Arizona Solar Working Group Comments
On the Draft EIS for the Restoration Design Energy Project
May 16, 2012

Delivered via electronic mail (az_arra_rdep@blm.gov)

BLM-Arizona State Office
Kathy Pedrick
Attn: Restoration Design Energy Project
One North Central Avenue, Suite 800
Phoenix, AZ 85004-4427

Dear Ms. Pedrick:

The Arizona Solar Working Group (ASWG) is pleased to offer these comments in response to the Draft Environmental Impact Statement (DEIS) for the Restoration Design Energy Project (RDEP). ASWG is a working group comprised of representatives for the solar energy industry, the electricity utility sector, and the environmental community dedicated to promoting areas in Arizona suitable for environmentally responsible solar development. It is our hope that the diversity of this group and the consensus-based comments we offer will provide a valuable perspective to BLM's Arizona Office.

This group has met numerous times since October 2011 to discuss and agree on key elements of a successful solar development program on BLM lands, with a primary focus on the RDEP. While we understand that RDEP is evaluating areas with both wind and solar potential in Arizona, our comments are focused on solar development.

The members of ASWG are supportive of the RDEP's intent to "identify lands across Arizona that may be suitable for renewable energy development and to establish a baseline set of environmental protection measures for such projects." We believe that the RDEP has the potential to complement the BLM Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Solar PEIS) and its zone- and incentive-based approach to solar development on BLM lands. In screening another category of BLM lands suitable for solar development (i.e., Renewable Energy Development Areas), the RDEP also has the potential to help implement the Solar PEIS' variance process. Unfortunately, members of the ASWG discovered inaccuracies in the dataset that BLM released to the public with the RDEP DEIS. These errors resulted in our being unable to accurately overlay various species data from AZGFD, or to accurately analyze and comment on the DEIS. The comments below assume BLM will remedy the inaccuracies in the Final EIS to ensure the data provided are consistent with the stated objectives of the RDEP.

We also wish to commend the BLM for its outreach efforts in developing the RDEP. Agency staff has met with a broad range of stakeholders to solicit their input on conducting a statewide assessment to identify low-conflict lands suitable for renewable energy development. In particular, we want to acknowledge the BLM's leadership in extending this assessment to other

federal, state, and private lands, generating valuable information that may facilitate solar development on other suitable lands not managed by the BLM. This approach may serve as a model for future statewide assessments and could also help identify new Solar Energy Zones.

Finally, as noted in the DEIS, the RDEP will help meet the growing demand in the western U.S. for clean, safe, and reliable sources of energy while limiting environmental impacts. A number of federal and state initiatives are underway to promote renewable energy development, and the RDEP will play an important role in advancing these. By focusing on disturbed lands and areas with lower natural and cultural resource values, RDEP will also facilitate development with fewer impacts.

The comments provided herein reflect areas where members of ASWG were able to reach consensus. Some members of ASWG are also submitting comments individually or in concert with other organizations; all members of ASWG have agreed to this approach.

1. Screening Process

a. Overall Integrity of Screening Process

The BLM has taken a far-sighted and promising approach to identifying areas with known sensitive resources in order to eliminate these lands from consideration as Renewable Energy Development Areas (REDAs). This screening process resulted in a set of lands that comprise the maximum acreage to be considered as REDAs (RDEP's *Alternative 1, Maximum REDA*). These lands were then further evaluated, applying additional considerations—proximity to load centers and transmission, impact on sensitive watersheds, and land tenure adjustments—that formed the basis for a range of alternatives under the DEIS.

To assess the integrity of the screening process, ASWG commissioned a study of the largest proposed REDA, located in Mohave County. The study included a site visit and interviews with local land managers, county officials, energy developers, and other interested parties to determine whether there were any serious concerns about the designation of this REDA. The study found that approximately 30,000 acres within the proposed REDA was largely compatible with large-scale renewable energy development and includes few conflicts with ecological resources or significant public concern. The following were issues that were discovered, none of which are significant enough to raise alarm about the possible development of the Mohave REDA.

- Previous Applications: The proposed BP Wind Energy project covers a significant amount of the Mohave REDA, raising questions about how proposed REDAs align with existing applications.

- Wildlife Connectivity: The Mohave REDA is traversed by the large Detrital Wash which may provide connectivity for key wildlife species including pronghorn antelope. RDEP's design features and best management practices should ensure continued access for wildlife through the site to limit habitat fragmentation.

- Proximity to Road to Lake Mead National Recreation Area: The National Park Service has expressed concerns about the proximity of this site to Temple Bar Road and the entrance to the recreation area.

Recommendation: In general, the evaluation of the Mohave REDA demonstrates that the screening criteria used to identify suitable REDA lands can work effectively, limiting known conflicts with environmental resources. The following measures should be considered which may further limit impacts to ecologically significant features:

- Screening Process: The screening process should be updated and implemented on a regular basis, utilizing the best available science and most recent data (such as data from WECC's Environmental Data Task Force and Arizona Game and Fish Department's Statewide Wildlife Action Plan and Wildlife Linkage modeling data). Many of the screens are based on data that is constantly being updated and refined. RDEP should update its screening process and evaluations of REDAs every five years, at a minimum.

- Mitigation: Although it appears that REDA lands are relatively unencumbered by significant environmental conflicts, mitigation measures should be considered to address impacts to natural resources and public values.

b. Changes to the Screening Process

AZSWG recommends the following adjustments to the screening criteria to improve selection of lands as REDAs:

- Airports (0.25 mile buffer) – These should be removed as a screen. As demonstrated at various airports and military airfields and bases, solar generation can be compatible in or near airports or flight facilities. A recent report by the US Department of Agriculture evaluating the potential for alternative energy production at airports notes that "with careful planning, locating alternative energy projects at airports could help mitigate many of the challenges currently facing policy makers, developers, and conservationists" (DeVault et al. 2012).

- Incorporated Cities – These should be removed as a screen. Cities and towns in Arizona are considering establishing Renewable Energy Incentive Districts and other zoning designations that encourage solar at various scales within their jurisdictions. This screen is not consistent with such efforts.

- Arizona Game and Fish Department (AZGFD) Crucial Habitat, Big Game data layers, and Special Status Species, Including T&E Species Locations – We were unable to access or review these data layers until 5/2/12 and therefore we are not commenting on the specific application of this data layer in this letter. However, we agree that AZGFD Crucial Habitat is an important screen that should be used to identify REDAs.

- Special Status Species, Including Threatened and Endangered Species Locations – While we commend the BLM for attempting to screen out special status species habitat from further consideration as REDAs, it is clear from our preliminary review of spatial data obtained on 05/02/12 from AZGFD that there is significant overlap between proposed REDAs of the various DEIS alternatives and AZGFD predicted distributions for the Sonoran desert tortoise and other special status species. We recommend BLM revisit AZGFD predicted distributions for all special status species, consult with the AZGFD and USFWS, and identify all moderate to high quality habitats for special status species that should be screened, so as to avoid inclusion of lands in REDAs containing such conflicts.

- FEMA 100-year Floodplains – In the state of Arizona, a number of human-made structures have been developed to collect and channel floodwaters away from vulnerable infrastructure and facilities. In many instances, these installations create floodplains that may be perfect for the development of some renewable energy facilities. Therefore, ASWG recommends that floodplains be removed as a screen, recognizing the likelihood that many of these areas may be good candidates for solar development. In other circumstances, however, there are natural floodplains that retain critical ecological value that should not be developed. Such areas may include ephemeral washes, xeroriparian areas, seasonally dry rivers, wetlands, agricultural ponds, and a variety of other mapped floodplains that retain valuable resources that preserve the viability of wildlife in the arid Arizona climate. Thus, we encourage the BLM to take special care when evaluating project-specific sites within and around 100-year floodplains to ensure that impacts to critical resources are limited.

- Areas of Known Mineral Deposits – These should be removed as a screen. Mining and solar or wind generation are not inherently incompatible activities and, in certain instances, could be co-located.

