**Solar Regional Mitigation Strategies for Colorado SEZs**
**Summary of Stakeholder Outreach**
**September 8-11, 2014**

During the week of September 8, the Colorado Bureau of Land Management (BLM) conducted a series of public field visits and open houses to three solar energy zones (SEZs) located in the San Luis Valley (see Figure 1): the Antonito Southeast SEZ near the town of Antonito and the Colorado/New Mexico border; the Los Mogotes East SEZ located near the town of Romeo; and the De Tilla Gulch SEZ located near the town of Saguache. The goal of these outreach events was to inform interested stakeholders about the regional mitigation strategies being developed for these SEZs, to hear the comments of the stakeholders, and to invite the stakeholders to continue to be engaged throughout the process. This summary includes background information on solar regional mitigation strategies (SRMSs), a list of the elements of SRMSs, a summary of the materials presented during the field visits and workshop, a summary of the input and questions from stakeholders, and information on next steps in the process.

## 1 Background on Solar Regional Mitigation

The need for regional mitigation planning to address unavoidable impacts of solar energy development was identified in the *Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States* (Solar PEIS), published by the U.S. Department of the Interior (DOI) Bureau of Land Management (BLM) and U.S. Department of Energy (DOE) with the assistance of Argonne National Laboratory in July 2012. The Solar PEIS identified 17 solar energy zones (SEZs) in a six-state study area, which are areas that are well suited to solar energy development where the BLM will prioritize and facilitate utility-scale solar development. The Record of Decision for the Solar PEIS (released in October 2012) established a new Solar Energy Program with right-of-way authorization policies that allow permitting of future solar energy development projects on public lands to proceed in a more efficient, standardized, and environmentally responsible manner. The Solar Energy Program also identified an extensive set of design features (i.e., required mitigation measures) that will be applied for any right-of-way (ROW) grants for solar facilities on BLM-administered lands.

The BLM's proposed Solar Energy Program implements a "mitigation hierarchy" — avoid, minimize, and then mitigate (or offset) impacts (see Appendix A, Section A.2.5 of the Solar PEIS). This hierarchy requires that avoidance and minimization strategies be implemented first to eliminate or reduce potential adverse impacts from solar energy development. When there are residual impacts that cannot be fully avoided or minimized, appropriate measures to offset or mitigate the residual impacts may be implemented. In the Solar Energy Program, the BLM has implemented avoidance strategies through the identification of SEZs as priority areas for development; in general, the SEZs were selected to avoid as many potential impacts as possible. The BLM has implemented minimization strategies through the adoption of both programmatic and SEZ-specific design features. In anticipation that development may nonetheless result in residual impacts, the BLM is working to develop Regional Mitigation Strategies for each SEZ.

