



United States Department of the Interior



BUREAU OF LAND MANAGEMENT
Southern Nevada District
Pahrump Field Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130
<http://www.blm.gov/nv/st/en/fo/lvfo.1.html>

In Reply Refer To:
N-100448
2800 (NVS0000)

October 12, 2023

US Solar Assets, LLC
Attn: Duane Enger
6688 North Central Expressway, Suite 500
Dallas, Texas 75206

Dear Duane Enger:

On March 24, 2021, the Bureau of Land Management, Southern Nevada District Office (BLM) received your application to construct, operate, maintain, and terminate the proposed Amargosa East Solar Project, a solar PV generating facility and associated infrastructure, on public lands.

According to regulations found at 43 CFR §2804.35, the BLM will prioritize processing of solar and wind energy development applications utilizing high-, medium-, and low-priority criteria identified in the regulations. The BLM has completed review your application based on the priority criteria, the BLM has currently categorized your application as a Low priority for processing.

The BLM's rationale for your processing priority is based on information contained in the enclosed prioritization checklist for the project. Among other considerations that informed the priority determination, is that the application proposed development within an area where modifications to the surface hydrology / groundwater pumping may have adverse affects on Ash Meadows National Wildlife Refuge, Ash Meadows ACEC, Death Valley National Park (Devil's Hole), and to the thirteen threatened or endangered species (ESA) and their critical habitats that are present within them. These factors, when considered with the other information included on the checklist, warranted a Low priority, since the application may not be feasible to authorize.

Please keep in mind the following:

- High-priority applications are given processing priority over medium- and low-priority applications (43 CFR §2804.35(a));
- Medium-priority applications are given priority over low-priority applications (43 CFR §2804.35(b)); and
- Low-priority applications may not be feasible to authorize (43 CFR §2804.35(c)).

For your awareness, our office currently has 33 pending applications for renewable energy testing or development. Please be aware that the BLM may re-categorize your application based on new information received through surveys, public meetings, or after any changes to the application. If you have any questions, please do not hesitate to contact me at 702-515-5042 or npay@blm.gov.

Sincerely,



Nicholas B. Pay
Field Manager

Enclosure

INITIAL SCREENING AND PRIORITIZATION CHECKLIST
APPLICATIONS FOR RIGHTS-OF-WAY GRANTS

Field Office	Pahrump Field Office
Project Name	Amargosa East Solar Project
Serial Number	N-100448
Date	10/12/2023

Step 2 – Prioritization

43 CFR §2804.35 – The BLM will prioritize your application by placing it into one of three categories and may re-categorize your application based on new information received through surveys, public meetings, or other data collection, or after any changes to the application. The BLM will generally prioritize the processing of leases awarded under subpart 2809 before applications submitted under subpart 2804. For applications submitted under subpart 2804, the BLM will categorize your application based on the following screening criteria.

Under 43 CFR 2804.35(a) – High-priority applications are given processing priority over medium and low-priority applications. High-priority applications may include lands that meet the following criteria:	
Not Present	(1) – Lands specifically identified as appropriate for solar or wind energy development, other than designated leasing areas;
Not Present – Discussed Below	(2) – Previously disturbed sites or areas adjacent to previously disturbed or developed sites;
Not Present	(3) – Lands currently designated as Visual Resource Management Class IV; or
N/A	(4) – Lands identified as suitable for disposal in BLM land use plans. <i>*Removed from the high-priority criteria for SNDO. The removal is based on disposal areas within the SNDO generally being in close proximity to communities, which has been found to add complexity in processing applications due to community concerns.</i>

Under 43 CFR 2804.35(b) – Medium-priority applications are given priority over Low-priority applications and may include lands that meet the following criteria:	
Present	(1) – BLM special management areas that provide for limited development, including recreation sites and facilities;
Present	(2) – Areas where a project may adversely affect conservation lands, including lands with wilderness characteristics that have been identified in an updated wilderness characteristics inventory;
Present	(3) – ROW avoidance areas;
Not Present –	(4) – Areas where project development may adversely affect resources and properties listed nationally such as the National Register of Historic Places,

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Discussed Below	National Natural Landmarks, or National Historic Landmarks;
Present	(5) – Sensitive habitat areas, including important species use areas, riparian areas, or areas of importance for Federal or State sensitive species;
Present	(6) – Lands currently designated as Visual Resource Management Class III;
Present	(7) – Department of Defense operating areas with land use or operational mission conflicts; or
Present	(8) – Projects with proposed groundwater uses within groundwater basins that have been allocated by State water resource agencies.

