

DESERT TORTOISE COUNCIL

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Via email and BLM NEPA ePlanning website

February 25, 2024

Matthew Drahnak, Tyler Lindsey
BLM Lower Sonoran Field Office
Attn: Pinyon Solar Project EA – Public Scoping Comment
2020 E. Bell Road
Phoenix, AZ 85022
BLM_AZ_PDO_SOLAR@BLM.GOV

RE: Pinyon Solar Project Environmental Assessment Public Scoping Period (DOI-BLM-AZ-P020-2024-0002-EA)

Dear Mr. Drahnak and Mr. Lindsey,

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public’s understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an “environmentally friendlier way” of receiving correspondence and documents rather than “snail mail.”

We appreciate this opportunity to provide comments on the above-referenced project, and that the Bureau of Land Management (BLM) contacted the Council to advise us of the opening of the public scoping period for the preparation of the Pinyon Solar Project Environmental Assessment (EA). Unfortunately, the Council received the notice from BLM of the public scoping period and public meeting for this project on January 29, 2024. The public meeting for this project was the following day, January 30, 2024. Because the Council had one day’s notice of the scheduled public scoping meeting, we were unable to register and attend.

We are unsure why BLM provided only one day's notice to the Council for the public scoping meeting. This short notice may be interpreted as BLM was trying to minimize the public's participation in the public scoping meeting process. To avoid this impression for this and future BLM proposed projects/proposed actions, we request that BLM schedule the public meeting at least one week after the beginning of the public comment period. This timing would allow the public sufficient time to register for the meeting and to modify their schedule to attend. It would also comply with the purpose of the scoping process (described below).

Given the location of the proposed project in habitats potentially used by the Sonoran desert tortoise (*Gopherus morafkai*) (synonymous with Morafka's desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities authorized by the BLM, which we recommend be added to project terms and conditions in the authorizing document (e.g., right-of-way grant, etc.) as appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments for the proposed project.

Description of the Proposed Project

265BH 8me LLC, a subsidiary of Avantus Clean Energy LLC, has requested a 30-year right-of-way (ROW) grant from the BLM to construct, operate, maintain, and decommission a utility-scale photovoltaic (PV) solar energy generating facility and battery energy storage system (BESS) on BLM-administered lands and private lands in unincorporated Maricopa County, Arizona (= Pinyon Solar Project, project). The proposed project would consist of an up-to-300-megawatt alternating current photovoltaic solar facility consisting of solar arrays, inverters to an on-site substation, operations center, and a 345-kilovolt interconnection transmission line (Gen-tie Line) and BESS. The proposed project would be located on approximately 1,788 acres of public land managed by the BLM Lower Sonoran Field Office (if BLM grants the ROW) and up to 241 acres of private land.

The gen-tie line would originate at the proposed Pinyon substation and proceed 2.8 miles across private lands to the existing Tucson Electric Power terminal at Pinal West Substation located on private lands in Pinal County, Arizona. The Project would connect to the regional transmission grid via the Tucson Electric Power terminal at the Pinal West Substation. BLM is proposing two alternatives for the gen-tie route.

The proposed solar facility and most of the gen-tie line would be located in Maricopa County. The southern border of the proposed solar facility is shared with the Sonoran Desert National Monument and the western, northern, and eastern boundaries with BLM and private land. The selected alternative route for I-11 would pass through the 1,788 acres of the proposed solar facility. The existing access road to the proposed solar facility is via West 83rd Avenue. No existing access is shown for the gen-tie lines. The proposed project is located 32 miles east of Gila Bend, 10 miles north of I-8, 5 miles south of I-238, and 2 miles northeast of the South Maricopa Mountains Wilderness Area.

Scoping Comments

The purpose of scoping is to allow the public to participate in an “early and open process for determining the scope of issues to be addressed, and for identifying the significant issues related to a proposed action” [40 Code of Federal Regulations (CFR) 1501.7]. The EA should discuss how this proposed project conforms to the management structure of the current land management plan for the area [e.g., Lower Sonoran Resource Management Plan (BLM 2012)] and other related documents (Programmatic Solar EIS (BLM and DOE 2012a,b).

Project Description and Other Information Provided

The information BLM provided about the proposed project does not include the decommissioning and restoration aspects of the project area. The solar projects that the Council has reviewed that are proposed for locations on BLM land in other states have included these phases as part of the proposed project. We request these be included in the draft EA or that BLM explain why they are not included. This information is important in determining and developing appropriate and effective mitigation for the project. Absent this information, we conclude that BLM expects the project impacts to be in perpetuity and the mitigation should be in perpetuity to reflect the length of time of this impact.

BLM is proposing to analyze the impacts of the proposed project in an EA. Usually, BLM analyzes the impacts of solar energy projects in an environmental impact statement (EIS). If BLM is relying on mitigation plans to reduce the impacts of the proposed project to below the level of significance, because impacts that are less than significant to the human environment are the criterion for preparing an EA and issuing a finding of no significant impact, then BLM must ensure that all mitigation plans are completed and available for public review with the EA to ensure their adequacy of effective mitigation and that all plans are fully funded. Without this information and these assurances, the preparation of an EA may not be the appropriate National Environmental Policy Act (NEPA) document to use to make a final decision on the proposed project.

