nonprofit organizations, including AZGFD, ADOT, FHWA, USFS, BLM, NAU, Sky Island Alliance, and the Wildlands Network initiated a collaborative effort to proactively address wildlife connectivity in Arizona. They identified and mapped large blocks of protected habitat threatened by fragmentation and prioritized areas for further study. Their

[4] Available at: http://www.pima.gov/cmo/sdcp/
[5] Descriptions of Rancho Seco, Diamond Bell Ranch and Buckelew Farms are included as Attachment 4.

report, Arizona's Wildlife Linkages Assessment, can be downloaded from ADOT's website at:
http://www.azdot.gov/inside_adot/OES/AZ_WildLife_Linkages/assessment.asp

Funded by Arizona Game & Fish Department, a team of conservation biologists and GIS Analysts at Northern Arizona University created detailed linkage designs for 16 priority areas highlighted in the Wildlife Linkages Assessment. These plans identified and mapped multi-species corridors that will best maintain wildlife movement between wildland blocks, as well as highlight specific planning and road mitigation measures required to maintain connectivity in these corridors. Among the focal species selected and/or modeled for these linkages include the following BLM sensitive species: Black-footed ferret, Desert bighorn sheep, Hualapai Mexican vole, Jaguar, Arizona chuckwalla, Banded gila monster, Chiricahua leopard frog, Mojave desert tortoise, Rosy boa, Southwestern willow flycatcher, Western burrowing owl, Western yellow-billed cuckoo, Bonytail chub, Desert sucker, Desert pupfish, Gila topminnow, Longfin dace, and Razorback sucker, as well as other wildlife of conservation concern. Shapefiles delineating the spatial extent of these linkages and reports describing them in detail can be downloaded at: http://corridordesign.org/linkages/arizona

By its nature, utility-scale solar development has the potential to fragment and disrupt the functionality of these wildlife linkages. Within the 16 modeled linkages described above, the Draft Solar PEIS SEDP Alternative identified 45,745 acres in conflict. The Supplemental's variance application areas identify 25,834 acres in conflict with these linkages, an encouraging 43.5% decrease in conflict. The linkage reports noted above state,"This Linkage Design Plan is a science-based starting point for conservation actions. The plan can be used as a resource for regional land managers to understand their critical role in sustaining biodiversity and ecosystem processes. Relevant aspects of this plan can be folded into management plans of agencies managing public lands" (Beier et al. 2006-2008). As such, we encourage the BLM to add the remainder of lands in conflict with these linkages to the exclusion list for the Final Solar PEIS. Linkages with variance application areas in conflict include: Mount Perkins – Warm Springs, Hualapai Mtns – Cerbat Mtns, Hualapai – Peacock, Wickenburg – Hassayampa, Gila Bend – Sonoran Desert Monument - Sierra Estrella Mtns, Rincon – Santa Ritas – Whetstones and a small portion of the Tumacacori – Santa Ritas linkage astride Sopori Wash.

Subsequent to the 16 linkage models and reports described above, the AZGFD, in cooperation with county planners, local wildlife experts and non-profit conservation organizations, has been working to further refine wildlife linkage maps and to conduct additional wildlife linkage models in Coconino, Maricopa, Pinal and Pima Counties. We encourage the BLM to

add these linkages to the exclusion list as well. These additional completed linkage models may be made available by request to the AZGFD.

II. Changes to SEZs and SEZ action plans.

In addition to the specific recommendations relating to individual SEZs below, we recommend that the BLM include in the Final PEIS a chart for each of the SEZs that identifies not only the additional data that are needed but who is responsible for compiling the data and completing each item listed, as well as a timetable for completion of the individual tasks.

Brenda SEZ

We are generally supportive of the changes to and proposed action plan for the Brenda SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adequately considered and adopted in the Supplement are discussed below.[6] **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Brenda SEZ as a SEZ in the Final PEIS.**

- Avoidance of sensitive washes including Bouse Wash and Tyson Wash: We appreciate that the BLM has identified 31 acres of non-development area within the Bouse Wash on the northeastern corner of the SEZ. We support the additional mapping and survey efforts for washes and riparian areas included in the Supplement. Because of their important ecological function in the Sonoran Desert, the Final PEIS should also specify that washes and riparian areas will be avoided to minimize impacts to wildlife habitat.

Bullard Wash SEZ

We appreciate and support the BLM's removal of the Bullard Wash SEZ from consideration as a SEZ in the Supplement. As detailed in our May 2, 2011 comments, the diverse plant and wildlife community on site and the potential significant impacts on special status species from solar development there make it inappropriate as a SEZ.

The Supplement proposes that Bullard Wash be retained as an area open to variance applications. We recommend that the northern portion of the SEZ be added to the exclusion areas because of the significant sensitive natural resources present there.

Gillespie SEZ

We are generally supportive of the changes to and proposed action plan for the Gillespie SEZ. The proposed mapping and survey efforts will be particularly important for

[6] Detailed rationales for all SEZ-related recommendations were included in our May 2, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.

supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adequately considered or adopted in the Supplement are discussed below. **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Gillespie SEZ as a SEZ in the Final PEIS.**

- Remove the southern portion of the SEZ: In our comments on the Draft PEIS, we recommended that the portion of the SEZ south of Agua Caliente Road be removed to protect a complicated system of washes and associated wildlife habitat and hydrologic features there. The Supplement does not include this change, so we recommend that this change be made in the Final PEIS in order to assure that the SEZ is strong and solar development is compatible.
- Minimizing impacts to Special Status Species: We support the proposed pre-construction surveys and mapping included in the Supplement, and recommend that impacts be minimized and mitigated at the project-specific level through design and construction changes.

III. Coordination with the Restoration Design Energy Project.

We believe the Restoration Design Energy Project (RDEP) holds great promise for facilitating responsible solar development on BLM lands in Arizona. Lands identified through RDEP's state wide assessment will be used to identify new solar energy zones and serve as lands available for "variance" projects, both of which are consistent with the Supplement to the BLM's Solar PEIS. Our support for this project is predicated on RDEP's intent (to facilitate solar and wind development at multiple scales across federal, state, and private lands) and its approach (focusing on lands previously disturbed, or with limited environmental values, that are close to transmission infrastructure and demand centers).

As we noted in our previous comments on Solar PEIS, it is premature for us to endorse the RDEP (the project has yet to release a draft EIS), though we are encouraged by the following project elements that we believe should be part of any process that the BLM agrees to pursue to identify additional zones in Arizona:

- A focus on disturbed lands that may be suitable for renewably energy development (not limited to solar) at various scales (i.e., utility- and community-scale projects).
- A state-wide-level suitability assessment that includes federal (BLM and US Forest Service), state trust, and private lands and sets the stage for renewable energy development that extends across land ownerships and jurisdictions.
- Extensive consultations with cooperating agencies that result in a more comprehensive inventory of lands with known sensitive resources that are excluded from development.
- The development of a reasonable (renewable energy) development forecast for the next 20 years (measured in gigawatt hours and acres) tied to the state's renewable energy standard and export potential.

- Consideration of the following key factors in the ultimate selection of lands that may be included in the final alternative:
    - proximity to existing and approved transmission corridors,
    - avoidance of areas determined to host significant wilderness, wildlife, and other important environmental values,
    - avoidance of areas identified as essential for wildlife connectivity,
    - impacts on water quality and quantity,
    - proximity to load or demand centers, and
    - opportunities for land tenure adjustments that facilitate protection of lands with high conservation values.
- A pro-active stakeholder engagement and consultation process that includes numerous opportunities for input prior to the release of a draft EIS.
- Provision for appropriate incentives for developers, including the amendment of all affected Resource Management Plans, to propose projects on lands ultimately identified as potentially suitable.