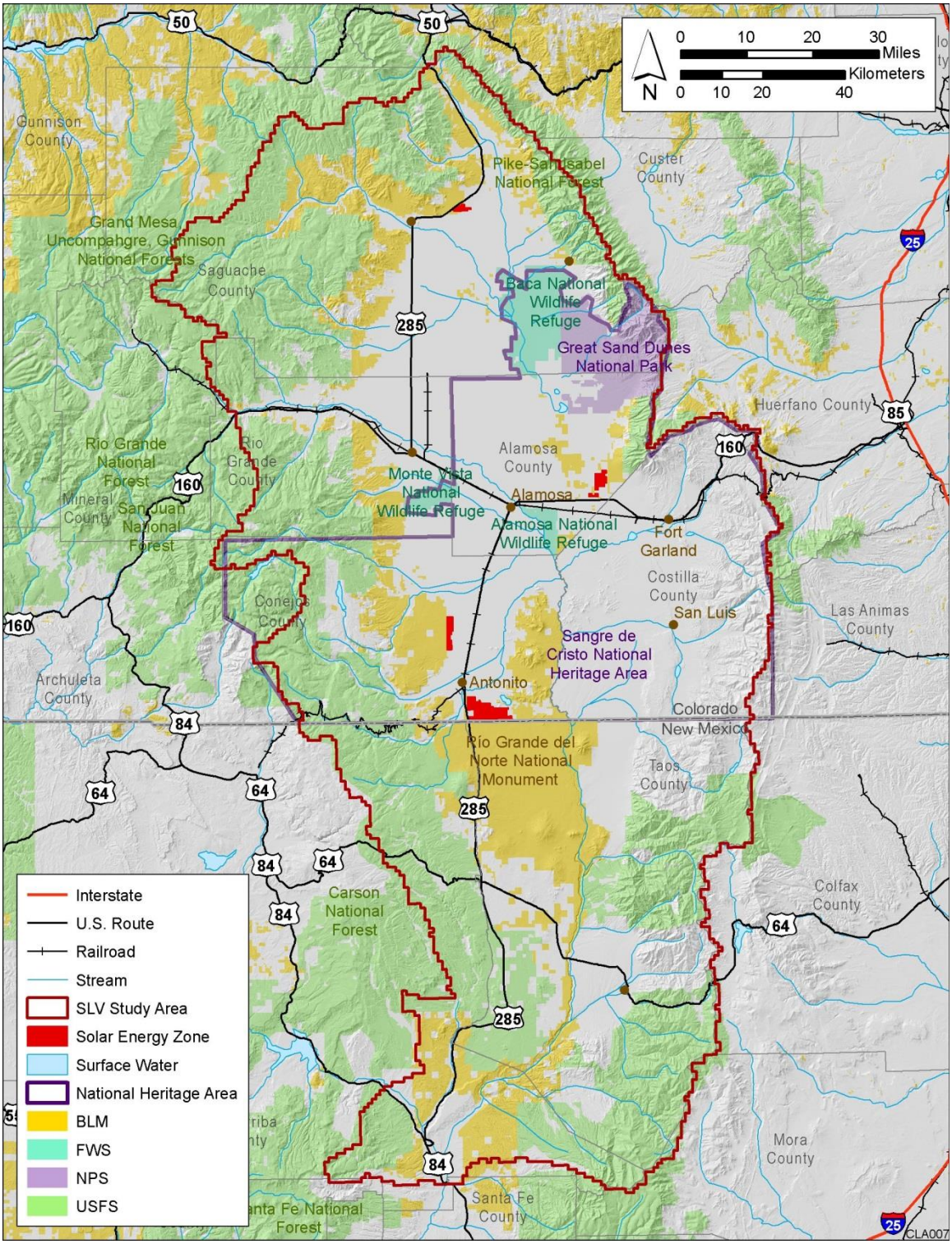


**Figure 1. The San Luis Valley/Taos Plateau Study Area.**

The BLM, through the course of responding to individual ROW applications for solar facilities, has learned that the identification of appropriate mitigation for residual impacts is a difficult process. Prior to the use of solar regional mitigation strategies, the BLM would identify for applicants those residual impacts associated with the proposed project that would require mitigation. Applicants would then draft their proposals for mitigation of those impacts, subject to BLM approval. This process can be lengthy and result in several rounds of negotiation.

Because the SEZs are areas where the BLM is committed to facilitating solar development, the Solar PEIS recognized that identification of residual adverse impacts (to the extent possible prior to specific project proposals) and corresponding appropriate mitigation requirements would provide some certainty and time-saving opportunities for developers submitting ROW applications within SEZs. It was recognized that the mitigation requirements should consider the *status of the resource of concern within the region* based on existing data, trends, and other factors affecting that resource. Taking these factors into consideration, the BLM has identified the following goals for developing SEZ-specific Solar Regional Mitigation Strategies (SRMSs):

- Develop a consistent, regional approach to mitigating impacts associated with development in an SEZ, thereby establishing incentives for development in the SEZ;
- Reduce uncertainty about mitigation requirements (eliminate the current guessing game) and streamline the process for mitigating residual impacts;
- Establish science-based or other objective criteria for determining which residual impacts will be mitigated and identify effective mitigation actions;
- Obtain concurrence from the various regulatory agencies regarding the need for mitigation and the appropriate off-site mitigation strategy;
- Potentially reduce the costs, complexity, and timeline associated with off-site mitigation activities and obtaining project approvals;
- Establish a simple mitigation fee structure, and create an opportunity to pool funds collected from multiple developers and apply the pooled funds to mitigation projects that will produce the most significant results for the dollar;
- Support the BLM's implementation of an adaptive management approach to solar energy development;
- Achieve a greater degree of stakeholder collaboration throughout the mitigation planning process.