Alternatives Proposed and Analyzed

We are continually dismayed that BLM’s “alternatives analyses” rarely require applicants to consider alternative locations for solar projects. For every project we are aware of on our public lands managed by the BLM, a single fixed location is identified; the impact area may be slightly smaller or larger, but there is never a second or third location. The EA should consider alternative sites in its analysis, and document why this particular site was chosen. For example, was it chosen because these lands are brownfields, fallow agriculture, or other human uses of biotic habitats that have been degraded (these would be biologically-based determinations), or was the location selected solely for financial or technical reasons?

A federal appellate court has ruled that in an EA, a federal agency must evaluate a reasonable range of alternatives to the project including other project and mitigation sites, and must give adequate consideration to the public’s needs and objectives in balancing ecological protection with the purpose of the proposed project, along with adequately addressing the proposed project’s impacts on the desert’s sensitive ecological system [National Parks & Conservation Association v. Bureau of Land Management, Ninth Cir. Dkt Nos. 05-56814 et seq. (11/10/2009)].

Rooftop Solar: The Council requests that the BLM describe the purpose and need for this project and develop and analyze other viable alternatives, such as “rooftop solar,” which is a term for placing solar panels in already developed areas including parking lots as well as on the roofs of buildings, and which we believe constitute “other reasonable courses of actions” (40 CFR 1508.25). As an example, we are aware that there are one or more dairy operations west of the proposed project site with several large, shaded feeding areas and barns for dairy cows. Placing some of the solar panels on the roofs of these structures would likely reduce the footprint of the proposed project resulting in fewer adverse impacts to natural resources, less mitigation that the applicant would need to implement, and be located closer to the Compensation Station.

The Council supports alternatives to reduce the need for additional solar energy projects in relatively undisturbed habitats. For example, the City of Los Angeles has implemented a rooftop solar Feed-in Tariff (FiT) program, the largest of its kind in the United States. The FiT program enables the owners of large buildings to install solar panels on their roofs, and sell the power they generate back to utilities for distribution into the power grid. We request that BLM include an urban solar alternative. Under this alternative, owners of large buildings or parking areas would grant a project proponent permission to install solar panels on their roofs and cover parking areas, and sell the power they generate back to utilities for distribution into the power grid.

This approach puts the generation of electricity where the demand is greatest, in populated areas. It would also reduce transmission costs, greenhouse gas emissions from constructing energy projects far from the sources of power demand and materials for construction, the elimination of plants at the project site that sequester carbon now and into the future, the number of affected resources in the desert that must be analyzed under the NEPA, and mitigation costs for direct, indirect, and cumulative impacts; monitoring and adaptive management costs; and habitat restoration costs following decommissioning. The EA should include an analysis of where the energy generated by this project would be sent and the needs for energy in those targeted areas that may be satisfied by urban solar. We request that at least one viable alternative be analyzed in the EA where electricity generation via solar energy is located much closer to the areas where the energy will be used, including generation in urban/suburban areas.

We ask that a realistic analysis of rooftop solar be developed in the EA and not dismissed in an “Alternative Considered but Rejected from Further Consideration” without any meaningful analysis; that the project does not financially benefit this particular project proponent is not a good enough reason to dismiss a rooftop solar alternative.

Sites with Degraded Natural Resources: In addition, BLM should include a viable alternative of locating solar projects on bladed or highly degraded tracts of land (e.g., abandoned agricultural fields). Such an alternative would not result in the destruction of desert habitats and mitigation for the lost functions and values of these habitats. These losses and mitigation are costly from an economic, environmental, and social perspective.

These two alternatives are important to consider to minimize or avoid the loss of vegetation that sequesters carbon. Studies around the world have shown that desert ecosystems act as important carbon sinks. For example, the California deserts account for nearly 10 percent of the state’s carbon sequestration; below ground in soil and root systems, and above ground in biomass. Protecting this

biome can contribute to securing carbon stores in the state (MDLT 2021). This situation is likely true for Arizona. Given the current climate change conditions, there is an increasing need for carbon sequestration. Vascular plants are a primary user of carbon. The proposed project would result in the destruction of two thousand acres of vegetation. This destruction would release carbon sequestered in the roots of these plants and would eliminate the ability of these plants to sequester carbon in the future unless successful measures are implemented to restore the same biomass of native vegetation as it is being destroyed. To help minimize the impacts of climate change, it is imperative that the proposed project not result in the loss of vegetation and release of carbon.

Distributed Generation: Another alternative that BLM should analyze is Distributed Generation Alternatives. Distributed Generation installs smaller scale PV facilities at or near the point of energy use, i.e., metropolitan/urban areas. The Distributed Energy Alternatives should include BLM-land only and a combination of BLM land and land owned/managed by others (e.g., private and State lands).

Strategically Locate the Project: Still another alternative is to consider a much larger area, conduct surveys for natural resources including the tortoise throughout this area, and then use these results to site the solar project, access roads, and gen-tie line in areas that have the least adverse impacts to tortoises and other biological resources.