Under 43 CFR 2804.35(c) – Low-priority applications may not be feasible to authorize. These applications may include lands that meet the following criteria:

Present	(1) – Lands near or adjacent to lands designated by Congress, the President, or the Secretary for the protection of sensitive viewsheds, resources, and values (e.g., units of the National Park System, Fish and Wildlife Service Refuge System, some National Forest System units, and the BLM National Landscape Conservation System), which may be adversely affected by development;
Not Present	(2) – Lands near or adjacent to Wild, Scenic, and Recreational Rivers and river segments determined suitable for Wild or Scenic River status, if project development may have significant adverse effects on sensitive viewsheds, resources, and values;
Present	(3) – Designated critical habitat for federally threatened or endangered species, if project development may result in the destruction or adverse modification of that critical habitat;
Not Present	(4) – Lands currently designated as Visual Resource Management Class I or Class II;
Not Present	(5) – ROW exclusion areas; or
N/A	(6) – Lands currently designated as no surface occupancy for oil and gas development in BLM land use plans. <i>* Removed from the low-priority criteria for the SNDO. This removal is due to the vagueness in the Las Vegas 1998 RMP.</i>

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Supporting Information (Provide for checked boxes)

<p>43 CFR 2804.35(a)(2)</p>	<p>This criterion is identified as not present due to the proposed project area being primarily undisturbed.</p> <p>The proposed project area has the WEC 18-224 (WWE corridor) running through the northern portion of the project area and the US-95- Crater Flat RMP designated utility Corridor running through the center and southern portions of the proposed project area. The northern portion of the project area (section 19 of T15S. R50E) falls within the SNDO disposal boundary. The northwest portion of the proposed project area borders private land that has been developed. The northern portion of the project is adjacent to Hwy 95 (NVCC-018078.) The west boundary of the proposed project area boards SR 373 road (NVCC-018323) which has various utilities that run along it (Telecommunications N-34043, N-73706, access roads to well site N-84014) and the Jackass Aeropark/Lathrop Wells Aeropark (NEV-57637, N-87331) borders it on the west boundary of sec. 24 and 25, T15S. R49E. Within the project area there is a NDOT mineral material pit (NVCC-018386) within the project area in sec. 1, T16S. R49E, NDOT Mineral Material Pit (NEV-46516) within sec. 30, T15S. R50E, bore holes (N-62848, Fiber optic lines(N-90056) within secs. 20,29,32 of T15S. R50E, secs. 6, 7 of T16S. R50E, powerlines (N-58116, N-65524, N-59100, N-64693) and Nye County Nuclear Waste) within sec. 29, T15S. R50E, Trespass for reptile traps (N- 95675) within sec 1 of T16S. R49E., USGS has pending application to redrill abandoned and plugged felderhoff federal 5-1 oil and gas exploration well(N-100349) within sec.5 of T16S R50 E. Adjacent to the proposed project area in sec. 25, T15S R49E, is Nye County's ROW for Borehole sites (N-62848). Aerial imagery shows the proposed project area is primarily undeveloped.</p>
<p>43 CFR 2804.35(b)(1)</p>	<p>This criterion was identified as Present, since the proposed project overlaps a right-of-way corridor.</p> <p>Site-type rights-of-way, such as solar energy development projects, are generally incompatible with right-of-way corridors; particularly when the presence of the project in the right-of-way corridor would result in precluding the intended use of the corridor as a preferred location for linear infrastructure.</p> <p>The proposed project area has the WEC 18-224 (WWE corridor) running through the northern portion of the project area and the US-95- Crater Flat RMP designated utility Corridor running through the center and southern portions of the proposed project area.</p>
<p>43 CFR 2804.35(b)(2)</p>	<p>The BLM identified this criterion as present, since the proposed development may adversely affect Ash Meadows Area of Critical Environmental Concern.</p> <p>See discussion of potential adverse affects below in 43 CFR 2804.35(c)(1) Ash</p>

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	<p>Meadows National Wildlife Refuge (NWR), since the potential for adverse affects to the NWR is similar to those anticipated for Ash Meadows Area of Critical Environmental Concern.</p>
<p>43 CFR 2804.35(b)(3)</p>	<p>The BLM identified this criterion as present, since the proposed project is located on lands identified as variance in the 2012 Western Solar Plan.</p>
<p>43 CFR 2804.35(b)(4)</p>	<p>The BLM identified this criterion as not present. The proposed project lands have not been fully inventoried for cultural resources, so it is unknown if the project would have an adverse affect on any resources and properties listed nationally such as the National Register of Historic Places [or eligible for listing]. Two prehistoric undetermined sites, NY6064-isolated notch and NY 2695-A creosote brush.</p>
<p>43 CFR 2804.35(b)(5)</p>	<p>This criterion is Present for the proposed project, because it is located in an area identified in the 2012 Western Solar Plan as Desert Tortoise Priority 2 connectivity habitat, it is within the Eastern Recovery Unit for the Desert Tortoise which is estimated to have decreasing Desert Tortoise density, is estimated to have a low to very low desert tortoise density which is a further strain on being able to maintain genetic and demographic connectivity, it is near the northern extent of the desert tortoise range which may be critical as changes occur due to climate change, and potential presence of species identified as candidate or petitioned for ESA listing. More information on these considerations and the overall review for this criterion is included below.</p> <p>The project is within the vicinity of the only known habitat for white margined penstemon (<i>Penstemon albomarginatus</i>), a BLM sensitive species, within Nye County. This species has recently been petitioned for federal listing under the ESA based on regional surveys that have shown a high likelihood of certain populations becoming extirpated. With clear threats to the Clark County populations of this species from urban expansion, this is the only population in Nevada without current imminent threats until now. Surveys in this area are not comprehensive, and proposed solar projects surrounding these populations could have impacts on the aeolian processes creating the sand that is habitat for this species, and could also result in increases to weed species in this area with indirect impacts on this population.</p> <p>BLM Manual 6840.06 states, "...<i>Bureau sensitive species will be managed consistent with species and habitat management objectives in land use and implementation plans to promote their conservation and to minimize the likelihood and need for listing under the ESA...</i>"</p> <p>Excerpts from input received from FWS Ecological Services – "...<i>The white-margined penstemon was petitioned for listing under the ESA in</i></p>