In developing Solar Regional Mitigation Strategies for SEZs in Colorado, the BLM is building upon the lessons learned through the Dry Lake SEZ SRMS Pilot Project, which was focused on the Dry Lake SEZ near Las Vegas in Nevada (see http://www.blm.gov/nv/st/en/fo/lvfo/blm_programs/energy/dry_lake_solar_energy.html), but adapting the process to consider resource conditions in the San Luis Valley and the priorities of

local stakeholders. The comments and questions raised during the field visits, open houses, and workshop held in September 2014 will be considered as BLM continues with the process of developing Solar Regional Mitigation strategies for the three Colorado SEZs. Additional opportunities for stakeholders to participate will be provided in the future.

SEZ summary sheets, posters, and copies of the presentation slides used during the September 10th workshop are available at: http://www.blm.gov/co/st/en/fo/slvfo/solar/solar_regional_mitigation.html.

## 2 ELEMENTS OF A SOLAR REGIONAL MITIGATION STRATEGY

As informed by the Dry Lake SEZ SRMS pilot project, the Colorado SEZ SRMSs will consist of the following elements:

1. A description of the SEZ and regional baseline conditions against which unavoidable impacts are assessed.

2. A preliminary assessment of the degree of impacts to resources and identification of which potential unavoidable impacts may warrant regional mitigation.

3. The identification of regional mitigation goals based on the goals and objectives identified in approved resource management plans and/or other planning documents (e.g., U.S. Fish and Wildlife Service Habitat Conservation Plans).

4. The evaluation and recommendation of appropriate mitigation investment locations, objectives, and actions (to be considered and further refined, as necessary, prior to lease offering).

5. The preliminary identification and recommendation of a method for calculating mitigation compensation for unavoidable adverse impacts that potentially warrant mitigation (to be refined, as necessary, prior to lease offering or project-specific NEPA evaluations).

6. The preliminary identification and recommendation of a management structure to hold and apply mitigation investment funds.

7. Planning for mitigation implementation and the development of long-term monitoring and adaptive management recommendations to evaluate and maximize the effectiveness of regional mitigation actions.

At this time, the BLM has asked for public input on the preliminary assessment of the degree of impacts to resources (part of Element 2 above). The Draft Resource Impact and Mitigation summary tables for the SEZs are available at http://www.blm.gov/co/st/en/fo/slvfo/solar/solar_regional_mitigation.html. Additionally, the BLM is inviting comments on the Landscape Assessment Phase I Report, which provides preliminary information on the status and trends of resources in the region (this report is

available at: http://www.blm.gov/co/st/en/fo/slvfo/solar/landscape_assessment.html). BLM is seeking comments on these documents by October 15th, 2014.

# 3 Summary of Field Visit and Workshop Presentations

## 3.1 Summary of Field Visit Presentations

During the field visits to the SEZs, Joseph Vieira, the BLM Colorado project manager for Solar Regional Mitigation, introduced the stakeholders to the BLM's Solar Program and regional mitigation concepts, and then began the discussion of the potential impacts from solar development to the SEZ being considered. BLM specialists presented information about potential impacts to resources and ways that avoidance and minimization measures could be implemented to lessen the impacts of solar development.

The following resource impacts were discussed by BLM specialists during the field visits (specialist's names are in parentheses, all resource impacts were reviewed by Joe Vieira at the Los Mogotes field visit):

- Acoustics, Special Status Species, Migratory Birds (*Joe Vieira*)
- Vegetation and Wildlife (*Andrew Archuleta* - De Tilla Gulch SEZ; *Pam Herrera-Olivas* - Antonito Southeast SEZ)
- Cultural and Native American Concerns (*Angie Krall* – De Tilla Gulch SEZ; *Brian Fredericks* – Antonito Southeast SEZ)
- Soil, Air, Surface Water, and Groundwater – *Negussie Tedela*
- Recreation, Visual, and Specially Designated Areas – *Jeff Brown*

SEZ summary sheets were provided for participants, and they were reminded that the comments on the Draft Resource Impact and Mitigation summary tables for the SEZs should be sent in by October 15th (see Section 2).