- Slope – Slope is a technical criterion or constraint. It should be listed separately from other screening criteria. The 5% slope criterion is a rough rule of thumb for identifying ideal lands for solar development, but it should not be used as the sole determining factor as to the suitability of a parcel of land for solar development. With this in mind, we agree that there should be some flexibility to develop on lands with greater than 5% slope in limited circumstances and on an individual project basis. For example if a proposed project is located up to 33% outside of a REDA on lands with greater than 5% slope but that otherwise meet RDEP's screening criteria, then this project should be treated as a REDA project. Implementation of this proposal should be consistent with the recommendations outlined in the January 27, 2012, "Joint Comments on the Supplemental Draft PEIS for Solar Development" submitted by the 21 parties that comprised the California Desert Renewable Energy Working Group.

c. Access to Screening Data

At its core, RDEP is a statewide mapping effort that identifies lands across Arizona that may be suitable for renewable energy development. As noted in the draft EIS, a key component of the RDEP process is emphasizing the reuse of previously disturbed or developed lands and other areas with low resource sensitivity (DEIS, pages 1-11). To determine the amount, location and spatial arrangement of REDAs, the BLM relied on a variety of data screens. ASWG seeks to have a clear understanding of the potential impacts to Arizona's wildlife communities from RDEP's "nominated sites," proposed REDAs, and Agua Caliente SEZ.

The screening process employed in the Draft EIS seems to have generally selected appropriate screens to identify areas of low resource sensitivity for solar development. Broad public support for, and understanding of, RDEP's screening process depends on process transparency and access to the GIS data layers used. Although BLM made available some of the data layers used on the DEIS website, that information did not include the data layers provided by the AZGFD.

Without the needed information, we are left with a very general understanding of the way in which BLM applied the wildlife-related screens, including AZGFD's Species and Habitat Conservation Guide (SHCG). The narrative provided for the application of the AZGFD's SHCG is very general (DEIS, pages 4-42 and 4-46), and does not provide sufficient detail as to how other screens, such as those related to big game were developed, selected (or rejected) and applied.

The AZGFD's SHCG model and BLM's Special Status Species layer are both composite datasets that comprise data from many species of conservation concern. While we support the use of these screens, their synthetic nature does not provide the public the ability to understand the potential impacts of the various alternatives upon specific species of conservation concern. In addition, it is our understanding that the SHCG predicts species diversity only. Thus, we are concerned that using only the top three tiers (with moderate to high diversity only) as a screen may overlook some important moderate to high quality habitats for individual species of conservation concern that should be screened out.

For instance, it is our understanding that data submitted to the BLM by AZGFD for American pronghorn (*Antilocapra americana*) habitat were not utilized by BLM as a screen for the RDEP DEIS. This fact was confirmed in meetings with the BLM, and is also confirmed by the absence of pronghorn in the "Important Big Game Habitat" composite data layer used as a screen (DEIS, Figure 3-8). This omission is particularly problematic given the well-documented sensitivity pronghorn have to development and human disturbance, which is acknowledged in the Affected Environment section: "Today, due to loss of habitat from housing development, fragmentation by highways, and other land use changes, populations have declined and are maintained by relocation programs" (DEIS, page 3-38). Given the high probability of conflict between solar development and this flat-land dwelling species, we are concerned with this omission and the lack of an explanation or justification in the DEIS. Because we did not have access to the pronghorn data, ASWG conducted a spatial analysis on the coincidence between RDEP Alternative 6 proposed REDAs and The Nature Conservancy's Statewide Grassland Inventory,

and found that there are 31,105 acres of "Class A" (native grassland with low shrub invasion) contained within the preferred Alternative 6's proposed REDAs.[1]

Recommendations: We realize that some of the data layers used as screens to develop alternatives in the DEIS were provided by cooperating agencies and some of the data may include sensitive information, including the location of cultural resources, threatened and endangered species occurrences, and proprietary transmission line data. However, to the extent feasible, ASWG believes that all non-sensitive data used in RDEP alternative development should be made easily available for public review and analysis. Where sensitive information is involved, the BLM and cooperating agencies should work together with the public to provide additional information and/or analysis, so the public has a complete understanding of the rationale used by the agency. Our specific recommendations include:

1. For **non-sensitive data**, all GIS data layers used as screens in RDEP should be accessible for download directly from the BLM's RDEP Web page, or from that of the cooperating agency, and should be available as Google Earth (.kml or .kmz) files in addition to standard GIS formats. These data should include detailed metadata and attributes.[2] Metadata for mapped wildlife habitats, predictive habitat models and composite outputs that have been used as screens should include reference to the methodologies employed for mapping and model development, and include a description of how they were applied as a screen in RDEP. Statistics and maps elucidating how wildlife-related screens characterize the proposed REDAs, nominated sites and Agua Caliente Solar Energy Zone should be made available.

2. For **sensitive data**, the BLM should explain why this information is unavailable and provide a means for the public to request either the data layers or specific data analyses.

3. The BLM should incorporate AZGFD spatial data for pronghorn in its analysis to identify key moderate to high quality habitat networks and migratory corridors for pronghorn. These areas should be screened out from consideration as REDAs, so as to avoid contributing to habitat loss, fragmentation, population isolation and associated population declines. In addition to utilizing AZGFD data, the BLM should consider evaluating the class A and class A & D grasslands from The Nature Conservancy's grassland inventory as possible screens for REDAs, in order to avoid directing development to important habitats for pronghorn and other grassland obligates.

2. Incentives

While the DEIS does not specify any incentives that will accrue to developers of renewable energy projects within REDAs, it leaves open the opportunity for commenters to suggest them.

---

[1] Information and data available online at: http://azconservation.org/projects/grasslands and http://azconservation.org/downloads/grasslands_assessment_gis_data

[2] An example of appropriately detailed metadata and attributes is the data layer for BLM lands with wilderness characteristics managed to protect them which is available for download on the Draft EIS website. This data layer includes a good description in the metadata, and includes attributes with unit name, BLM field office, and allocation.

We also note that the RDEP process has built-in incentives for developers to site projects in REDAs: the amendment of Land Use Plans to designate REDAs as priority areas for solar development, and the ability to tier environmental analysis to the analysis in the RDEP EIS. In general, we see incentives as being a) directly economic in nature or b) more indirect processing incentives. Recognizing that Arizona BLM wants to encourage developers to site their projects within REDA boundaries, ASWG proposes the following incentives.

a. Processing Incentives

Our assumption is that faster, more efficient permitting will come with locating a project in a REDA, given that these areas have already been screened and determined to be "low conflict" areas.

Recommendations: We encourage Arizona BLM to make clear its expectation of a more efficient permitting process for applications in REDAs. In addition, we suggest that projects in REDAs that have been screened for economic and technical viability (consistent with BLM Instruction Memoranda IM 2011-060) automatically qualify for the "Priority Projects" list or other priority processing scheme that BLM institutes, and are otherwise processed before non-REDA applications. Finally, establishing a comprehensive mitigation program for developers to take part in would benefit both developers and Arizona BLM. The goals of such a program should be to reduce costs and simplify and improve the mitigation process for future projects. Developers should know in advance what mitigation measures may be and have a list of options to comply.

b. Economic Incentives

To make the REDAs more attractive to developers, we propose these economic incentives. Many of these proposals mimic the current policies for utility-scale (greater than 20 MW) solar projects, as spelled out in several 2011 IMs. These economic incentives should accrue to any project in a REDA, regardless of its size.

Recommendations: A long-term lease is of great importance to solar developers, as the ROW term needs to match the duration of the power purchase agreement signed with the utility customer plus the project's construction time. Therefore, we request a minimum ROW term of 30 years, with the opportunity to renew. In addition, we suggest that ROW grants have a flexible duration, such that the applicant could choose an initial ROW grant of more than 30 years, if so desired. In addition, lower rental fees will make development in REDAs a more attractive proposition. While ASWG was unable to agree upon specific recommendations for reduced rental rates, we do agree that applications in REDAs should receive some kind of reduced rental rate, so long as the rate still provides fair market value for the use of public lands.