To ensure the BLM moves forward with the RDEP process in a timely manner, and provides the identification and analysis of lands that can be utilized for the identification of new solar energy zones or lands suitable for variance projects consistent with the BLM's Solar PEIS, we offer the following recommendations:

- RDEP's planning outcomes should result in the identification of new solar energy zones or lands suitable for variance projects, based on "landscape-level planning" and "best available science" as outlined in the Solar PEIS.
- The final identification and evaluation of these zones and "variance" lands should happen with due dispatch, no later than the end of 2012.
- A robust suite of incentives are provided for both zones and "Renewable Energy Development Area" lands.
- The AZ BLM Office should be provided the necessary resources to achieve the above recommendations and assure the appropriate level of analysis and public engagement.

IV. Visual resource management in the SEZs.

The Supplement includes restrictions on project height and technology for the Gillespie SEZ to protect visual resources near the SEZ, requiring projects to be lower than 10' and only use PV technology or technology with comparable or lower reflectivity. We support the BLM addressing visual resource impacts from solar development. However, given the rapidly evolving nature of solar technologies, the BLM should not put in place proscriptive height and technology restrictions for applications in the SEZs. Instead, visual resource impacts should be addressed on a project-by-project basis.

V. Cumulative impacts analysis.

The Supplement states that the cumulative impacts analyses included in the Draft PEIS are currently being updated based on changes in the Supplement, and that updated

analyses will be included in the Final PEIS. In order to fully support designation of the SEZs in Arizona, the BLM should ensure completion of robust cumulative impacts analyses and include them in the Final PEIS.

VI. The BLM should provide a 60-day public comment period on the Final PEIS.

There will be a significant amount of new information in the Final PEIS, including updated SEZ-specific design features, SEZ action plans, cumulative impacts analysis and monitoring and adaptive management protocols. For this reason, the BLM should provide a 60-day public comment period on the Final PEIS. While we continue to encourage the BLM to complete the PEIS in a thorough and timely manner, it is very important that the public be able to thoroughly review the Final PEIS and be given the opportunity to provide meaningful input on this new information in order to satisfy the requirements of the National Environmental Policy Act. Further, this comment period should not substantially delay the timeline for completion of the PEIS, because BLM's regulations obligate the BLM to provide a 30-day protest period and a concurrent 60-day governor consistency review of land use plan amendments. 40 C.F.R. §§ 1610.5-2; 1610.5-3. The proposed 60-day public comment period will run during these same timeframes.

Conclusion

We thank DOI and the BLM for proposing an approach to solar energy development on public lands in Arizona that will focus appropriate large-scale solar energy development needed to help alleviate the effects of climate change in low-conflict zones in order to limit environmental impacts. This approach will help ensure that the natural and cultural resources of Arizona are protected for future generations. We look forward to working with the BLM as the agency finalizes the PEIS over the coming months.

Thank you for your thorough consideration of these comments.

Sincerely,

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Attachments:

- Attachment 1 - Overlap of BLM proposed variance application areas and Citizens' Proposed Wilderness Areas
- Attachment 2 - GIS data for Citizens' Proposed Wilderness Areas
- Attachment 3 - Overlap of BLM proposed variance application areas and protected and sensitive areas
- Attachment 4 - Desriptions of Rancho Seco, Diamond Bell Ranch and Buckelew Farms

References:

Beier, P., D. Majka, and T. Bayless. 2006-2008. Arizona Missing Linkages: Reports to Arizona Game and Fish Department. School of Forestry, Northern Arizona University.

Thank you for your comment, Alex Daue.

The comment tracking number that has been assigned to your comment is SEDDsupp20131.

Comment Date: January 27, 2012 15:42:12PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20131

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Attachment: Supplement to Solar DPEIS Comments - Colorado (TWS and partners 1-27-12).pdf

Comment Submitted:

TWS et. al Colorado comments.

January 27, 2012

Delivered via electronic submission to the BLM Solar PEIS website and U.S. mail (with attachments).

Shannon Stewart, BLM Solar PEIS Project Lead
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Re: Comments on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Colorado portion)

Dear Ms. Stewart:

Please accept and fully consider these comments on the Colorado portion of the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Supplement) on behalf of The Wilderness Society, Rocky Mountain Wild, Colorado Environmental Coalition, Rocky Mountain Recreation Initiative, Audubon Colorado and High Country Citizens' Alliance. Please note that these comments are specific to the Colorado portion of the Supplement – some of the signatory groups are also submitting separate comment letters addressing the other states included in the PEIS as well as overarching policy issues.

Overview

We appreciate the overall direction of the Supplement with its additional focus on guiding solar projects to low-conflict Solar Energy Zones (SEZs) in the Modified Solar Energy Development Alternative. The Department of Interior (DOI) and the Bureau of Land Management (BLM) have shown a strong commitment to zone-based development in both the Supplement and in public statements since the publication of the Supplement. We believe that this focus is critical for both the protection of wildlands and wildlife habitat and for meeting our climate and clean energy goals through the success of responsible solar development on public lands. **The BLM should continue to refine the Programmatic Environmental Impact Statement (PEIS) through the Final PEIS and Record of Decision (ROD), carrying forward the zone-based focus and most other elements of the Supplement, and sign the ROD by fall 2012.**

We also appreciate that the BLM has addressed many of the specific recommendations we made on the Draft PEIS regarding the Colorado SEZs in the SEZ action plans in the Supplement. Completing the proposed additional analyses, pre-construction surveys, mapping and other reviews identified in the SEZ action plans will be very important for the success of low-impact solar development in the SEZs, and the BLM should ensure that these efforts are completed prior to development.

Our comment letter addresses several issues, including the following key issues:

- **Exclusion areas:** The Supplement should be strengthened by adding Citizens' Proposed Wilderness areas, BLM-identified lands with wilderness characteristics that are not managed to protect those characteristics and the other areas listed below to the exclusion list.
- **Changes to SEZs and proposed SEZ action plans:** We support most of the changes to the SEZs and the SEZ action plans included in the Supplement. Key recommendations from our comments on the Draft PEIS that still need to be addressed are highlighted in this letter.
- **Visual Resource Management in SEZs:** Given the rapidly evolving nature of solar technologies, the BLM should address visual resource impacts on a project-by-project basis in the SEZs, rather than using the proscriptive height and technology restrictions proposed in the Supplement.

I. BLM should strengthen the exclusion areas in the Final PEIS.

We appreciate the set of exclusion areas included in the Draft PEIS and the Supplement to limit impacts to sensitive natural and cultural resources. The additional exclusion areas added in the Supplement will also help limit impacts and facilitate responsible solar development. **However, the BLM should also exclude the following areas from development[1]:**

- Citizens' Proposed Wilderness areas: 2,569 acres[2]
- BLM-identified lands with wilderness characteristics not managed to protect those characteristics
- Sensitive and protected areas (note that these are listed in order of importance)[3]:
    - Roadless areas: 772 acres
    - Areas of Critical Environmental Concern: 503 acres. These areas should have been excluded from development by the exclusion screens included in the Draft PEIS and the Supplement. (Supplement p. 2-16)
    - Colorado Natural Heritage Program Potential Conservation Areas (PCAs): 13,722 acres
    - Colorado Natural Areas Program areas: 230 acres
    - Colorado State Wildlife Areas: 895 acres
    - Land Trust COMaP v8 2010 areas: 35 acres
    - Miscellaneous Protected Areas GAP PAD-US 2010: 22 acres
    - National Monument COMaP v8 2010: 117 acres
    - State Land Board Trust Lands COSLB: 895 acres
    - The Nature Conservancy Land GAP PAD-US 2010: 28 acres
    - Wild Connections Conservation Plan Proposed Wilderness WCCP 2006: 9 acres

[1] Detailed rationales for excluding these areas from solar development were included in our April 18, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.
[2] A spreadsheet detailing these areas is included as Attachment 1. GIS data for these areas are included as Attachment 2.
[3] A spreadsheet detailing these and other sensitive and protected areas is included as Attachment 3.

