

Afton Solar Energy Zone: Preliminary Impact Assessment Summary Table

In Dona Ana County in southern New Mexico, Las Cruces District Field Office - 29,964 developable acres; up to 4,794 MW generation capacity, assuming 80% development
 Source: Draft and Final Solar PEIS for Afton SEZ (available at: <http://blmsolar.anl.gov/sez/nm/afton/>)

Resource/Issue	Afton Solar Energy Zone Impacts ¹	On-site Mitigation ²		Residual Adverse Impacts? ³
		Avoidance	Minimization	
Acoustics Section 12.1.15 ⁴	<p>Direct: Activities during construction and/or operation of solar facilities with thermal energy storage could cause noise levels exceeding background but below the EPA guideline of 55 dBA at the nearest residence (adjacent to the southeastern boundary of the SEZ).</p> <p>Indirect: The estimated noise level at the Aden Lava Flow WSA is below the significance threshold. Potential vibration impacts on the nearest residences would be negligible.</p> <p>Cumulative⁵: If multiple facilities were to be constructed close to the SEZ, residents nearby could be affected by the cumulative noise generated, particularly during construction and/or at night when the noise is more discernible due to relatively low background levels.</p> <p>Data Gaps⁶: Refined modeling would be warranted along with background noise measurements during project-specific assessments.</p>	<p>Solar facilities must be located 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 programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Noise.pdf</p>	<p>Programmatic design features state that methods considered may include limiting the hours of daily activities, constructing noise barriers if needed and practicable, and coordinating with nearby residents.</p> <p>See other programmatic design features as URL under Avoidance column.</p>	

¹ The impacts assessment assumed 80% of the SEZ area will be used for solar development.

² These columns give examples of avoidance and minimization measures that are specified in the Record of Decision for the Final Solar PEIS and will be required. Additional avoidance and minimization measures proposed by the BLM Interdisciplinary Team are listed and should be evaluated through project-specific environmental analyses. Monitoring is planned to verify the implementation and effectiveness of avoidance and minimization measures.

³ Residual or unavoidable impacts are residual effects that cannot be completely mitigated onsite by avoidance and/or minimization.

⁴ Section numbers are the same in both the Draft and Final Solar PEIS.

⁵ Sections 12.1.22.4 of the Draft and Final Solar PEIS address cumulative impacts, which consider ongoing and reasonably foreseeable activities in the vicinity of the SEZ such as wind, geothermal, mining, agricultural, and commercial development; new roads, traffic, and off-highway vehicle use; and infrastructure such as transmission lines and fences.

⁶ Data gaps have not been identified for all resources in this table. Additional data gaps may be identified during future SEZ or project-specific assessments.

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<p>Air Quality Section 12.1.13</p>	<p>Direct: Fugitive dust and equipment exhaust emissions during construction could result in exceedance of National Ambient Air Quality Standards (NAAQS) for particulate matter (PM) at SEZ boundaries. Specifically, predicted 24-hour PM₁₀ and 24-hour and annual PM_{2.5} concentrations could exceed AQS at the SEZ boundaries and in the immediate surrounding areas during construction of solar facilities. High PM₁₀ concentrations would be limited, however, to the immediate areas surrounding the SEZ boundary and would decrease quickly with distance.</p> <p>Generation of fugitive dust may result in exposure to respirable particulates and/or microbes (human health impacts). Based on Wind Erosion Groups identified in the Solar PEIS, the majority of the soils on the SEZ (60%) are characterized as having high potential for wind erosion, and the rest of the SEZ soils are characterized as having moderate potential for wind erosion. (NOTE: The high erodibility of some SEZ soils may warrant additional consideration of dust issues.)</p> <p>Indirect: Decreased visibility in nearby residential or specially-designated areas due to elevated PM levels from soil disturbance/grading during construction.</p> <p>Cumulative: Cumulative effects due to dust emissions would be greatest if multiple solar projects had overlapping construction periods.</p> <p>Data Gaps: Monitoring for PM during all phases of development would be required to ensure levels remain below permitted limits.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Air_Quality_Climate.pdf</p>	<p>Dust suppression measures will be implemented during all phases of development (construction, operations, and decommissioning)</p> <p>See programmatic design features at URL under Avoidance column.</p> <p>Also recommend evaluation of solar panel mounting and other disturbance minimizing technologies in project-level NEPA alternatives (e.g., no grading of the site, retention of maximum native vegetation, use of low emission vehicles, placing gravel on roads, use of "drive and crush" installation).</p> <p>Recommend re-vegetation of the SEZ with native vegetation to increase soil stability as a plan of development feature to further minimize the amount of grading and surface disturbance and promote reduced dust emissions and PM levels.</p>	