3. Preferred Alternative #6

a. Integration of Alternative #2 Considerations (Proximity to Existing and Approved Transmission Lines and Designated Utility Corridors)

i. Transmission Line Voltage Class Considerations

Because power lines at voltages below 230 kV are much more ubiquitous throughout Arizona, proposed solar projects can be located nearer to lower voltage distribution and sub-transmission systems. The energy output of projects in the range of 10-100 MW can be accommodated on power lines at voltages much lower than 230 kV. In Arizona, typical voltages for different classes of power delivery are:

- Distribution level: 12.47 kV, 20.8 kV
- Sub-transmission level: 34.5 kV, 46 kV, and 69 kV
- High Voltage Transmission: 115 kV, 138 kV, 230 kV
- Extra High Voltage Transmission: 345 kV and 500 kV

The amount of interconnection capacity and typical lengths of power lines in each class increases with voltage, as shown in the table below. Power lines in the 46 kV voltage class in particular are often located in rural/remote areas of Arizona, which tend to coincide with many proposed REDAs, both on BLM and non-BLM-administered lands, making them ideal for renewable energy delivery to rural load centers. Similarly, 115 kV sub-transmission lines, which are capable of carrying the output of up to a 100-150 MW power plant tend to be located in both rural and surrounding metropolitan areas, making them ideal for delivery to both rural and urban load centers.

12 kV – 20.8 kV	1 - 10 MW	1 – 3 miles
34.5 kV – 46 kV	10 – 50 MW	3 – 10 miles
69 kV	50 – 100 MW	5 – 20 miles
115 kV / 138 kV	100 – 250 MW	20 – 40 miles
230 kV	250 – 500 MW	20 – 60 miles
345 kV / 500 kV	500 – 1,200 MW	50 – 100+ miles

The reason for variation, or ranges, of interconnection capacity in the above table, relates to variability in the design configurations of the power lines considered here. In essence, not all power lines of a given voltage class are "created equal." The interconnection capacity considered in this table contemplates a typical amount of power that may be added to an existing line. However, factors such as the "youth" or age and saturation of a line, the design ampacity (capacity for power flow), the configuration of a line that may comprise multiple (bundled) conductors, and other factors affecting the power flow capacity of any given line will vary.

Recommendation: Given this insight regarding solar project viability at multiple voltage classes, ASWG recommends that the Preferred Alternative be modified such that the voltage class restriction of 230 kV or higher be removed.

ii. Transmission Line Proximity Considerations

The considerations of Alternative #2 related to proximity to existing and approved transmission lines that have been incorporated into Alternative #6 would limit REDAs to only those lands that are within five miles of existing or planned lines of 230 kV or greater and/or within five miles of BLM-designated utility corridors. These considerations arose from the EIS scoping process and derive from a goal to reduce costs and enhance efficiency of renewable energy developments by placing them closer to transmission infrastructure, thereby reducing the need for lengthy generator intertie lines. Another premise behind this criterion is the assumption that shorter generator intertie lines ("gen-ties") would coincide with fewer impacts to sensitive lands than lengthier gen-ties.

ASWG was unable to come to consensus on specific proximity criteria, including those proposed by the BLM in the DEIS. Some believed that the possible length of gen-tie lines directly correlated to the likely environmental impact of linking generation projects to transmission lines. Others indicated that the possibility of system upgrades, instead of new gen-tie lines, can have greater environmental impacts. The group did agree that coming up with a programmatic criteria to address habitat fragmentation associated with linking generation projects to transmission lines is a worthy goal. In Appendix A to our comments, we offer differing perspectives and information from environmental organizations and industry groups to help illustrate the complexity of this issue.

ASWG feels that these criteria are important since they may well form the basis for similar determinations in other states and that BLM should base its determination of this criterion on specific and defensible considerations. Accordingly, we will convene a one-day workshop to consider what current science can tell us about the impact of power/transmission lines on wildlife and their habitat in Arizona, identify transmission planning scenarios as they relate to natural resource impacts, and attempt to develop a set of recommendations that can inform the BLM's consideration of proximity to existing and approved transmission lines in defining REDAs. We will attempt to schedule this workshop no later than mid-June, so that the BLM may consider the information from this convening during development of the Final EIS.

Recommendation: ASWG recommends that the BLM consider the concerns of ASWG as they relate to proximity to transmission and accept input from the June workshop referenced above.

iii. Proximity to BLM-designated Utility Corridors Considerations

For the reasons state above, ASWG was unable to reach agreement on specific proximity criteria related to BLM-designated Utility Corridors.

b. Integration of Alternative #3 Considerations (Proximity to Load Centers)

The considerations of Alternative #3 that are incorporated in Alternative #6 related to proximity to load centers would limit REDAs to only those lands that are within 10 miles of incorporated cities, five miles of CAP right-of-way corridors and irrigation pumping sites, and 20 miles of the Palo Verde Nuclear Power Plant and the Town of Gila Bend. These are consistent with the goal

of reducing disturbance and environmental impacts by placing renewable energy generation near the point of demand.

Promoting renewable energy generation within 10 miles of incorporated cities is appropriate as most urban-scale development will occur within incorporated cities, in order to take advantage of existing and planned infrastructure necessary to accommodate growth. Additionally, during periods of rapid growth, incorporated areas can expand exponentially to accommodate distant urban-density projects, which may push the growth to the outside of current city boundaries.

Inclusion of a 5-mile inclusion area along CAP is appropriate, as an acknowledgement of the disturbance that has already occurred due to the CAP and the potential demand from pumping stations to move water in the canal to Maricopa, Pinal, and Pima Counties. Some disturbed lands near CAP have potential for renewable energy development, but it should be noted that many of the more remote areas in where CAP is located, save for the canal's existence, are relatively undisturbed. The 5-mile screen in Alternative 3 is appropriate if the RDEP's focus is placed on previously disturbed lands and pumping stations along CAP for any potential renewable energy project. Examples of potentially sensitive areas to avoid include lands south of the Bill Williams River National Wildlife Refuge where the canal emerges from under the Bill Williams Mountains, the East Cactus Plain Wilderness Area located near Bouse, and some sections near the Harquahala Mountains.

c. Integration of Alternative #4 Considerations (Protection of Water Resources)

The considerations in Alternative #4 that are incorporated into Alternative #6 include zones with three levels of protection. The information that contributed to the development of these zones was provided by the Arizona Department of Water and the specific data was from the Water Resource Development Commission Final Report. Considering how critical water is in the arid lands throughout Arizona, the additional water resource protections provided in Alternative #4 and incorporated into Alternative #6 are appropriate and will help to mitigate some of the criticism regarding renewable energy development in the arid southwest, including the Sonoran and Mojave deserts.

Overall, we are supportive of the water resource protections in the DEIS as they give water resource a high level of protection, as appropriate in the arid Southwest. Specifically, we believe that any area that is mining groundwater or where groundwater pumping can negatively affect a critical waterway, such as the San Pedro River, or de-water springs or seeps that are critical for wildlife and also often have cultural significance, should be subject to the strictest water use requirements as provided in the provisions for Water Protection Zone 3. The 55 acre-feet per year *de-minimis* number represents the maximum capacity of an exempt well pumping at that level (35 gallons per minute) for 365 days. ASWG agrees that this type of limit is appropriate for these sensitive water areas.

Water Protection Zone 2 includes the BLM Priority Watersheds with the exception of the San Pedro Priority Watershed. These watersheds include Kanab Creek, Bill Williams River (local drainage), Big Sandy River, Santa Maria River, Hassayampa River, Agua Fria River, Upper Gila

River (San Carlos), Lower San Pedro River, and Lower Colorado River below Imperial Reservoir. This area also includes any U.S. Environmental Protection Agency (EPA) designated single source aquifers such as the upper Santa Cruz and Avra Basin. In these areas, where there is groundwater mining but it is not as severe, the technology will be a low or minimal water use technology.