    - Wildland Network Design Core Conservation Areas SREP: 5,856 acres
- Species-specific conflicts (note that these are listed in order of importance):[4]
    - Gunnison sage-grouse habitat: 18,268 acres. This habitat is the most important habitat for BLM to exclude from solar development.
    - Lynx habitat: 479 acres
    - Cutthroat trout habitat: 787 acres
    - Columbia sharp-tailed grouse habitat: 11 acres
    - Gunnison's prairie dog habitat: 11,807 acres
    - Colorado Natural Heritage Program element occurrences: these element occurrences would not be protected by excluding the PCAs recommended for exclusion above, and should also be specifically excluded.
        - One occurrence of Colorado wild buckwheat (*Eriogonum brandegeei*) is in the Gunnison Basin PCA that intersects a single parcel in the proposed variance application lands.
        - Three occurrences of Degener beardtongue (*Penstemon degeneri*) that intersect 8 parcels in the Solar PEIS. One of the occurrences is in the Wilson Creek PCA which was drawn specifically to protect Degener beardtongue among other things. However the other two occurrences are not within a PCA.
        - One occurrence of Gray's townsend-daisy (*Townsendia glabella*) intersects a single parcel in the Solar PEIS. The Greenie Mountain Foothills PCA is nearby but it does not intersect the parcel and it was not drawn to protect Gray's townsend-daisy.
        - One occurrence of roundtail chub (*Gila robusta*) is in the Dove Creek PCA where the occurrence intersects a single parcel in the Solar PEIS.

II. Changes to SEZs and SEZ action plans.

In addition to the specific recommendations relating to individual SEZs below, we recommend that the BLM include in the Final PEIS a chart for each of the SEZs that identifies not only the additional data that is needed but who is responsible for compiling the data and completing each item listed, as well as a timetable for completion of the individual tasks.

Antonito Southeast SEZ

We are generally supportive of the proposed action plan for the Antonito Southeast SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adopted in the Supplement are discussed below.[5] **Provided that BLM completes the proposed action plan prior to development and addresses**

[4] Attachment 3 also details these areas.
[5] Detailed rationales for all SEZ-related recommendations were included in our April 18, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.

the recommendations below, we support designation of the proposed Antonito Southeast SEZ as a SEZ in the Final PEIS.

- Gunnison's prairie dog: We appreciate that BLM has included pre-disturbance surveys and mapping of colonies in the SEZ. The Final PEIS should specify that active colonies will be avoided, and potential offsite mitigation within areas of high species viability should be pursued if significant impacts are expected.
- Elk and pronghorn winter range: We appreciate that BLM has included pre-disturbance surveys to determine habitat use and migration paths. The Final PEIS should specify that movement corridors outside of project footprints will be preserved.

De Tilla Gulch SEZ

We are generally supportive of the changes to and proposed action plan for the De Tilla Gulch SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that are not addressed in the Supplement are included below. **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed De Tilla Gulch SEZ as a SEZ in the Final PEIS.**

- Gunnison's prairie dog: We appreciate that BLM has adjusted the boundary of the SEZ to avoid the active colony on the northwest side of the SEZ and included pre-disturbance surveys and mapping of colonies in the SEZ. We also support designating the area removed from the SEZ as an exclusion area. The Final PEIS should specify that active colonies will be avoided, and potential offsite mitigation within areas of high species viability should be pursued if significant impacts are expected.
- Elk, mule deer and pronghorn winter range: We appreciate that BLM has included pre-disturbance surveys to determine habitat use and migration paths. The Final PEIS should specify that movement corridors outside of project footprints will be preserved.

Fourmile East SEZ

We are generally supportive of the changes to and proposed action plan for the Fourmile East SEZ, including the boundary adjustment to avoid impacts to the Old Spanish National Historic Trail. In addition, the proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that are not addressed in the Supplement are included below. **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Fourmile East SEZ as a SEZ in the Final PEIS.**

- Gunnison's prairie dog: We appreciate that BLM has included pre-disturbance surveys and mapping of colonies in the SEZ. The Final PEIS should specify that active colonies will be avoided, and potential offsite mitigation within areas of high species viability should be pursued if significant impacts are expected.

Los Mogotes East SEZ

We are generally supportive of the changes to and proposed action plan for the Los Mogotes East SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that are not addressed in the Supplement are included below. **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Los Mogotes East SEZ as a SEZ in the Final PEIS.**

- Gunnison's prairie dog: We appreciate that BLM has adjusted the boundary of the SEZ to avoid the colony of unknown status on the west side of the SEZ and included pre-disturbance surveys and mapping of colonies in the SEZ. The Final PEIS should specify that active colonies will be avoided, and potential offsite mitigation within areas of high species viability should be pursued if significant impacts are expected.
- Elk, mule deer and pronghorn winter range: We appreciate that BLM has included pre-disturbance surveys to determine habitat use and migration paths. The Final PEIS should specify that movement corridors outside of project footprints will be preserved.

III. Visual resource management in the SEZs.

The Supplement includes restrictions on project height and technology for all four Colorado SEZs to protect visual resources near the SEZs, requiring projects to be lower than 10' and only use PV technology. We support the BLM addressing visual resource impacts from solar development. However, given the rapidly evolving nature of solar technologies, the BLM should not put in place proscriptive height and technology restrictions for applications in the SEZs. Instead, visual resource impacts should be addressed on a project-by-project basis.

IV. Cumulative impacts analysis.

The Supplement states that the cumulative impacts analyses included in the Draft PEIS are currently being updated based on changes in the Supplement, and that updated analyses will be included in the Final PEIS. In order to fully support designation of the SEZs in Colorado, the BLM should ensure completion of robust cumulative impacts analyses and include them in the Final PEIS.

V. The BLM should closely coordinate the PEIS with other BLM planning efforts including the Grand Junction Resource Management Plan revision.

As noted in the Supplement, in addition to the PEIS, the BLM is also undertaking efforts to identify renewable energy priority areas such as new SEZs in other ongoing planning efforts, including the Grand Junction RMP revision currently underway. (Supplement at p. 2-32) The BLM should take advantage of these opportunities to use more localized planning efforts to identify low-conflict priority areas for solar development, and the agency should ensure that these efforts are closely coordinated with the PEIS.

VI. The BLM should provide a 60 day public comment period on the Final PEIS.

There will be a significant amount of new information in the Final PEIS, including updated SEZ-specific design features, SEZ action plans, cumulative impacts analysis and monitoring and adaptive management protocols. For this reason, the BLM should provide a 60 day public comment period on the Final PEIS. While we continue to encourage the BLM to complete the PEIS in a thorough and timely manner, it is very important that the public be given the opportunity to provide meaningful input on this new information in order to satisfy the requirements of the National Environmental Policy Act. Further, this comment period should not substantially delay the timeline for completion of the PEIS, because BLM's regulations obligate the BLM to provide a 30-day protest period and a concurrent 60-day governor consistency review of land use plan amendments. 40 C.F.R. §§ 1610.5-2; 1610.5-3. The proposed 60-day public comment period will run during these same timeframes.