## 3.2 Summary of Workshop Presentations

All presentation materials are available on the project web site at http://www.blm.gov/co/st/en/fo/slvfo/solar/solar_regional_mitigation.html.

The topics for the day were as follows.

- Introduction – *Tom Heinlein, BLM Front Range District Manager;*
- Landscape Approach, Solar Regional Mitigation Strategy (SRMS) Objectives and Process - *Joe Vieira, BLM*
- Relation of SRMS to Rio Grande del Norte Monument Planning - *Sam DesGeorges, BLM*

- General Overview of Colorado SEZs, Baseline Conditions, and Data Sources - *Heidi Hartmann, Argonne*
- Potential Impacts of Solar Development on Resources in Colorado SEZs - *BLM - Joe Vieira, Andrew Archuletta, Pam Herrera-Olivas, Negussie Tedela, Angie Krall, Jeff Brown*
- Review of Mitigation Hierarchy and Define Residual/Unavoidable Impacts - *Karen Smith, Argonne*
- Facilitated Group Discussion on Residual/Unavoidable Impacts at SEZs. *Facilitators – Group 1 – Kyle Sullivan, BLM; Group 2 – Dave Johnson, BLM*
- Overview of Landscape Assessment, Ecoregional Conditions and Trends *Ecological – Lee Walston, Argonne; Cultural – Konnie Wescott, Argonne*
- Next Steps - *Joe Vieira, BLM*

# 4 Summary of Stakeholder Input at Field Visits/Open Houses

## 4.1 De Tilla Gulch SEZ Field Visit and Open House

Fourteen stakeholders attended the field visit and /or the open house for the De Tilla Gulch SEZ on Monday afternoon, September 8$^{th}$Topics raised by stakeholders included the following:

- Impacts on grazing allotments should be considered.
- Visual impacts (especially from Valley View hotspring resorts) may be important
- Who gets the profit from solar facilities?
- Discussion of pros and cons of smaller solar projects on rooftops versus utility-scale solar development on public lands. Some preference for smaller projects by one group member, another commented that it's not feasible to get hospitals and schools off the grid, so utility-scale systems are necessary.
- Discussion on the need for the regional mitigation strategy to consider the baseline condition of the SEZ and the area.
- Question on whether retired wells could be used for water rights for solar development. Although the BLM does not control water rights, it was concluded that retired rights cannot be purchased. However, existing and active water rights could be purchased.
- Would one developer get the whole SEZ? Not necessarily.
- SEZ should be developed without grading, and wildlife corridors should be preserved.

## 4.2 Antonito Southeast SEZ Field Visit and Open House

Eighteen stakeholders attended the field visit and /or the open house for the Antonito Southeast SEZ on Tuesday, September 9$^{th}$. Topics raised by stakeholders included the following:

- Is transmission being considered? Yes, one criterion for picking the SEZ was that it is near an existing power line. But the need for new power lines and/or

upgrading of power lines would be addressed at the project-specific level, as well as what company the power would be sold to. There are requirements to evaluated the impacts from new or upgraded transmission lines.

- For archaeology, a stakeholder wanted to know what "Section 106" is. It is a federally-required process under the National Historic Preservation Act to evaluate impacts on cultural sites. If significant sites are impacted, a memorandum of agreement between the BLM and the State Historic Preservation Officer may be developed and executed.
- Can private citizens selected by citizen's groups be included in the cultural survey work? Possibly, but the developer would be required to hire qualified archaeologists familiar with the region.
- Water use would impact ranching and farming. A stakeholder encouraged review of a Wilderness Society document about water use for solar development. The feasibility of water availability for solar development at this location was questioned. Discussed the possibility of trucking water to the project site. It is more likely that local surface or groundwater would be used.
- Question was raised on whether the SEZ land could become part of the adjacent Rio Grande del Norte National Monument if solar development was found to be infeasible. This would have to be by Presidential Order, possibly the result of grass root organization requests.
- The question of benefits for local citizens and communities was raised again. It was noted that Senator Udall has introduced a bill that would require some revenue to go the county and state of the SEZ, as well as to a wildlife fund.
- A stakeholder commented that it seems as though development on BLM-administered lands has so many requirements that developers would likely avoid it and develop on private lands.