Finally, in areas where there is no groundwater mining and priority watersheds or single source aquifers that are included in Water Protection Zone 1, ASWG believes that the standard design features as outlined in Appendix B apply, appropriately, with the understanding that all projects will be required to implement site-specific monitoring for impacts.

Recommendation: For Water Protection Zone 2, ASWG recommends that, where the DEIS refers to "dry cooling" as a generic term, it use instead "solar photovoltaic, solar thermal with dry cooling, or similar low-water use technologies" as technologies that are more appropriate for this zone.

d. *Integration of Alternative #5 Considerations (Land Exchanges)*

The considerations of Alternative #5 relating to land exchanges that have been incorporated into Alternative #6 are designed to facilitate protection of in-holdings and sensitive lands adjoining national monuments or national conservation areas. Federal land exchanges, however, have been a point of significant controversy over the years; frequently, private developers have ended up with more acreage than the public. The appraisals of raw land are rough, and their accuracy is questionable, so it has been possible for private developers to utilize the process to their advantage. The Government Accountability Office did a review of federal land exchanges in June 2000 and actually recommended that federal agencies not be allowed to exchange lands.

Currently, exchange of state trust lands is not allowed under the Arizona Constitution. Amendments to allow state trust land exchanges have been offered to Arizona voters seven times and each time those proposals have been rejected, most recently in November 2010. An eighth measure that gives limited authority for exchanges, but requires voter approval of individual exchanges, will go on the ballot in 2012. The prospects of its passage are uncertain at this time.

Within that context however, it appears that most of the 43,700 acres of lands that would be offered by BLM in an exchange pursuant to the DEIS are lands with limited controversy, and all are identified for disposal in individual RMPs. Most lands consist of smaller, more isolated parcels, which makes them more appropriate for this project and could facilitate protection of BLM lands that are within or adjacent to national monuments, conservation areas, and other critical conservation lands.

As noted in the DEIS, the BLM must make a public interest determination pursuant to FLPMA before any exchange can move forward. The BLM will prioritize "disposal" or an exchange or sale of these lands to an entity that offer lands of equivalent value in areas of conservation importance. Exchanges associated with project development would definitely require a NEPA analysis and depending on the controversy, could trigger an EIS requirement.

Recommendation: ASWG recommends that the EIS explicitly recognize the challenges with exchanges and seek to utilize them on a limited basis as they will add to the complexity and possible controversy of a proposed renewable energy development.

4. Proposed Agua Caliente SEZ

We commend the BLM for pursuing the designation of another SEZ, which many feel is key to accommodating utility-scale renewable energy development in Arizona. We support a zone-based approach to solar development on public lands because of the opportunities it affords for protecting natural and cultural resources and facilitating responsible development by guiding applications to low-conflict sites with excellent solar resources and proximity to existing infrastructure.

To assess the integrity of the proposed Agua Caliente SEZ, ASWG commissioned a study of the area. The study included a site visit and interviews with local land managers, county officials, energy developers, and other interested parties to determine whether there were any serious concerns about the designation of this SEZ. The study found that there are a variety of known issues of concern regarding the Agua Caliente SEZ that may indicate that the alternatives proposed in the EIS are not suitable for a variety of reasons. (A copy of the study is included as an appendix to these comments.)

Known Issues of Concern (KICs) are critical conflicts that are likely to have bearing on the viability of the site for renewable energy development. The following were documented in the study prepared for ASWG:

- **Different environmental assessments conducted for RDEP REDA lands and the Agua Caliente SEZ.** The RDEP process is an effort to identify disturbed or low-conflict lands or renewable energy development. Generally, REDA lands that have undergone RDEP screening process and identified in the DEIS fit this description. The proposed Agua Caliente SEZ did not go through this process and, as a result, does not—in its entirety—fit this description. While SEZs are not required to go through the RDEP screening process, application of these screens to proposed SEZs could further reduce the potential for conflicts should these SEZs be approved. We note three areas of conflict identified through our study:

    - **Overlap with the Palomas Plain Wildlife Habitat Area (WHA):** The Palomas Plain WHA is a critical area for the conservation of a variety of species and is considered to be the largest unfragmented section of Sonoran Desert habitat. Some species that rely on this area are endangered, threatened, or candidate species including the Sonoran Desert tortoise, the Sonoran Desert population of the bald eagle, cactus ferruginous pygmy-owl, and Sonoran Desert pronghorn, once released from their reintroduction site in the Kofa National Wildlife Refuge. Although the proposed SEZ overlaps only a small portion of this WHA, and there are no known instances of endangered, threatened, or candidate species in the

area, impacts on this WHA should be a factor in the adoption and development of the SEZ.

- **Conflict with the Hunting Community:** The greatest issue raised with regard to the Agua Caliente SEZ proposal by members of the public is the popularity and reliance on this area by hunters originating from the Yuma area. As documented by Arizona Game and Fish Department, there are a number of game species that have been documented in the proposed SEZ including dove, quail, mule deer, and mountain lion.

- **Lands with Wilderness Characteristics (LWC) and Citizen Proposed Wilderness (CPW) Areas:** When the Yuma Resource Management Plan (RMP) was being revised in 2005, Arizona Wilderness Coalition and other environmental groups provided the BLM with an inventory identifying lands with wilderness character, requesting that the agency manage the lands to protect those characteristics. The final RMP identified LWCs in the Palomas Mountains and Baragan Wash units. The BLM chose to manage a portion of the Palomas Mountains unit to maintain its wilderness characteristics, but the agency did not protect the remainder of the Palomas Mountains unit or any of the Baragan Wash unit. These BLM-recognized LWCs are also CPW units. While none of the Palomas Mountains LWC being managed to protect them overlap with the proposed SEZ, significant portions of both the Palomas Mountains and Baragan Wash LWCs not being managed to protect them are within some of the BLM-proposed alternative configurations for the proposed SEZ. This could result in significant conflicts should solar development be proposed in these areas.

Recommendation: As a result of thorough analysis and discussion, ASWG does not support any of the action alternatives with respect to the Agua Caliente SEZ. Too many significant issues exist with the configurations that are included in the Draft EIS and they are not supportable in their current configuration. ASWG offers the following alternative SEZ configurations involving two parcels:

- **Parcel of approximately 2,000 acres west of the southern portion of the White Wing Ranch solar development (Figure 1):** This parcel has seen severe impacts from users, making it suitable for large-scale development with few impacts on issues of environmental importance. The BLM should address public access to BLM lands north of this parcel if development is proposed here.

