

BLM Solar Regional Mitigation Strategies for Colorado Solar Energy Zones - Public Webinar

December 17, 2014; 10-11:30 Mountain

Participant Dial-In: 1-888-850-4523; Passcode 473080

Webinar URL: <http://anl.adobeconnect.com/lasrms/>

Agenda and documents posted at:
<http://www.blm.gov/co/st/en/fo/slvfo/solar.html>

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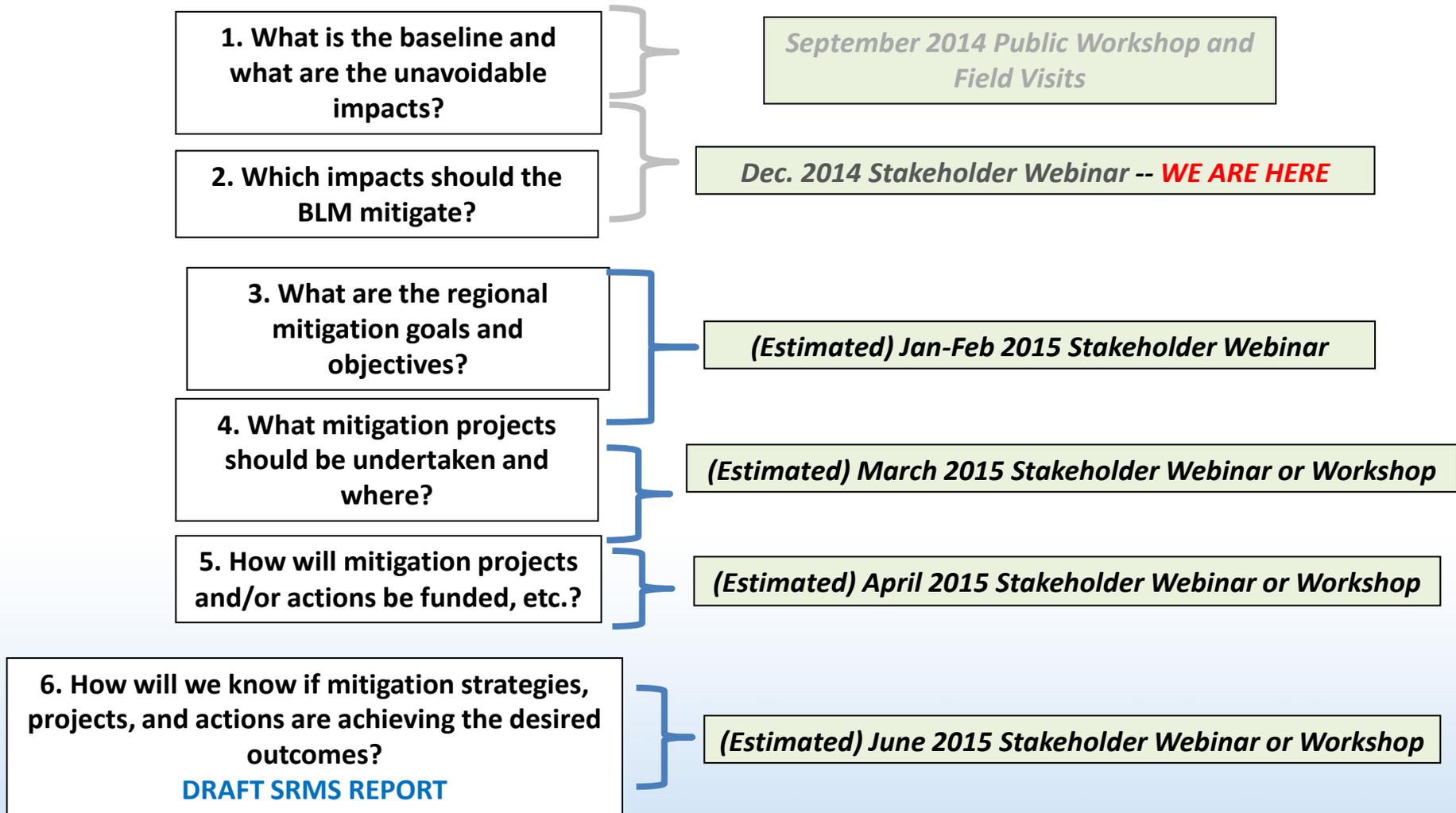
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- *You will be called on to state your name, organization, question/comment. When you have finished speaking, please lower your hand and re-mute your phone*

Webinar Objectives/Agenda

- Review Solar Energy Zones (SEZs) and Status, Landscape Assessment, and Solar Regional Mitigation Strategy (SRMS) status
- Summarize stakeholder comments on
 - Landscape Assessment
 - SRMS - Resource Impact and Mitigation Summary Tables for the SEZs
 - Planned BLM responses
- Overview *Draft BLM Recommendations on Impacts that May Warrant Regional Mitigation*
 - Antonito Southeast SEZ
 - Los Mogotes East SEZ
 - De Tilla Gulch SEZ