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2023 and the 90-day review is currently underway. This species occurs in four disjunct population centers in the southwestern United States, one of which is in close proximity to three solar applications: Amargosa East Solar, Solar 373, and Busted Butte 1 Solar. Solar project edge effects, including but not limited to increased temperatures and dust, alteration of surface hydrology, alteration of pollinator behavior, and introduction of invasive weed species (Devitt et al. 2022), could impact the survival and distribution of this population of white-margined penstemon. These effects could be even more pronounced if traditional construction methods are used, which has been described in the Plans of Development for Amargosa East and Solar 373. Additionally, development in and around this population of white-margined penstemon could lead to fragmentation and reduced survival. We recommend the BLM consider this petitioned species in their prioritization process and avoid potential impacts that could result in the need for listing under the ESA...”

Desert tortoise (*Gopherus agassizii*) is a BLM sensitive species and classified as Threatened by the USFWS. The proposed project area is located in Desert Tortoise Priority 2 habitat designated in the Solar PEIS and is considered high value contiguous habitat which is important to maintain genetic and demographic connectivity across the landscape between conservation areas (ACEC's, Critical Habitat, Refuges, Wilderness Areas). The project is proposed in relatively undisturbed habitat.

Without new tortoise surveys, the density of tortoises within the project area is unknown. However, there are 38 historic tortoise surveys within 5 km of the project area that were conducted “prior to 1987”, “1987 to 1990”, or “1991 or later”. The density results of those surveys vary but are classified as “very low” (19), “low” (17), “moderate” (1), and “high” (1).

The project is located in the Eastern Mojave Recovery Unit, and this recovery unit is estimated to have a decreasing tortoise density. Tortoise translocation can follow existing USFWS established protocols.

This project is located near the northwest extent of Mojave Desert Tortoise distribution in Nevada. Maintaining a healthy population of Mojave Desert Tortoises near the northern extent of their range may be important when it comes to climate change.

Besides desert tortoise, there are no other known listed species in the project area.

Other BLM sensitive species occur within the project area including Golden Eagle (*Aquila chrysaetos*), Swainson's Hawk (*Buteo swainsoni*), Ferruginous Hawk (*Buteo regalis*), Peregrine Falcon (*Falco peregrinus*), LeConte's Thrasher

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(*Toxostoma lecontei*), Sage Thrasher (*Oreoscoptes montanus*), Loggerhead Shrike (*Lanius ludovicianus*), Phainopepla (*Phainopepla nitens*), Brewer's Sparrow (*Spizella breweri*), Common Chuckwalla (*Sauromalus ater*), Desert Collared Lizard (*Crotaphytus bicinctores*), Desert Horned Lizard (*Phrynosoma platyrhinos*), Desert Iguana (*Dipsosaurus dorsalis*), Long-nosed Leopard Lizard (*Gambelia wislizenii*), Sidewinder (*Crotalus cerastes*), Glossy Snake (*Arizona elegans*), Western Shovelnose Snake (*Chionactis occipitalis*), California Myotis (*Myotis californicus*), Pallid Bat (*Antrozous pallidus*), and Townsend's Big-eared Bat (*Corynorhinus townsendii*). Impacts can be addressed through the normal NEPA process.

The project does not occur in habitat for federally endangered plant species or in more than 5% of any population group for state endangered plant species.

Sensitive Plants: N/A - surveys have not been conducted in this area.

The project does not occur in habitat for federally endangered plant species or in more than 5% of any population group for state endangered plant species.

Excerpts from input received from FWS Ecological Services –

...Candidate Species

The monarch butterfly became a candidate for listing under the ESA in 2020 (85 FR 81813 2020). This species, and the milkweed on which it relies, occur throughout the desert and riparian ecosystems of southern Nevada. Habitat is often more prevalent in riparian areas where nectar sources are more abundant, though both ecosystems likely support migration and reproduction. Solar development in the Amargosa Valley could result in a loss of monarch habitat depending on the type of construction practices used at each site. Thus, we recommend the BLM work with project applicants to reduce impacts to vegetation during construction to preserve milkweed and nectar sources. Post-construction restoration work could also include milkweed seeding to restore monarch habitat that is lost to development. The Service has recently published guidance for Western monarch butterfly conservation (Service 2023) and we recommend the BLM follow these recommendations during their evaluation and processing of solar applications in Amargosa Valley.

