



DESERT TORTOISE COUNCIL

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Via email only

20 December 2021

Attn: Rough Hat Clark County Solar Project Variance
Bureau of Land Management, Southern Nevada District Office
4701 N. Torrey Pines Drive
Las Vegas, NV 89130
BLM_NV_SND_EnergyProjects@blm.gov

RE: Rough Hat Clark County Solar Project Scoping Comments

Dear Bureau of Land Management,

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.

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats likely occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments pertain to enhancing protection of this species during activities authorized by the Bureau of Land Management (BLM), which we assume will be added to the Decision Record as needed. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed project.

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 Draft Environmental Impact Statement (DEIS) should discuss how this proposed project fits within the management structure of the current land management plan for the area, which is the Las Vegas Resource Management Plan (BLM 1998). It should provide maps of critical habitat for the Mojave desert tortoise (USFWS 1994a), Areas of Critical Environmental Concern (ACECs), and other areas identified as necessary for special management by BLM [e.g., National Conservation Lands (NCLs)]; U.S. Fish and Wildlife Service (USFWS) (e.g., linkage habitats between desert tortoise populations); Nevada Department of Wildlife (NDOW); other federal, state, and local agencies; and tribal lands.

Project Description

Candela Renewables, LLC (proponent) has applied to the BLM Las Vegas Field Office for a right-of way grant to provide the necessary land and access for the construction and operation of a proposed solar facility and interconnection to the regional transmission system. Candela Renewables is proposing the construction, operation, and eventual decommissioning of the Rough Hat Clark County Solar Project (proposed project), a photovoltaic solar power project including a battery storage facility on BLM-managed public land designated as a solar variance area in Clark County. Rough Hat Clark County Solar Project includes up to a 400 MW alternating current (AC) solar photovoltaic power generating facility with energy storage on approximately 2,400 acres of BLM-managed public land located in the Pahrump Valley in Clark County immediately adjacent to the county line, southeast of the Town of Pahrump and approximately 38 miles west of Las Vegas. The collected electricity would be delivered to a proposed onsite substation, where it would then be transferred to the BLM-approved Trout Canyon Substation via a new 230 kV generation gen-tie transmission line.

Proposed Action and Alternatives Considered

The BLM is considering the construction and operation and maintenance of this utility solar-scale facility outside the solar energy zones (SEZs) that it identified and approved in an earlier environmental review process under the National Environmental Policy Act (NEPA) (BLM and DOE 2012). As such we insist that BLM comply with all applicable regulations, Executive Orders, and federal statutes. BLM should demonstrate in the DEIS that the proposed project meets all these requirements and the following variance factors with respect to the tortoise: We require documentation:

- that the proposed project will be in conformance with decisions in current land use plan(s) and the Federal Land Policy and Management Act with respect to sustainable yield;
- that 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, etc.);
- that the applicant has coordinated with governments, including consideration of consistency with officially adopted plans and policies (e.g., recovery plans);

- that the proposed project is in an area with low or comparatively low resource conflicts and where conflicts can be resolved;
- that the proposed project will be located in, or adjacent to, previously contaminated or disturbed lands;
- that the proposed project will minimize adverse impacts on important fish and wildlife habitats and migration/movement corridors;
- that the proposed project will minimize impacts on lands with wilderness characteristics and the values associated with these lands;
- that 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 tortoise;
- that significant cumulative impacts on resources of concern should not occur as a result of the proposed project (i.e., exceedance of an established threshold such population viability for the tortoise and connectivity of tortoise populations among recovery units); and,
- that BLM's analysis of its desert tortoise variance process (i.e., <https://blmsolar.anl.gov/variance/process/factors/desert-tortoise/>) to determine whether the data available and used in 2012 currently apply to the tortoise, as population numbers and densities have substantially declined in this recovery unit and the data/knowledge currently available on habitat linkages for the tortoise is greater than in 2012.

We have serious concerns about BLM's desert tortoise variance process:

- Any necessary mitigation will improve conditions within the connectivity area, and if these options do not exist, necessary mitigation will be applied toward the nearest tortoise conservation area (e.g., an ACEC for which tortoise had been identified in the Relevant and Important Criteria or critical habitat); and
- A plan is in place to effectively monitor desert tortoise impacts, including verification that desert tortoise connectivity corridors are functional. The required Federal Endangered Species Act (FESA) consultation will further define this monitoring plan.