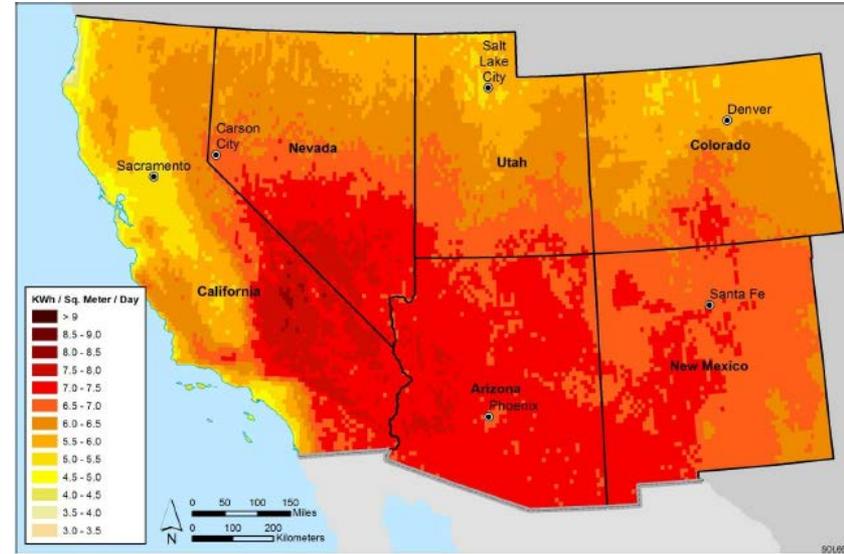


Colorado SRMS Process – Where We Are At



Colorado Solar Energy Zones

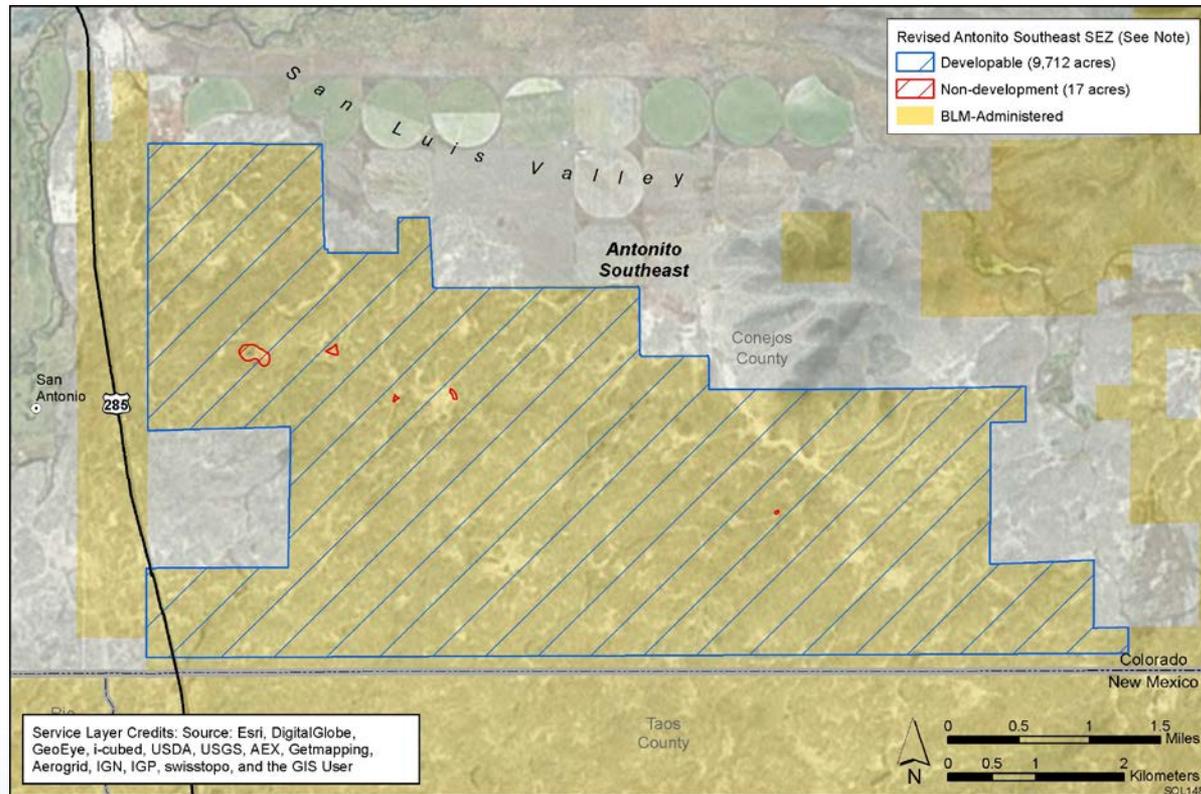
- Four Colorado SEZs, all in San Luis Valley because of high solar radiation and low-slope locations on BLM-administered lands:
 - Antonito Southeast - 9,712 acres in Conejos County
 - De Tilla Gulch SEZ – 1,064 acres in Saguache County
 - Fourmile East SEZ – 2,882 acres in Alamosa County
(not currently studied)
 - Los Mogotes SEZ – 2,650 acres in Conejos County



**Solar Insolation Levels in 6 Southwestern States.
(Note: must be >6.5 in SEZs)**

Slope in solar energy zones must be less than 5%

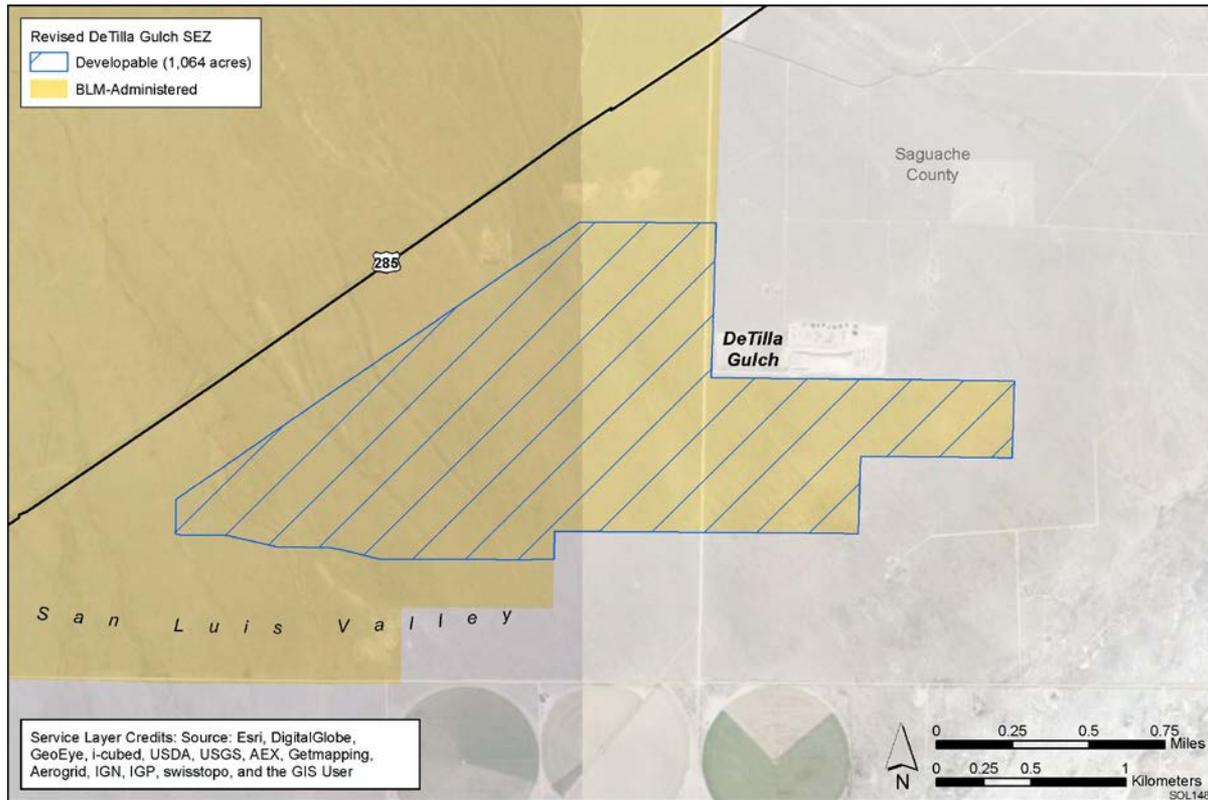
Antonito Southeast Solar Energy Zone



- In Conejos County
- **Developable area:** 9,712 acres (39.3 km²)
- **Max Solar Generation Capacity:** 1,554 MW (power to about 500,000 homes)
- adjacent to U.S. 285
- nearest existing transmission line (69 kV) located about 3 mi (5 km) to the north



De Tilla Gulch Solar Energy Zone



- In Saguache County
- **Developable area:** 1,064 acres (4.3 km²)
- **Max Solar Generation Capacity:** 170 MW (power to about 56,000 homes)
- adjacent to U.S. 285
- existing transmission line (115 kV) is adjacent to the SEZ



Los Mogotes East Solar Energy Zone



- In Conejos County
- **Developable area:**
2,650 acres (10.7 km²)
- **Max Solar Generation Capacity:**
424 MW (power to about 140,000 homes)
- About 3 mi west of U.S. 285
- Nearest existing transmission line (69 kV) located about 3 mi (5 km) to the east

San Luis Valley – Current Solar Development Status

Solar Facilities in or near San Luis Valley				
Name	Type	Capacity (MW)	Approx Location	Status
Alamosa Solar	CPV	30	Central SLV	Operating
SLV Solar Ranch	PV	30	Central SLV	Operating
Greater Sandhill Solar	PV	19	Central SLV	Operating
Alamosa PV (SunEdison)	PV	7	Central SLV	Operating
RCCLA Amalia Solar	PV	2	23 mi SE of Antonito ESE SEZ	Operating
Questa (Chevron)	PV	1	25 mi SE of Antonito SSE SEZ	Operating

Source: Solar Mapper (<http://solarmapper.anl.gov>)

Five operating PV facilities on private lands totaling 89 MW.

- PV Solar Facility Location
- Location Accuracy
- Precise Location, Confirmed
- Precise Location, Unconfirmed
- Sited to Nearest Town
- Sited within County



San Luis Valley – Taos Plateau Landscape Assessment

Elements of the Landscape Assessment

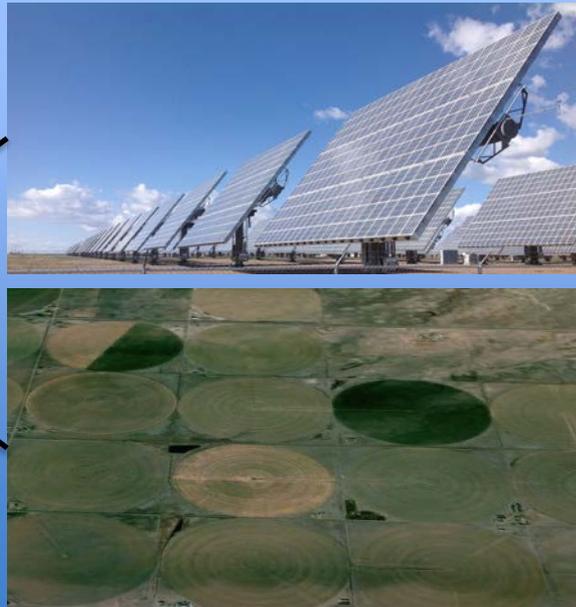
- Management Questions (56)
- Conservation Elements (24)
- Change Agents (4 – human development, climate change, fire, invasive species)
- Conceptual Models – Illustrate the interaction between Conservation Elements and Change Agents
- The pre-assessment (Phase I) report for the Landscape Assessment is available

MQ: Where are focal species vulnerable to change agents in the future?