An Option for Projects Located in Areas with Native Vegetation: During the past decade, there has been a trend towards mowing the vegetation beneath new solar panels, allowing it to grow back, and then allowing tortoises and other wildlife species to repatriate areas beneath the panels. This approach occurs in conjunction with modifying security fencing so it is installed about 8 inches above the ground's surface to allow smaller animals to access the array areas. The EA should consider the monitoring results of recently developed solar projects where soils have been bladed versus those facilities where the vegetation has been mowed or crushed and allowed to revegetate the area. In the latter case, it may be appropriate to allow tortoises to enter the facilities and re-establish residency (i.e., repatriate) under the solar panels as vegetation recolonizes the area or allow tortoises to move through the project site when traversing between adjacent habitat areas. This could be an option for the current project. This approach should be designed/implemented as a scientific experiment to add to the limited data on this approach to determine the extent of effects on Sonoran desert tortoise populations and movements/connectivity between populations, which is an important issue for this species, particularly over the long-term. Long-term monitoring for the life of the project would need to be included to accurately evaluate the effectiveness of this strategy. We request that this study be included in the EA.

Compliance with Relevant Regulations, Codes and Policies

We expect that BLM will comply fully with all applicable statutes, regulations, Executive and Departmental Orders, BLM manuals, and other requirements, including state requirements, as they pertain to the proposed project. BLM should demonstrate in the EA that the proposed project meets all these requirements with respect to the impacts on the tortoise habitat, which include:

- The proposed project will be in conformance with decisions in the current land use plan(s) and the Federal Land Policy and Management Act (FLPMA) with respect to sustained yield;
- the proposed project will be consistent with priority conservation, restoration, and/or adaptation objectives in the best available landscape-scale information (e.g., for tortoise population connectivity, management of native plant species and reduction/elimination of non-native, invasive species, etc.);
- the proposed project complies with the Candidate Conservation Agreement for the Sonoran Desert Tortoise (*Gopherus morafkai*) in Arizona (USFWS et al. 2015) and BLM's commitments in this Agreement;
- the applicant has coordinated with governments and all appropriate agencies, and will implement actions that comply with officially adopted plans and policies (e.g., conservation and management plans);
- the proposed project is in an area with low or comparatively low resource conflicts and where conflicts can be resolved with effective mitigation;
- the proposed project will be located in, or adjacent to, previously contaminated or disturbed lands;
- the proposed project will avoid, and if not possible, minimize adverse impacts to important wildlife habitats and migration/movement corridors including the desert tortoise;
- the proposed project will minimize impacts on lands with wilderness characteristics and the values associated with these lands, with particular focus on the New Water and Eagletail Mountains Wilderness Areas and Kofa National Wildlife Refuge;
- the proposed project will not adversely affect lands donated or acquired for conservation purposes, or mitigation lands identified in previously approved projects such as translocation areas for desert tortoises;
- significant cumulative impacts on resources of concern should not occur as a result of the proposed project (i.e., exceeding an established threshold such as population viability for the tortoise or connectivity among tortoise populations); and,
- BLM's analysis will use current data on the tortoise for the project area, population, and range-wide, as population numbers and densities have substantially declined in many areas along with the recent destruction of habitat from fires, so environmental documents should publish the data/knowledge currently available.

We believe that a multiagency approach is best to ensure BLM is meeting its obligations, soliciting review and input from pertinent federal and state resource agencies, academia, Tribal governments/agencies, and non-governmental organizations (NGOs). We ask that as the Federal Lead Agency, the BLM ensure that provisions given in the following 10 documents be implemented if this project is developed:

- Arizona Game and Fish Department. 2010. Desert Tortoise Survey Guidelines for Environmental Consultants.
- Arizona Game and Fish Department. 2014. Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects.
- Arizona Interagency Desert Tortoise Team. 2008. Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat. June 2008.
- Bureau of Land Management. 2008a. Special Status Species Management – Manual 6840. Washington, D.C. December 12, 2008.

- Bureau of Land Management. 2021a. Reinstating the Bureau of Land Management (BLM) Manual Section (MS-1794) and Handbook (H-1794-1) on Mitigation. Instruction Memorandum IM 2021-046. September 22, 2021.
- Bureau of Land Management. 2021b. Mitigation Handbook (H-1794-1). https://www.blm.gov/sites/default/files/docs/2021-10/IM2021-046_att2.pdf.
- Bureau of Land Management. 2021c. Mitigation Manual (MS-1794). Bureau of Land Management, September 22, 2021.
- Bureau of Land Management. 2022. Habitat Connectivity on Public Lands Instruction Memorandum 2023-005.
- Council on Environmental Quality. 2023. Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors.
- U. S. Fish and Wildlife Service and Cooperating Agencies comprising the Arizona Interagency Desert Tortoise Team. 2015. Candidate Conservation Agreement for the Sonoran Desert Tortoise (*Gopherus morafkai*) in Arizona. Phoenix AZ.

According to the BLM Manual 6840, Special Status Species Management includes the following BLM directives (BLM 2008a) that are applicable to the Sonoran desert tortoise:

6840.01 Purpose. The purpose of this manual is to provide policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are: (1) species listed or proposed for listing under the Federal Endangered Species Act (FESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the FESA, which are designated as BLM sensitive by the State Director(s).

6840.02 Objectives. The objectives of the BLM special status species policy are (1) to conserve and/or recover FESA-listed species and the ecosystems on which they depend so that FESA protections are no longer needed for these species, and (2), to initiate proactive conservation measures that reduce or eliminate threats to BLM-sensitive species, including the Sonoran desert tortoise, to minimize the likelihood of and need for listing of these species under the FESA. With respect to the Sonoran desert tortoise, we request that the Proposed action or other alternatives contribute to meeting objectives in BLM Manual 6840 – Special Status Species Management (BLM 2008a).