Petitioned Species

...The Las Vegas bearpoppy and Mojave poppy bee were petitioned for listing under the ESA in 2019 and 12-month findings on these petitions are currently underway. Though we do not know at this time of any occurrences of these species in the Amargosa Valley, it is plausible that both could be present. We would expect similar impacts to Las Vegas bearpoppy and Mojave poppy bee as those to white-margined penstemon: edge effects from solar development,

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	<p><i>alteration of hydrology, and fragmentation of populations. Locations in the Amargosa Valley were recently surveyed using bee bowls during the 2023 Amargosa Valley BioBlitz and we recommend the BLM review and consider these collections and observations in their prioritization process..."</i></p>
<p>43 CFR 2804.35(b)(6)</p>	<p>The proposed project is located on lands currently designated as Visual Resource Management Class III.</p> <p>See discussion below in 43 CFR 2804.35(c)(1) Death Valley National Park detailing NPS relating to potential impacts to Visual Resources and Night Skies for further information about this criterion.</p>
<p>43 CFR 2804.35(b)(7)</p>	<p>This criterion was identified as Present, based on correspondence from DoD Clearinghouse that the proposed project "...may have an impact on military operations conducted in the area..."</p> <p>Per correspondence dated May 17, 2023 from the DoD Clearinghouse –</p> <p><i>"...the Military Aviation and Installation Assurance Siting Clearinghouse coordinated within the Department of Defense (DoD) an informal review of the Amargosa East Solar Project. The results of our review indicated that the solar project, located in Nye County, Nevada, as proposed, may have an impact on military operations conducted in the area.</i></p> <p><i>The proposed siting location of the solar project may impact U.S. Air Force low-level flight training out of Edwards AFB in IR286 and VR1215. Please contact Mr. Malcolm Warney (malcolm.warney@us.af.mil), Airspace Manager, to discuss this proposal.</i></p> <p><i>Mitigation options may include a glint and glare study..."</i></p>
<p>43 CFR 2804.35(b)(8)</p>	<p>The proposed project provided general information water use and planned type of source, it does not specifically identify the source of water for meeting construction and operational needs for the proposed project and is located in a rural area where a municipal water source is not available. The BLM therefore identified this criterion as present, since the project is located in an overallocated and very sensitive groundwater basin and the project has not provided information about non-groundwater water sources available for development of the project. Additional information about the sensitivity of the groundwater basin is included in the additional information for criterions 43 CFR 2804.35(c)(1) and (3).</p> <p>The proposed project plan of development includes the following information about anticipated water use and general information about the potential source of water for the project, "An estimated 848 acre feet of water will be required during Project construction for construction-related activities, including dust control. After construction is complete, the Project's annual</p>

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water consumption during operation is expected to be not greater than 20 acre-feet per year. The Project does not require process water; however, the Typical Meteorological Stations administrative area **will require domestic potable water service**. The main consumption of water during operation will be for occasional panel washing and/or dust control.”

Excerpts from the State Engineer Interim Order (SEO) #1330 -

“... WHEREAS, Devils Hole is located within the Amargosa Desert Hydrographic Basin and is further described as being located within the SW¼ SE¼ of Section 36, T.17S., R.50E., M.D.B.&M. within a detached unit of the Death Valley National Park and the boundaries of the Ash Meadows National Wildlife Refuge, Nye County, Nevada.

WHEREAS, Devils Hole, a geothermal pool, is the only natural habitat of the endangered Devils Hole pupfish.

WHEREAS, an administrative hearing was held on September 5-6, 2007, where evidence and testimony was received regarding the potential impacts of regional pumping on existing water rights, particularly the federally reserved water right at Devils Hole. The federally reserved water right specifies a threshold water level at Devils Hole of 2.7 feet below the copper washer reference point. Information provided at the hearing showed the water level in Devils Hole was only 0.6 to 0.7 feet above the threshold level mandated by the U.S. District Court...

... WHEREAS, recharge to the regional aquifer is derived from precipitation within the subject basins, but primarily from the mountainous areas, and largely from groundwater underflow throughout the regional flow system. The combined perennial yield for the regional area consisting of Mercury Valley (Hydrographic Basin 225), Rock Valley (Hydrographic Basin 226), Fortymile Canyon (Hydrographic Basin 227), Oasis Valley (Hydrographic Basin 228), Crater Flat (Hydrographic Basin 229), and Amargosa Desert is estimated to be 24,000 acre-feet annually...

... WHEREAS, the United States Geological Survey developed a numerical groundwater flow model of the Death Valley Regional Flow System, which includes Amargosa Desert, Devils Hole, and the surrounding area including tributary basins to Amargosa Desert Hydrographic Basin. This model incorporates available geologic and hydrologic data to provide the best available estimate of aquifer properties throughout the region. The model has been through peer review and is publicly available from the United States Geological Survey. The State Engineer finds that this model is currently the best available science and is suitable for evaluating potential groundwater level changes due to water rights changes...