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<p>Climate Change Section 5.11.4 of DPEIS for soil storage capacity; 12.1.13 for emissions avoided</p>	<p>Direct: Possible impact through loss of carbon storage capacity of the soil (estimated at 100 g carbon/m²). Preliminary calculations show loss of CO₂ storage capacity as 1.6 tons/acre/yr (38,354 tons/yr for SEZ full build-out), less than 1% of the CO₂ emissions avoided by operation of a solar facility (see below)</p> <p>Positive impact: Solar power generation reduces demand for energy from fossil fuels, and thereby reduces greenhouse gas emissions (from about 4.64-8.36 million tons/yr CO₂ avoided at full build-out depending on technology).</p> <p>Cumulative: Over the long term the development of solar energy may contribute to reduced greenhouse gas emissions (if the development offsets electricity generation by fossil fuel plants).</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features for vegetation at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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Cultural Section 12.1.17	<p>Direct: Direct impacts on significant cultural resources could occur in the SEZ. 58 cultural resource sites have been identified in the surveyed area, at least 2 are eligible for listing in the NRHP. In addition, several ACECs have been designated for purposes including protection of significant cultural resources: Los Tules ACEC is 1 mi to the east of the SEZ, Organ Franklin Mountain ACEC is 6 mi east, and Robledo Mountain ACEC is 9 mi north. The distance from the SEZ to the Butterfield Trail Special Management Area is 5 mi (8 km) and the distance to the actual trail is 8 mi (13 km).</p> <p>Indirect: Erosion impacts on the cultural landscape outside of the SEZ resulting from land disturbances and modified hydrologic patterns; increased accessibility and potential for damage to eligible sites in the non-development area as well as outside of the SEZ.</p> <p>Cumulative: Eligible sites could be impacted in the SEZ and adjacent areas.</p> <p>Data Gaps: Only 1,840 acres (7.4 km²), about 6% of the SEZ, has been surveyed for cultural resources. The Section 106 consultation process must also be completed at the project level and has the potential to result in additional information to consider. Visual impacts are possible to several NRHP-listed properties and additional analysis on the visual effects of solar development would be needed prior to development.</p>	<p>Avoidance of significant cultural resources clustered in specific areas which retain sufficient integrity is recommended.</p> <p>For projects in the Afton SEZ that may be located within the viewshed of El Camino Real de Tierra Adentro National Historic Trail and/or the Butterfield Trail, a National Trail inventory should be conducted to determine the area of possible adverse impact on resources, qualities, values, and associated settings of the trail, to prevent substantial interference, and to determine any areas unsuitable for development. Residual impacts should be avoided, minimized, and/or mitigated to the extent practicable according to program policy standards. See other programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Cultural.pdf</p>	<p>Reducing visual impacts on the El Camino Real National Historic Trail, the Butterfield Trail, and Mesilla Plaza National Historic Landmark would also reduce impacts on these cultural resources. Coordination with trails associations and historical societies regarding impacts on El Camino Real de Tierra Adentro, the Butterfield Trail, and Mesilla Plaza, as well as other NRHP-listed properties is recommended if visual impacts are identified.</p> <p>See programmatic design features at URL under Avoidance column.</p>	

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<p>Ecology: Vegetation Section 12.1.10</p>	<p>Direct: Development will adversely affect characteristic vegetation (e.g., creosotebush, honey mesquite and snakeweed, and Soap tree yucca) through destruction and loss of habitat. Development will result in small impacts to the following land types which comprise the SEZ: Chihuahuan Stabilized Coppice Dune and Sand Flat Scrub. Potentially sensitive habitats on the SEZ include wetlands, desert dry washes, and playas. Development, including vegetation removal, land clearing, grading, and changes in surface water flow may alter soils and vegetation communities and result in the establishment of invasive species and noxious weeds within the SEZ.</p> <p>Indirect: Loss of native vegetation, increased surface water runoff and related erosion, or through the introduction of invasive species. Establishment of noxious weeds in the SEZ may result in their spreading to adjacent areas. Indirect impacts on wetlands outside the SEZ could occur. Indirect impacts from groundwater use on communities in the region that depend on groundwater, such as wetlands and riparian habitats along the Rio Grande floodplain, could also occur.</p> <p>Cumulative: Solar energy development could be a contributor to cumulative impacts on some vegetation communities, depending on the type, number, and location of other developments in the region.</p> <p>Data Gaps: Direct impacts could still occur on unmapped wetlands within the developable areas of the SEZ.</p>	<p>SEZ-specific programmatic design features require that all wetland, dry wash, playa, riparian, succulent, and dune communities and large blocks of unfragmented grassland within the SEZ shall be avoided to the extent practicable, and any impacts minimized and mitigated in consultation with appropriate agencies. (Note – The Solar PEIS ROD identified 742 acres of floodplain and intermittent and dry lake within the SEZ as non-development areas). Any yucca, agave, ocotillo, cacti (Echinocactus spp.) and other succulent plant species that cannot be avoided will be salvaged. A buffer area will be maintained around wetland, dry wash, playa, and riparian habitats to reduce the potential for impacts.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>SEZ-specific programmatic design features require the following:</p> <p>Use of appropriate engineering controls to minimize impacts on wetland, dry wash, playa, and riparian habitats, including downstream occurrences, resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition to these habitats. Appropriate buffers and engineering controls will be determined through agency consultation.</p> <p>Consideration of other minimization measures including avoiding travel through weed-infested areas; inspecting and cleaning vehicles and equipment; limiting ground disturbance; avoiding the creation of soil conditions that promote weed germination and establishment; and disposing of seed and plant parts.</p> <p>Limiting groundwater withdrawals to reduce the potential for indirect impacts on groundwater-dependent communities, such as wetland or riparian communities associated with the Rio Grande floodplain.</p> <p>See other programmatic design features under Avoidance column.</p>	