Regarding the first bulleted action, we are not sure who determines what mitigation is "necessary." Mitigation should as a minimum offset all direct, indirect, and cumulative impacts, especially given the status and trend of the tortoise (please see *Affected Environment - Status of the Populations of the Mojave Desert Tortoise* below). BLM should ensure it is implementing its section 7(a)(1) mandate under the FESA. Mitigation should be applied only in areas where the lands are effectively managed for the benefit of the tortoise for both the short-term and long-term. As currently managed, a BLM ACEC in Nevada or the adjacent California Desert Conservation Area does not meet this criterion. Consequently, mitigation should be implemented on lands where the landowner places a conservation easement or other legal designation and effectively enforces this management designation. Please see *Mitigation Plans* below for additional concerns and requested requirements.

Regarding the second bulleted action, a monitoring plan should (1) be scientifically and statistically credible, (2) be implementable, and (3) require BLM/project proponent to implement adaptive management to correct land management practices if the mitigation is not accomplishing its intended purposes. Please comply with chapter 11 of the BLM National Environmental Policy Act Handbook H-1790-1 BLM (2008a).

We note that a federal appellate court has previously ruled that in an EIS a federal agency must evaluate a reasonable range of alternatives to the project including other 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. (11/10/09)]. Therefore, 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 we believe constitute "other reasonable courses of actions" (40 CFR 1508.25).

The Council supports alternatives to reduce the need for additional solar energy projects in relatively undisturbed habitats in the Mojave Desert. For example, the City of Los Angeles has implemented a rooftop solar Feed-in Tariff (FiT) program, the largest of its kind in America. 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. The owners of large buildings or parking areas would grant the 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 may also reduce transmission costs, greenhouse gas emissions from constructing energy projects far from the sources of power demand and materials for construction, 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 DEIS 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 DEIS 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.

In addition, BLM should include another 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.

The DEIS 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. This could be an *option* for the currently described project alternative. It should be designed/implemented as a scientific experiment to add to the limited data on this approach to determine the extent of effects on Mojave desert tortoise populations and movements/connectivity between populations, which is an important issue for this species (Please see *Desert Tortoise Habitat Linkages/Connectivity among Populations and Recovery Units* below).

Connected Actions

Pursuant to Section 1508.25 of the Council on Environmental Quality’s (CEQ) regulations (40 CFR 1508.25), any DEIS 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 current proposed actions within the region are connected and if not, why.

Affected Environment

Status of the Population of the Mojave Desert Tortoise: The Council provides the following information for the proponent so that these or similar data may be included in the DEIS. There are 17 populations of Mojave desert tortoise described below that occur in Critical Habitat Units (CHUs) and Tortoise Conservation Areas (TCAs); 14 are on lands managed by the BLM; 8 of these are in the California Desert Conservation Area (CDCA). Note that the proposed project is located in the Eastern Mojave Recovery Unit for the tortoise.

Table 1. Summary of 10-year trend data for 5 Recovery Units and 17 CHUs/TCAs for Mojave desert tortoise. The table includes the area of each Recovery Unit and CHU/TCA, percent of total habitat for each Recovery Unit and CHU/TCA, density (number of breeding adults/km² and standard errors = SE), and the percent change in population density between 2004 and 2014. Populations below the viable level of 3.9 breeding individuals/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) and showing a decline from 2004 to 2014 are in red.

Recovery Unit: Designated Critical Habitat Unit/Tortoise Conservation Area	Surveyed area (km ²)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km ² (SE)	% 10-year change (2004–2014)
Western Mojave, CA	6,294	24.51	2.8 (1.0)	-50.7 decline
Fremont-Kramer	2,347	9.14	2.6 (1.0)	-50.6 decline
Ord-Rodman	852	3.32	3.6 (1.4)	-56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	-61.5 decline
Colorado Desert, CA	11,663	45.42	4.0 (1.4)	-36.25 decline
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	-29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	-37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	-64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	-52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	-60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
Northeastern Mojave	4,160	16.2	4.5 (1.9)	+325.62 increase
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase
Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
Eastern Mojave, NV & CA	3,446	13.42	1.9 (0.7)	-67.26 decline