### 4.3 Los Mogotes East SEZ Field Visit and Open House

Eleven stakeholders attended the field visit and /or the open house for the Los Mogotes East SEZ on Thursday, September 11th. Topics raised by stakeholders included the following:

- There was a question on whether the adjacent private lands might also be used for solar facilities. This is not known right now but is certainly possible.
- Discussion of impacts to pronghorn – this area is important for winter grazing.
- Discussion of how much water would be needed (Joe noted that it is technology-specific, with photovoltaic technologies requiring relatively little water in comparison with concentrating solar power technologies). Developers would have to buy existing water rights.
- A suggestion was made to add the range of water demands for the various technologies to the Impact Summary tables.
- Discussed some studies that have been done specific to the SEZ area – a study on reptiles and amphibians, a bat study, study of Golden Eagle movement, Gunnison Prairie dog colonies. The SEZ area is important for wildlife.
- Visual impacts from development should be considered – the landscape here is beautiful.

## 5 Summary of Stakeholder Input at the September 10th Workshop

Twenty-five stakeholders attended the workshop on Wednesday, September 10th. Presentations were given in the morning and late afternoon (see Section 2.1 above). The main opportunity for stakeholder input was during the Facilitated Group discussion in the early afternoon. Questions considered by the two groups, along with their feedback, were as follows:

- Are there additional existing and relevant data, studies, or models that should be used in developing the SRMSs for the Colorado SEZs?
    - Group 1:
        - Audubon Society climate change report (Aug 2014)
        - National Park Service Climate Change Assessment Report (July 2014)
        - Playa Lakes Joint Venture – spatial data
        - Statewide wetlands - spatial data layer (updated summer 2014)
        - SPReaD GIS sound modeling data
        - WY wind impacts on migrating wildlife (did not provide a specific reference)
        - Colorado Parks and Wildlife references provided in comments on Solar PEIS should be rechecked.
    - Group 2
        - CO State University and Colorado Natural Heritage Program Potential Conservation Areas and Element Occurrence (from Colorado State University Biota database, requires a subscription)
        - CO Parks and Wildlife updated data
        - CO Oil and Gas Commission data layers for 10 species – available on their website
        - CO Oil and Gas Commission – existing, active, and closed wells
        - CO State Lands Board – State Trust lands, Stewardship trust lands, also Best Management Practices (BMPs). Note that Antonito SE and Los Mogotes SEZs are bracketed by CO State lands classified as having a high potential for solar development.
        - BLM Environmental Assessment on land exchange with Great Sand Dunes NP (2009?)
        - CO Division of Reclamation Mining and Safety (DRMS) – maps of disturbed areas (not available on-line)
        - CO State University (David Theobald) – Landscape Permeability/Big Game Migration corridors (GIS data)
        - CO Natural Heritage Program and The Nature Conservancy – Landscape Integrity Model (2008)

- Rio Grande Natural Area Plan (when it becomes available)
- Hawks Aloft bird monitoring data
- Rocky Mountain Bird Observatory data
- Breeding Bird Atlas
- Russell Lakes State Wildlife Area Plan
- Blanca Wetlands reports on status and trends
- Important Bird Areas
- Avian Power Line Interaction Council (APLIC) – BMPs
- CO Natural Areas – CO Parks and Wildlife – Rare Plants, Adell Creek
- Draft Groundwater Ruling (to be finalized soon) and Streams and Groundwater Interaction data
- E-Bird (citizen science data)
- Cultural Context document for San Luis Valley
- County planning documents, especially for areas encompassing SEZs
- Time-series imagery – for ungulates for example, or from DOD spy satellites for more populated areas
- Colorado University (Denver); Adams State University (Jonathan Dubinsky) - EPA Sustainability Study for SLV Basin – considers wind erosion

- Considering the summary impact tables: Are there gaps or errors in the description of impacts? Are there other, specific onsite mitigation measures that BLM should consider? What do you think of the preliminary conclusions regarding the residual or unavoidable adverse impacts?