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Xero-Riparian Areas Section 12.1.10	<p>Direct: Development will adversely affect characteristic xeroriparian vegetation (e.g., honey mesquite, littleleaf sumac) through destruction and loss of habitat. Sensitive habitats on the SEZ include desert dry washes and playas. Note: Revisions to the proposed SEZ boundaries during between draft and final Solar PEIS eliminated several wetlands)..</p> <p>Indirect: Loss of native vegetation due to dust deposition from construction and operations, increased surface water runoff and related erosion, or through the introduction of invasive species. Establishment of noxious weeds in the SEZ may result in their spreading to adjacent areas. Indirect impacts on wetlands could occur</p> <p>Cumulative: Solar energy development could be a contributor to cumulative impacts on some vegetation communities, depending on the number and location of other developments in the region.</p> <p>Data Gaps: Direct impacts could still occur on unmapped wetlands within the developable areas of the SEZ if present.</p>	<p>SEZ-specific programmatic design features require the following</p> <p>All dry wash, playa, riparian, succulent, and dune communities and large blocks of unfragmented grassland within the SEZ will be avoided to the extent practicable, and any impacts minimized and mitigated in consultation with appropriate agencies. A buffer area will be maintained around wetland, dry wash, playa, and riparian habitats to reduce the potential for impacts.</p> <p>Undisturbed buffer areas and sediment and erosion controls will be maintained around wetlands on the SEZ.</p> <p>Development will avoid, to the extent practicable, any additional wetlands identified during future site-specific fieldwork.</p> <p>The use of heavy machinery and pesticides will be avoided within the immediate catchment basins for wetlands on the SEZ.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>SEZ-specific programmatic design features require the following:</p> <p>Use of appropriate engineering controls to minimize impacts on wetland, dry wash, playa, and riparian habitats, including downstream occurrences, resulting from surface water runoff, erosion, sedimentation, altered hydrology, accidental spills, or fugitive dust deposition to these habitats. Appropriate buffers and engineering controls will be determined through agency consultation.</p> <p>See programmatic design features.</p>	