El Dorado Valley, NV	999	3.89	1.5 (0.6)	-61.14 decline
Ivanpah Valley, CA	2,447	9.53	2.3 (0.9)	-56.05 decline
Upper Virgin River	115	0.45	15.3 (6.0)	-26.57 decline
Red Cliffs Desert	115	0.45	15.3 (6.0)	-26.57 decline
Range-wide Area of CHUs - TCAs/Range-wide Change in Population Status	25,678	100.00		-32.18 decline

Table 2. Estimated change in abundance of adult Mojave desert tortoises in each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Decreases in abundance are in red.

Recovery Unit	Modeled Habitat (km ²)	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
Total	68,501	336,393	212,343	-124,050	-37%

Important points from these tables include the following:

Change in Status for the Mojave Desert Tortoise Range-wide

- Ten of 17 populations of the Mojave desert tortoise declined from 2004 to 2014.
- Eleven of 17 populations of the Mojave desert tortoise are no longer viable. These 11 populations represent 89.7 percent of the range-wide habitat in CHUs/TCAs.

Change in Status for the Eastern Mojave Recovery Unit – Nevada and California

- This recovery unit had a 67 percent decline in tortoise density from 2004 to 2014, the largest decline of the five recovery units for the tortoise.
- Tortoises in this recovery unit have densities that are below viability.

Change in Status for the El Dorado Valley and Ivanpah Valley Tortoise Populations in the Eastern Mojave Recovery Unit.

- Both populations in this recovery unit experienced declines in densities of 61 percent and 56 percent, respectively from 2004 to 2014. In addition, there was a 67 percent decline in tortoise abundance.
- Both populations have densities less than needed for population viability.

Change in Status for the Mojave Desert Tortoise in California

- Eight of 10 populations of the Mojave desert tortoise in California declined from 29 to 64 percent from 2004 to 2014 with implementation of tortoise conservation measures in the Northern and Eastern Colorado Desert (NECO), Northern and Eastern Mojave Desert (NEMO), and Western Mojave Desert (WEMO) Plans.

- Eight of 10 populations of the Mojave desert tortoise in California are no longer viable. These eight populations represent 87.45 percent of the habitat in California that is in CHU/TCAs.
- The two viable populations of the Mojave desert tortoise in California are declining. If their rates of decline from 2004 to 2014 continue, these two populations will no longer be viable in about 2020 and 2031.

Change in Status for the Mojave Desert Tortoise on BLM Land in California

- Eight of eight populations of Mojave desert tortoise on lands managed by the BLM in California declined from 2004 to 2014.
- Seven of eight populations of Mojave desert tortoise on lands managed by the BLM in California are no longer viable.

Change in Status for Mojave Desert Tortoise Populations in California that Are Moving toward Meeting Recovery Criteria

- The only population of Mojave desert tortoise in California that is not declining is on land managed by the National Park Service, which has increased 178 percent in 10 years.

The Endangered Mojave Desert Tortoise: The Council believes that the Mojave desert tortoise meets the definition of an endangered species. In the FESA, Congress defined an “endangered species” as “any species which is in danger of extinction throughout all or a significant portion of its range...” Because most of the populations of the Mojave desert tortoise were non-viable in 2014, most are declining, and the threats to the Mojave desert tortoise are numerous and have not been substantially reduced throughout the species’ range, the Council believes the Mojave desert tortoise should be designated as an endangered species by the USFWS.

Mojave desert tortoise is now on the list of the world’s most endangered tortoises and freshwater turtles. It is in the top 50 species. The International Union for Conservation of Nature’s (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers Mojave desert tortoise to be Critically Endangered (Berry *et al.* 2021). “species that possess an extremely high risk of extinction as a result of rapid population declines of 80 to more than 90 percent over the previous 10 years (or three generations), a current population size of fewer than 50 individuals, or other factors.” It is one of three turtle and tortoise species in the United States to be critically endangered.

The summary of data above indicates that BLM’s current management actions for the Mojave desert tortoise are inadequate to help recover the desert tortoise. BLM has been ineffective in halting population declines, which has resulted in non-viable populations. The Council believes that these management actions are inadequate in preventing the extirpation of the Mojave desert tortoise in California and Nevada.