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	<p><i>... WHEREAS, procedures established herein allow for efficient administration of groundwater rights in the Amargosa Desert on an interim basis while the State Engineer takes comment on the use of the numerical flow model to assist in evaluating water right applications within the entirety of the regional flow system...</i></p> <p><i>...IT IS FURTHER ORDERED that any applications to appropriate additional underground water within Amargosa Desert will be denied, and applications that seek to change the points of diversion of existing underground rights within Amargosa Desert will be processed subject to NRS Chapters 533 and 534. Change applications will be evaluated by utilizing the USGS Death Valley Regional Flow System numerical groundwater model, to determine if there will be no net increase in water level decline at Devils Hole over a subsequent fifty-year period. The State Engineer, in his discretion, may conduct additional analysis and require additional information to assure that any application to change an existing right does not result in an increased impact to the water level at Devils Hole...</i></p> <p><i>... IT IS FURTHER ORDERED, a public hearing will be held in the month of May 2022 to take public comment on the continued use of the USGS Death Valley Regional Flow System numerical groundwater model, whether the use of the model should be utilized within other hydrographic basins within the regional flow system, and further management considerations within the regional flow system..."</i></p> <p>The State Engineer will perform their own analysis in order to determine if the use "does not result in an increased impact". The assessment review for the NDWR could be a lengthy process.</p>
<p>43 CFR 2804.35(c)(1)</p> <p>Death Valley National Park (NPS)</p>	<p>This criterion was identified as Present, due to the potential for development of the proposed project to adversely affect the sensitive viewsheds, resources, and values of Death Valley National Park. Specific information about development of the project potentially causing adverse affects to Death Valley National Park is included below, including information provided by the National Park Service.</p> <p>The proposed project is located approximately 9 1/2 miles from Death Valley National Park (approximately 9 miles from Devil’s Hole). The proposed project is located within an Area of High Potential Resource Conflict: Death Valley National Park (Including Devil's Hole), identified in the 2012 Western Solar Plan.</p> <p>The proposed project is also located within the same groundwater basin as Devil’s Hole (NPS), critical habitat for the federally endangered Desert Pupfish.</p> <p>Excerpt from NPS Memorandum received by BLM June 2, 2023 –</p>

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"NPS concerns fall within four categories—groundwater depletion, scenic views, natural night skies, and wildlife connectivity.

...

(1) Groundwater Depletion

The NPS recommends the preliminary water assessment for the projects include groundwater required for construction, operations, and maintenance for the life of the project. The NPS recommends that the BLM identify early in the process how the applicant would obtain existing and fully-utilized water rights and avoid compounding the impacts of over-pumping and overdraft. The NPS is legally obligated to protest water rights applications that threaten DVNP's water resources, and other DOI Bureaus are likely to join as protestants.

Solar energy development requires water for construction, operations, and maintenance activities. Areas where the projects have been sited include groundwater basins the Nevada State Engineer (NSE) has defined as Designated. Designated Groundwater Basins have permitted groundwater rights which approach or exceed estimated average annual recharge rates. Water resources are being depleted or require additional administration. The projects under review are proposed in areas that are tributary to critical water resources and aquatic habitats in DVNP.

Water use for solar energy development and operations would strain already overallocated groundwater basins. The projects are proposed in the Amargosa Desert hydrographic basin (Basin 230, Order No. 724, May 14, 1979). This basin is currently over-appropriated and over-pumped. Existing committed water rights substantially exceed the groundwater available for development. For Basin 230, potential groundwater users must obtain a permit from the NSE prior to any construction work in connection with a well (NRS 534.050).

The NSE (Rulings 4669 and 5992) has determined that the perennial yield of Basin 230 is 24,000 acrefeet per year (afy). 17,000 afy of this yield discharges from springs and phreatophytes in the Ash Meadows National Wildlife Refuge, thereby leaving a total of 7,000 afy of groundwater available for development in the Amargosa Desert hydrographic basin. Committed water rights are nonetheless approximately 27,484 afy, much greater than the 7,000 afy calculated by the NSE as available for development. Though not all water rights are being utilized, groundwater withdrawals for the 2021 water year were calculated at 17,445 afy, exceeding the amount of groundwater available for development by over 10,000 afy.

Groundwater in the Amargosa Desert is hydraulically connected to the Furnace Creek area (Winograd and Thordarson, 1975). Using U.S. Geological Survey's regional flow system (version 3), simulations of continued groundwater pumping in the central Amargosa Desert demonstrate a

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potential drawdown in the Furnace Creek discharge area (Halford and Jackson, 2020). Park operations are focused in the Furnace Creek area and are dependent on groundwater flow from the Amargosa Desert. The operations and facilities include the visitor center, museum, headquarters, employee housing, and the Park's largest campgrounds.

*Water withdrawals in the Amargosa Desert area may reduce water levels to discharge areas supporting sensitive desert riparian ecosystems at Furnace Creek and Devils Hole, home to the federally endangered Devils Hole pupfish (*Cyprinodon diabolis*) in DVNP (Halford and Jackson, 2020). The groundwater basin is hydraulically connected by a five-mile-wide corridor near well AD-4 (Halford and Jackson, 2020). Recent studies have shown that increased pumping in the central Amargosa Desert since the 1990s have propagated through the well AD-4 corridor into the Ash Meadows groundwater basin and contributing to water-level decline at Devils Hole.*

(2) Scenic Views

The NPS is concerned that shared scenic landscapes could be lost to this and future generations if their presence and value are not accounted for and protected by the BLM. Scenic views, both within and out of parks, are an important aspect of the visitor experience since most people do not "see" administrative boundaries. The density of utility-scale solar development in the western United States pose new impacts to these shared scenic landscapes, including alteration of vegetation and landform, release of fine dust, generation of optic effects (e.g., glint and glare), and light pollution.

The conservation of scenery is explicitly stated in the NPS Organic Act. Scenic views are valued both for their beauty and their connection with culture and history. Roughly 90% of visitors identify scenic views as "very" or "extremely" important resources to protect. For many parks, scenic views that extend beyond park boundaries are an important component of the visitor experience. The expanse of these views is often inspirational and iconic of the American spirit and often an important reason why people visit parks.