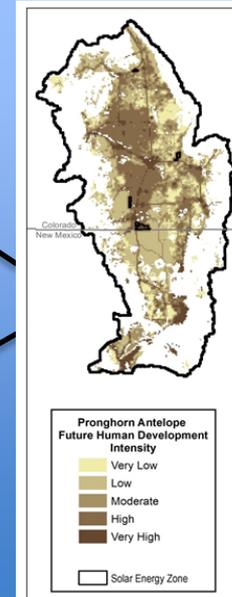
Conservation Elements



Change Agents

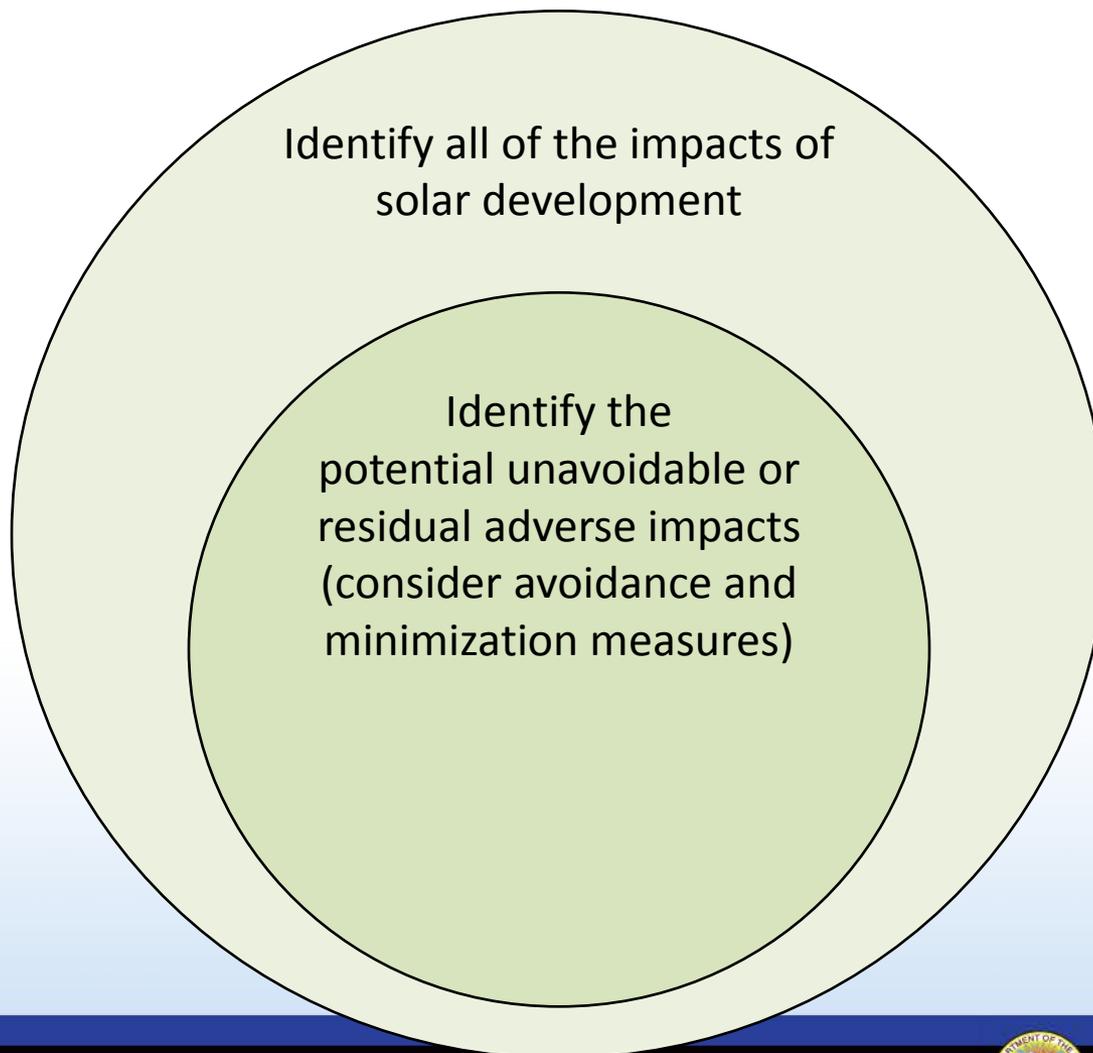


Assessment Results



Methodology for Identifying the Unavoidable (Residual) Impacts of Solar Development

Two step
process



Identify all of the impacts of solar development

Identify the potential unavoidable or residual adverse impacts (consider onsite mitigation)

Resource/Issue	Impacts ¹	Onsite Mitigation ²		Residual or Unavoidable Adverse Impacts ³
		Avoidance	Minimization	
Acoustics Section 10.1.15 ⁴	<p>Direct: Increased noise levels during construction and operation of solar facilities with thermal energy storage could cause noise levels slightly exceeding the EPA guideline of 55 dBA at the nearest residences (about 0.5 mi [0.8 km] to the north and west), particularly for activities near the northwestern boundary of the SEZ. The EPA guideline could also be exceeded at the West Fork of the North Branch of the Old Spanish Trail which is located as close as 660 ft (200 m) west of the SEZ. A level of 55 dBA is similar to the noise of an air conditioning unit at 100 ft. Noise impacts during operation of PV facilities would be minimal.</p> <p>Indirect: Based on Solar PEIS modeling, increased noise levels during construction and operations near the SWern boundary are not expected to affect wildlife in the San Antonio WSA.</p> <p>Cumulative⁵: If multiple facilities were to be constructed close to the SEZ, residents and/or wildlife nearby could be affected by the noise generated, particularly at night when the noise is more discernible due to relatively low background levels.</p> <p>Data Gaps⁶: Impacts on wildlife from construction noise needs to be considered on a project-specific basis. Refined modeling and background measurements would be needed.</p>	<p>Programmatic design features include a requirement that projects will be designed to locate solar facilities far enough away from residences, or include engineering and/or operational methods, such that county, state, and/or federal regulations for noise are not exceeded.</p> <p>See other programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Noise.pdf</p>	<p>Programmatic design features include a requirement to limit the hours of daily activities, construct noise barriers if needed and practicable, and coordinate with nearby residents.</p> <p>See other programmatic design features at URL under Avoidance column.</p> <p>Additionally, recommend evaluation of construction timing restrictions in project-level NEPA alternatives to further minimize effects on wildlife (e.g., no construction during breeding season or in winter use concentration areas/critical winter range).</p>	<p>Maybe (for wildlife). Technology used and onsite mitigation implemented would be primary driver of residual impact for full build-out of SEZ.</p>

Stakeholder Comments Received During/After September Field Visits and Workshop

- Received comments on Landscape Assessment, Baseline Data Sources, and Regional Mitigation Strategy (Impact Tables)
 - For summary of comments during field visits and workshop see “Summary of Public Outreach” on project web page
- Received 6 sets of written comments in October:
 - Conejos County Clean Water Inc.
 - Defenders of Wildlife
 - National Park Service
 - San Luis Valley Ecosystem Council
 - The Nature Conservancy
 - The Wilderness Society
- Colorado Parks and Wildlife plans to provide comments on wildlife corridors through SEZs; working to obtain input from New Mexico Department of Game and Fish

Summary - Comments on Landscape Assessment

- Add Vegetation Departure to Conservation Element evaluation - measure of existing integrity of the dominant plant communities (will include in Landscape Assessment Report)
- Include additional examples in the document of how Landscape Assessment data and Management Questions will be used (will include)
- Should have included more conservation elements (CEs):
 - BLM Response: CEs were selected to adequately address key species in the study area and potential impacts from solar development
- Add Colorado Natural Heritage Program Potential Conservation Areas to “Sites of Conservation Concern” CE (will add)

Summary – Comments on Mitigation Baseline Data Sources

- Many additional sources were suggested during the workshop and through written comments
- BLM has reviewed suggested sources – added many to baseline data list (see revised list on project website).
Examples:
 - Climate change documents
 - Visual Impact Assessments
 - Health Environmental Launch Project

Summary – Comments on SEZ Impact Tables

- Air Quality: Add avoidance measure “Avoiding construction during times of high dust emissions from other sources (e.g., agricultural plots) should also be considered” (done)
- Ecology - Vegetation:
 - Separate “Invasive and Noxious Weeds” from “Vegetation and Riparian Areas” (done)
 - Add specific weeds of concern (“Some weeds of concern include henbane, whitetop, Russian napweed, and Canada thistle) (done)
 - Add avoidance requirement for vehicles and machinery to be cleaned to remove weed seeds (done)

Summary - Comments on SEZ Impact Tables (cont.)