Conclusion

We thank DOI and the BLM for proposing an approach to solar energy development on public lands in Colorado that will focus appropriate large-scale solar energy development needed to help alleviate the effects of climate change in low-conflict zones. This approach will help ensure that the natural and cultural resources of Colorado are protected for future generations. We look forward to working with the BLM as the agency finalizes the PEIS over the coming months.

Thank you for your thorough consideration of these comments.

Sincerely,

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Attachments

- Attachment 1 - Overlap of BLM proposed variance application areas and Citizens' Proposed Wilderness areas
- Attachment 2 – GIS data for Citizens' Proposed Wilderness areas
- Attachment 3 – Overlap of BLM proposed variance application areas and sensitive and protected areas and species habitat

Thank you for your comment, Alex Daue.

The comment tracking number that has been assigned to your comment is SEDDsupp20132.

Comment Date: January 27, 2012 15:44:45PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20132

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Attachment: Supplement to Solar DPEIS Comments - New Mexico (TWS and partners 1-27-12).pdf

Comment Submitted:

TWS et. al New Mexico comments.

January 27, 2012

Delivered via electronic submission to the BLM Solar PEIS website and U.S. mail (with attachments).

Shannon Stewart, BLM Solar PEIS Project Lead
Solar Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue
EVS/240
Argonne, IL 60439

Re: Comments on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (New Mexico portion)

Dear Ms. Stewart:

Please accept and fully consider these comments on the New Mexico portion of the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Supplement) on behalf of The Wilderness Society, Defenders of Wildlife, New Mexico Wilderness Alliance and Western Environmental Law Center. Please note that these comments are specific to the New Mexico portion of the Supplement – some of the signatory groups are also submitting separate comment letters addressing the other states included in the PEIS as well as overarching policy issues.

Overview

We appreciate the overall direction of the Supplement with its additional focus on guiding solar projects to low-conflict Solar Energy Zones (SEZs) in the Modified Solar Energy Development Alternative. The Department of Interior (DOI) and the Bureau of Land Management (BLM) have shown a strong commitment to zone-based development in both the Supplement and in public statements since the publication of the Supplement. We believe that this focus is critical for both the protection of wildlands and wildlife habitat and for meeting our climate and clean energy goals through the success of responsible solar development on public lands. **The BLM should continue to refine the Programmatic Environmental Impact Statement (PEIS) through the Final PEIS and Record of Decision (ROD), carrying forward the zone-based focus and most other elements of the Supplement, and sign the ROD by fall 2012.**

We also appreciate that the BLM has addressed many of the specific recommendations we made on the Draft PEIS regarding the New Mexico SEZs in the SEZ action plans in the Supplement. Completing the proposed additional analyses, pre-construction surveys, mapping and other reviews identified in the SEZ action plans will be very important for the success of low-impact solar development in the SEZs, and the BLM should ensure

that these efforts are completed prior to development. There are, however, several important issues raised in our (April 18, 2011) comments on the Draft EIS that were not adequately addressed in the Supplement. Of particular concern is the Supplement's continued inclusion of environmentally sensitive lands as lands open to "variance applications", which we suggested in our comments on the Draft PEIS should be excluded in order to avoid foreseeable conflicts.

Our comment letter addresses several issues, including the following key issues:

- **Exclusion areas:** The Supplement should be strengthened by adding Citizens' Proposed Wilderness areas, BLM-identified lands with wilderness characteristics that are not managed to protect those characteristics, BLM- validated Northern aplomado falcon high and moderately suitable habitats, relict Chihuahuan desert grasslands and lands identified by the BLM as high priorities for grassland restoration to the exclusion list.
- **Changes to SEZs and proposed SEZ action plans:** We support most of the changes to the SEZs and the SEZ action plans included in the Supplement. Key recommendations from our comments on the Draft PEIS that still need to be addressed are highlighted in this letter.
- **Visual Resource Management in SEZs:** Given the rapidly evolving nature of solar technologies, the BLM should address visual resource impacts on a project-by-project basis in the SEZs, rather than using the proscriptive height and technology restrictions proposed in the Supplement.

I. BLM should strengthen the exclusion areas in the Final PEIS.

We appreciate the set of exclusion areas included in the Draft PEIS and the Supplement to limit impacts to sensitive natural and cultural resources. The additional exclusion areas added in the Supplement will also help limit impacts and facilitate responsible solar development. **However, the BLM should also exclude the following areas from development[1]:**

- Citizens' Proposed Wilderness areas: 134 areas with 515,371 acres of overlap.[2] Within these 134 areas, there are 59 Citizens' Proposed Wilderness (CPW) units that have greater than 5,000 acres of variance application areas in conflict and/or have variance application areas that comprise 20% or more of the respective unit. These wilderness quality lands fall within the following complexes: Animas Mountains, Cabezon Country, Cedar Mountains, Continental Divide, Cookes Range, El Malpais, Greater Big Hatches, Greater Bisti/De-Na-Zin, Greater Cerro Pomo, Greater Potrillos, Guadalupe Mountains, Jornada del Muerto, Magdalena Mountains, Nutt Grasslands, Organ Mountains, Peloncillo Mountains, Petaca Pinta Complex, Pyramid Mountains, Quebradas, Robledos – Las Uvas and San Mateo Mountains.

[1] Detailed rationales for excluding these areas from solar development were included in our April 18, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.

[2] A spreadsheet detailing these areas is included as Attachment 1. GIS data for Citizen's Proposed Wilderness areas are included as Attachment 2.

In addition, some of the Citizens' Proposed Wilderness areas with the highest levels of conflict are currently being considered by Congress for designation within the National Wilderness Preservation System. S.1024 has been introduced and referred to Committee, and would protect parts of the Robledos, the Organs, the Potrillos, and the Sierra de las Uvas; all of which could be threatened by development in the PEIS.[3] These areas have long been acknowledged to be of Wilderness quality, a fact that the legislation's existence confirms. We believe the BLM should more carefully consider both Congress's expressed intent and Citizen's Proposed Wilderness, and exclude these areas from solar development.

- BLM-identified lands with wilderness characteristics not managed to protect those characteristics;
- BLM-validated Northern aplomado falcon highly and moderately suitable habitat: 3,809 acres, including 2,513 acres of highly suitable habitat and 1,296 acres of moderately suitable habitat; and
- Lands with relict Chihuahuan desert grasslands or those identified by the BLM as priority areas for grassland restoration.

II. Changes to SEZs and SEZ action plans.

In addition to the specific recommendations relating to the Afton SEZ below, we recommend that the BLM include in the Final PEIS a chart for the Afton SEZ that identifies not only the additional data that is needed but who is responsible for compiling the data and completing each item listed, as well as a timetable for completion of the individual tasks.

Afton SEZ

We are generally supportive of the proposed action plan for the Afton SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adopted in the Supplement are discussed below.[4] **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Afton SEZ as a SEZ in the Final PEIS.**

- Minimizing impacts to Special Status Species: While there is likely limited habitat for Special Status Species in the SEZ, the proposed pre-disturbance surveys and mapping efforts in the Supplement will be critical to limiting impacts. Where Special Status Species habitat is found, the Final PEIS should include measures to avoid, minimize and mitigate impacts.