Connected Actions

Pursuant to Section 1508.25 of the Council on Environmental Quality’s (CEQ) regulations (40 CFR 1508.25), any EA must cover the entire scope of a proposed action, considering all connected, cumulative, and similar actions in one document. Pursuant to Section 1506.1(a) of these regulations, an agency action cannot “[l]imit the choice of reasonable alternatives” before reaching a final decision in a published [Record of Decision] (ROD). These regulations ensure agencies will prepare a complete environmental analysis that provides a “hard look” at the environmental consequences of all proposed actions instead of segmenting environmental reviews (Novack 2015). Please explain whether any currently proposed actions within the region are connected and if not, why.

Affected Environment

According to maps provided by BLM for the proposed project, a wash originating in the Sonoran Desert National Monument flows north and bisects the proposed solar facility. Another wash originating farther south flows north and bisects the routes of the proposed gen-tie lines. The proposed solar facility is about 1,500 feet north of Category 2 tortoise habitat and the Booth Hills (<https://databasin.org/maps/new/#datasets=0d6d36166e4744569ad6af870cdf38d1>).

According to the wildlife resources map provided by BLM, the eastern portion of the proposed project is in a wildlife linkage area connecting the Sierra Estrella to the northeast with the Sonoran Desert National Monument and Category 2 Sonoran desert tortoise habitat to the southwest. In addition, part of the southern gen-tie route is in Category 2 tortoise habitat.

According to the PowerPoint presentation by 8Minute Solar Energy that is posted on the BLM NEPA website (<https://www.blm.gov/press-release/blm-initiates-environmental-analysis-pinyon-solar-energy-project>), the proposed project is adjacent to a designated Section 368 Energy Corridor. BLM provided a map that shows this energy corridor. However, it is not a continuous corridor. The corridor is not designated on private and state lands. Please answer the following questions in the draft EA: How will this energy corridor be “connected” where it crosses non-federal land? Does the energy corridor currently contain one or more transmission lines? Is this corridor included in the multiagency planning exercise to delineate energy corridors throughout western states (Desert Tortoise Council 2024)? Regardless of the answer to this question, please document the relationship of this project with that planning exercise. Are one or more transmission lines planned/proposed for future development? We presume that if the answer is “yes” to future transmission projects in this corridor, these would be considered connected actions to the proposed project. As such they should be discussed and analyzed in the draft EA.

In the PowerPoint presentation, 8 Minute Solar Energy says, the preliminary schedule includes releasing an EIS (we presume draft and final EISs) between June 2022 to June 2023. In BLM’s Pinyon Solar Fact Sheet, BLM says, “[t]he BLM published a 2-year Mineral Segregation Notice for the Project site in the Federal Register on December 8, 2022.” In addition, BLM says, “[t]he EA will disclose the potential effects of the proposed project and any action alternatives. A decision is anticipated in late 2024.”

This information suggests that BLM changed the NEPA document being prepared from an EIS to an EA so BLM can complete NEPA compliance before the segregation notice expires and to meet the decision date of late 2024. What changed with respect to the impacts of the project on the human environment such that BLM is now preparing an EA instead of an EIS? Please provide this information in the EA.

Standardized Surveys – Sonoran Desert Tortoise and Other Species

For the EA to fully analyze the effects and identify potentially significant impacts, the following surveys should be performed to determine the extent of rare plant and animal populations occurring within areas to be directly and indirectly impacted by the proposed project. These surveys should be completed during the appropriate times of the year. As such, this may delay the availability of data that should be included and analyzed in the EA for the proposed project.

The applicant should fund focused surveys for all rare plant and animal species reported from the vicinity of the proposed project (e.g., the Information for Planning and Consultation (IPaC – <https://ipac.ecosphere.fws.gov/>), NatureServe, etc.). The results of the surveys will determine appropriate permits from the Arizona Game and Fish Department (AZGFD), BLM, and U.S. Fish and Wildlife Service (USFWS) and associated avoidance, minimization, and mitigation measures. Focused plant and animal surveys should be conducted by knowledgeable biologists for respective taxa (e.g., rare plant surveys should be performed by botanists), and to assess the likelihood of occurrence for each rare species or resource (e.g., plant community) that has been reported from the immediate region. Focused plant surveys should occur only if there has been sufficient rainfall to promote germination of annual plants in the spring or late summer. Alternatively, the EA may assess the likelihood of occurrence with a commitment by proponents to perform subsequent focused plant surveys prior to ground disturbance, assuming conditions are favorable for germination.

Migratory Birds/Eagles: BLM should ensure that all actions it authorizes are implemented in compliance with the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and associated regulations, executive orders, and policies (e.g., Driscoll 2010, Pagel et al. 2010) to avoid mortality or injury to migratory birds and harassment of eagles both during construction and subsequent operations and maintenance.

Burrowing Owl: Since Arizona does not have a specified protocol for surveying for western burrowing owl (*Athene cunicularia*), the survey method should be coordinated with the USFWS as the species is protected under the Migratory Bird Treaty Act. BLM should consider implementing available survey methods; for example, survey methods by the California Department of Fish and Game (CDFG 2012). In addition to the project footprint, the protocol requires that peripheral transects be surveyed at 30-, 60-, 90-, 120-, and 150-meter intervals in all suitable habitats adjacent to the subject property to determine the potential indirect impacts of the project on this species. If burrowing owl sign is found, CDFG (2012) describes appropriate minimization and mitigation measures that would be required. We recommend the implementation of these measures. Also note that BLM should demonstrate in the EA how it will comply with “E.O. 13186 – Responsibilities of Federal Agencies To Protect Migratory Birds.” If burrowing owl sign is found, BLM and the applicant should develop a science-based relocation/mitigation/monitoring/adaptive management plan with the USFWS and AZGFD and ensure that this plan is implemented.