Standardized Surveys – Desert Tortoise and Other Species

For the DEIS to fully analyze the effects and identify potentially significant impacts, the following surveys must be performed to determine the extent of rare plant and animal populations occurring within areas to be directly and indirectly impacted.

Prior to conducting surveys, a knowledgeable biologist should perform a records search of the Nevada Natural Heritage Program (NNHP) (http://heritage.nv.gov/get_data) for rare plant and animal species reported from the region. The results of the NNHP review would be reported in the DEIS with an indication of suitable and occupied habitats for all rare species reported from the region based on performing the species-specific surveys described below.

The project proponent should fund focused surveys for all rare plant and animal species reported from the vicinity of the proposed project. Results of the surveys will determine appropriate permits from BLM, NDOW, and 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 winter rainfall to promote germination of annual plants in the spring. Alternatively, the environmental documents may assess the likelihood of occurrence with a commitment by the proponents to perform subsequent focused plant surveys prior to ground disturbance, assuming conditions are favorable for germination.

Special Status Plants: There are likely to be special status plant species found in/near the project area. This information should be assessed by accessing the NNHP literature review prior to conducting field surveys. Species or their habitats known to occur in/near the project area should be sought during field surveys and their presence/absence discussed in the DEIS. Surveys should be completed at the appropriate time of year by qualified botanists using the latest acceptable methodologies. In addition, Nevada Administrative Code (NAC) 527 provides a list of species and subspecies of native plants to be critically endangered and threatened with extinction. These fully protected species may not be removed or destroyed except pursuant to a permit issued by the State Forester (NAC 527.090). The methods used to survey for special status plant species, the results, and the mitigation/monitoring/adaptive management that will be implemented to avoid or otherwise mitigate adverse effects to these species and their habitats should be included in the DEIS.

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.

Burrowing owl: Because of their use of burrows for shelter and breeding, surveys for western burrowing owl (*Athene cunicularia*) should be performed (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, appropriate minimization and mitigation measures need to be implemented. Also note that BLM should demonstrate in the DEIS how it will comply with “E.O. 13186 – Responsibilities of Federal Agencies To Protect Migratory Birds,” since the burrowing owl is on the USFWS list of migratory birds. If burrowing owl sign is found, BLM and the project proponent should develop a science-based mitigation/monitoring/adaptive management plan with the USFWS and NDOW and ensure that this plan is implemented.

Mojave Desert Tortoise Surveys: Formal protocol surveys for Mojave desert tortoise (USFWS 2019) must be conducted at the proper times of year. 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 in the time periods of April-May or September-October so that a statistical estimate of tortoise densities can be determined for the "action area" (please see below). If any tortoise sign is found, the project proponent should coordinate with USFWS to determine whether "take" under FESA is likely to occur from implementation of the proposed project. If tortoises are present, the project proponent must obtain a biological opinion from the USFWS prior to conducting any ground disturbance.

We request that protocol-level surveys be performed at the area of the proposed project *and the alternatives that are being considered* in the DEIS. The results of these surveys should be published in the DEIS and should include density estimates for each alternative assessed.

To determine the full extent of impacts to tortoises and to facilitate compliance with the FESA, authorized biologist(s) must consult with the USFWS to determine the action area for this project. The USFWS defines "action area" the Code of Federal Regulations and their Desert Tortoise Field Manual (USFWS 2009) as "all areas to be affected directly or indirectly by proposed development and not merely the immediate area involved in the action (50 CFR §402.02)."

The Council's persisting concern is that proponents of solar projects continue to identify a single site for development without any attempt to identify alternative sites. As such, when focused studies reveal significant accumulations of tortoises on the proponent's selected site, because there is only one site identified for the project, there is no opportunity to select an alternative site where impacts would be minimized.

Too often, a single impact footprint is identified, all surveys are restricted to that site, and no alternative sites are assessed, as required by NEPA. We are concerned that this project may have already pre-determined the project footprint. As such, there may be other areas of lower tortoise densities where impacts could be minimized. However, those areas would not be considered if the project footprint is predetermined before survey data are available. As such, we request that more than one site, preferably three, be identified and analyzed in the DEIS and that the alternative with the fewest impacts to tortoises be adopted for development.