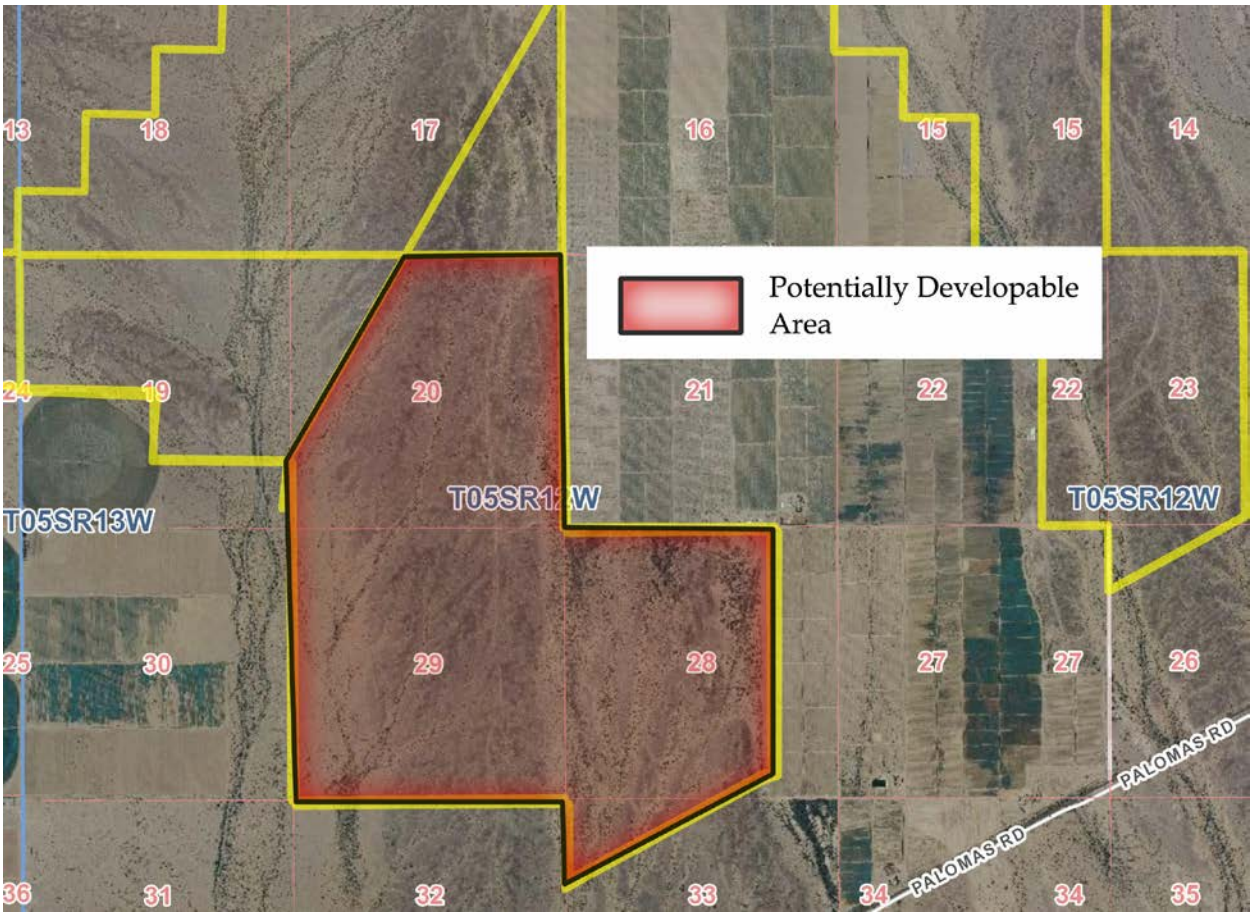


Figure 1: West parcel of BLM land that may be suitable for renewable energy development.

- **Parcel of approximately 8,000 acres on the east side of the proposed SEZ (Figure 2):** This site has potential for large-scale development as it avoids two of the three major issues that exist on other areas of the proposed Agua Caliente SEZ including Citizen Proposed Wilderness (CPW) lands and major conflicts with the hunting community. While there are ecologically sensitive areas including xeroriparian zones within this parcel, it is of sufficient size and scale to both accommodate renewable energy development and likely mitigation factors including the following:

    - **Washes:** The Desert washes including the large Baragan Wash should be preserved within a sizable corridor that can accommodate wildlife passage and protect existing ecological resources.

    - **Access:** Legally created roads and trails within and around this parcel that are not damaging to natural and cultural resources should be accommodated either in their current locations or in appropriate places to ensure continued access to these and proximate lands.

- **Wildlife:** Wildlife connectivity in both the east-west and north-south directions should be preserved under any development scenario to limit the negative effects of fragmentation of the Palomas Plain Wildlife Habitat Area.

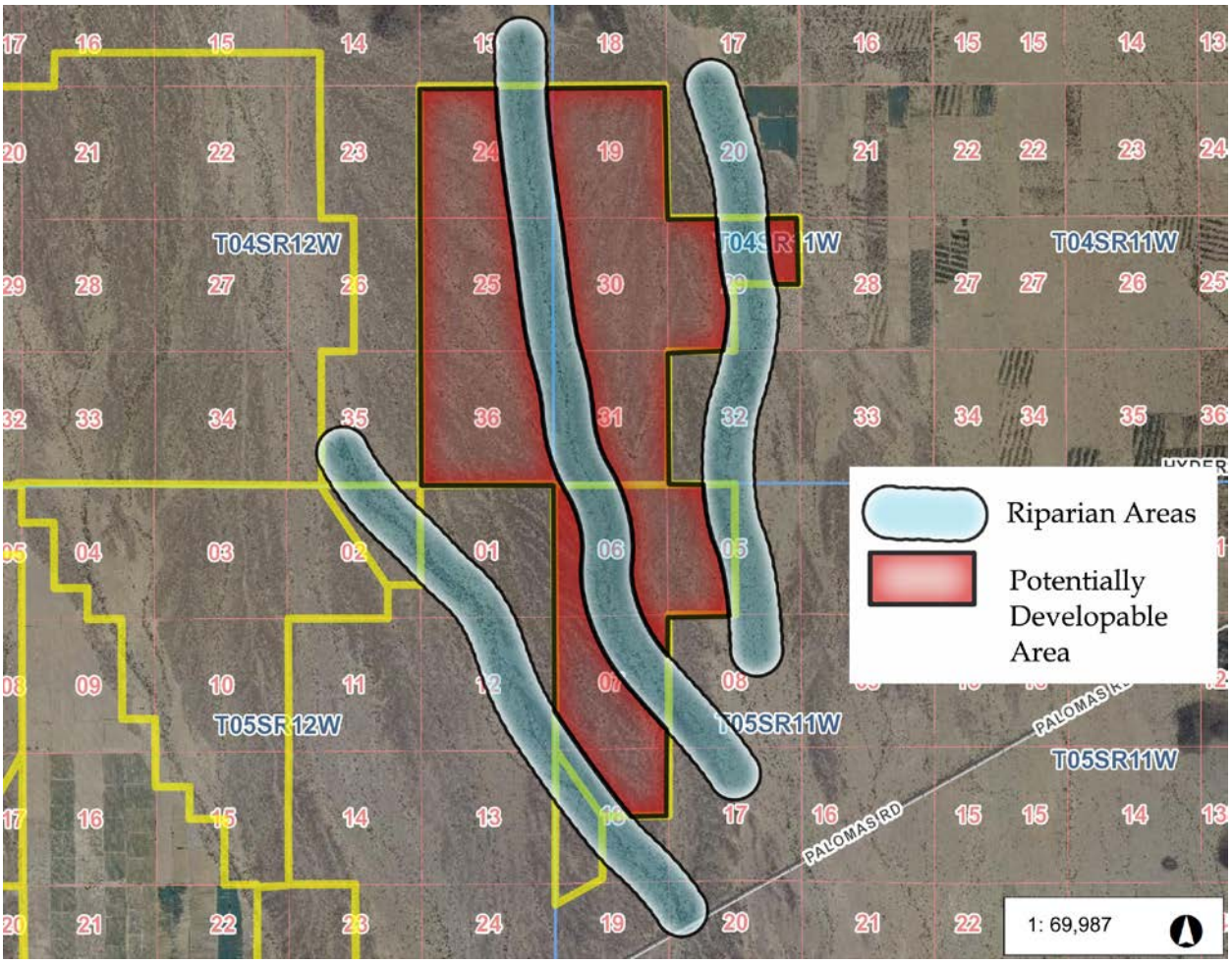


Figure 2: Land on the eastern edge of the proposed Agua Caliente SEZ that may be suitable for solar development. Mitigations measures would be necessary to minimize impacts to major riparian areas that traverse the site.

5. Proposals for Additional SEZs

Because there is significant development interest in public lands in Arizona and there are currently only two SEZs proposed for the state in the Solar PEIS, it is important that the BLM use RDEP's process to identify additional SEZs. There may be other REDAs that could be appropriate for SEZ designation, and the BLM should evaluate these opportunities. If the timeline for completing RDEP's process does not allow for consideration of additional potential SEZs beyond the proposed Agua Caliente SEZ, the BLM should prioritize timely review of

REDAs for potential SEZ designation through the new SEZ process, which the Solar PEIS will establish.

Recommendation: While most of the SEZ identification criteria listed in the DEIS are appropriate (DEIS, p. 2-19), as the BLM reviews REDAs for potential additional SEZ designations, we recommend the following changes to the criteria:

- *Proximity to existing solar development*: while proximity to existing development is a good indicator of development interest, this should not be a requirement for new SEZs; and

- *Disturbed lands*: while the presence of disturbed lands is certainly an important and appropriate factor to consider in identifying new SEZs, there may be undisturbed areas with low environmental values that could be suitable for SEZ designation; these areas should also be considered for SEZ designation if they meet the other criteria.