- Ecology - Terrestrial Wildlife:
 - Add data gap: “Research is needed on the required effective width of big game migration corridors through the Rio Grande del Norte National Monument and through the Antonito Southeast SEZ.” (done)
 - Add: “Fencing around the solar energy development should not block the migratory corridors of mammals, particularly big game species.” (done)
 - Add wildlife movement corridor data to tables – working to obtain (CO Parks and Wildlife; Rio Grande del Norte NM Plan)

Summary - Comments on SEZ Impact Tables (cont.)

- Ecology - Migratory Birds:
 - Add text to data gaps regarding distance of impacts (done)

 - Add text to avoidance measures: “Developers also should consider the applicability of guidelines developed by the Avian Power Line Interaction Committee” (done)

Summary - Comments on SEZ Impact Tables (cont.)

- Groundwater: Received comment that project-specific groundwater impacts should require purchase of existing water rights such that net benefit in groundwater recharge is achieved.
 - BLM doesn't regulate groundwater use, but augmentation/compensation for use is required by the State of Colorado.
 - Design features require monitoring water quantity and quality
 - Added text to Socioeconomics regarding water use impacts within the basin and impacts to the water market.

Summary - Comments on SEZ Impact Tables (cont.)

- Specially-Designated Areas:
 - Add text on impacts (including visual) to the Cumbres & Toltec Scenic Railroad and avoidance/ minimization measures (done)
 - Add text regarding need for project-level consultation with NPS (to be added)
 - Include impacts to the Trujillo Homestead and Pike's Stockade National Historic Landmarks (no visual impacts from solar development in the SEZs are anticipated on these two NHLs)
 - Add text on Lands with Wilderness Characteristics, including design feature (done)
 - De Tilla Gulch SEZ – eliminate use of “high potential” and “low potential” segment terminology regarding the Old Spanish National Historic Trail (National Park Service) – Will eliminate reference to potential determinations

Summary - Comments on SEZ Impact Tables (cont.)

- Socioeconomics and Environmental Justice:
 - Add impact text on loss of hunting license revenue to Socioeconomics Impacts (done)
 - Add reference to potential impacts from loss of sustenance hunting to Environmental Justice Impacts (to be added)
 - Consider cumulative impacts to environmental justice communities of the San Luis Valley
 - Environmental justice will be evaluated with respect to human health, specifically air quality as impacted by solar development
 - Dust study to evaluate air quality impacts

Stakeholder Comments – Follow Up

- Updated baseline data sources posted to project web site (<http://www.blm.gov/co/st/en/fo/slvfo/solar.html>)
- Revised impact tables posted to project web site (changes from last version are shown)
- Some additional refinements will be incorporated
- Both baseline data sources and impact tables to be included in Draft SRMS document

Resources That May Warrant Regional Mitigation



Starting Point: Unavoidable or Residual Adverse Impacts (from Impact tables)

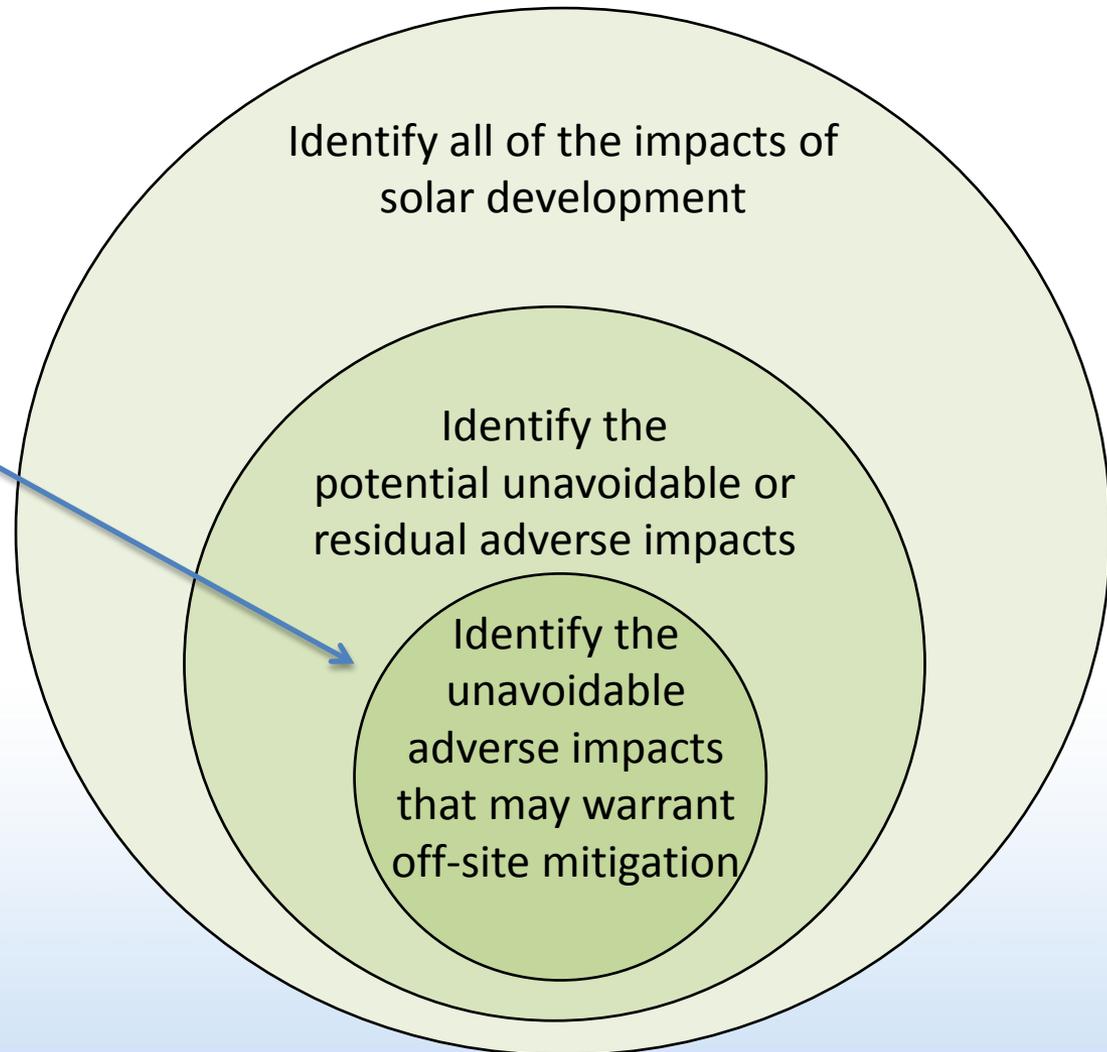
- Air Quality (depends on level of grading)
- Cultural
- Vegetation
- Invasive and Noxious Weeds
- Terrestrial Wildlife
- Migratory Birds
- Plant Special Status Species
- Animal Special Status Species
- Hydrology – Surface and Groundwater
- Livestock Grazing
- Native American Concerns
- Soils/Erosion
- Specially Designated Areas/LWC
- Visual



- Maybes:
 - Acoustics (for wildlife)
 - Environmental Justice
 - Recreation
 - Socioeconomics

Methodology for Identifying the Impacts of Solar Development that May Warrant Off-site Mitigation