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<p>Invasive & Noxious Weeds Section 12.1.10</p>	<p>Direct: Development, including vegetation removal, land clearing, grading, changes in surface water flow, and dust deposition may alter soils and vegetation communities and result in the establishment of invasive species and noxious weeds within the SEZ. African rue is present on the SEZ.</p> <p>Indirect: Loss of native vegetation due to dust deposition from construction and operations, increased surface water runoff and related erosion, or through the introduction of invasive species. Establishment of noxious weeds in the SEZ may result in their spreading to adjacent areas.</p> <p>Cumulative: Solar energy development could be a contributor to cumulative impacts on some vegetation communities, depending on the number and location of other developments in the region.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>Programmatic design features for weed control state that methods considered may include avoiding travel through weed-infested areas; inspecting and cleaning vehicles and equipment; limiting ground disturbance; avoiding the creation of soil conditions that promote weed germination and establishment; and disposing of seed and plant parts.</p> <p>See programmatic design features at URL under Avoidance column.</p> <p>A weed management plan should be developed that addresses inventory, monitoring, mitigation, and treatment of noxious / invasive weeds consistent with existing land use plans, the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic EIS, and the ENVIRONMENTAL ASSESSMENT DOI-NM-BLM-L000-2011-0169-EA.</p> <p>Weed Free seed should be used to support re-vegetation efforts, control invasive species, and prevent wildfires. Any reseeding efforts shall be consistent with IM 2006-073.</p>	
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<p>Ecology: Terrestrial Wildlife and Aquatic Biota Section 12.1.11</p>	<p>Direct: Loss of habitat and connectivity for several species of amphibians, reptiles, mammals, bats, and invertebrates. Game species occurring within the SEZ include mule deer, quail, and dove. Ground disturbance, fugitive dust generated by project activities, lighting, vegetation clearing, spread of invasive species, accidental spills, harassment, and impacts on ephemeral washes could impact wildlife within the SEZ. Impacts from noise on wildlife could occur, especially on bat species, if the SEZ is located near any bat roosts. Other species that may be impacted include reptiles, upland game birds (e.g., quail), small mammals, and mule deer.</p> <p>Indirect: Outside the SEZ, impacts could occur from habitat loss or modification, increased human presence in the area, surface runoff, dust, noise, lighting, or accidental spills.</p> <p>Cumulative: Cumulative effects on some species could rise to a level of moderate, given the large acreages potentially disturbed and depending on the type, number, and location of other developments in the region.</p> <p>Data Gaps: Impacts on terrestrial wildlife from construction noise would have to be considered on a project-specific basis for some species (e.g., bats).</p>	<p>Impacts on wash, riparian, playa, rock outcrop, and wetland habitats, which may provide more unique habitats for some species, should be avoided, minimized, or mitigated.</p> <p>Wetlands, washes, and riparian areas identified during site-specific surveys will be avoided to the extent practicable.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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<p>Ecology: Migratory Birds Section 12.1.11.2</p>	<p>Direct: Loss of individuals, habitat, and connectivity for several species protected under the Migratory Bird Treaty Act. Noise, lighting, and vegetation clearing could impact migratory birds using the SEZ. There is potential for water birds to be attracted to solar fields (because they look like water) and collide with solar panels. Burning of wings in the solar radiation field between heliostats and power towers has been observed. There may also be impacts on night sky that may alter bird migratory behavior and habitat use. Priority migratory bird species that may occur on or near the SEZ include Bell's vireo, gray vireo, prairie falcon, Swainson's hawk, northern harrier, loggerhead shrike, Bendire's thrasher, and crissal thrasher.⁷</p> <p>Indirect: Outside the SEZ, impacts could occur from habitat loss.</p> <p>Cumulative: Impacts to migratory birds could occur; depending on the number and location of other developments in the region.</p> <p>Data Gaps: Additional research needed on solar development impacts on migratory birds, including whether birds are attracted to solar fields because they look like water. Impacts on migratory birds from construction noise would have to be considered on a project-specific basis.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p> <p>Effects to individual migratory birds and bird nests can be avoided by not constructing during the breeding season. Timing limitation should be enforced from May 15-July 15 for any surface disturbing activities to protect migratory bird nesting and brood rearing. If construction takes place during the breeding season, nest surveys will be conducted.</p>	<p>Programmatic design features state that restrictions on timing and duration of activities in coordination with the BLM, USFWS, and other appropriate agencies will be considered to minimize impacts on nesting birds (especially passerines and listed species).</p> <p>See other programmatic design features at URL under Avoidance column.</p> <p>Also recommend implementation of technologies that minimize the amount of reflective surfaces, or alter how the surfaces are perceived by wildlife, that will reduce the "lake effect" in attracting migratory birds and other wildlife.</p>	

⁷ Priority migratory bird species for the SEZ will be determined based on those species discussed in RMPs for the Las Cruces District Office and through consultation with the BLM IDT.

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<p>Ecology: Plant Special Status Species Section 12.1.12</p>	<p>Direct: No Endangered Species Act (ESA)-listed species have been identified that have suitable habitat within the SEZ. One BLM-sensitive plant (sand prickly-pear, <i>Opuntia arenaria</i>) has been previously been reported on the SEZ, but it is not known if it still occurs there. No other BLM-sensitive or state-listed plant species have been reported on, or have suitable habitat in, the SEZ.</p> <p>If sand prickly-pear does occur in the SEZ, ground disturbance, land clearing and grading, fugitive dust generated by project activities, and the spread of invasive species may result in loss of its habitat or loss of individual plants.</p> <p>Indirect: Indirect impacts to individuals and habitat outside of the SEZ could occur from surface runoff, dust, or accidental spills. There could be indirect impacts to habitat for the sand prickly-pear cactus.</p> <p>Cumulative: There would be no cumulative impacts on special status plant species unless they are discovered during pre-disturbance surveys (cumulative impacts then might be due to habitat destruction and overall development and fragmentation of the area).</p> <p>Data Gaps: Pre-disturbance surveys are required to determine if and where sand prickly-pear occurs.</p>	<p>Following pre-disturbance surveys, any populations of sand prickly-pear discovered will be avoided to the extent practicable.</p> <p>See other programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>See other programmatic design features at URL under Avoidance column.</p>	