If that is not feasible, we ask that the "action area" of the proposed project be several times larger than the project footprint so that those portions of the site with fewer tortoises could be selected. Proponents of the Gemini Solar Site in southern Nevada, for example, ignored these recommendations, and displaced more than 100 tortoises, when based on their presence-absence tortoise surveys, a shift of the site to the east would have avoided many of those animals.

It is current management to require desert tortoise protocol surveys (USFWS 2019) on a given site, but all too often translocation sites are ignored. We feel strongly that protocol surveys should occur on multiple or enlarged sites as given above *and* in all proposed translocation sites, assuming tortoises will be displaced.

Mojave Desert Tortoise Impacts Analysis:

Analysis of Direct and Indirect Impacts: The alternatives analysis should include an economic analysis that provides the total cost of constructing the proposed project versus other alternatives, so the public can see how much the total cost of each alternative is. This would include an analysis of the costs of replacing all public resources that would be lost from granting the proposed project including direct, indirect, and cumulative impacts. Please note, this analysis would include replacement or creation costs including the time needed to achieve full replacement, not just acquisition, management, monitoring, and adaptive management costs.

The DEIS should include a thorough analysis of the status and trend of the tortoise in the action area, tortoise conservation area(s), recovery unit(s), and range wide. Tied to this analysis should be a discussion of all likely sources of mortality for the tortoise and degradation and loss of habitat from implementation of solar development including construction, operation and maintenance, decommissioning, and restoration of the public lands. The DEIS should use the data from focused plant and wildlife surveys in their analysis of the direct, indirect, and cumulative impacts of the proposed project on the Mojave desert tortoise and its habitat, other listed species, and species of concern/special status species.

We expect that the DEIS will document how many acres would be impacted directly by solar arrays, access roads to the site, administration/maintenance buildings, parking areas, transmission towers, switchyards, laydown areas, internal access roads, access roads along gen-tie lines, a perimeter road, perimeter fencing, substations (e.g., the project footprint). We also request that separate calculations document how many acres of desert tortoise habitats would be temporarily and permanently impacted both directly and indirectly (e.g., “road effect zone,” etc.) by the proposed project. As given below, these acreages should be based on field surveys for tortoises not just available models.

Road Effect Zone: We request that the DEIS include information on the locations, sizes, and arrangements of roads to the proposed project and within it, who will have access to them, whether the access roads will be secured to prevent human access or vandalism, and if so, what methods would be used. The presence/use of roads even with low vehicle use has numerous adverse effects on the desert tortoise and its habitats that have been reported in the scientific literature. These include the deterioration/loss of wildlife habitat, hydrology, geomorphology, and air quality; increased competition and predation (including by humans); and the loss of naturalness or pristine qualities.

Vehicle use on new roads and increased vehicle use on existing roads equates to increased direct mortality and an increased road effect zone for desert tortoises. Road construction, use, and maintenance adversely affect wildlife through numerous mechanisms that can include mortality from vehicle collisions, and loss, fragmentation, and alteration of habitat (Nafus et al. 2013; von Seckendorff Hoff and Marlow 2002).

In von Seckendorff Hoff and Marlow (2002), they reported reductions in Mojave desert tortoise numbers and sign from infrequent use of roadways to major highways with heavy use. There was a linear relationship between traffic level and reduction. For two graded, unpaved roads, the

reduction in tortoises and sign was evident 1.1 to 1.4 km (3,620 to 4,608 feet) from the road. Nafus et al. (2013) reported that roads may decrease tortoise populations via several possible mechanisms, including cumulative mortality from vehicle collisions and reduced population growth rates from the loss of larger reproductive animals. Other documented impacts from road construction, use, and maintenance include increases in roadkill of wildlife species as well as tortoises, creating or increasing food subsidies for common ravens, and contributing to increases in raven numbers and predation pressure on the desert tortoise.