Sonoran Desert Tortoise Surveys: Surveys for Sonoran desert tortoise must be conducted at the proper times of year. Although there is not a formal protocol survey method for Sonoran desert tortoises, we believe that the survey methods for Mojave desert tortoise (USFWS 2019) would be appropriate. Because USFWS (2009) requires only experienced biologists to perform protocol surveys, USFWS biologists should review surveyors’ credentials prior to initiating the surveys. Per this protocol, if the impact area is larger than 500 acres, the surveys must be performed during the active time periods for the tortoise so that a statistical estimate of tortoise densities can be determined for the “action area” (i.e., the area to be affected both directly and indirectly by the proposed project) as applied to the species. The results of these surveys should be published in the EA and should include density estimates for each alternative assessed. If any tortoise sign is found, the applicant should coordinate with USFWS and AZGFD prior to conducting any ground disturbance.

The project site has three drainages or washes oriented in a north-south direction as indicated on a map provided by BLM. Zylstra and Swann (2008) reported that Sonoran desert tortoises are typically found on rocky hillsides, mountain foothills, and incised washes. Please analyze the impacts of the proposed project on the continued ability of these washes to provide habitat for tortoises, including linkage habitat between areas north and south of the proposed project.

Tortoise Linkage Areas/Linkage Habitats: There is limited information on linkage areas/habitats for the Sonoran desert tortoise. However, information in the scientific literature suggests that interpopulation movements that historically linked tortoise populations have been drastically reduced by the development of anthropogenic barriers, so much so that these movements have likely become impossible (Edwards et al. 2004). Sutor et al. (2023) noted that for the Sonoran desert tortoise “linear barriers to tortoise movement and dispersal are fragmenting landscape connectivity” and “may be changing the role and spatial distribution of important habitat patches, which may suppress the species’ ability to persist in the rapidly changing landscape that is the Sonoran Desert.” Habitat patches managed for tortoises are important for range-wide connectivity for the tortoise (Sutor et al. 2023).

We suggest using recent data about the Mojave desert tortoise in analyzing impacts from the Pinyon Solar Project for this resource issue. In 2021, Averill-Murray et al. published a paper on the connectivity of Mojave desert tortoise populations and linkage habitat. The authors emphasized that “[m]aintaining an ecological network for the Mojave desert tortoise, with a system of core habitats (TCAs = Tortoise Conservation Areas) connected by linkages, is necessary to support demographically viable populations and long-term gene flow within and between TCAs.”

“Ignoring minor or temporary disturbance on the landscape could result in a cumulatively large impact that is not explicitly acknowledged (Goble 2009); therefore, understanding and quantifying all surface disturbance on a given landscape is prudent.” Furthermore, “habitat linkages among TCAs must be wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier et al. 2008, Morafka 1994), while accounting for edge effects, in order to sustain regional tortoise populations.” Consequently, effective linkage habitats are not long narrow corridors. Any development within them has an edge effect (i.e., indirect impact) that extends from all sides into the linkage habitat further narrowing or impeding the use of the linkage habitat, depending on the extent of the edge effect.

Averill-Murray et al. (2021) further notes that “To help maintain tortoise inhabitation and permeability across all other non-conservation-designated tortoise habitat, all surface disturbance could be limited to less than 5-percent development per square kilometer because the 5-percent threshold for development is the point at which tortoise occupation drops precipitously (Carter et al. 2020).” They caution that the upper threshold of 5 percent development per square kilometer may not maintain population sizes needed for demographic or functional connectivity; therefore, development thresholds should be lower than 5 percent.

The multi-year home range size for the Sonoran desert tortoise varies from 1.8 to 19.6 hectares (ha) – among adult females ($x = 7.8 \pm 4.14$ ha), immature females (4.8 ± 2.81 ha), adult males (10.6 ± 4.54 ha), and immature males (10.8 ha) (Averill-Murray et al. 2020). Additionally, Averill-Murray et al. (2020) reported that immature and adult Sonoran desert tortoises make periodic forays ranging from 1 to 7 km. Sutor et al. (2023) reported that Sonoran desert tortoise populations were historically well-connected, as evidenced by little population genetic structuring throughout their range, suggesting that individuals are capable of making long-distance movements.

Because of the findings by Averill-Murray et al. (2021) of how human activities including development projects affect connectivity for the Mojave desert tortoise, these impacts are likely similar for the Sonoran desert tortoise. The Council requests that BLM revisit the wildlife linkage area shown on the resources map provided by BLM for the proposed project to determine whether this delineated area meets the requirements to function as an effective linkage area for the tortoise. If it does not, BLM should modify the project so that it does not impact this linkage area.

The fundamentals of conservation biology include the need for gene flow between populations to maintain genetic diversity; this enables a species to be more likely to survive, especially during climate change, which enables biodiversity. Thus, linkage habitats are important as they provide connectivity among wildlife populations to maintain viability and biodiversity.

The EA should include supported information on the heat sink impacts of solar projects and analyze what the impacts would be on the project site and nearby areas that may be used by tortoises during the operations and maintenance phase of the project.