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<p>Ecology: Special Status Animal Species Section 12.1.12</p>	<p>Direct: Ground disturbance, land clearing and grading, and fugitive dust generated by project activities would result in loss of special status animal species habitat, if present, and might result in loss of individual animals. Impacts from noise on special status wildlife could also occur.</p> <p>No Endangered Species Act (ESA)-listed species have been identified that have suitable habitat within the SEZ. Solar PEIS analyses indicated that development on the SEZ could directly disturb individuals or populations of three additional BLM-sensitive special status animal species (American peregrine falcon, western burrowing owl, and western small footed myotis).</p> <p>Indirect: Indirect impacts to individuals and animal habitat outside of the SEZ could occur due to surface runoff, dust, noise, lighting, or accidental spills.</p> <p>Cumulative: There could be cumulative impacts on some special status animal species due to habitat destruction and overall development and fragmentation of the area.</p> <p>Data Gaps: Pre-disturbance surveys are required to identify the presence and abundance of special status species.</p>	<p>Compliance with the Bald & Golden Eagle Protection Act would be ensured and Eagle Take Guidance would be followed (if necessary).</p> <p>Based on data from required pre-disturbance surveys, disturbance to suitable habitats would be avoided to the extent practicable.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Ecological_Resources.pdf</p>	<p>If avoidance is not possible for some species, translocation of individuals from areas of direct effects or compensatory mitigation may be employed.</p> <p>Regarding avoidance and minimization onsite, consultation with the U.S. Fish & Wildlife Service will be conducted to address the potential for impacts on ESA-listed and proposed species and to identify mitigation measures for implementation.</p> <p>See other programmatic design features at URL under Avoidance column.</p>	
<p>Environmental Justice Section 12.1.20</p>	<p>Direct: Based on 2010 census data there is a minority population within a 50-mile (80 km) radius of the SEZ, so any adverse impacts of solar projects could affect this population. There are low-income populations within a 50-mile radius of the SEZ.</p> <p>Indirect: None identified.</p> <p>Cumulative: Contributions from solar development in the SEZ would likely be small and would not be expected to significantly contribute to cumulative impacts on minority populations within the 50-mile geographic extent of effects.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Environmental_Justice.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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<p>Hydrology: Surface Water Section 12.1.9</p>	<p>Direct: Land clearing, land leveling, vegetation removal, and spills and runoff associated with development of the SEZ could increase surface runoff, reduce infiltration/recharge, cause loss of ephemeral stream networks, cause a reduction in evapotranspiration rates, increase sediment transport (by water), change sediment transport (by wind), and degrade water quality. The Afton SEZ is within the Lower Rio Grande Basin. Two ephemeral channels within the Afton SEZ were classified with moderate sensitivity to land disturbance.</p> <p>Disturbance to ephemeral stream channels within the Afton SEZ should not pose a significant impact on the critical functions of groundwater recharge, sediment transport, flood conveyance, and ecological habitat.</p> <p>Indirect: Indirect impacts from development and groundwater use on intermittent/ephemeral surface water features could occur.</p> <p>Cumulative: Alterations to ephemeral stream networks can alter groundwater recharge and surface runoff processes potentially impacting the basin-scale water balance and water quality aspects of water features receiving surface runoff.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Water.pdf</p>	<p>Programmatic design features require project-specific Storm water Pollution Prevention Plans that control site drainage, erosion, and sedimentation related to storm water runoff.</p> <p>See other programmatic design features at URL under Avoidance column.</p>	
<p>Hydrology: Water Quality and Groundwater Availability Section 12.1.9</p>	<p>Direct: Groundwater withdrawals for development may cause declines in groundwater elevations that can impact water availability for surface water features, vegetation, ecological habitats, and regional groundwater flow paths. The SEZ is located in the Lower Rio Grande Groundwater Basin where available groundwater occurs primarily in basin-fill deposits. Disturbance to ephemeral stream channels within the Afton SEZ should not pose a significant impact on the critical functions of groundwater recharge.</p> <p>Indirect: Groundwater withdrawals for solar energy facilities may affect other groundwater users in the basin.</p> <p>Cumulative: Cumulative impacts on groundwater could occur when combined with other future developments in the region.</p> <p>Data Gaps: None identified.</p>	<p>Groundwater analyses suggest that full build-out of wet-cooled technologies is not feasible.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Water.pdf</p>	<p>For mixed-technology development scenarios, any proposed wet-cooled projects should utilize water conservation practices.</p> <p>See programmatic design features at URL under Avoidance column.</p>	