Next step
in the
process



SEZ Impacts Warranting Regional Mitigation - Determining BLM Draft Recommendations

- *Purpose:*
 - Develop rationale for Solar Energy Zone impacts that warrant (or not) regional mitigation, compensatory actions, and a strategy based on avoidance, minimization, residual unavoidable impacts & landscape-scale concerns
- Review with Stakeholders
 - Receive input, check our thinking
- Regional Mitigation Rationale Tables (December 2014) available on project website
 - *For Antonito SE SEZ, Los Mogotes E SEZ, and De Tilla Gulch SEZ*
- BLM Inter-disciplinary Team Rationale follow-up:
 - SEZ Residual-Unavoidable Impacts Table reviewed with stakeholders at September 2014 field trips & workshop

SEZ Impacts Warranting Regional Mitigation - Assessment Approach

- *Combined BLM CO San Luis Valley & BLM NM Taos Field Office interdisciplinary team*
- *Assumptions:*
 - *Solar PEIS 80% SEZ full-build Scenario (20-years)*
 - *Photovoltaic &/or Concentrating Solar Trough Technologies – No Power Tower*
- *Referenced SEZ impact table summaries, other studies, baseline data, reports, field knowledge*



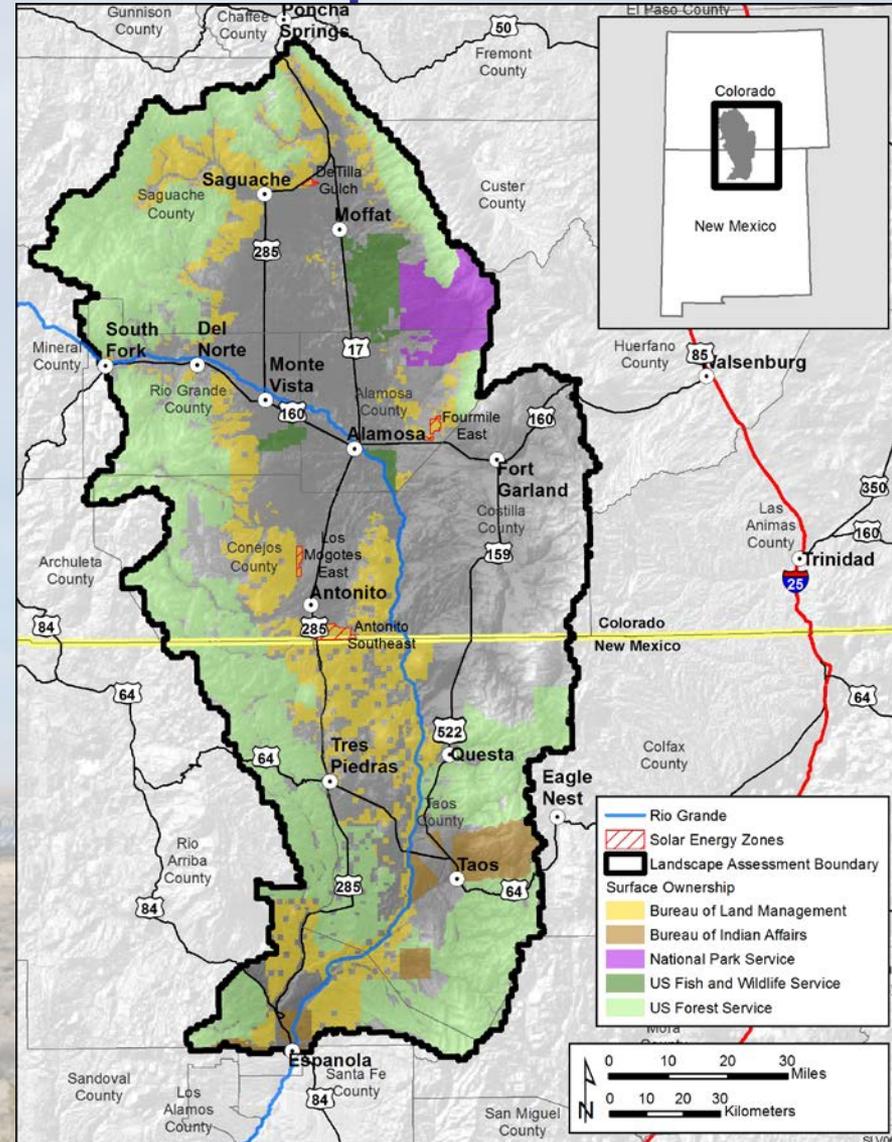
SEZ Impacts Warranting Regional Mitigation - Assessment Approach (continued)

- *Evaluated regional conditions using Draft San Luis Valley-Taos Plateau Landscape Assessment – models, data, statistics*
 - *What are regional conditions & trends for conservation elements (i.e., pronghorn, soils, swift fox, etc.) impacted by the SEZ's?*
 - *How has and will human development influence conditions & trends?*
 - *How has and will invasive species influence conditions & trends?*
 - *How has and will fire and climate change influence conditions & trends?*

San Luis Valley – Taos Plateau Landscape Assessment

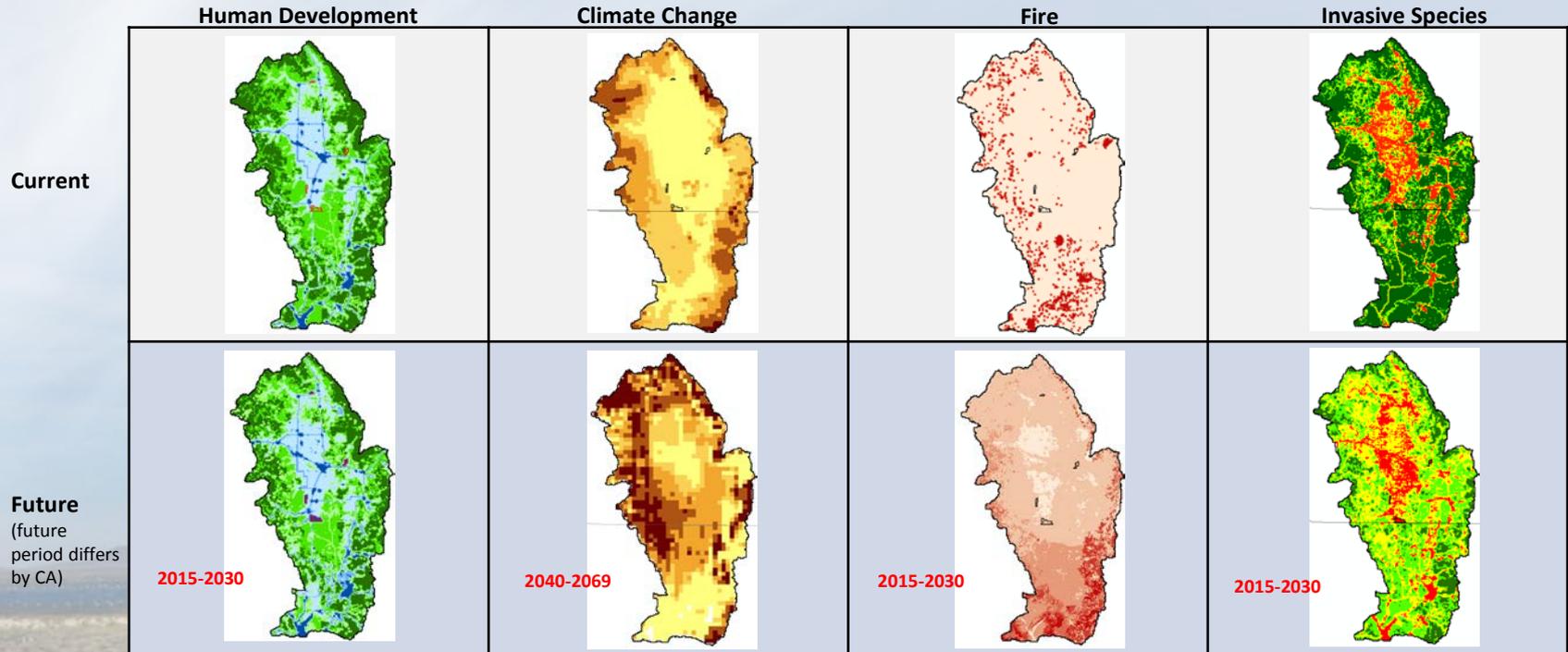
Landscape Assessment

- Study Area: Approximately 9,650 mi² (6.2 million acres)
- Variety of ecosystem types
 - Grasslands & shrublands
 - Wetlands
 - Montane forests
- Important ecological and cultural resources
- Variety of human land uses
 - Agriculture
 - Residential and industrial development
 - Grazing
 - Recreation