III. Visual resource management in the SEZs.

[3] S. 1024 is included as Attachment 3, and can also be viewed online at http://www.govtrack.us/congress/billtext.xpd?bill=s112-1024

[4] Detailed rationales for all SEZ-related recommendations were included in our April 18, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.

The Supplement includes restrictions on numerous SEZs to protect visual resources near the SEZs, requiring projects to be lower than 10' and only use PV technology. It is not clear in the Supplement what restrictions are proposed for the Afton SEZ. We support the BLM addressing visual resource impacts from solar development. However, given the rapidly evolving nature of solar technologies, the BLM should not put in place proscriptive height and technology restrictions for applications in the SEZs. Instead, visual resource impacts should be addressed on a project-by-project basis.

IV. Cumulative impacts analysis.

The Supplement states that the cumulative impacts analyses included in the Draft PEIS are currently being updated based on changes in the Supplement, and that updated analyses will be included in the Final PEIS. In order to fully support designation of the Afton SEZ in New Mexico, the BLM should ensure completion of a robust cumulative impacts analysis for this SEZ and include it in the Final PEIS.

V. The BLM should provide a 60 day public comment period on the Final PEIS.

There will be a significant amount of new information in the Final PEIS, including updated SEZ-specific design features, SEZ action plans, cumulative impacts analysis and monitoring and adaptive management protocols. For this reason, the BLM should provide a 60 day public comment period on the Final PEIS. While we continue to encourage the BLM to complete the PEIS in a thorough and timely manner, it is very important that the public be given the opportunity to provide meaningful input on this new information in order to satisfy the requirements of the National Environmental Policy Act. Further, this comment period should not substantially delay the timeline for completion of the PEIS, because BLM's regulations obligate the BLM to provide a 30-day protest period and a concurrent 60-day governor consistency review of land use plan amendments. 40 C.F.R. §§ 1610.5-2; 1610.5-3. The proposed 60-day public comment period will run during these same timeframes.

Conclusion

We thank DOI and the BLM for proposing an approach to solar energy development on public lands in New Mexico that will focus appropriate large-scale solar energy development needed to help alleviate the effects of climate change in low-conflict zones. This approach will help ensure that the natural and cultural resources of New Mexico are protected for future generations. We look forward to working with the BLM as the agency finalizes the PEIS over the coming months.

Thank you for your thorough consideration of these comments.

Sincerely,

Alex Daue, Renewable Energy Associate
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Attachments

- Attachment 1 - Overlap of BLM proposed variance application areas and Citizens' Proposed Wilderness areas
- Attachment 2 - GIS data for Citizens' Proposed Wilderness areas
- Attachment 3 - S. 1024

Thank you for your comment, Nancy Karl.

The comment tracking number that has been assigned to your comment is SEDDsupp20133.

Comment Date: January 27, 2012 15:47:01PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20133

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Attachment: MDLT.BLM.PEIS.Comments.Jan2012.pdf

Comment Submitted:

Mojave Desert Land Trust
Preserving land to enjoy forever
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January 26, 2012

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

RE: Comments on the Supplement to the Draft Solar Programmatic Environmental Impact Statement

Ladies and Gentleman,

Founded in 2005, Mojave Desert Land Trust (MDLT) is a non-profit 501(c)(3) organization whose mission is to protect the ecosystems, scenic and cultural resources of the California Desert. We accomplish our mission primarily through the acquisition of privately held lands within key conserved areas – Desert National Parks, Desert Wildlife Management Areas, and designated Wilderness areas.

During the last 5 years, MDLT has grown to become a landscape scale conservation partner to the National Park Service (NPS), Bureau of Land Management (BLM), Department of Defense (DOD) and the California Department of Fish & Game.

To date, MDLT has invested more than $18.6 million of private funding to acquire 36,400 acres of land within desert national parks, designated wilderness areas and wildlife linkages. As a major stakeholder of lands within the California desert, we must express our opposition to the Bureau of Land Management's (BLM) Preferred Alternative in the Supplement to the Draft Solar Programmatic Environmental Impact Statement (Supplement) to consider variance lands for utility scale solar development.

MDLT's considerable investment, along with the conveyance to the United States of more than 13,800 acres valued at $6.2 million, has been completed to support and work in concert with the BLM's and National Park Service's protection of wildlife habitat for threatened and endangered species, and to facilitate better management of large conserved areas (DWMA's, national parks and wilderness areas). MDLT has made a significant, positive impact on the checkerboard of inholdings within designated Wilderness Areas within the California Desert Conservation Area that includes Desert Wildlife Management Areas (DWMA), the Mojave National Preserve,

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Joshua Tree National Park and within the linkages that are vital to connecting these ecosystems. *To date, we have acquired more than 840 parcels to stitch these ecosystems back together.*

The BLM's consideration of variance lands for solar energy development beyond the previously defined Solar Energy Zones would have a significant impact on MDLT's conservation investments to date as well as on the wildlife linkages that must be maintained to connect large conserved areas in which we've made these investments.

In addition to our land acquisitions, MDLT has additionally invested in the restoration of thousands of acres of habitat, managing volunteer and paid field experts to conduct thousands of hours of work to ensure these lands are appropriately cleaned up and the habitats are on a path to restoration. The final goal in this effort is to make them suitable for conveyance to the United States and the public, and for their preservation in perpetuity. Large scale solar developments on variance lands would directly impact these investments and their preservation.

We must go on record to strongly oppose the variance lands for consideration in the Supplement. The sacrifice of nearly 1.5 million areas of public recreational lands for the convenience or profit of corporate interests that should be looking to rooftop solar applications or degraded lands for their projects, and allowing significant impacts to the millions of dollars and years of investments by conservation organizations who are good-faith and accountable partners with the BLM and other agencies, would be an unsuitable approach to serving the partnerships and the public who live and work in the California desert.

The Desert Renewable Energy Conservation Plan (DRECP) has undertaken the process by which new solar energy zones, both private and public land, will be identified. Hence, we see no need for a variance process to be a part of the solar energy program to meet renewable energy goals and request this process be dropped from consideration.

Respectfully,

Nancy Karl
Executive Director

Thank you for your comment, Alex Daue.

The comment tracking number that has been assigned to your comment is SEDDsupp20134.

Comment Date: January 27, 2012 15:49:54PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20134

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Attachment: Supplement to Solar DPEIS Comments - Utah (TWS and partners 1-27-12).pdf

Comment Submitted:

TWS et. al Utah comments.

January 27, 2012

Delivered via electronic submission to the BLM Solar PEIS website and U.S. mail (with attachments).

Shannon Stewart, BLM Solar PEIS Project Lead
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Argonne, IL 60439

Re: Comments on the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Utah portion)

Dear Ms. Stewart:

Please accept and fully consider these comments on the Utah portion of the Supplement to the Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Supplement) on behalf of The Wilderness Society, Southern Utah Wilderness Alliance, Wild Utah Project and the Grand Canyon Trust. Please note that these comments are specific to the Utah portion of the Supplement – some of the signatory groups are also submitting separate comment letters addressing the other states included in the PEIS as well as overarching policy issues.