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Lands & Realty Section 12.1.2	<p>Direct: Development of 80% of the SEZ could disturb 23,971 acres (121 km²). About 5,216 acres (21 km²) of the southern portion of the Afton SEZ overlaps a designated Section 368 energy corridor. There is an existing 345kV line in the corridor. This existing corridor will be used primarily for the siting of transmission lines and other infrastructure. Any use of the corridor lands within the Afton SEZ for solar energy facilities, such as solar panels or heliostats, must be compatible with the future use of the existing corridor. The BLM will assess solar projects in the vicinity of existing corridor on a case-by-case basis. The BLM will review and approve individual project plans of development to ensure compatible development that maintains the use of the corridor.</p> <p>The proposed Southline transmission corridor is located partially within the 368 corridor within the SEZ.</p> <p>Indirect: Increased traffic and increased access to previously remote areas also could change the overall character of the landscape. It is possible that if the public lands are developed for solar energy production, the 18,128 acres (73 km²) of state land in and near the SEZ could be developed in a similar manner if the state chooses to consider such development.</p> <p>Cumulative: Projects within the SEZ would make only a small contribution to cumulative impacts because of its relatively small size.</p> <p>Data Gaps: None identified.</p>	<p>Consider avoiding entire 368 corridor to account for most ROWs in the SEZ.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Lands_and_Realty.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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Livestock Grazing Section 12.1.4.1	<p>Direct: Afton SEZ is located within Black Mesa (59% in SEZ), Home Ranch (28%), Aden Hills (20%) and La Mesa (6%) grazing allotments. It is anticipated that there could be a reduction of up to 4,084 AUMs among the four allotments with full build out of the SEZ. The West La Mesa and Little Black Mountain allotments have fewer than 20 acres (0.08 km²). It is anticipated that there would be no impact caused by the loss of these small portions of each allotment.</p> <p>Grazing would be excluded from the areas developed for solar energy production as provided for in the BLM grazing regulation. This would include reimbursement of the permittee for the portion of the value for any range improvements in the area removed from the grazing allotment.</p> <p>Indirect: None identified.</p> <p>Cumulative: Other development in the area of the SEZ could result in cumulative impacts on grazing.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Rangeland_Resources.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	
Military & Civilian Aviation Section 12.1.6	<p>Direct: No military training routes or special use airspace are located above the SEZ.</p> <p>The Las Cruces International Airport is more than 5 miles (8 km) north of the SEZ.</p> <p>Indirect: None identified.</p> <p>Cumulative: None identified.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Military_Civilian_Aviation.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	
Minerals Section 12.1.8 and Section 12.1.24 of the Final PEIS	<p>Direct: There are no locatable mining claims within the SEZ. The SEZ has been withdrawn from mineral entry for a period of 20 years, precluding impacts from locatable mining activities.</p> <p>Indirect: None identified. However, there are two mining operations adjacent to the eastern boundary of the SEZ.</p> <p>Cumulative: None identified.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Mineral_Resources.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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Tribal Concerns Section 12.1.18	<p>Direct: Afton SEZ lies within the traditional range of the Eastern Band of the Chiricahua Apache. The culturally important landscape includes places such as the Potrillo and Florida Mountains and Salinas Peak. The impacts on resources important to Tribes fall into two major categories: impacts on the landscape and impacts on discrete localized natural and cultural resources. Impacts may be visual, acoustic, or demographic. It is unlikely that avoidance of all resources would be possible.</p> <p>Indirect: General habitat loss with vegetation clearing and water reduction that could affect species and ecosystem health.</p> <p>Cumulative: None identified.</p> <p>Data Gaps: Government-to-Government consultation for projects will be required to determine issues of Tribal concern.</p>	<p>The following SEZ-specific programmatic design features for avoidance will be required:</p> <p>Known human burial sites and petroglyphs and/or pictographs will be avoided. Where there is a reasonable probability of encountering undetected human remains and associated funerary objects by a solar project, the BLM will conduct government-to-government consultation with tribes before the project is authorized, in order to provide general guidance on the treatment of any cultural items that might be exposed. The BLM will develop a Native American Graves Protection and Repatriation Act (NAGPRA) Plan of Action prior to any ground disturbing activities within historic properties to address any discoveries of human remains, funerary object or objects of cultural patrimony</p> <p>Culturally important plant and wildlife species and visual intrusion on sacred sites will be avoided to the extent practicable.</p> <p>See other programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Native_American_Concerns.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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<p>Paleontology Section 12.1.16</p>	<p>Direct: Less than 1% (199 acres [0.8km²]) of the SEZ is located in an area classified as Potential Fossil Yield Classification (PFYC) Class I. The remaining 29,765 acres (120.5 km²) are classified as PFYC Class 4/5. The distance to the Prehistoric Trackways National Monument is 10 - 14 mi (16 – 22 km).</p> <p>Indirect: None identified.</p> <p>Cumulative: Cumulative impacts are dependent on whether significant resources are found within the SEZ and in additional project areas in the region.</p> <p>Data Gaps: A more detailed assessment of the geological deposits of the SEZ is needed to determine whether a paleontological survey is warranted for a specific project.</p>	<p>Avoidance of the eastern edge of the SEZ may be warranted if a paleontological survey results in findings similar to those known south of the SEZ.</p> <p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Paleo.pdf</p>	<p>Programmatic design features require that the BLM will be notified immediately upon discovery of fossils. Work will be halted at the fossil site and continued elsewhere until qualified personnel, such as a paleontologist, can visit the site. He/she will determine if the site is significant and make recommendations for collection or other resource protection, if warranted.</p> <p>See programmatic design features at URL under Avoidance column.</p>	
<p>Public Access and Recreation Section 12.1.5</p>	<p>Direct: Some roads and trails run through the SEZ and may be closed or rerouted due to solar development. The area supports backcountry driving, OHV use, hiking/walking, birdwatching, and small game hunting. Development could affect public access along OHV routes designated as open and available for public use. The area is close to La Cruces and there is easy access to the area from both I-10 on the north and a county road on the south.</p> <p>Indirect: Indirect effects on recreation use could occur on lands near the solar facilities, primarily the Aden Hills OHV area located adjacent to the western boundary of the SEZ which receives about 10,000 visitor days of use per year. People seeking more rural or primitive surroundings for recreation may experience a reduction in recreational opportunities and/or a degraded recreational experience.</p> <p>Cumulative: Multiple developments in the vicinity of the SEZ could cumulatively reduce recreational opportunities.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Public_Access_and_Recreation.pdf</p>	<p>See programmatic design features at URL under Avoidance column.</p>	