San Luis Valley – Taos Plateau Landscape Assessment

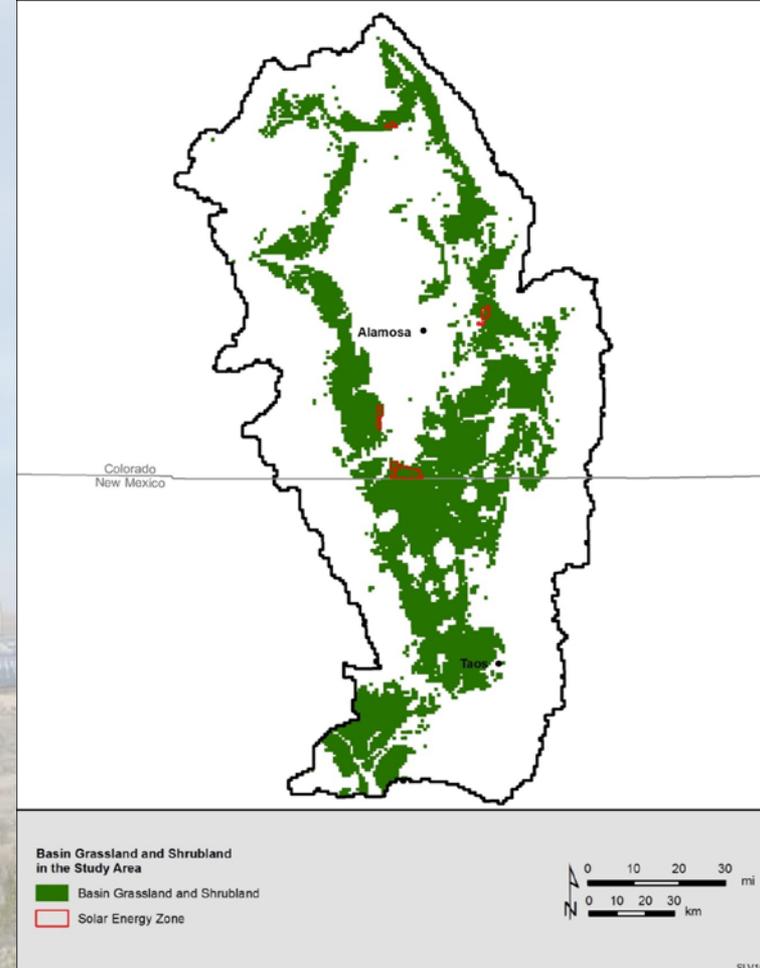
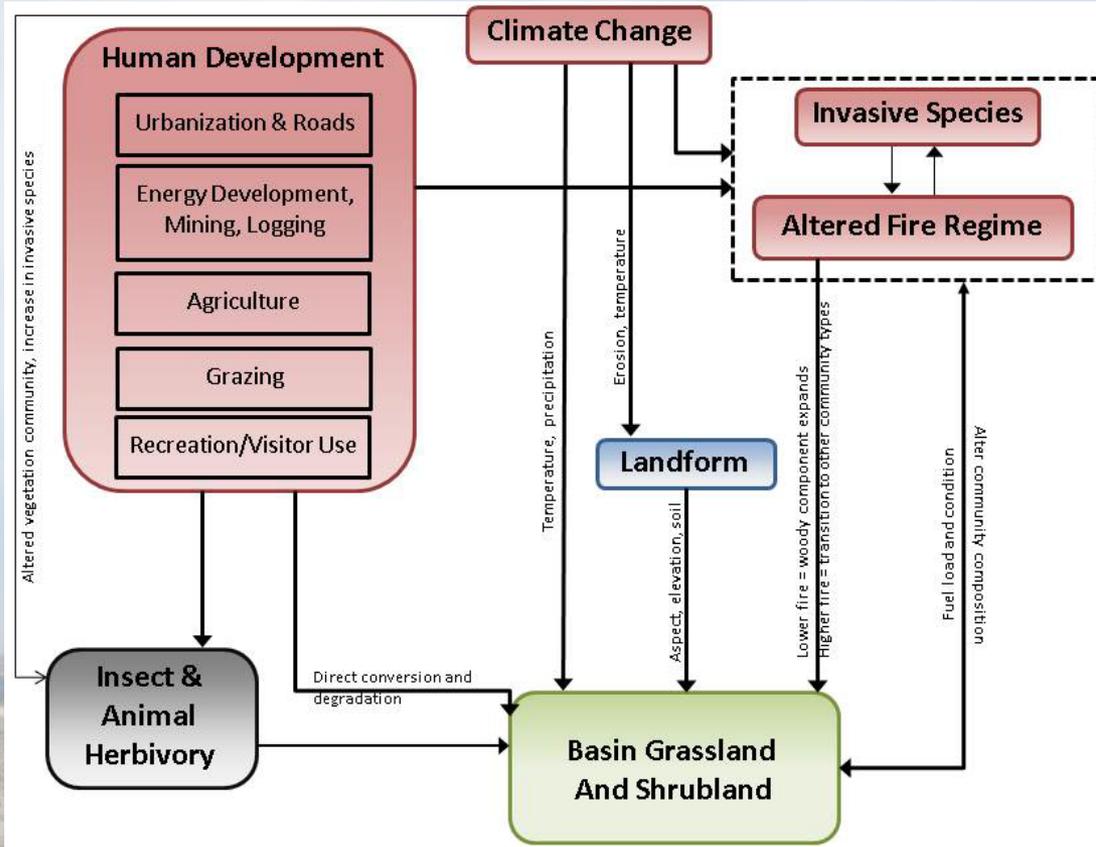
Change Agent Models