6. Reasonably Foreseeable Development Scenario

Appendix A of the DEIS, *Resource Potential and Reasonably Foreseeable Development Scenario Report*, makes a series of assumptions used to estimate that approximately 12,000 acres of BLM lands are needed to support BLM's share of the reasonably foreseeable amount of solar development in the state, enough to develop approximately 1.5 GW of solar on BLM lands.

Recommendation: ASWG proposes adjustments to two foundational assumptions, noted below, which would result in increases to the estimate of reasonably foreseeable potential solar development in Arizona and of the land (including BLM land) needed to support that development:

- *Estimated AZ Renewable Energy Output*: The DEIS proposes that due to a combination of the state's 15% Renewable Energy Standard (RES) and demand from states such as California, which will want to purchase generation from Arizona's abundance of solar resources, it should be assumed that twice the amount of renewables generation needed to meet the in-state RES is generated in Arizona in the foreseeable future. We consider it a reasonable assumption that within the next 20 years, Arizona will generate about 16,000 GWh of renewable power that will be exported to California and other states. The assumption regarding in-state renewables demand, however, is too low. We note that the DEIS leaves out several factors that are likely to boost demand significantly beyond what is required under the 15% RES, including:

    - The Salt River Project, a utility that serves approximately 40% of the state's electric load, is likely to purchase significant renewables. Although SRP is not currently obligated under the RES, its board of directors has committed to

purchasing about 8% of its retail sales from renewable energy by 2020, per its Sustainable Portfolio Principles adopted in 2011.[3]

- The US Army has set a goal of ensuring that 25% of the Army's electricity comes from renewable sources by 2025.[4]

- Public entities such as cities, towns, counties, school districts, community colleges, and universities are large potential purchasers of renewable energy, which will increase in-state demand. For example, the city of Phoenix has a renewable energy goal for the city to use 15% renewable energy by 2025. ASU's goal is to install 20 MW of solar by 2014.

- *Acres of BLM Lands Needed to Support 1 MW Solar Development*: The calculations in Appendix A implicitly assume that 100% of the BLM lands that are potentially developable and have solar potential could be developed at the assumed rate of eight acres to one megawatt. However, it is unrealistic to assume that all of the BLM acres identified as priority areas for solar would actually be suitable for development, and that projects would be sited so closely together as to make use of every acre of land. It would be more appropriate to assume that the amount of BLM land needed to develop one megawatt of solar include a buffer of 20% that does not actually host projects, but represent areas between projects or lands that are otherwise inappropriate for development. So for example, of every 10 acres of BLM lands designated as preferred for solar development, only eight of those acres would be developed at the assumed acres per megawatt rate.

Recommendation: In addition to revising the above-noted assumptions, the DEIS should clarify how the Reasonably Foreseeable Development Scenario (RFDS) will be used by BLM decision-makers in the context of solar projects proposed on BLM lands. On pages 2-3 of Appendix A, the DEIS notes that the RFDS is intended to provide policy makers, decision makers, the public, and developers with information on the overall solar potential in the state and on BLM lands, and on areas most suitable for development. However, it is not clear how RFDS-calculated results are intended to impact an eventual decision on the DEIS' Preferred Alternative, or how otherwise the results are intended to be used in the context of RDEP or other BLM decisions.

Recommendation: The DEIS should delineate a process for adjusting the RFDS going forward. In addition to likely changes in demand for renewable energy, as renewable technologies develop and change and as we do more mapping of lands and resources, various aspects of the scenario are likely to need adjustment (i.e., the amount of land used by solar technology type, capacity factors, and assessments of which lands are high-resource-sensitivity). The DEIS should lay out a process for BLM to reconsider and adjust the RFDS and its elements at regular intervals.

[3] See http://www.srpnet.com/about/financial/2011AnnualReport/sustainable/SPPrinciples.aspx
[4] See http://www.army.mil/article/75960/Army_to_invest__7_billion_in_renewable_energy_projects/

7. Requirements for Further Environmental Analysis at the Project Application Level

The NEPA analysis in the DEIS includes cumulative and landscape-level impacts, design features, best management practices and other analyses. The NEPA analysis conducted to date will support important elements of the BLM's solar energy development program in Arizona, including tiering to analysis from the EIS and likely shorter timeframes for processing applications in REDAs. Nonetheless, additional analysis is needed to successfully implement the program and approve individual, project-specific solar applications. While the DEIS does note that additional site-specific analysis will be required for project proposals in REDAs or the Agua Caliente SEZ, few details are provided.

Recommendation: ASWG recommends the following specific changes and provisions regarding further NEPA analysis for project applications. The Final EIS should provide guidance on issues to be developed in NEPA analysis for specific solar applications within a REDA, whether in an EA or EIS, including:

- Identifying specific elements of analysis – simply stating (as the DEIS does) that "This EIS will not eliminate the need for site-specific environmental review for future individual renewable energy development proposals…" (DEIS, p. 1-13) is not sufficient guidance. The Final EIS should require that analysis of individual applications will address, at a minimum, features and resources of the actual location, technology, a reasonable range of alternatives, plan of development, cumulative impacts for affected landscape, and mitigation measures, and provide opportunities for public comment through scoping, preliminary alternatives, and draft NEPA document;

- Specifying that robust public involvement is required, including requiring a comment period, even if using an EA, and emphasizing the benefits of early and ongoing public involvement, such as through providing preliminary alternatives for public comment;

- Requiring cumulative impact analysis to address ongoing projects and stressors in the project area that cannot be accomplished through tiering; and

- Clarifying BLM's authority to deny applications. We support the BLM reiterating that the agency "retains the discretion to deny solar and wind ROW applications based on site-specific issues and concerns, even in those areas available or open for application in the existing land use plan" (DEIS, p. ES-7). We would also recommend that the BLM clarify that its discretion can be applied to deny applications without conducting in-depth environmental analysis.

8. Mitigation

As noted in the DEIS, RMPs consistent with the RDEP process will be amended to identify terms and conditions, including design features and mitigation measures to minimize environmental impacts (E-6). To be effective, the BLM's approach to mitigation must include efforts to avoid impacts to wildlife and natural resources first, seek ways to minimize any

negative effects second, and finally compensate for any unavoidable impacts of a particular project or multiple projects. ASWG recognizes that the mitigation framework outlined in the Solar PEIS will be incorporated by reference into the final RDEP EIS for utility-scale projects on BLM lands. Even still, we wanted to take this opportunity to outline what we believe are the key elements of a comprehensive mitigation framework. Developers should know in advance of what mitigation measures may be and have a list of options to comply.

a. Work at the landscape level in space and time

Working at the landscape level (e.g., watershed or ecoregion) provides the opportunity to see project development in the context of the larger landscape it will occupy, permits opportunities to evaluate cumulative effects of multiple projects, and expands the capacity to find means to avoid, minimize, and offset project impacts (e.g., through the proper siting of individual projects and/or zones for future energy development). In fact, a landscape approach can improve both energy project siting and enhance planning throughout the mitigation hierarchy, leading to "a better ecological outcome"[5] if, for example, offsets for multiple projects can be combined to protect a larger, intact area of habitat as opposed to individual and more isolated parcels.