Please include in the DEIS analyses, the five major categories of primary road effects to the tortoise and special status species: (1) wildlife mortality from collisions with vehicles; (2) hindrance/barrier to animal movements thereby reducing access to resources and mates; (3) degradation of habitat quality; (4) habitat loss caused by disturbance effects in the wider environment and from the physical occupation of land by the road; and (5) subdividing animal populations into smaller and more vulnerable fractions (Jaeger et al. 2005a, 2005b, Roedenbeck et al. 2007). These analyses should be at the population, recovery unit, and rangewide levels.

In summary, road establishment/increased use is often followed by various indirect impacts such as increased human access causing disturbance of species' behavior, increased predation, spread of invasive species that alters/degrades habitat, and vandalism and/or collection. The analysis of the impacts from road establishment and use should include cumulative effects to the tortoise with respect to nearby critical habitat and other Tortoise Conservation Areas (TCAs), areas identified as important linkage habitat for connectivity between nearby critical habitat units/TCAs as these linkage areas serve as corridors for maintaining genetic and demographic connectivity between populations, recovery units, and rangewide (Please see *Desert Tortoise Habitat Linkages/Connectivity among Populations and Recovery Units* below). These and other indirect impacts to the Mojave desert tortoise should be analyzed in the DEIS from project construction, operations and maintenance, decommissioning, and habitat restoration.

Desert Tortoise Habitat Linkages/Connectivity among Populations and Recovery Units: The DEIS should analyze how this proposed project will impact the movement of tortoises relative to linkage habitats/corridors. The DEIS should include an analysis of the minimum linkage design necessary for conservation and recovery of the desert tortoise (e.g., USFWS 2011, Averill-Murray et al. 2013, Hromada et al. 2020), and how the project, along with other existing projects, would impact the linkages between tortoise populations and all recovery units that are needed for survival and recovery. We strongly request that the environmental consequences section of the DEIS include a thorough analysis of this indirect effect (40 Code of Federal Regulations 1502.16) and appropriate mitigation to maintain the function of population connectivity for the Mojave desert tortoise and other wildlife species be identified. Similarly, please document how this project may impact proximate conservation areas, such as BLM-designated ACECs.

Mitigation Plans

The DEIS should include effective mitigation for all direct, indirect, and cumulative effects to the tortoise and its habitats. The mitigation should use the best available science with a commitment to implement the mitigation commensurate to impacts to the tortoise and its habitats. Mitigation should include a fully-developed desert tortoise translocation plan (including protection of tortoise

translocation area(s) from future development and human disturbance in perpetuity; raven management plan; nonnative plant species management plan; fire prevention plan; compensation plan for the degradation and loss of tortoise habitat that includes protection of the acquired, improved, and restored habitat in perpetuity for the tortoise from future development and human use; and habitat restoration plan when the lease is terminated and the proposed project is decommissioned.

All plans should be provided in the DEIS so the public and the decisionmaker can determine their adequacy (i.e., whether they are scientifically rigorous and would be effective in mitigating for the displacement and loss of tortoises and degradation and loss of tortoise habitat from project implementation). Too often, such plans are alluded to in the draft environmental document and promised at a later date, which does not allow the reviewers to assess their adequacy, which is unacceptable. If not available as appendices in draft documents, all indicated plans must be published in the final environmental documents. Their inclusion is necessary to determine their adequacy for mitigating direct, indirect, and cumulative impacts, and monitoring for effectiveness and adaptive management regarding the desert tortoise. If these plans are not provided, it is not possible for BLM to determine the environmental consequences of the project to the tortoise.

These mitigation plans should include an implementation schedule that is tied to key actions of the construction, operation, maintenance, decommissioning, and restoration phases of the project so that mitigation occurs concurrently with or in advance of the impacts. The plans should specify success criteria, include an effectiveness monitoring plan to collect data to determine whether success criteria have been met, and identify/implement actions that would be required if the mitigation measures do not meet the success criteria.

BLM Manual 6840: Special Status Species Management includes the following BLM directives (BLM 2008b) that are applicable to the Mojave 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 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: A. 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. B. To initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the FESA.

With respect to the Mojave desert tortoise, we request that the proposed action or other alternative contribute to meeting objectives in BLM Manual 6840 – Special Status Species Management (BLM 2008b).

Translocation Plan - Translocated Tortoises & Translocation Sites: 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? 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 in the Environmental Consequences section of the DEIS.