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Socioeconomics Section 12.1.19	<p>Direct: Impacts to local economy as a result of expenditures of wages and salaries and the collection of state sales and income taxes. From 263 to 3,488 direct construction jobs and 52 to 1,044 direct operations jobs could be created (least for PV; most for parabolic trough facilities). Adverse impacts could occur due to the need for services for new workers during project construction and operation (e.g., housing, police, firefighters).</p> <p>Four grazing allotments could be reduced in size due to solar development within the SEZ, which could have adverse socioeconomic effects on allotment holders.</p> <p>Indirect: From 544 to 7,193 indirect construction jobs and 22 to 700 indirect operations jobs could be created. Impacts from project wages and salaries, and tax revenues subsequently circulating through the economy would be minor.</p> <p>Cumulative: Impacts overall would be positive, through the creation of additional jobs and income. The negative impacts, including some short-term disruption of rural community quality of life, are expected to be small.</p> <p>Data Gaps: None identified.</p>	See programmatic design features at http://blmsolar.anl.gov/documents/docs/pels/programmatic-design-features/Socioeconomics.pdf	<p>See programmatic design features at URL under Avoidance column.</p> <p>Additionally, onsite mitigation could include requiring developers to secure agreements for local government services as a condition of "Notice to Proceed".</p>	

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Soils/Erosion Section 12.1.7	<p>Direct: Impacts on soil resources would occur mainly as a result of ground-disturbing activities (e.g., grading, excavating, and drilling), especially during construction of a solar project. These include removal of topsoil, soil compaction, soil horizon mixing, soil erosion and deposition by wind, soil erosion by water and surface runoff, sedimentation, and soil contamination. Soils within the SEZ are predominantly the wink loamy fine sand and fine sand of soil series Wink Pintura complex, and the Onite-Pajarito, Wink-Harrisburg, and Simona-Harrisburg associations. Because of their fine-grained texture, they are moderately to highly susceptible to wind erosion.</p> <p>Soil contamination from spills could occur, and disturbance of soils (particularly subsurface calcic soils) may produce fugitive dust.</p> <p>Indirect: Disturbance of soil can lead to introduction of invasive species. Elevated PM levels offsite could result from soil disturbance/ grading activities during construction.</p> <p>Cumulative: Cumulative impacts would occur from the disturbance of several renewable energy projects, connecting linear facilities, and other projects in the vicinity of the SEZ, but would be limited through application of design features.</p> <p>Data Gaps: None identified.</p>	See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Soil_Geologic_Hazards.pdf	<p>See programmatic design features at URL under Avoidance column.</p> <p>Programmatic design features require project-specific Storm water Pollution Prevention Plans that control site drainage, erosion, and sedimentation related to storm water runoff.</p> <p>Also recommend re-vegetation of the SEZ with native vegetation to increase soil stability as a plan of development feature to further minimize the amount of grading and surface disturbance and promote reduced dust emissions and PM levels.</p> <p>In addition, construction crews should be educated to stay on designated roads and minimize the construction of new roads to minimize soil disturbance and compaction.</p>	