Requiring mitigation, to the maximum extent practicable, to be started and/or completed as early in the project development process as possible can help to ensure that mitigation objectives (particularly those associated with restoration and offsets) are met (i.e., funding is in place, restoration begun, minimization activities incorporated, offsite activities initiated, etc.).

b. Establish baseline ecological data

The BLM and other federal and state agencies and non-profit organizations have conducted regional ecosystem and resource assessments that provide the foundation for evaluating baseline resource conditions, identifying stressors and their impacts, and establishing conservation strategies for protecting and restoring wildlife, habitat, and important natural resources. In particular, BLM recently detailed how it proposes to integrate the new Adaptive Inventory and Management (AIM) framework into the Solar Program, using it as a foundation upon which to add solar energy-specific elements. Using this baseline ecological information, landscape-level (e.g., ecoregional or watershed level) conservation strategies should be developed to achieve specific wildlife management objectives. It is important that BLM recognize that impacts on wildlife are not uniform.

c. Determine conservation/wildlife management impacts, objectives, and priorities

All mitigation should be directly related to broader regional conservation plans. To achieve this over the long term, the BLM should first consider existing State Wildlife Action Plans (SWAPS), current BLM wildlife management requirements and policies, existing RMPs, and other relevant regional or local conservation plans. In addition, the BLM should work collaboratively with appropriate Landscape Conservation Cooperatives to obtain the benefit of local and regional knowledge regarding resource conditions and current wildlife management

[5] *Kiesecker, et al., 2011.*

goals and strategies, as well as incorporating strategies for climate adaptation into specific regional mitigation plans. The BLM and the FWS should work collaboratively to define a clear set of shared conservation priorities that guide decisions about where to develop and where to invest in conservation and/or restoration in the context of existing wildlife management strategies. Offset investments should be in priority conservation areas as determined by state wildlife action plans and decision support tools, regional conservation strategies, recovery plans, The Nature Conservancy ecoregional assessments, or other credible analysis or plans that identify areas of greatest ecological significance and opportunities for ecological restoration consistent with efforts to mitigate project impacts on specific species and habitats.

d. Incorporate consideration for climate adaptation

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

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

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

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

- *Goal 1: Conserve habitat to support healthy fish, wildlife and plant populations and ecosystem functions in a changing climate.* Keys to this strategy include identifying and

protecting an ecologically-connected network of lands and waters that will support a diverse array of habitats and wildlife, and allow species maximum opportunity to shift naturally with climatic changes. The Strategy also calls for restoring habitat and establishing new ecological connections where needed.

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

- *Goal 7: Reduce non-climate stressors to help fish, wildlife, plants and ecosystems adapt to a changing climate.* Existing stressors to species and habitats, including habitat loss, fragmentation and degradation, overuse, pollution, invasive species, pests and diseases, should be minimized to the maximum extent possible. These stressors have been demonstrated to cause imperilment and extinction even in the absence of climate change. Even worse, many of these interact with and are worsened by warming climate conditions.

The BLM should address the issues associated with climate change and implications for water resources, wildlife and their habitats in the context of the solar energy development.

e. Monitor and evaluate mitigation performance and adapt as needed

Data to determine the current condition (i.e., ecological baseline) of wildlife, lands, and resources where solar project development is proposed are essential to ensuring that wildlife management goals can be achieved. So, too, is the ability to monitor the effectiveness of mitigation measures in relation to wildlife and resource management goals, and to determine if past investments in mitigation have been effective, adequate, or if mitigation strategies need to change due to past failures or changing resource conditions (e.g., climate change).

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

9. Variance Process

In identifying and evaluating a subset of “variance” lands identified in the Solar PEIS as REDAs, the RDEP is poised to help implement the variance process as outlined the Supplement to the Solar PEIS. That process is described as a two-stage process, where variance applicants submit an initial application to the BLM in order to advance to a more formal agency review under

NEPA. The initial application includes a Plan of Development for the project. The BLM will consider a range of land-use, environmental, and financial factors in evaluating a variance application.

While some of us may have specific concerns about the application of certain screening criteria (or lack thereof), ASWG believes that, overall, as detailed below, the screening process has met most but not all of the following land-use and environmental factors described in the Supplement (p. 34-39):

- The availability of a SEZ served by transmission in the same state as the applicant‘s proposal. This factor identified in the Supplement may be inconsistent with RDEP’s purpose and intent, which is to facilitate solar projects of varying scales, near transmission and/or load centers, and stimulate multi-jurisdictional opportunities. Not all SEZs in AZ meet all of these goals.

- Documentation that the proposed project will be located in an area identified as suitable for solar energy development by another related process such as the California DRECP or Arizona RDEP. Such an application may be given priority status and processed as though it were in an SEZ. We believe this to be consistent with RDEP’s Preferred Alternative.

- Any special circumstances associated with an application such as an expansion or repowering of an existing project or unique federal–nonfederal partnership. We believe this to be consistent with RDEP’s Preferred Alternative.

- Documentation that the proposed project will be located in an area with low resource value and where minimal conflict with adjacent lands is likely. We believe this to be consistent with RDEP’s Preferred Alternative.

- Documentation that the proposed project will minimize the need to build new roads and/or transmission infrastructure. Since the group has not reached agreement on criteria related to proximity to transmission lines, we are unclear whether this will be consistent with RDEP’s Preferred Alternative.

- Documentation that the proposed project will make highly efficient use of the land considering the solar resource, the technology to be used, and the proposed project layout. We believe this to be consistent with RDEP’s Preferred Alternative.

- Documentation that the proposed project will minimize impacts on water resources. We believe this to be consistent with RDEP’s Preferred Alternative.

- Documentation that the proposed project will be consistent with priority conservation, restoration, and/or adaptation objectives in best available landscape-scale information. We are unable to confidently assess this factor because of the lack of access to AZGFD data sets were used.

- Any opportunities to combine federal and nonfederal lands for optimum siting. We believe this to be consistent with RDEP’s Preferred Alternative.

- Documentation that the proposed project will meet all required design features adopted in the ROD for the Solar PEIS (currently presented in Appendix A of the Draft Solar PEIS). We believe this to be consistent with RDEP's Preferred Alternative.

It is our understanding that military and tribal consultations are not reflected in the DEIS, as these were still underway. To the extent that such consultations are concluded by the time the Final EIS is released, we believe that the RDEP process will have met the inter-agency coordination requirements noted the Solar PEIS.

What has not been addressed in the DEIS are the financial and technical capability of the applicant as a factor for variance applications. We offer some recommendations in our "Incentives" section that should help meet these requirements.

Finally, the Supplement to the Solar PEIS notes that all variance applications that are determined to be appropriate for continued processing will be submitted by the State Director to the BLM Washington Office for the Director's concurrence (Supplement, p. 2-40). We question whether this would be necessary for applications in REDAs.

10. State-wide Assessments

Our review of the screening process and assessment of the Mojave REDA lead us to conclude that the RDEP screening process may serve as a model for identifying future SEZs and REDAs in other states.

Recommendation: ASWG recommends that the following key elements of a screening process be replicated in other states:

- A statewide assessment that addresses all types of land ownership (tribal and military excluded, unless otherwise invited).

- A focus on finding low-conflict or disturbed sites suitable for multiple renewable energy technologies at multiple scales.

- Consideration of overlay zones and performance or design standards that take into account special impacts of certain renewable energy technologies (impact on water resources from solar thermal technologies, in the case of RDEP).

- Identification of land tenure adjustment opportunities that may mutually advance land conservation and renewable energy development goals.

- Early consultation with stakeholder groups including but not limited to renewable energy developers, transmission line developers, utilities, hunter and angler organizations, and environmental groups.

- Early coordination with federal and state land and water management agencies, public utility commissions, tribal nations, and the military.

- Early integration with regional transmission planning entities, including but not limited to the Western Energy Coordination Council.

Recommendation: Consistent with the timeline proposed in the Supplement for the Solar PEIS for the consideration of new SEZs, ASWG recommends that the RDEP process in Arizona, and other states should it serve as the model, should be updated by the BLM at a minimum every five years. We agree, as outlined in the Supplement, that outside petitioners may submit requests to update the RDEP process at an earlier time based on key criteria that should be outlined in the Final EIS.