Compliance with the Candidate Conservation Agreement for the Sonoran Desert Tortoise:

We remind BLM of its commitment to manage the tortoise in the Sonoran Desert Tortoise Candidate Conservation Agreement (Agreement) (USFWS et al. 2015). As a signatory to this Agreement, BLM committed to implementing:

- (1) BLM Manual 6840 (BLM 2008a) that establishes specific procedures for managing the Sonoran desert tortoise as a BLM sensitive species, with the goal of conserving the Sonoran desert tortoise and its habitat on BLM-managed lands in cooperation with other agencies;
- (2) landscape-level conservation measures (e.g., identifying areas of potential conflict between agency mission and Sonoran desert tortoise habitat and identifying and reducing or otherwise mitigating dispersal barriers between Sonoran desert tortoise populations, etc.); and
- (3) local-level conservation measures (e.g., considering the effects of actions on the Sonoran desert tortoise during the planning process, and avoiding or minimizing impacts, or implementing mitigation measures to offset impacts to tortoise populations and habitat where practical and feasible, avoid, where practicable, or otherwise minimize or mitigate adverse effects of actions that could result in isolation of known Sonoran desert tortoise populations and/or landscape-level fragmentation of Sonoran desert tortoise habitat, etc.).

These three measures may only be effectively implemented when BLM knows the status and trend of the tortoise populations on the lands it manages and where the direct and indirect impacts to the tortoise are occurring, especially at a landscape level, and thus affecting tortoise populations. The Council is concerned about projects and management decisions that contribute to the degradation and loss of tortoise habitat (including habitat needed for connectivity among populations)(CEQ 2023) from habitat fragmentation, activities that introduce and spread non-native plant species, wildfires, etc., which result in a reduction in tortoises. To conduct an accurate regional or cumulative effects analysis and comply with the Agreement, BLM would need to track these and other impacts on the tortoise at a local and landscape level using a geospatial tracking system for all management actions and projects that it authorizes, funds, or implements. Issued grazing permits and their impacts on tortoise/tortoise habitats should be added to BLM's geospatial tracking system.

In the Agreement, BLM says, that through [its] Resource Management Plans (RMPs), BLM managers are directed to “[a]void, minimize or mitigate impacts associated with all BLM authorized activities including mineral material sales, rights-of-way [emphasis added], recreational use, travel management, and livestock grazing through project design and modifications to allowable uses in order to achieve Sonoran desert tortoise management objectives” (USFWS et al. 2015). BLM should explain and analyze in the EA how it will mitigate (avoid, minimize, and/or compensate) direct, indirect, and cumulative impacts associated with the alternatives in this EA at a local and landscape level to achieve Sonoran desert tortoise management objectives. BLM should also explain how it will comply with its Rangeland Plan (BLM 1988) and Compensation for the Desert Tortoise (Desert Tortoise MOG 1991) for this proposed action.

Impacts from Proliferation of Nonnative Plant Species and Management Plan: The EA should include an analysis of how the proposed project would contribute to the spread and proliferation of non-native invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including the availability of adequate nutritious forage and the frequency and size of human-caused fires); and how the proposed project may affect the frequency, intensity, and size of human-caused and naturally occurring fires. We strongly urge the BLM to include in the EA a management and monitoring plan for non-native invasive plant species. The plan should integrate management/enhancement of native vegetation with fire prevention and fire response to wildfires.

BLM should require the applicant to restore native vegetation at construction access roads and other areas not needed for the operation and maintenance of the project. In addition, BLM should block the public from accessing the maintenance road(s) along the gen-tie line to prevent the impacts associated with this activity

Hydrology and Water Quality: Regarding water quality of surface and groundwater, the EA should include an analysis of the impacts of water acquisition, use, and discharge for construction, panel washing, potable uses, and any other uses associated with this proposed project, and cumulative impacts from water use and discharge on native perennial shrubs and annual vegetation used for forage by the Sonoran desert tortoise, including downstream and downslope impacts. The EA should analyze how much water is proposed to be used during construction, and operations, maintenance, decommissioning, and restoration; and how any grading, placement, and/or use of any project facilities will impact downstream/downslope flows that are reduced, altered, eliminated, or enhanced. This analysis should include impacts on native and non-native vegetation and habitats for wildlife species including the Sonoran desert tortoise, for which washes are of particular importance for feeding, shelter, and movements. Bouse Wash appears to be in or adjacent to the project site and may be important in facilitating tortoise movements under Interstate 10.

We request that the EA include an analysis of how water use during construction, operations and maintenance, decommissioning, and habitat restoration will impact the levels of groundwater in the region. These levels may then impact surface and near-surface flows at springs, seeps, wetlands, pools, and groundwater-dependent vegetation in the basin. The analyses of water quality and quantity of surface and groundwater should include appropriate measures to ensure that these impacts are fully mitigated, preferably beginning with avoidance and continuing through CEQ’s other forms of mitigation (40 CFR 1508.20).

Tortoise Predators and a Predator Management Plan: Common ravens are known predators of the Mojave desert tortoise, are possibly predators of Sonoran desert tortoises, and their numbers have increased substantially because of human subsidies of food, water, and sites for nesting, roosting, and perching to hunt (Boarman 2003). Coyotes and badgers are also predators of tortoises. Because ravens can fly at least 30 miles in search of food and water daily (Boarman et al. 2006) and coyotes can travel an average of 7.5 miles or more daily (Servin et al. 2003), this analysis should extend out at least 30 miles from the proposed project site. However, in the Sonoran Desert, there has been limited scientific investigation on the impacts of ravens on tortoises.