San Luis Valley – Taos Plateau Landscape Assessment

Conservation Element Assessment

Basin Grassland & Shrubland

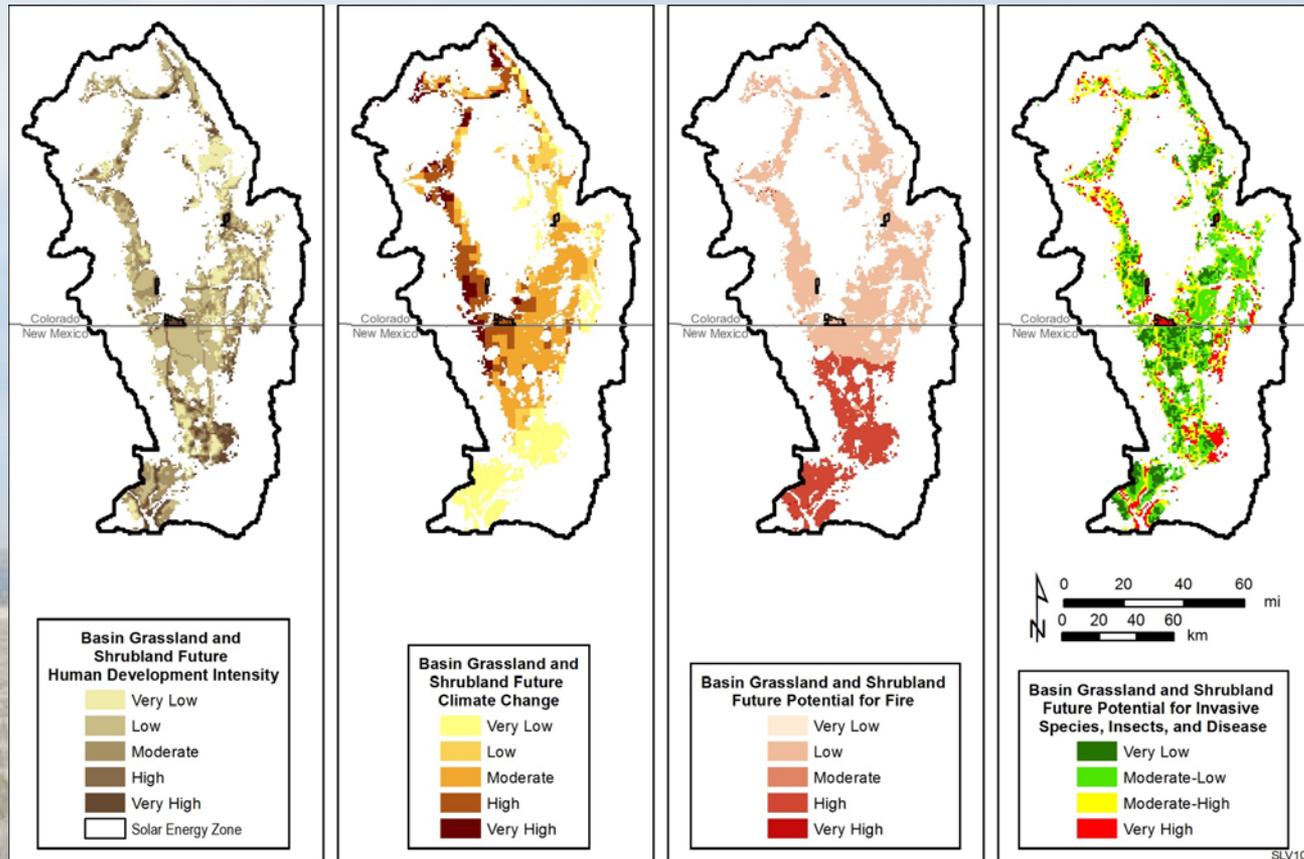


San Luis Valley – Taos Plateau Landscape Assessment

Conservation Element Assessment

Basin Grassland & Shrubland

MQ: Where are Basin Grassland and Shrubland communities vulnerable to change agents in the future?



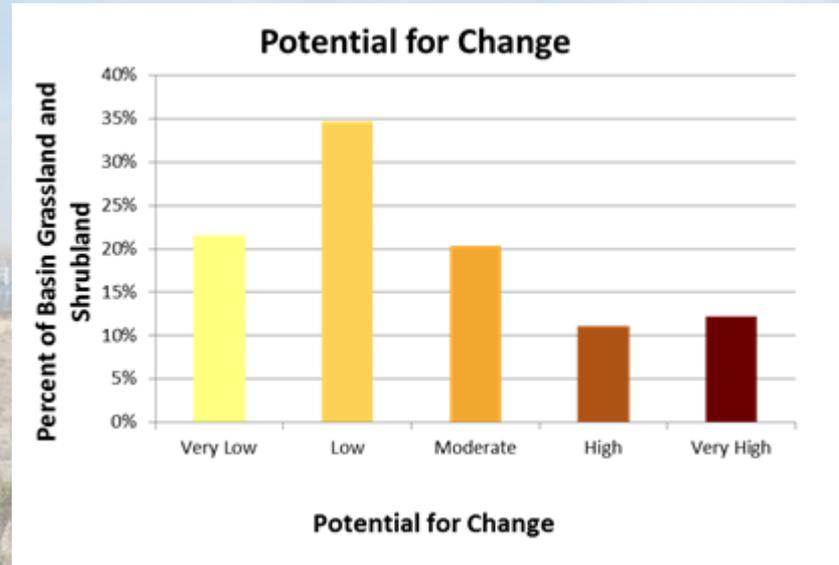
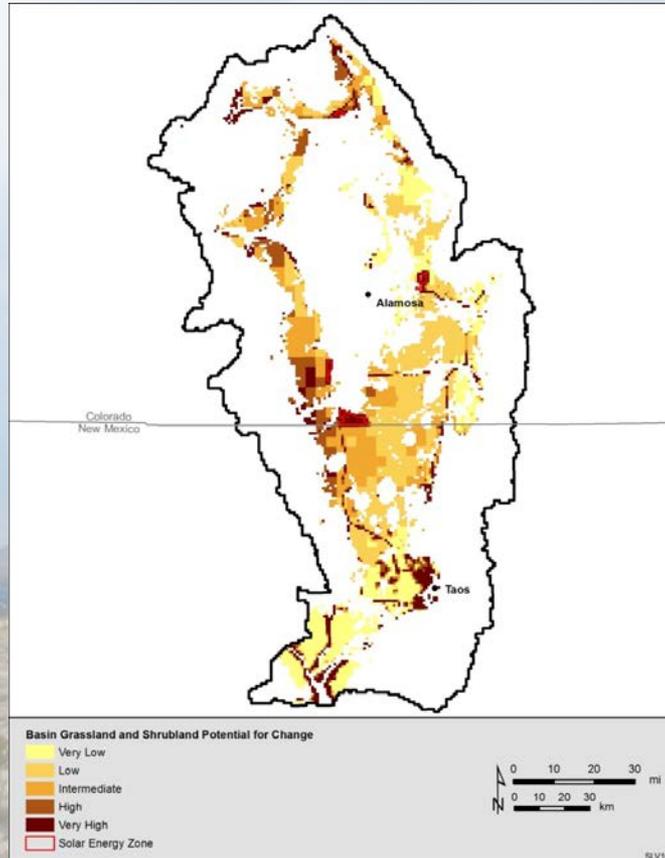
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San Luis Valley – Taos Plateau Landscape Assessment

Conservation Element Assessment

Basin Grassland & Shrubland

Aggregated Potential for Future Change



SEZ Impacts Warranting Regional Mitigation - Assessment Approach (continued)

– *IDT answered a series of seven questions covering 26 resource/issue categories. Seven questions were:*

- **Are there Residual or Unavoidable Adverse Impacts?**
- **How certain is it that the residual impacts will occur?**
- **How significant are the residual impacts onsite?**
- **How significant are the residual impacts of developing the SEZ in the region (San Luis Valley-Taos Plateau)?**
- **What is the role in the ecosystem?**
- **Are there other considerations?**
- **Are potential residual impacts likely to warrant regional mitigation?**



SEZ Impacts Warranting Regional Mitigation - Assessment Approach (continued)

- BLM CO-NM Technical-IDT **Qualitative Assessment Ratings** to deal with uncertainty:
 - Are there Residual Impacts?
 - ***Yes, Probable, Possible, Unlikely, No***
 - How certain is it that the residual impacts will occur?
 - ***Certain, Probable, Possible, Unlikely, No***
 - How significant are the residual impacts onsite?
 - ***Highly, Potentially High, Moderately High, Moderately, Low***
 - How significant are the residual impacts of developing the SEZ in the region (San Luis Valley-Taos Plateau)?
 - ***Highly, Potentially High, Moderately High, Moderately, Low***
 - Are potential residual impacts likely to warrant regional mitigation?
 - ***Yes, Possibly, No***



Antonito SE Solar Energy Zone

Identify the potential unavoidable adverse impacts (consider onsite mitigation)

Resource/ Issue	Residual or Unavoidable Impact?	How certain is it that the residual impacts will occur?	How significant are the residual impacts onsite?	How significant are the residual impacts of developing the Antonito SEZ in the region (San Luis Valley-Taos Plateau)?	Role in the ecosystem?	Other Considerations	Are potential residual impacts likely to warrant regional mitigation?
Acoustics	Probable Terrestrial wildlife, birds, bats	Probable Noise level depends on technology, construction and operational phase traffic	Moderately Context: Low current ambient noise on site. Intensity & Duration: Construction-phase noise limited, operation-phase traffic noise levels 30+ years or permanent change	Moderately Residual operational-phase noise impacts resulting from 80% build out of 9,700 acre SEZ, represent a large undeveloped geographic area where new noise would occur, would be of long duration: (minimum of 30 years) and cumulative to noise sources from the nearby Imery plant, railroad, Highway 285 and Town of Antonito.	Noise associated with solar development on the SEZ represents a Human Element that also impacts wildlife.	SEZ noise impacts would be cumulative to vegetation-habitat impacts from 80% build out of the 2,650 acres at Los Mogotes E SEZ and other ongoing activities in the vicinity of the Antonito SE SEZ.	Possibly When considered cumulative to impacts associated with loss of 9,700 acres of vegetation-habitat for terrestrial wildlife, sensitive species, raptors, and migratory birds.