The project proponent should implement the USFWS' Translocation Guidance (USFWS 2020) and coordinate translocation with BLM and NDOW. 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). (Please see *Desert Tortoise Translocation Bibliography Of Peer-Reviewed Publications*¹ in the footnote).

The Translocation Plan should include implementation of a science-based monitoring plan approved by the Desert Tortoise Recovery Office 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 displaced 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 proponent confer with the USFWS immediately prior to displacing 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 site development until which time conditions are favorable to enhance translocation success.

Moving tortoises from harm's way, 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. 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 legal designation should be placed on the translocation sites. The project proponent should fully fund management of the site to enhance it for the benefit of the tortoise.

Tortoise Predators and a Predator Management Plan: Common ravens are known predators of the Mojave desert tortoise 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.

¹ https://www.fws.gov/nevada/desert_tortoise/documents/reports/2017/peer-reviewed_translocation_bibliography.pdf

The DEIS should analyze if this new use would result in an increase in common ravens and other predators of the desert tortoise in the action area. 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 would include the translocation sites.

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.

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. For example, in California, the project proponent should contribute to the National Fish and Wildlife Foundation's Raven Management Fund to help mitigation for regional and cumulative impacts. Unfortunately, this Fund that was established in 2010 has not revised its per acre payment fees to reflect increased labor and supply costs during the past decade to provide for effective implementation. The National Fish and Wildlife Foundation should revise the per acre fee.

We request that for any of the transmission options, the project use towers that prevent raven nesting and perching for hunting. For example, the tubular design pole with a steep-pointed apex and insulators on down-sloping cross arms is preferable to lattice towers, which should not be used.

Fire Prevention/Management Plans: The proposed project would include storage of power in lithium-ion batteries at the project site. These batteries have the potential to explode and cause fires and are not compatible with using water for fighting fires. We request that the DEIS include a Fire Prevention Plan in addition to a Fire Management Plan specifically targeting methods to deal with explosions/fires produced by these batteries as well as other sources of fuel and explosives on the project site.

Habitat Compensation Plan: The DEIS should include a Habitat Compensation Plan for the loss/degradation of habitat. This plan should calculate how it will fully mitigate for the impacts of the Proposed project including direct, indirect, cumulative, and temporal impacts. The DEIS 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 desert tortoise habitat and using offsite mitigation (compensation) for unavoidable residual habitat loss. We request that BLM include this analysis in its NEPA document.

Climate Change and Nonnative Plants

Climate Change: We request that the DEIS address the effects of the proposed action on climate change warming and the effects that climate change may have on the proposed action. For the latter, we recommend including: an analysis of habitats within the project area that may provide refugia for tortoise populations; an analysis of how the proposed action would contribute to the spread and proliferation of nonnative invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including the frequency and size of human-caused fires); and how the proposed action may affect the likelihood of human-caused fires. We strongly urge the proponent to develop and implement a management and monitoring plan using this analysis and other relevant data that would reduce the transport to and spread of nonnative seeds and other plant propagules within the project area and eliminate/reduce the likelihood of human-caused fires. The plan should integrate vegetation management with fire prevention and fire response.

Impacts from Proliferation of Nonnative Plant Species and Management Plan: The DEIS should include an analysis of how the proposed project would contribute to the spread and proliferation of nonnative invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including 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 require the project proponent to develop and implement a management and monitoring plan using this analysis and other relevant data that would reduce the transport to and spread of nonnative seeds and other plant propagules within the project area and eliminate/reduce the likelihood of human-caused fires. The plan should integrate management/enhancement of native vegetation with fire prevention and fire response to wildfires.

Hydrology and Water Quality

Regarding water quality of surface and ground water, the DEIS should include an analysis of the impacts of water use and discharge for 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 Mojave desert tortoise, including downstream impacts.

Regarding quantity of surface water, the DEIS should analyze 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 to native and nonnative vegetation and habitats for wildlife species including the Mojave desert tortoise. Washes are of particular importance to the Mojave desert tortoise for feeding, shelter, and movements.

Therefore, we request that the DEIS include an analysis of how water use during construction, operations and maintenance, decommissioning, and habitat restoration will impact the levels of ground water in the region. These levels may then impact surface and near-surface flows at springs, seeps, wetlands, and pools in the basin. The analyses of water quality and quantity of surface and ground water 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).