DVNP was recognized in its enabling legislation as being nationally significant for a wide array of values, including "scenic values". The park contains many iconic desert and mountain observation points whose viewshed is a critical component of the park's legislated protection. Visitors come to DVNP to experience the stark and lonely vastness of the valley as well as the panorama of rugged canyons, desert, and mountains.

The projects will change the scenery from open and undeveloped to industrial at several key observation points (KOPs) in the park, including from Pyramid Peak, the highest point in the Funeral Mountains, and Chloride City, a popular ghost town frequented by visitors...The projects in total would change 42,224 acres from natural vegetation to reflective surfaces and infrastructure.

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(3) Dark Night Skies

DVNP and BLM lands east of the park rate among the darkest places remaining in the contiguous United States (Falchi et al., 2016). The Park is a designated Gold Tier International Dark Sky Park (Death Valley National Park (U.S.) - International Dark-Sky Association (darksky.org)). The designation requires the park to maintain its effort to protect night sky resources and provide visitor education on dark skies. Night sky protection enhances qualities of solitude and undeveloped wilderness that park visitors seek for personal wellness and intellectual connections, animals depend on for survival, and ecosystem integrity.

Dark skies are valued as both a natural and cultural feature, especially at parks with significant cultural and historic resources that require darkness for preservation.

At DVNP, stargazing is the most popular ranger-led activity. Astronomy programs are held throughout the year drawing visitors from all over the country and world. In the 2022/2023 Winter/Spring season, 51 astronomy programs were given, averaging 127 visitors each and reaching a total of 6,107 visitors.

Additionally, visitors seek out the park's night skies on their own, for stargazing and astrophotography opportunities.

The park's largest event of the year is the Dark Sky Festival, where the park hosts special programs given by world-class planetary scientists from NASA (Ames Research Center, James Webb Space Telescope, and Jet Propulsion Laboratory), California Institute of Technology and SETI Institute. Public presentations, night sky programs and astrophotography events during this event are incredibly popular.

In recent years, this annual event has drawn in 3,500 to 5,500 visitors.

DVNP also partners with the Las Vegas Astronomical Society, Astronomical Society of Nevada, Santa Monica Amateur Astronomy Club and other community organizations to conduct night sky events. In addition, the new Nevada Park to Park in the Dark tourism route supports Nevada's effort to preserve its dark skies and promote nighttime outdoor recreation. It is the state's first astronomy route connecting DVNP to Great Basin National Park along route US-95.

Suspended dust from disturbed lands would reduce the quality of dark night skies. Hazy air at night dims the stars and scatters light from cities, resulting in a yellow/orange dome of light in the night sky instead of a glittering sky full of stars in a sea of inky black space. The light from new solar infrastructure

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	<p>would also add to anthropogenic sky glow and decrease the quality of the night sky viewing experience.</p> <p><i>(4) Habitat Connectivity</i> Public lands surrounding the projects may provide vital habitat connections to several wildlife species associated with the Amargosa Desert and DVNP. Connectivity sustains diverse habitat availability and gene flow for these populations across public lands boundaries...”</p>
<p>43 CFR 2804.35(c)(1) Ash Meadows National Wildlife Refuge (FWS)</p>	<p>This criterion was identified as Present, due to the potential for development of the proposed project to adversely affect the sensitive resources and values of Ash Meadows National Wildlife Refuge. Nearly all of the project area is within a drainage basin that includes Ash Meadows, and development of a project in the drainage basin is likely to have direct and indirect impacts on resource values within Ash Meadows. Specific information about the potential for the project development to cause adverse affects to Ash Meadows are provided by the U.S. Fish and Wildlife Service.</p> <p>The project is located close enough to Ash Meadows NWR that indirect impacts to Ash Meadows must be considered during the NEPA Process including understanding overland flows and groundwater impacts. Ash Meadows is home to more rare and endemic species than nearly any other location in North America. Numerous threatened and endangered species occur only at Ash Meadows NWR so careful consideration and indirect impacts must be considered during the NEPA process.</p> <p>Excerpt from input received from FWS Desert National Wildlife Refuge Complex regarding the proposed project’s potential to adversely affect resources and values of Ash Meadows National Wildlife Refuge –</p> <p><i>“...Ash Meadows National Wildlife Refuge was established in 1984 to protect threatened and endangered species, many of which occur nowhere else in the world. It encompasses over 23,000 acres of spring-fed wetlands and uplands. The name Ash Meadows refers to the abundance of ash trees once found in the area, which are now expanding on the Refuge due restoration of hydrological function in many areas.</i></p> <p><i>Ash Meadows has the highest concentration of endemic life in the United States and second greatest in all of North America. At least 26 endemic species have adapted to live in and around the waters of Ash Meadows. Of these endemic species, five are listed as endangered and seven threatened with extinction. This is due to habitat destruction that occurred prior to Refuge establishment and competition with non-native species.</i></p> <p><i>Ash Meadows contains the largest remaining wetland oasis on the Mojave Desert. There are over 50 seeps and springs on the Refuge and over 10,000 gallons per minute flow year-round, most of which come from seven major</i></p>

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springs. Because it is such an important wetland, the Refuge was designated a Wetland of International Importance by the Ramsar Convention in 1986. Ash Meadows is designated an Important Bird Area by the National Audubon Society. Over 275 different species have been recorded on the Refuge, including the endangered southwestern willow flycatcher and Yuma Ridgeway's rail and 40 conservation priority species.