Overview

We appreciate the overall direction of the Supplement with its additional focus on guiding solar projects to low-conflict Solar Energy Zones (SEZs) in the Modified Solar Energy Development Alternative. The Department of Interior (DOI) and the Bureau of Land Management (BLM) have shown a strong commitment to zone-based development in both the Supplement and in public statements since the publication of the Supplement. We believe that this focus is critical for both the protection of wildlands and wildlife habitat and for meeting our climate and clean energy goals through the success of responsible solar development on public lands. **The BLM should continue to refine the Programmatic Environmental Impact Statement (PEIS) through the Final PEIS and Record of Decision (ROD), carrying forward the zone-based focus and most other elements of the Supplement, and sign the ROD by fall 2012.**

We also appreciate that the BLM has addressed many of the specific recommendations we made on the Draft PEIS regarding the Utah SEZs in the SEZ action plans in the Supplement. Completing the proposed additional analyses, pre-construction surveys, mapping and other reviews identified in the SEZ action plans will be very important for the success of low-impact solar development in the SEZs, and the BLM should ensure that these efforts are completed prior to development.

Our comment letter addresses several issues, including the following key issues:

- **Exclusion areas:** The Supplement should be strengthened by adding Citizens' Proposed Wilderness areas, BLM-identified lands with wilderness characteristics that are not managed to protect those characteristics, Greater sage-grouse habitat and the other areas listed below to the exclusion list.
- **Changes to SEZs and proposed SEZ action plans:** We support most of the changes to the SEZs and the SEZ action plans included in the Supplement. Key recommendations from our comments on the Draft PEIS that still need to be addressed are highlighted in this letter.

I. BLM should strengthen the exclusion areas in the Final PEIS.

We appreciate the set of exclusion areas included in the Draft PEIS and the Supplement to limit impacts to sensitive natural and cultural resources. The additional exclusion areas added in the Supplement will also help limit impacts and facilitate responsible solar development. **However, the BLM should also exclude the following areas from development[1]:**

- Citizens' Proposed Wilderness areas: lands proposed in the Supplement to be open to variance applications overlap with 116 units totaling 436,439 acres.[2] The examples of units with overlap with lands proposed to be open to variance applications described below underscore the importance of excluding all Citizens' Proposed Wilderness areas:

  Tule Valley and Tule Valley South proposed wilderness units: The Tule Valley and Tule Valley South proposed wilderness units make up one of Utah's few remaining intact basins in the state's west desert and "basin and range" complex. Today, Tule Valley is much the same as it has been for centuries, a remote and untrammeled basin pockmarked with hot springs, significant cultural sites, and home to *Rana pretiosa* (spotted frog) – a state sensitive species. The area is bounded by a few dirt roads but otherwise there are few signs of current human activity.

  Dirty Devil proposed wilderness unit: The Dirty Devil proposed wilderness unit is one of the west's most iconic landscapes with its incised redrock canyons, fantastic views, and unique history (Billy the Kid and his gang escaped into the Dirty Devil complex on several occasions to evade detection). On certain years, at peak runoff, river runners flock to the Dirty Devil river to run this remote and wild river. The proposed wilderness unit is also prized for its canyoneering, remote camping, and untrammeled vistas. BLM has confirmed on multiple occasions that this area has wilderness characteristics.

[1]Detailed rationales for excluding these areas from solar development were included in our April 18, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.

[2]A spreadsheet detailing these areas is included as Attachment 1. Note that there may be other conflicts not identified in this analysis – due to limitations in accuracy of the available GIS data, we have excluded any areas smaller than one acre. GIS data for Citizens' Proposed Wilderness areas are included as Attachment 2.

Flat Tops proposed wilderness unit: The Flat Tops proposed wilderness unit is located just north of and forms a natural extension to the Dirty Devil proposed wilderness unit. However, unlike the Dirty Devil region, the Flat Tops consist of two significant mesas and surrounding undisturbed deserts and vegetated sand dunes. The area lies just east of Utah's famed Goblin Valley state park and Temple Mountain and west of the Maze District of Canyonlands National Park. BLM has confirmed on multiple occasions that this area has wilderness characteristics.

Mount Ellen proposed wilderness unit: The Mount Ellen proposed wilderness unit is contiguous to and an extension of the Mount Ellen- Blue Hills Wilderness Study Area (WSA). The unit's diverse terrain, steep slopes, isolated basins, dense forest, and barren alpine ridge tops all contribute to provide outstanding opportunities for solitude and primitive and unconfined recreation. Visitors come to this unit to experience solitude, enjoy the vistas into nearby Capitol Reef National Park, and catch sight of and enjoy viewing the largest free-roaming bison herd in Utah. The area is also popular with bison hunters. BLM has confirmed on multiple occasions that this area has wilderness characteristics.

Mount Pennell proposed wilderness unit: The Mount Pennell proposed wilderness unit is a diverse combination of high-elevation piñon and juniper woodlands, incised sandstone canyons, expansive mesas, colorful badlands, and rugged benchlands, providing outstanding opportunities for both solitude and primitive and unconfined recreation. There are extensive opportunities for such dispersed, undeveloped recreation activities as hunting, wildlife observation, photography, nature study, camping, and hiking. Extensive scenic vistas, rugged canyons, stark badlands, rolling and broken benchlands, and wooded high country combine to provide an ideal setting for visitors to experience primitive, unconfined recreation.

The combination of badlands, mesas, and canyons offer an impressive landscape of geologic diversity, linking the Henry Mountains with the Waterpocket Fold area. The bison herd in the Henry Mountains is one of the few free-roaming herds in the nation. The badlands and benchlands also provide habitat for the endangered Wright's fishhook cactus and a number of other candidate plant species.

See Utah Wilderness Inventory, 72 (1999). BLM has confirmed on multiple occasions that this area has wilderness characteristics.

Painted Rock proposed wilderness unit: Located in western Utah's basin and range country, the Painted Rock proposed wilderness unit consists of a horseshoe shaped mountain complex with notable different hues. The unit is extremely remote and connects visitors with the King

Top wilderness study area and Crystal Peak Area of Critical Environmental Concern (ACEC) and northern WahWah Mountains.

Nokai Dome proposed wilderness unit: All three of the large and remote Nokai Dome inventory units retain their generally natural appearance and have wilderness characteristics. Unit 3, with its series of major canyons, colorful badlands, and impressive 1,000-foot cliffs, provides outstanding opportunities for solitude and primitive and unconfined recreation. All of the units provide outstanding opportunities for solitude and primitive and unconfined recreation, either on their own or when considered in conjunction with the contiguous portion of the Glen Canyon National Recreation Area (NRA) that has been proposed for wilderness. BLM has confirmed that this area has wilderness characteristics.

Red Rock Plateau proposed wilderness unit: The eastern edge of the Red Rock Plateau and Copper Point proposed wilderness units are most often viewed by travelers as they drive the Highway 95 Bicentennial Scenic Byway, between the Glen Canyon National Recreation Area and Natural Bridges National Monument, which recognizes the area‘s outstanding natural beauty as well as its historic, cultural and recreational importance.

The crown jewel of this wilderness is the expansive Mancos Mesa, which is dissected east to west by the 20-mile long Moqui Canyon. Mancos Mesa‘s 180-square mile mesa top, bounded on every side by 1,000- to 1,500-foot-high cliffs, is the largest isolated slickrock mesa in southern Utah. Navajo Sandstone dominates the westward-sloping mesa, with elevations ranging from nearly 7,000 feet to 4,500 feet. Expanses of slickrock domes in shades of vermillion intermingle with sand dunes vegetated with ancient juniper trees, sagebrush, Mormon tea, and Indian ricegrass. Cottonwood trees and riparian vegetation can be found tucked away in canyons, fed by natural seeps and springs. Highly eroded and multi-hued badlands found beneath the rim complete the diversity of this outstanding wilderness. The Redrock Plateau and Copper Point proposed wilderness units also shelters extensive archaeological remains spanning thousands of years of prehistory and several different cultures. BLM has confirmed that this area has wilderness characteristics.