Submitted By,

John Shepard
Senior Adviser
Sonoran Institute
44 E. Broadway, #350
Tucson, AZ 85701
520-290-0828, ext. 1108
jshepard@sonoraninstitute.org

On behalf of:

Gregory L. Bernosky
Manager, Renewable Energy Program
Arizona Public Service
400 North 5th Street, MS 9649
Phoenix, AZ 85004
(602) 250-4849
Gregory.Bernosky@aps.com

Tom Mackin
President
Arizona Wildlife Federation
P.O. Box 51510
Mesa, AZ 85208
(480) 644-0077
president@azwildlife.org

Ian Dowdy, AICP
Conservation Outreach Associate
Arizona Wilderness Coalition
P.O. Box 13524
Phoenix, AZ 85002
(602) 252-5530
ian@azwild.org

Erin Lieberman, Esq.
National Renewable Energy Policy Analyst
Defenders of Wildlife
1130 17th Street, NW
Washington, DC 20036-4604
(202) 772-3273
elieberman@defenders.org

Katherine Gensler
Director, Regulatory Affairs
Solar Energy Industries Association
575 7th Street, NW, #400
Washington, DC 20004
(202) 682-0556
kgensler@seia.org

Sandy Bahr
Chapter Director
Sierra Club - Grand Canyon Chapter
202 E. McDowell Rd, Suite 277
Phoenix, AZ 85004
(602) 253-8633
sandy.bahr@sierraclub.org

Erik Bakken
Director, Corporate Environmental Services and Land Management
Tucson Electric Power/UNS Energy Corporation
88 E. Broadway
Tucson, AZ 85701
(520) 918-8351
EBakken@Tep.com

Susannah Churchill
Southwestern Solar Advocate
The Vote Solar Initiative
300 Brannan Street, Suite 609
San Francisco, CA 94107
(415) 817-5065
susannah@votesolar.org

Alex Daue
Renewable Energy Coordinator/BLM Action Center
The Wilderness Society
1660 Wynkoop Street, #850
Denver, CO 80202
(303) 650-5818, ext. 108
Alex_daue@tws.org

Appendix A: Transmission Proximity Considerations

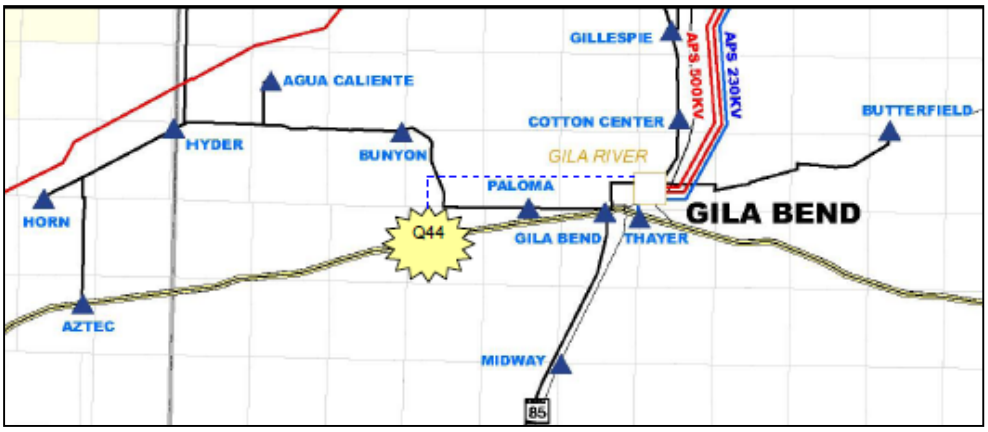
ASWG spent considerable time discussing criteria contained within the considerations of Alternative #2 related to proximity to existing and approved transmission lines that have been incorporated into Alternative #6. These proximity criteria would limit REDAs to only those lands that are within five miles of existing or planned lines of 230 kV or greater and/or within five miles of BLM-designated utility corridors. While we were unable to come to agreement on a recommended distance to use as a screen, we wish to share with the BLM some of the considerations that we discussed to help inform the agency as it considers this issue.

The Alternative #2 considerations arose from the EIS scoping process and derive from a goal to reduce costs and enhance efficiency of renewable energy developments by placing them closer to transmission infrastructure, thereby reducing the need for lengthy generator intertie lines. Another premise behind this criterion is the assumption that shorter generator intertie lines ("gen-ties") would coincide with fewer impacts to sensitive lands than lengthier gen-ties. We address both of these points below.

Cost Reduction and Efficiency Gains: While the intended goal of reducing costs and enhancing efficiency is worthy, what the BLM proposes carries an unintended consequence that would actually increase costs for many prospective solar projects, both at smaller commercial scales and larger utility scales, by forcing them onto delivery systems at greater distances and higher voltages than necessary.[6] Moreover, gen-tie length is only one of two very important factors affecting overall transmission development needs and costs. The interconnection of new generation to any existing power line typically requires physical upgrades to surrounding power infrastructure. Such "system upgrades" may consist of replacing and/or adding conductors (wires) to existing lines. In other cases, completely new lines must be built to accommodate the injection of additional power into existing networks.

The 280 megawatt (MW) Solana Generating Station provides an interesting case study of the relationship between generation intertie lines and system reinforcements. Solana will interconnect at the APS Panda/Gila River substation through a new 20.2 mile, 230 kV transmission line (presently under construction). As the transmission provider, APS conducted the series of technical studies described above to determine the feasibility of the proposed interconnection. These interconnection studies were conducted between 2008 and 2009, and initially contemplated a much shorter route to APS's Gila Bend substation, located 12 miles from the Solana site as shown below. Solana's location is referenced as "Q44", named after its position in APS's interconnection request queue.

[6] Interconnections to higher voltage transmission lines are inherently more expensive than lower voltage distribution or sub-transmission-level delivery systems because of higher costs of insulation and associated power apparatus.



Solana General Project Location and Surrounding Network

The diagram illustrates the shorter distance between Q44 and the Gila Bend Substation (12 miles vs. 20.2 miles, as noted above), and it also illustrates the surrounding system facilities that were examined in the interconnection studies conducted by APS. The proposed injection of an additional 280 MW of generation into the surrounding system can indeed affect power flows on neighboring power lines at 12 kV, 69 kV, and 230 kV voltages. Under normal operating conditions, Solana's output has no impacts to neighboring infrastructure. But in the event of a single outage of certain surrounding lines, Solana's output would primarily flow into APS's 69 kV and 12 kV systems to the south, causing certain lines to overload (exceed their rated capacity). Those certain power lines would require new and larger conductors, or in some cases, entirely new construction.

In the case of a 12-mile interconnection at the Gila Bend substation, the overall upgrades required would span 60 miles of APS's 12 kV and 69 kV systems. (A portion of the upgrades would have involved new 69 kV construction.) In the case of a 20.2-mile interconnection at the Panda/Gila River substation, the required system reinforcements would span approximately 24 miles of APS's 12 kV and 69 kV systems. Moreover, in this case, a five-mile constraint would have been impractical for a solar facility of Solana's scale.

Environmental impacts: On the other hand, because a primary goal of RDEP is to facilitate solar development on low-conflict lands and to limit associated environmental impacts, it is important to be clear about the relative impacts of different types of power line[7] developments. Examples of exceptions to these statements exist; however, in general:

- The primary goal in considering limitation of the lengths of both new power lines and upgrades to existing power lines is the minimization of disruption to ecosystems and existing habitat areas. Specifically, introduction of new and upgraded power lines can potentially cause habitat fragmentation, thereby reducing wildlife connectivity between areas within particular wildlife species' domains;

[7] "Power line" is used here instead of "transmission line" to encompass power lines of all voltages, not just high voltage transmission lines.

- New power lines, including gen-ties, through otherwise undeveloped areas cause much greater direct, indirect, and cumulative environmental impacts in currently un-fragmented areas than upgrades of existing power lines, because they include new roads, transmission poles or towers, right-of-way maintenance, and other activities and infrastructure that are associated with transmission lines;

- System reinforcements that may be required by the introduction of new gen-ties may cause either requirements for upgrades to existing power lines or construction of new power lines; and

- Construction, operation, and maintenance of higher voltage power lines causes greater impacts than lower voltage power lines because the roads, transmission poles or towers and construction and maintenance activities required for higher voltage power lines are larger and more intensive.