The EA should analyze if this new solar facility and gen-tie line would result in an increase in common ravens and other predators of the desert tortoise in the action area, particularly given the proximity to occupied desert tortoise habitats in the adjacent mountains. During construction, operations and maintenance, decommissioning, and restoration phases of the proposed project, the BLM should require science-based management of common raven, coyote, and badger predation on tortoises in the action area. This will include the translocation sites if translocation occurs.

For local impacts, the Predator Management Plan should include reducing/eliminating human subsidies of food and water, and for the common raven, sites for nesting, roosting, and perching to address local impacts (footprint of the proposed project). This includes buildings, fences, and other vertical structures associated with the project site. In addition, the Predator Management Plan should include provisions that eliminate the pooling of water on the ground or on roofs that are a water subsidy that attracts tortoise predators.

The Predator Management Plan should include science-based monitoring and adaptive management throughout all phases of the project to collect data on the effectiveness of the plan's implementation and implement changes to reduce/eliminate predation on the tortoise if existing measures are not effective. For regional and cumulative impacts, the BLM should require the project proponent to participate in efforts to address regional and cumulative impacts thereby helping to ensure effective management and conservation of the tortoise.

We request that for any of the transmission options, the project use infrastructure (particularly towers) that prevent raven nesting and perching for hunting. For example, for gen-ties/transmission lines the tubular design monopole with a steep-pointed apex and insulators on down-sloping cross arms is preferable to lattice towers, because they provide nesting sites for common ravens. Lattice towers should not be used. New fencing and buildings should not provide resources for ravens, including new perching and nesting sites.

Fire Prevention/Management Plans: The proposed project would include infrastructure components that have been known to cause fires. Lithium-ion batteries at the project site have the potential to explode and cause fires and are not compatible with using water for fighting fires. Photovoltaic panel malfunctions have caused vegetation to burn onsite. We request that the EA include a Fire Prevention Plan, in addition to a Fire Management Plan, and that it specifically target methods to deal with explosions/fires produced by these batteries/panels as well as other sources of fuel and explosives on the project site. The Fire Prevention Plan should be developed in combination with the management and monitoring plan for nonnative invasive plant species (= Weed Management Plan).

If a fire occurs at the project site, it is likely to spread to adjacent areas that are tortoise habitats and contain tortoises. The applicant should be held responsible for the loss of the ecological functions and values of areas outside the footprint of the project if a fire initiates on the project site or is caused by activities associated with the project. Please include this responsibility of the Applicant in the ROW grant and fire management plan.

To ensure that the fire management plan is effective, complete, and includes implementing measures to ensure that the fire does not spread to adjacent areas on BLM land, the Weed Management Plan should be included in the EA for public review.

Translocation Plan - Translocated Tortoises & Translocation Sites: If the proposed project will displace tortoises, the following questions should be answered:

- How many tortoises will be displaced by the proposed project?
- How long will translocated tortoises be monitored?
- Will the monitoring report show how many of those tortoises lived and died after translocation and over time?
- Are there any degraded habitats or barren areas that may impair success of the translocation?
- Are there incompatible human uses in the new translocation area that need to be eliminated or managed to protect newly translocated tortoises?
- Were those translocation areas sufficiently isolated that displaced tortoises were protected by existing or enhanced land management?
- How will the proponent minimize predation of translocated tortoises and avoid adverse climatic conditions, such as low winter rainfall conditions that may exacerbate translocation success?
- Were tortoises translocated to a site where they would be protected from threats (e.g., off-highway vehicles, future development, etc.)?

These questions should be answered and analyzed in the Environmental Consequences section of the EA.

The Applicant should implement the USFWS's Translocation Guidance (USFWS 2020) and coordinate translocation with BLM and AZGFD. In addition, the proponent's project-specific translocation plan should be based on current data and developed using lessons learned from earlier translocation efforts (e.g., increased predation, drought, etc.). The Translocation Plan should include implementation of a science-based monitoring plan approved by the USFWS and AZGFD that will accurately assess these and other issues to minimize losses of translocated tortoises and impacts to their habitat. For example, the health of tortoises may be jeopardized if they are translocated during drought conditions, which is known to undermine translocation successes (Esque et al. 2010). If drought conditions are present at the time of project development, we request that the Applicant confer with the USFWS/AZGFD immediately prior to translocating tortoises and seek input on ways to avoid loss of tortoises due to stressors associated with drought. One viable alternative, if such adverse conditions exist, is to postpone translocation until which time conditions are favorable to enhance translocation success.

Moving tortoises from harm's way, which is the focus of the Translocation Guidance, does not guarantee their survival and persistence at the translocation site, especially if it will be subject to increased human use or development. Mack and Berry (2023) reported the mortality for tortoises translocated with the Fort Irwin Expansion project was greater than 50 percent. For this project, tortoise translocation was not effective at mitigating the displacement of these animals. In addition to the Translocation Guidance and because translocation sites are mitigation for the displacement of tortoises and loss of habitat, these sites should be managed for the benefit of the tortoise in perpetuity. Consequently, a conservation easement or other durable legal designation should be placed on the translocation site. The project proponent should fully fund the management of the translocation site to enhance it for the benefit of the tortoise in perpetuity.