WahWah Mountains (North, Central and South) proposed wilderness units: The WahWah Mountains provide beautiful views of rugged mountain topography. There are spectacular scenic vistas in all directions from the higher elevations. Vegetation types transition from cold desert vegetation to ponderosa pine forests. This varied vegetation provides habitat for pronghorn antelope, mule deer, a variety of birds, small mammals, and reptiles. The North WahWah Mountains proposed wilderness unit extends the outstanding opportunities for solitude and

primitive recreation found within the contiguous WahWah Mountains Wilderness Study Area (WSA). The WSA's values include Crystal Peak, a mountain of white volcanic tuff visible for 50 miles; bristlecone pine, which grows in the higher portions of the WSA; and endangered, threatened, or candidate animal species. BLM has confirmed that much of this area has wilderness characteristics.

Snake Valley proposed wilderness unit: The Utah Wilderness Coalition Snake Valley proposed wilderness unit is located north of Utah State Highway 50, in far-western Utah, and is entirely within Millard County and adjacent to the community of Gandy. Great Basin National Park is roughly 20 miles from this proposed wilderness unit and can easily be viewed from within the unit. This proposed wilderness unit and the larger Snake Valley are unique and diverse, and are one of the last wild basin valleys within the "Basin and Range" topography in the state of Utah.

Particularly striking natural features of this remarkable landscape include vast expanses of desert washes and vegetation, a large lake in wetter periods and a shimmering white playa flat in drier times, expanses of large vegetated dunes and dune systems, and an exceptionally rare and productive wetland and marsh area that is dotted by several large ponds. These marsh and wetland areas are highly unique and provide visual contrast within this desert basin; they are rare ecosystems in western Utah. Foote Spring and Twin Springs feed the stream that flows through these marshes and the wetland area. Not only are these wetlands extremely beautiful in this desert area of the basin and range landscape, they also provide crucial habitat for many Utah state sensitive species, including the least chub and spotted frog.

- <u>BLM-identified lands with wilderness characteristics not managed to protect those characteristics;</u>
- <u>Potential Areas of Critical Environmental Concern (ACECs):</u> these areas were found to meet the relevance and importance criteria in recent Resource Management Plan revisions but were not designated or only had portions of the full area meeting the relevance and importance criteria designated;
    - Moab Field Office: Bookcliffs Wildlife Area – 5 acres;
    - Richfield Field Office: 5 areas totaling 20,228 acres;
        - Badlands: 1,692 acres
        - Dirty Devil/North Wash: 606 acres
        - Kingston Canyon: 94 acres
        - Lower Muddy Creek: 31 acres
        - Henry Mountains: 17,804 acres

            Henry Mountains Scenic and Wildlife Potential ACEC: The Richfield ARMP and ROD acknowledged that the Henry Mountains Scenic and Wildlife Potential ACEC offers several relevant and important values, including: scenic, wildlife, special status species, and ecological

values. In deciding not the designate this area as an ACEC, the Richfield ARMP and ROD states that these values will be protected through other means such as VRM II, limiting ORV use to designated trails, wildlife protective stipulations, and Special Recreation Management Area designations. In several instances BLM relies on implementation plans to provide additional, specific protection measures, however those plans have yet to be written or even initiated. Thus we urge BLM to defer making lands within this potential ACEC available for solar applications until these additional planning efforts have been completed to ensure that these resources are given the full protections envisioned by the ROD.

- Wild and Scenic River segments: These segments were determined eligible for Wild and Scenic River status by the Monticello field office but were not carried forward for a suitability determination.
    - Monticello Field Office:
        - White Canyon: 3170ft. BLM's Monticello field office identified White Canyon as eligible for designation under the Wild and Scenic Rivers Act as a "scenic" river, citing it's scenic and recreation 'outstandingly remarkable values.'
        - Lime Creek: 4363 ft. BLM's Monticello field office identified Lime Creek as eligible for designation under the Wild and Scenic Rivers Act as a "scenic" river, citing its cultural and recreation 'outstandingly remarkable values.'
        - Comb Wash: 1077 ft. BLM's Monticello field office identified Comb Wash as eligible for designation under the Wild and Scenic Rivers Act as a "recreational" river, citing its cultural 'outstandingly remarkable values.'
- Greater sage-grouse habitat: the Supplement states that "To meet the objectives of BLM's sage-grouse conservation policy, the Solar PEIS has excluded specifically identified sage-grouse habitat (currently occupied, brooding, and winter habitat) located on BLM public lands in Nevada and Utah". (Supplement at p. 2-18). We appreciate that BLM has added this important exclusion area to protect the Greater sage-grouse. However, the lands proposed to be open for variance applications in the Supplement include substantial acreage of Greater sage-grouse habitat, which should be excluded from development. Specifically, remaining occupied habitat and 75% and 100% breeding densities should all be excluded in Utah given the small number of birds in the state. Acres of overlap with Greater sage-grouse habitat proposed to be open for variance applications in the Supplement are:
    - Occupied habitat: 9,141 acres[3]
    - 75% breeding density: 9,682 acres[4]

[3] Data source: Utah Division of Wildlife Resources, available at: http://dwrcdc.nr.utah.gov/ucdc/downloadgis/Data/Habitat/Birds/GreaterSG2011.zip

- 100% breeding density: 61,600 acres
- Additional wildlife analyses the BLM should use to determine areas open for variance applications: we have attached additional wildlife analyses completed by Wild Utah Project that BLM should use in determining areas open for variance applications and required design features for project applications in sensitive wildlife habitat areas. *See* Attachment 3.

II. Changes to SEZs and SEZ action plans.

In addition to the specific recommendations relating to the Utah SEZs below, we recommend that the BLM include in the Final PEIS a chart for the SEZ that identifies not only the additional data that is needed but who is responsible for compiling the data and completing each item listed, as well as a timetable for completion of the individual tasks.

Escalante Valley SEZ

We are generally supportive of the proposed action plan for the Escalante Valley SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adopted in the Supplement are discussed below.[5] **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Escalante Valley SEZ as a SEZ in the Final PEIS.**

- Minimizing impacts to Special Status Species: We appreciate the BLM identifying a non-development area in the southwest corner of the SEZ to avoid impacts to the dry lakebed there. We also support the pre-disturbance surveys identified in the Supplement. Where Special Status Species habitat is found, the Final PEIS should include measures to avoid, minimize and mitigate impacts.
- Minimizing impacts related to vegetation removal, soil disturbance and dust: We support the habitat and vegetation mapping efforts identified in the Supplement, and recommend that additional specific design features be included in the Final PEIS to minimize impacts.
- Ecological reference area: As stated in our April 18, 2011 comments on the Draft PEIS, we recommend that BLM identify a 1,000 hectare ecological reference area as part of the SEZ to provide a control area for researching impacts of utility-scale solar development and inform future efforts to minimize and mitigate impacts.

Milford Flats South SEZ

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[4] Data source for 75% and 100% breeding densities: Doherty, K. E., J. D. Tack, J. S. Evans, D. E. Naugle. 2010b. Mapping Breeding Densities of Greater Sage-grouse: A Tool for Range-wide Conservation Planning. Prepared for Bureau of Land Management. BLM Completion Report: Inter Agency Agreement #L10PG00911. (Sep. 24, 2010).

[5] Detailed rationales for all SEZ-related recommendations were included in our April 18, 2011 comment letter on the Draft PEIS, and are incorporated here by reference.