Federal Land Policy and Management and Federal Endangered Species Act

Federal Land Policy and Management Act (FLPMA): In 1976, Congress passed the FLPMA “to provide for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple uses and sustained yield, and the maintenance of environmental quality.” Congress further declared “the desert environment is a total ecosystem that is extremely fragile, easily scarred, and slowly healed; the use of all desert resources [including rare and endangered species of wildlife, plants, and fishes] can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations...”

Congress wrote a lengthy definition of “multiple use” for the management of public lands and their various resource values. The definition included “... the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.”

Congress defined “sustained yield” as the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use. The Mojave desert tortoise and its habitats are renewable resources.

The definition of “environmental quality” is a set of properties and characteristics of the environment, either generalized or local, as they impinge on human beings and other organisms. It is a measure of the condition of an environment relative to the requirements of one or more species and or to any human need or purpose. Thus, BLM must consider the quality or condition of the environment of the Mojave desert tortoise with respect to the species’ requirements for persistence and must maintain this habitat quality.

The Council believes that BLM’s management of the Mojave desert tortoise and its habitats in Nevada is not in compliance with FLPMA. The large number of non-viable populations and downward trend in population densities for the Mojave desert tortoise are the data that confirm non-compliance with the “immediate and future protection of public lands,” “conserving resources for future generations,” and definitions of multiple use, sustained yield, and environmental quality.

Section 7(a)(1) of the Endangered Species Act: Section 7(a)(1) of the Endangered Species Act states that all federal agencies “...shall... utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act.” In Section 3 of the FESA, “conserve,” “conserving,” and “conservation” mean “to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition...”

The Council believes that the data given herein demonstrate that BLM's management of the Mojave desert tortoise and its habitat has not been effective in meeting BLM's Section 7(a)(1) mandate of carrying out programs for its conservation. To meet its Section 7(a)(1) responsibilities, the BLM needs to adopt and implement the management actions of the one population of the Mojave desert tortoise in California that is increasing, which is managed by the National Park Service (NPS). The NPS' land management practices are closer to managing areas of land as reserves, which is what the 1994 Recovery Plan (USFWS 1994b) described as part of the recovery strategy for the Mojave desert tortoise. While BLM designated Desert Wildlife Management Areas (DWMAs) as one part of the recovery strategy, it did not implement the other parts of the recovery strategy. According to the Recovery Plan, DWMAs were to be managed as reserves; that is, they were areas of land to keep, save, preserve, or protect tortoises and their habitats. BLM did not identify and implement needed recovery actions within each DWMA to manage the DWMAs as protected areas for the Mojave desert tortoise.

When analyzing and implementing aspects of the project, we request that BLM demonstrate how it is contributing effectively to the conservation and recovery of the Mojave desert tortoise in southern Nevada. We request that BLM show how mitigation for the project will do more than offset all direct, indirect, and cumulative impacts so that the status of the Mojave desert tortoise as described herein will improve. By providing this information, BLM would demonstrate its compliance with section 7(a)(1) of the FESA for the Mojave desert tortoise.

Cumulative Effects

With regards to cumulative effects, the DEIS should list and analyze all project impacts within the region including future state, federal, and private actions affecting listed species on state, federal, and private lands. The Council asks that the relationship between this proposed project and all other regional projects be analyzed. We also expect that the environmental documents will provide a detailed analysis of the "heat sink" effects of solar development on adjacent desert areas and particularly Mojave desert tortoise in addition to climate change.

In the cumulative effects analysis of the DEIS, please ensure that the CEQs "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 DEIS 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.

CEQs guidance on how to analyze cumulative environmental consequences, which contains 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 need 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.

We request that the DEIS (1) include these eight principles in its analysis of cumulative impacts to the Mojave desert tortoise; (2) address the sustainability of the tortoise given the information on the *Status of the Mojave Desert* given herein; and (3) include mitigation along with monitoring and adaptive management plans that protect desert tortoises and their habitats during both construction and operation of approved facilities.

We appreciate this opportunity to provide scoping comments on this project and trust that our comments will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Desert Tortoise 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 species of 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 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

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