We request that BLM develop a geographic information system that maps/tracks all locations of mitigation/compensation for projects authorized by BLM so these areas can be easily identified and not be developed for other uses in the future. This would apply for the tortoise and all special status species in Arizona. This map would be updated for each new BLM project and included in the BLM's NEPA document.

Monitoring: The EA should clearly identify that all monitoring plans that are included in each management plan will (1) be scientifically and statistically credible; (2) be implemented; and (3) require BLM/applicant to implement adaptive management to correct land management practices promptly if the mitigation is not accomplishing its intended purposes. BLM should ensure that monitoring occurs to comply with Chapter 11 of the BLM National Environmental Policy Act Handbook H-1790-1 BLM (2008b).

Need for a Resource Management Plan Amendment: BLM should explain in the EA whether the proposed project is in compliance with the current resource management plan (RMP), and if not, what changes would be made to amend the RMP for the Pinyon Solar Project. In 2013, BLM said it "intends to assess the need for new or expanded Solar energy zones (SEZs) at least once every five years." Further, Arizona BLM (2013) committed that "[t]he process to identify new or expanded SEZs will be open and transparent, with opportunities for substantial involvement of multiple stakeholders, and follow the steps outlined in the Solar ROD [Record of Decision](BLM and DOE 2012, page 168)."

Cumulative Effects Analysis: Please see *Grand Canyon Trust v. F.A.A.*, 290 F.3d 339, 345-46 (D.C. Cir. 2002) in which the court decided that agencies must analyze the cumulative impacts of actions in EAs.

In the cumulative effects analysis of the EA, please ensure that the Council on Environmental Quality's (CEQ) "Considering Cumulative Effects under the National Environmental Policy Act" (1997) is followed, including the eight principles, when analyzing cumulative effects of the proposed action to the tortoise and its habitats. CEQ states, "Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects." The analysis "must describe the response of the resource to this environmental change." Cumulative impact analysis should "address the sustainability of resources, ecosystems, and human communities." For example, the EA should include data on the estimated number of acres of tortoise habitats degraded/lost and the numbers of tortoises that may be lost to growth-inducing impacts in the region.

For federal projects where the lead agency funds, authorizes, or carries out some part of the project, CEQs guidance on how to analyze cumulative environmental consequences is given in the eight principles listed below:

1. Cumulative effects are caused by the aggregate of past, present, and reasonable future actions.

The effects of a proposed action on a given resource, ecosystem, and human community, include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to the effects (past, present, and future) caused by all other actions that affect the same resource.

2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.

Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effect at one time. The additional effects contributed by actions unrelated to the proposed action must be included in the analysis of cumulative effects.

3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.

Environmental effects are often evaluated from the perspective of the proposed action. Analyzing cumulative effects requires focusing on the resources, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.

4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.

For cumulative effects analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to the affected parties.

5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.

Resources are typically demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.

6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.

Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.

7. Cumulative effects may last for many years beyond the life of the action that caused the effects.

Some actions cause damage lasting far longer than the life of the action itself (e.g., acid mine damage, radioactive waste contamination, species extinctions). Cumulative effects analysis needs to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.

8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.

Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

Note that CEQ recognizes that synergistic and interactive impacts as well as cumulative impacts should be analyzed in the NEPA document for the resource issues, which would include the tortoise.

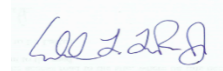
We request that the EA (1) include these eight principles in its analysis of cumulative impacts on the Sonoran desert tortoise; (2) address the sustainability of the tortoise in proximate rocky hillsides, mountain foothills, and incised washes; (3) include linkage habitats in its analysis of impacts that are needed for connectivity of tortoise populations; and (4) include mitigation along with monitoring and adaptive management plans that protect desert tortoises and their habitats during construction, operation, maintenance, and decommissioning of approved facilities. The EA should include an analysis of all proposed mitigation and how its implementation (including monitoring for effectiveness and adaptive management) would result in "no net loss in quantity and quality of Sonoran desert tortoise habitat...and using offsite mitigation (compensation) for unavoidable residual habitat loss" (USFWS et al. 2015).

In addition, we request that BLM add this project and its impacts to a database and geospatial tracking system for special status species, including the Sonoran desert tortoise, to track cumulative impacts (e.g., surface disturbance, paved and unpaved routes, linear projects, invasive species occurrence, herbicide/pesticide use, wildfires, etc.), management decisions, and effectiveness of mitigation for each project at a site-specific and landscape scale. Without such a tracking system, BLM is unable to analyze cumulative impacts on special status species (e.g., desert tortoises) with any degree of confidence and comply with its commitment in the Candidate Conservation Agreement.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM that may affect desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you notify the Desert Tortoise Council at eac@deserttortoise.org of any proposed projects that BLM may authorize, fund, or carry out in the range of any species of desert tortoise in the southwestern United States (i.e., *Gopherus agassizii*, *G. morafkai*, *G. berlandieri*, *G. flavomarginatus*) so we may provide comments to ensure BLM fully considers actions to conserve these tortoises as part of its directive to conserve biodiversity on public lands managed by BLM.

Please respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this project.

Respectfully,



Edward L. LaRue, Jr., M.S.
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

cc. Tracy Stone-Manning, Director, Bureau of Land Management, tstonemanning@blm.gov
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