We are generally supportive of the proposed action plan for the Milford Flats South SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adopted in the Supplement are discussed below. **Provided that BLM completes the proposed action plan prior to development and addresses the recommendations below, we support designation of the proposed Milford Flats South SEZ as a SEZ in the Final PEIS.**

- Minimizing impacts to Special Status Species: We appreciate the BLM identifying a non-development area composing the Minersville Canal, which will avoid impacts to species with habitat along the canal. We also support the pre-disturbance surveys identified in the Supplement, as well as the proposed mapping of playa habitat, woodland habitat, and rocky cliffs and outcrops, which are all habitat types that may contain Special Status Species. Given the potential for Special Status Species habitat within these habitat types, these areas should be avoided. Where Special Status Species habitat is found, the Final PEIS should include measures to avoid, minimize and mitigate impacts.
- Minimizing impacts related to vegetation removal, soil disturbance and dust: We support the habitat and vegetation mapping efforts identified in the Supplement, and recommend that additional specific design features be included in the Final PEIS to minimize impacts.
- Ecological reference area: As stated in our April 18, 2011 comments on the Draft PEIS, we recommend that BLM identify a 1,000 hectare ecological reference area as part of the SEZ to provide a control area for researching impacts of utility-scale solar development and inform future efforts to minimize and mitigate impacts.

WahWah Valley SEZ

As detailed in our April 18, 2011 comments on the Draft PEIS, the remote nature of the WahWah Valley SEZ and the lack of an underlying Resource Management Plan (RMP) for the area make it the least appropriate of the proposed Utah SEZs. **For these reasons, we recommend that the BLM prioritize the designation of the Milford Flats South and Escalante Valley SEZs and de-prioritize the designation of the WahWah Valley SEZ until an RMP is completed for the area.**

Though we recommend that this SEZ be de-prioritized until completion of an RMP for the area, we are generally supportive of the proposed action plan for the WahWah Valley SEZ. The proposed mapping and survey efforts will be particularly important for supporting responsible development within the SEZ. Key recommendations from our comments on the Draft PEIS that were not adopted in the Supplement are discussed below.

- Minimizing impacts to Special Status Species: We appreciate the BLM identifying a non-development area along WahWah Wash, which will avoid impacts to species with habitat along the wash. We also support the pre-disturbance surveys identified in the Supplement, as well as the proposed

mapping of dry wash, playa, and greasewood flat habitats, which are all habitat types that may contain Special Status Species. Where Special Status Species habitat is found, the Final PEIS should include measures to avoid, minimize and mitigate impacts.

- Ecological reference area: As stated in our April 18, 2011 comments on the Draft PEIS, we recommend that BLM identify a 1,000 hectare ecological reference area as part of the SEZ to provide a control area for researching impacts of utility-scale solar development and inform future efforts to minimize and mitigate impacts.

III. Cumulative impacts analysis.

The Supplement states that the cumulative impacts analyses included in the Draft PEIS are currently being updated based on changes in the Supplement, and that updated analyses will be included in the Final PEIS. In order to fully support designation of the SEZs in Utah, the BLM should ensure completion of robust cumulative impacts analyses and include them in the Final PEIS.

IV. The BLM should provide a 60 day public comment period on the Final PEIS.

There will be a significant amount of new information in the Final PEIS, including updated SEZ-specific design features, SEZ action plans, cumulative impacts analysis and monitoring and adaptive management protocols. For this reason, the BLM should provide a 60 day public comment period on the Final PEIS. While we continue to encourage the BLM to complete the PEIS in a thorough and timely manner, it is very important that the public be given the opportunity to provide meaningful input on this new information in order to satisfy the requirements of the National Environmental Policy Act. Further, this comment period should not substantially delay the timeline for completion of the PEIS, because BLM's regulations obligate the BLM to provide a 30-day protest period and a concurrent 60-day governor consistency review of land use plan amendments. 40 C.F.R. §§ 1610.5-2; 1610.5-3.The proposed 60-day public comment period will run during these same timeframes.

Conclusion

We thank DOI and the BLM for proposing an approach to solar energy development on public lands in Utah that will focus appropriate large-scale solar energy development needed to help alleviate the effects of climate change in low-conflict zones. This approach will help ensure that the natural and cultural resources of Utah are protected for future generations. We look forward to working with the BLM as the agency finalizes the PEIS over the coming months.

Thank you for your thorough consideration of these comments.

Sincerely,

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Attachments

- Attachment 1 - Overlap of BLM proposed variance application areas and Citizens' Proposed Wilderness units
- Attachment 2: GIS data for Citizens' Proposed Wilderness units
- Attachment 3: Wild Utah Project wildlife habitat analysis and recommendations

Thank you for your comment, Erin Lieberman.

The comment tracking number that has been assigned to your comment is SEDDsupp20135.

Comment Date: January 27, 2012 15:52:57PM
Supplement to the Draft Solar PEIS
Comment ID: SEDDsupp20135

First Name: Erin
Middle Initial:
Last Name: Lieberman
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City: Washington
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Zip: 20036
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: 012712_DoW_Solar_Comments.xlsx.xlsx

Comment Submitted:

Friday, January 27, 2012

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

To Whom It May Concern:

Please find attached more than 35,000 comments from Defenders of Wildlife supporters regarding the Bureau of Land Management and Department of Energy's Supplement to the Draft Solar Programmatic Environmental Impact Statement (BLM/DES 11–49, DOE/EIS–0403D–S). Many of these individuals signed on to a version of the text below, however some chose to personalize their comments.

As a supporter of Defenders of Wildlife and someone who wishes to make solar energy development in the U.S. "smart from the start," I encourage you to strengthen protections for wildlife and natural resources in the Draft Solar PEIS.

First, I commend you for putting a stronger emphasis on solar energy zones--areas identified with few if any wildlife and natural resource conflicts. I encourage you to ensure that projects located in solar energy zones will be prioritized for development.

Although the Bureau of Land Management did the right thing by removing some highly sensitive areas from further consideration as zones (the Pisgah and Iron Mountain Zones in California), the agency has left open the possibility that solar development on some of these lands might still occur through the "variance process."

But variances should be extremely limited so that they are only used in rare instances where the conservation benefits are clear and can be documented. Variances should be the exception, not the rule.

To protect imperiled species like desert tortoises and bighorn sheep, the agency should exclude areas that have already been deemed unsuitable because of likely wildlife and resource conflicts.

America's degraded lands, like brownfields and old mining sites are not now included in most solar zones. They should be. Such areas are appropriate additional lands that should be available for development.

By developing degraded areas such as these -- rather than more sensitive and ecologically rich sites -- we can preserve important wildlife habitat and protect valuable natural resources.

America is transitioning from a society reliant on fossil fuels to one built on clean, renewable energy. But to make sure this is truly widllife-friendly energy development, we must make sure the process is smart from the start by:

1. Supporting solar development in designated solar energy zones--areas where conflicts with wildlife and other important natural resources can be avoided or minimized;
2. Limiting variances for projects outside of zones. Make them the exception, not the rule; and
3. Requiring developers to avoid, minimize and effectively mitigate any unavoidable effects on wildlife by promoting "wildlife-friendly" solar development.

I believe the changes listed above will greatly enhance your proposal and better protect America's rich natural heritage. Thank you for considering my comments.

Please accept these individuals' comments with regard to the U.S. Fish and Wildlife Service's proposed plan and our thanks for your agency's collaboration in ensuring that the voices of these concerned citizens are heard.

Sincerely,

Jim Lyons
Senior Director, Renewable Energy
Defenders of Wildlife
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Email: jlyons@defenders.org