All nine of the solar applications are located within the Death Valley Groundwater Flow System. Currently, the committed groundwater resources, existing water rights, and annual pumping of groundwater exceed the perennial yield of the Amargosa Basin. If there is additional pumping of groundwater associated with the development and operation of the proposed solar projects it would add to the cumulative effects of declines in groundwater levels in the Amargosa Desert area. This may eventually reduce the discharge from the Ash Meadows flow system on Ash Meadows National Wildlife Refuge and could influence water levels in Devils Hole. The impacts would impair water rights and groundwater dependent ecosystems of the United States on Ash Meadows National Wildlife Refuge and Devils Hole.

The locations for the Solar 373, Busted Butte [1], and eastern portion of the Bristlecone solar applications are within two of the drainage basins (Rocky Valley Wash and Carson Slough) that include Ash Meadows National Wildlife Refuge [BLM Note: though not specifically listed in this comment, it applies to the project, since Amargosa East is partially within the Rocky Valley Wash Drainage Basin]. The development of solar projects in these application locations would substantially alter the landcover on thousands of acres within the drainage basins. Removing native vegetation, disturbing the soil, and covering the land with solar panels will alter surface hydrology within the drainage basins and may adversely impact ecosystem function on Ash Meadows NWR, especially within the Carson Slough. The Carson Slough encompasses outflow channels for Fairbanks, Soda, Rogers, Longstreet, Five, and Cold Springs and is an active floodplain. Hydrologically, the Carson Slough is very dynamic and floods on a regular basis. These natural flood events are generated when significant precipitation falls within the drainage basins and flows into the Carson Slough. Flood events are often associated with winter precipitation events and monsoonal storms during the summer months. Periodic flooding is a critical component of the hydrological and overall ecosystem function on the Refuge and to the long-term recovery of hydrological and ecological conditions required to enable endemic, threatened, and endangered species to survive, especially within the Carson Slough. Altering the landcover within the drainage basins of Ash Meadows NWR will likely have direct and indirect impacts on the Refuge and the aquatic habitats and numerous species of plants and animals that exist nowhere else in the world.

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Some long-term impacts of the proposed solar projects on plants, fish, and wildlife are difficult to predict and may be subtle over time. This creates the situation when detrimental impacts to species may be realized too late to avoid extinction.

Ash Meadows National Wildlife Refuge and the larger surrounding Amargosa Desert, Oasis Valley, Amargosa Valley, Death Valley, and Amargosa Wild and Scenic River are "Lands near or adjacent to lands designated by Congress, the President, or the Secretary for the protection of sensitive viewsheds, resources, and values." This area supports the highest biodiversity and greatest density of endemic, threatened and endangered species in the United States. In order to ensure the best possible future for these areas and the groundwater-dependent ecosystems and the species that depend on them for their survival, all public lands in these areas should be protected from development."

Excerpts from input received from FWS Ecological Services –

"...Thirteen threatened or endangered species occur in the riparian areas of the Ash Meadows National Wildlife Refuge or the Ash Meadows Area of Critical Environmental Concern (ACEC), wherein critical habitats have been designated. Species with critical habitat include the Ash Meadows Amargosa pupfish, Ash Meadows speckled dace, Southwestern willow flycatcher, Ash Meadows naucorid, Ash Meadows blazing star, Spring-loving centauray, Ash Meadows milk-vetch, Ash Meadows sunray, Ash Meadows gumplant, and Ash Meadows ivesia. Several other listed species, including the Devils Hole pupfish, Warm Springs pupfish, Yuma Ridgway's rail, yellow-billed cuckoo, and Amargosa niterwort, also occur in the Ash Meadows complex. Water draw-down in this basin and alteration of surface hydrology in the surrounding areas could impact these species and their habitats, particularly if applications to the north of Ash Meadows, which are within areas of high transmissivity (Halford and Jackson 2020), are developed. We recommend the BLM work with applicants to maintain hydrology in the Amargosa Valley as much as possible to ensure water levels at Ash Meadows are preserved. The groundwater corridor for the Ash Meadows recharge area passes underneath several proposed solar applications (Halford and Jackson 2020) and we recommend that no groundwater be pumped from this area as this collection of basins is already over-appropriated...

...While no direct impacts to critical habitat are expected from development of these solar applications individually, the cumulative effects from multiple applications being constructed simultaneously, in addition to the Amargosa Valley SEZ and Competitive Parcels, could be significant...