Antonito SE Solar Energy Zone

Resource/ Issue	Residual or Unavoidable Impact?	How certain is it that the residual impacts will occur?	How significant are the residual impacts onsite?	How significant are the residual impacts of developing the Antonito SEZ in the region (San Luis Valley-Taos Plateau)?	Role in the ecosystem?	Other Considerations	Are potential residual impacts likely to warrant regional mitigation?
Soils/Erosion	<p>Yes</p> <p>Programmatic design features can reduce but not eliminate soil erosion risk assuming disturbance of up to 7,770 acres.</p> <p>Level of site grading would be a primary driver of residual impact for full build-out of SEZ.</p>	<p>Certain</p> <p>Based on SEZ grading assumptions and 80% build-out scenario that does not specify native plant cover retention, there would be residual impacts on soils.</p>	<p>Highly</p> <p>Soil disturbance that occurs as a result of construction activities like grading, excavation and backfilling that displace topsoil and disturb the existing soil profile.</p>	<p>Highly</p> <p>Although the total disturbance area of SEZ with respect to the region is very minimal, currently 26% of the region has experienced high human development, and 19% of the region has been highly impacted due to climate change, topsoil loss by wind and water erosion would have residual impact in the region. The degree of significance will depend on the level of grading and retention of native plant species</p>	<p>Basic component</p>	<p>Other Considerations</p>	<p>Yes</p> <p>Reclaiming equivalent areas with bare and highly erodible soils in the region warranted</p> <p>Avoidance-minimization measures to reduce potential for fugitive dust generation based on technology (e.g., solar array mounting systems, panel height, etc.), and varied levels of native plant cover retention and/or use of dust suppressants are reasonable alternatives for project-level NEPA analyses.</p>



Antonito SE Solar Energy Zone

Resource/ Issue	Residual or Unavoidable Impact?	How certain is it that the residual impacts will occur?	How significant are the residual impacts onsite?	How significant are the residual impacts of developing the Antonito SEZ in the region (San Luis Valley-Taos Plateau)?	Role in the ecosystem?	Other Considerations	Are potential residual impacts likely to warrant regional mitigation?
Ecology: Avian or Terrestrial Special Status Species (SSS)	Yes	<p>Certain</p> <p>Loss of habitat is certain. Loss of SSS animals is possible.</p>	<p>Highly</p> <p>Very high due to the SEZ size— expect the total loss of habitat for SSS animal species over the entire developable area.</p>	<p>Highly</p> <p>Aggregate habitat loss and fragmentation impacts resulting from 80% build out of 9,700 acres to eight BLM Terrestrial Special Status Species is a regional concern when considered at the San Luis Valley – Taos Plateau ecological scale and relevant to long-term conservation of Gunnison's prairie dog, burrowing owl, swift fox, ferruginous hawk, Brewer's sparrow, mountain plover, and Northern leopard frog.</p> <p><u>Landscape</u> Moderately high significance of residual impacts are still anticipated for Gunnison's prairie dog, burrowing owl, and swift fox. Avoidance measures protecting occupied habitat will reduce residual impacts; however, impacts would still be present because of overall habitat loss (80% of 9,700 acres), loss of connectivity of habitat, and cumulative effects.</p> <p><i>See also endnote</i></p>	Basic Component (along with other wildlife)	Mitigation of impacts to SSS is required by BLM policy.	Yes



Draft Recommendations for Resources that May Warrant Regional Mitigation in CO SEZs

- Ecology
 - Terrestrial Wildlife Habitat
 - Vegetation
 - Migratory Birds
 - Animal and Plant Special Status Species Habitat
- Hydrology - surface and groundwater
- Soils
- Visual

Possibly– Acoustics, Air Quality, Cultural, Invasive Weeds, Environmental Justice, Livestock Grazing, Native American Concerns, Specially Designated Areas/LWC



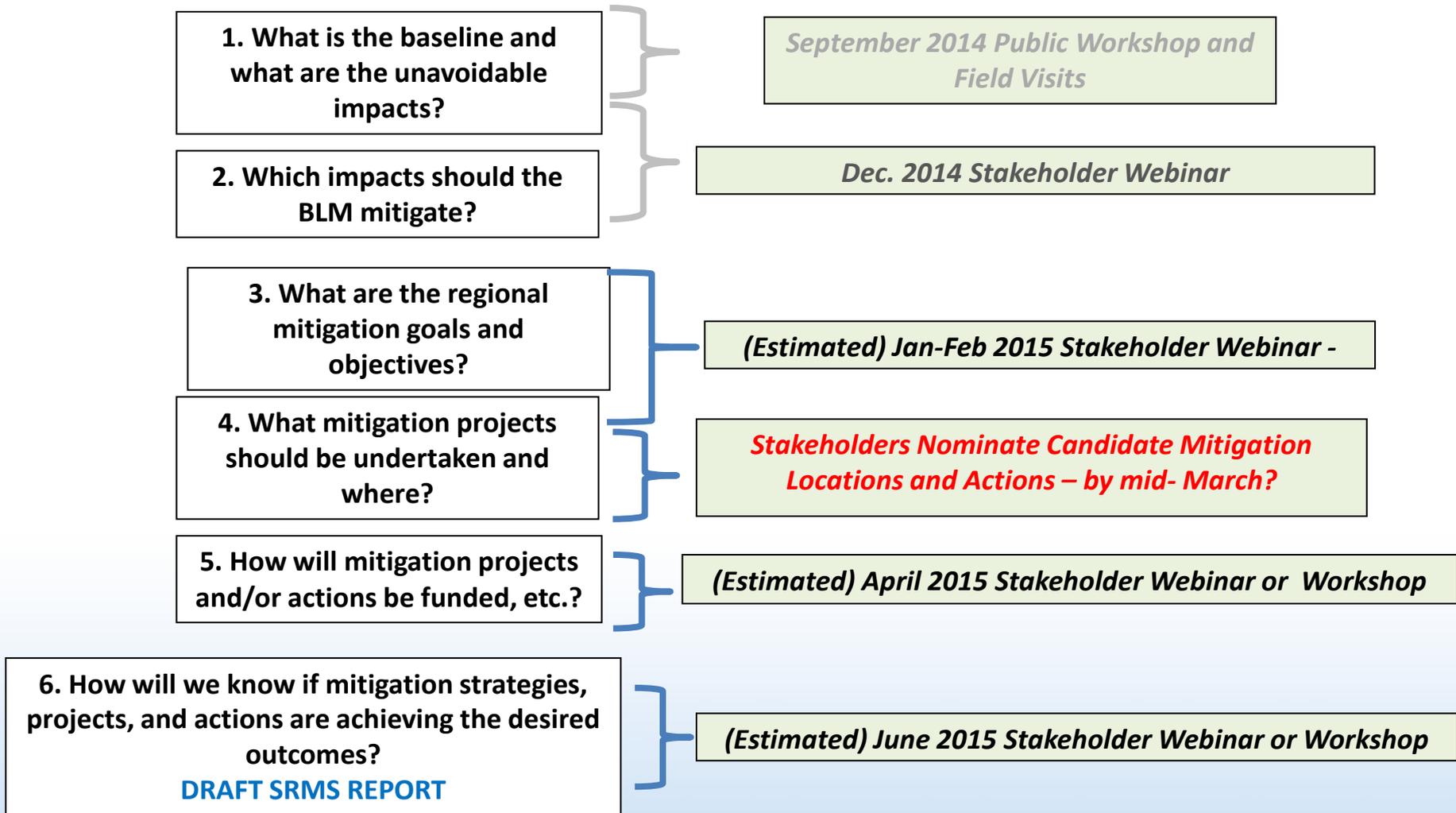
Tables “Impacts Warranting Mitigation Rationale” Available on Project Web Site

<http://www.blm.gov/co/st/en/fo/slvfo/solar.html>

Please provide comments by January 15, 2015

Comments can be e-mailed to SolarMitigation@blm.gov, or to Joe Vieira at jvieira@blm.gov

Colorado SRMS Process – Next Steps



Questions?