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<p>Specially Designated Areas and Lands with Wilderness Characteristics Section 12.1.3</p>	<p>Direct: There are 17 specially designated areas (SDAs) within 25 miles of the SEZ that could be impacted by solar development: the Organ Mountains/Desert Peaks National Monument (established in 2014), Aden Lava Flow WSA, Las Uvas Mountains WSA, Organ Mountains WSA, Organ Needles WSA, Pena Blanca WSA, Robledo Mountains WSA, West Potrillo Mountains/Mt. Riley WSA, Dona Ana Mountains ACEC, Organ/Franklin Mountains ACEC, Robledo Mountains ACEC, Aden Hills OHV Area SRMA, Butterfield Trail SRMA, Dona Ana Mountains SRMA, Organ/Franklin Mountains SRMA, Prehistoric Trackways National Monument, Kilbourne National Natural Landmark, and Camino Real de Tierra Adentro National Historic Trail. There are no lands with wilderness characteristics in or around the SEZ.</p> <p>The Aden Lava Flow WSA/Organ Mountains-Desert Peaks National Monument is closest to the SEZ and would be the most affected. Most of the remaining areas, although farther away from the SEZ, are higher in elevation and thus would have a clear view of solar development in the area. Impacts could include adverse visual effects on the viewsheds (including impacts on night sky viewing), and visibility impacts due to dust generation.</p> <p>No lands with wilderness characteristics have been identified in or near the SEZ.</p> <p>Indirect: None identified.</p> <p>Cumulative: Development of solar facilities and other facilities may result in cumulative effects, particularly visual impacts, on SDAs.</p> <p>Data Gaps: None identified.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/SDAs_and_LWC.pdf</p>	<p>The SEZ-specific design features for visual resources should be adopted, as they would provide some protection for visual related impacts on the Aden Lava Flow WSA and the Organ Mountains-Desert Peaks National Monument.</p> <p>See programmatic design features at URL under Avoidance column.</p>	

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Transportation Section 12.1.21	<p>Direct: Development will add traffic to existing roads serving the area. The volume of traffic on I-10 could represent an increase in traffic of about 24% percent during construction. Local road improvements would be necessary in any portion of the SEZ near I-10 that might be developed so as not to overwhelm the local roads near any site access point(s). Similarly, any access to portions of the SEZ using State Route 28 or 478 may require road improvements on State Route 28, 478 or other local access roads.</p> <p>Indirect: None identified.</p> <p>Cumulative: Cumulative impacts to traffic could occur with multiple developments in the region.</p> <p>Data Gaps: None identified.</p>	See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Transportation.pdf	Programmatic design features state that improvements to local roads to accommodate additional traffic should be considered. See other programmatic design features at URL under Avoidance column.	

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<p>Visual Section 12.1.14</p>	<p>Direct: The Visual Resource Inventory (VRI) value for most of the SEZ is VRI Class IV, indicating low visual values. The far northwestern portion of the SEZ is VRI Class III, indicating moderate relative visual values. Development will adversely impact visual resources including night skies.</p> <p>The Solar PEIS and subsequent VSA analysis identified moderate to strong visual contrasts for the Organ Mountains-Desert Peaks National Monument, the Prehistoric Trackways National Monument, the Aden Lava Flow WSA, the Organ Mountains WSA, the Organ Needles WSA, the Peña Blanca WSA, the Robledo Mountains WSA and ACEC, the West Portillo Mountains/Mt. Riley WSA, the Aden Hills SRMA, the Organ/Franklin Mountains SRMA and ACEC, and the Kilbourne Hole National Natural Landmark. In addition to these areas, impacts on other lands and resource areas were evaluated. Moderate to strong visual contrasts were identified for locations on or along I-25, I-10, U.S. 70, N.M. 404, the communities of La Mesa and East Las Cruces, Magdalena Peak, and two privately owned ranches near the SEZ. Negligible to weak visual contrasts were identified for the Butterfield Trail: I-25: I-10: U.S. 70; and the communities of Las Cruces, University Park, Mesilla, Doña Ana, Radium Springs, Organ, Spaceport City, San Miguel, La Union, Mesquite, Vado, Chamberino, Berino, Anthony, and El Paso (Texas).</p> <p>Indirect: None identified.</p> <p>Cumulative: If several projects become visible from one location, or in succession as viewers move through the landscape (such as driving on local roads), these cumulative impacts may make the area less visually appealing.</p> <p>Data Gaps: Assessment of visual contrasts to Tortugas Mountain SRMA and Mt. Riley/West Portillo Mountains WSAs needed.</p>	<p>See programmatic design features at http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Visual.pdf</p>	<p>Special visual impact mitigation should be considered for solar development on lands in the SEZ visible from and within 5 mi (8 km) of the Aden Lava Flow WSA/Organ Mountains-Desert Peaks National Monument.</p> <p>See other programmatic design features at URL under Avoidance column.</p>	
<p>Wild Horses and Burros Section 12.1.4.2</p>	<p>No wild horse or burro herd management areas occur within the Afton SEZ or in close proximity to it.</p> <p>Data Gaps: None identified.</p>	<p>Not applicable</p>	<p>Not applicable</p>	