  - Group 1 – wanted to make sure that transmission is not forgotten. They thought that the potential revenue lost (socioeconomic, recreation, hunting) should be mentioned. Their main interest was in impacts on Gunnison prairie dog colonies and big game migration corridors.

  - Group 2 – several group members were most concerned about effects on birds, particularly due to the "lake effect" of some solar facilities (panels look like water), and the impacts of new power lines. Commented that use of APLIC guidelines to avoid/minimize impacts would be helpful. Concerns were also expressed regarding dust impacts, because dust storms in the valley can be very bad. A good minimization measure could be a requirement to avoid construction during the worst dust season. There was also a request to separate invasive and noxious weeds as a separate category in the Impact and Mitigation Summary tables. One group member listed weeds of concern as whitetop, Russian napweed, and Canada thistle; stated that developers should be required to have an onsite de-weeding plan, including de-seeding of machinery.

    A suggestion was made that perhaps it would be better to remove all vegetation from the project area than to attempt to leave it in place, because intact vegetation

could attract terrestrial wildlife and migratory birds, causing injuries/fatalities due to panel collisions or predator advantages. One group member had the opinion that the funds used to maintain vegetation within solar facilities would be better spent on offsite mitigation.

Other suggestions included:

- There should be lower mitigation fees for technologies/facilities demonstrating more impact avoidance
- Research is needed on the required width of effective migration corridors for big game
- Research is needed on the distance of impacts, particularly avian impacts (for example, how far would breeding avoidance extend from solar facilities).
- Request to add impacts to National Monument wildlife movement corridors to the Impacts summary table for Antonito Southeast SEZ
- The Wilderness Society will submit comments on the Wilderness Characteristics of lands to the west of Los Mogotes East SEZ – will suggest that these lands could be good mitigation lands.
- Blanca Wetlands or Russell Lakes would be good mitigation locations for impacts to migratory birds, especially if water rights for these locations could be solidified.
- There was a statement that impacts to pronghorns would be difficult to mitigate onsite.

- Provide input on the SRMS process – are key steps missing?

  Group 1 – developers want projects that are ready to go (shovel ready) with a mitigation bank already established so they can just write a check – they want simplicity. Also flexibility is needed over a 20-year period for recalculation and new analyses.

  Group 2 – no comments.

- Are important stakeholders missing today? What do stakeholders need to effectively participate?

  Group 1 – Groups missing today were Industry, County and Local governments, National Conservation Lands Foundation, and the Sangre de Cristo National Heritage Area.

  Group 2 – Groups missing today were developers (Industry), County governments, ranchers, and the power companies.

## 5 Next Steps (Joe Vieira)

With the feedback received through this workshop, the BLM will continue work on the Solar Regional Mitigation Strategies for the Colorado SEZs, revising the process as appropriate on the basis of participant feedback. BLM will carefully evaluate all of the suggestions received.

Next steps for stakeholders are as follows:

1) Review of baseline information and landscape assessment Phase I report- any additional studies?
2) Review and comment on SEZ Impact and Mitigation Tables
3) **Please send comments by October 15th to solarmitigation@blm.org**

Next steps for BLM are as follows:

1) Residual impacts warranting mitigation
2) Mitigation goals and objectives
3) Candidate site locations
4) Stakeholder webinar on these topics- Late Fall 2014.

One participant asked if the contact information for all the participants could be shared. The BLM can share names and organizations, but not other contact information. The list will be posted to the project web site at http://www.blm.gov/co/st/en/fo/slvfo/solar/solar_regional_mitigation.html.

Another participant noted that this process has a lot of value, but to truly work all the stakeholders have to participate, and also should reach out to encourage other stakeholders to participate.