We do not expect the Amargosa East Solar application to have any direct impacts on critical habitat for listed species. The application area is 10.9 miles

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	<p><i>from the Big Dune ACEC and 7.5 miles from the Ash Meadows ACEC. However, white-margined penstemon was recently petitioned for listing under the ESA and occurs 3 miles from the project boundary. Recent surveys during the 2023 Amargosa Valley BioBlitz also indicate that this species is likely present within the Amargosa East application area.</i></p> <p><i>The current Plan of Development (POD) indicates that all vegetation will be worked into the underlying soils using mowing or disk and roll. Approximately 848 acre-feet of water will be used during construction and 20 acre-feet of water will be used annually during operations and maintenance. Removing all vegetation and altering topsoil in the area north of Ash Meadows will likely affect surface hydrology and water flow into the ACEC and refuge...."</i></p>
<p>43 CFR 2804.35(c)(3) Critical Habitat for Federally Threatened or Endangered Species</p>	<p>This criterion was identified as Present, due to development of the project to potentially result in the destruction or adverse modification of designated critical habitat at Ash Meadows Area of Critical Environmental Concern, Ash Meadows National Wildlife Refuge, and Death Valley National Park (Devil's Hole) for federally threatened or endangered species. The proposed project does not specifically identify the source of water for meeting construction and operational needs for the proposed project and it located in a rural area where a municipal water source is not available. The proposed project is located in an overallocated and very sensitive groundwater basin, with transmissivity to Devil's Hole and the project has not provided information about non-groundwater water sources available for development of the project. Specific information about the project's potential to cause adverse affects is included below.</p> <p>Surface Water Flow: Potential impacts to Ash Meadows T&E species & designated critical habitat. Approximately half of the project area is within a watershed that carry surface water flow into the Ash Meadows National Wildlife Refuge and the surrounding BLM ACEC. The Refuge and ACEC both protect 12 species of T&E plants and fish (8 plants, 4 fish). Hydrology in the refuge is complex, and depends both on groundwater and surfacewater flows. Projects within these watersheds have the potential to adversely modify critical habitat for 8 species of T&E plants, and 4 species of T&E fish, by changing water flows or patterns of groundwater infiltration.</p> <p>Groundwater flow: The project area is modeled as having moderate-to-high transmissivity to Devil's Hole. Groundwater pumping would negatively impact Devil's Hole and the Devil's Hole pupfish. See also: SEO #1330</p> <p>Excerpts from input received from USFWS Ecological Services regarding potential for the proposed project to result in adverse modification or destruction of critical habitat -</p>

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“...Thirteen threatened or endangered species occur in the riparian areas of the Ash Meadows National Wildlife Refuge or the Ash Meadows Area of Critical Environmental Concern (ACEC), wherein critical habitats have been designated. Species with critical habitat include the Ash Meadows Amargosa pupfish, Ash Meadows speckled dace, Southwestern willow flycatcher, Ash Meadows naucorid, Ash Meadows blazing star, Spring-loving centaury, Ash Meadows milk-vetch, Ash Meadows sunray, Ash Meadows gumplant, and Ash Meadows ivesia. Several other listed species, including the Devils Hole pupfish, Warm Springs pupfish, Yuma Ridgway’s rail, yellow-billed cuckoo, and Amargosa niterwort, also occur in the Ash Meadows complex. Water draw-down in this basin and alteration of surface hydrology in the surrounding areas could impact these species and their habitats, particularly if applications to the north of Ash Meadows, which are within areas of high transmissivity (Halford and Jackson 2020), are developed. We recommend the BLM work with applicants to maintain hydrology in the Amargosa Valley as much as possible to ensure water levels at Ash Meadows are preserved. The groundwater corridor for the Ash Meadows recharge area passes underneath several proposed solar applications (Halford and Jackson 2020) and we recommend that no groundwater be pumped from this area as this collection of basins is already over-appropriated...

...While no direct impacts to critical habitat are expected from development of these solar applications individually, the cumulative effects from multiple applications being constructed simultaneously, in addition to the Amargosa Valley SEZ and Competitive Parcels, could be significant...

... We do not expect the Amargosa East Solar application to have any direct impacts on critical habitat for listed species. The application area is 10.9 miles from the Big Dune ACEC and 7.5 miles from the Ash Meadows ACEC. However, white-margined penstemon was recently petitioned for listing under the ESA and occurs 3 miles from the project boundary. Recent surveys during the 2023 Amargosa Valley BioBlitz also indicate that this species is likely present within the Amargosa East application area.

The current Plan of Development (POD) indicates that all vegetation will be worked into the underlying soils using mowing or disk and roll. Approximately 848 acre-feet of water will be used during construction and 20 acre-feet of water will be used annually during operations and maintenance. Removing all vegetation and altering topsoil in the area north of Ash Meadows will likely affect surface hydrology and water flow into the ACEC and refuge....”

...The nearest designated critical habitat for the Mojave desert tortoise is approximately 85 miles away from the proposed applications; however, each of these applications occur in and would impact desert tortoise habitat. As the Amargosa Valley SEZ and Competitive Parcels are processed and constructed, tortoise habitat connectivity south of US-95 will be impacted and habitat

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	<p><i>could become fragmented as additional applications are evaluated in this area. To maintain habitat connectivity, we recommend the BLM focus on grouping solar projects together and avoiding habitat islands or narrow strips between projects that could trap tortoises. Patches of habitat between solar projects could be beneficial to tortoises but only if habitat within the solar arrays remains intact and tortoises are reintroduced. Lastly, tortoise habitat in this area is patchy and we recommend the BLM conduct additional surveys to assist them with their prioritization of these nine solar applications..."</i></p>
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