



DESERT TORTOISE COUNCIL

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Via email only

23 October 2022

Attn: Chip Lewis
Bureau of Indian Affairs, Western Regional Office
Branch of Environmental Quality Services
2600 North Central Avenue, 4th Floor Mail Room
Phoenix, Arizona 85004-3008
chip.lewis@bia.gov

RE: Draft Environmental Impact Statement (DEIS) for the Proposed Yahthumb Solar Project,
Clark County, Nevada

Dear Mr. Lewis,

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. Please note that although the Council is included in the list of organizations contacted, we received notice of this project from a third party, not from either Bureau of Indian Affairs (BIA) or Bureau of Land Management (BLM). Given the location of the proposed project in habitats known to be occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include recommendations that will enhance protection of this species and its habitat during activities authorized by the BIA, 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 and attachments for the proposed project.

Project Description

According to the Federal Register Notice, dated 9/12/2022, “the DEIS evaluates a photovoltaic (PV) solar energy generation and storage project on the Moapa River Indian Reservation (Reservation) and a generation interconnection (gen-tie) line along with the use of existing access roads located on the Reservation, Reservation lands managed by BLM, BLM lands, and private land. The PV electricity generation and battery storage facilities would be located on up to 1,400 acres within a 1,695-acre lease area on tribal trust land and would have a capacity of up to 138 megawatts (MW).”

Unless otherwise noted, the following page numbers are in Volume 1 of the DEIS, dated July 2022 (www.YahthumbSolarProjectEIS.com).

Page 2-5 indicates “Temporary desert tortoise exclusion fencing would be installed outside of the chain-link perimeter fence during construction. The permanent perimeter fence would be installed to leave a six to eight-inch opening at the bottom of the fence to allow the movement of desert tortoises across and through the site when the temporary tortoise fence is removed following construction.” We understand that the purpose of this approach is to allow tortoises back onto the site, which has been done at other solar facilities in southern Nevada. However, the DEIS fails to indicate how effective (or not) this approach has been at other sites. For example, once vegetation begins to be reestablished, the proponents typically mow the emergent vegetation to prevent it from impacting the mirrors. The Final EIS (FEIS) needs to clarify how the proponent plans to avoid injury and/or death of tortoises that have reentered the area during subsequent mowing.

Bottom of page 3-33 and the top of 3-34 indicate that desert tortoise surveys would be performed after the site is surrounded by tortoise-proof mesh. The FEIS should clarify that *clearance* surveys would be performed, which following methods identified in the U.S. Fish and Wildlife Service Field Manual (USFWS 2009). Under this methodology, surveys conducted at 5-meter intervals would continue until which time two surveys are performed without any tortoises being found, which is important given the likelihood that juvenile tortoises are present. The first measure under Biological Resources in Appendix C is an appropriate place to clarify this methodology. We note that it appears as Measure 6 in Section 2.7.2 in the Biological Assessment, Volume 2, Appendix M, but is not reiterated in the body of the DEIS. All measures recommended in the Biological Assessment should appear in a cumulative list of protective measures in the FEIS, lest the proponent fail to recognize and implement the full range of recommended measures.

Also, under Biological Resources Best Management Practices (BMP) in Appendix C of Volume 2, we recommend that the following measure be amended as per the bold font that follows: “The temporary desert tortoise fencing will be inspected monthly during periods of high tortoise activity (April 1 – May 31 and September 1 – October 31),” **and after substantial rain events**. We note that this recommendation is consistent with the same measure given in the Biological Assessment in Appendix M, Volume 2.

We believe that the very next BMP be amended as shown in strike-through and bold font: “The Applicant will implement the Raven Management Plan (BLM 2014) to be provided by the BLM for portions of the Proposed Project ~~on BLM-administered lands~~ **throughout the project area.**” All the most protective measures should be implemented throughout the project area, not only on BLM-administered lands, to offset potential impacts associated with the entire project, not just on BLM lands.

Finally, we ask that the final BMP in this section be amended with the bold wording: “Any and all additional measures identified in the Biological Opinion **and the Biological Assessment (Appendix M, Volume 2 of the DEIA)** to mitigate impacts to sensitive species will be implemented as prescribed.” We note that there are many prudent protective measures given in Section 2.7 of the Biological Assessment that are not iterated in the DEIS and these BMPs, and should be added so that they are all listed in one place.

Unfortunately, this DEIS perpetuates a deficiency found in many environmental documents, where management plans are alluded to without being provided for review. Unless the management plans are included in the environmental document, there is no opportunity for the public to review and suggest measures that would improve the plans. As such, each of the 20 management plans alluded to on page 30 of the Biological Assessment included in Appendix M of Volume 2 must be attached to the FEIS for it to be truly considered as final. Herein, we provide a copy of arid environment restoration BMPs funded by the Council in 2016 (Abella and Berry 2016)¹ for your consideration when the restoration plan is formulated.

The DEIS fails to document the current status and plight of the desert tortoise. The Council believes that the Mojave desert tortoise meets the definition of an endangered species. In the Federal Endangered Species Act (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), which is a “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.

We provide the following information in Table 1, missing from the DEIS, as supplemental information that should be included in the FEIS.

¹ <https://www.dropbox.com/s/nx1b5m2b5ehya12/%23Abella%20and%20Berry%202016.pdf?dl=0>

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 (km²)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km² (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 (km²)	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 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.

Cumulative Effects Analysis

Page 2-18 says "Also, the Moapa Band has been working very closely with several other solar power developers on current partnerships for additional solar projects, and they intend to propose construction of additional solar facilities on the Reservation over the next ten years. Therefore, many potentially suitable areas outside the designated area for the Yahthumb Project are precluded from consideration because they are committed for other energy projects (primarily solar) or have other constraints, including potential impacts on desert tortoise and other wildlife." Page 3-37 indicates "There are more than five million acres within the Northeastern Mojave Recovery Unit for Mojave desert tortoise and approximately 4,800 acres have been developed as part of previously approved and constructed solar projects. Another approximately 34,500 acres of solar projects are currently proposed for future construction within the Unit (USFWS 2021b). The combined acreage of these projects would make up 0.92 percent of the recovery unit."

We do not consider the list of nine solar projects listed on page 3-55 to constitute a cumulative effects analysis. Among other things, we ask that the FEIS amend this list to include, at a minimum, the number of tortoises that have been displaced by these and other regional solar projects; the numbers of tortoises harmed and accidentally killed, either directly or as a result of poorly translocated tortoises, including the Yellow Pine Solar Project, which is not listed; and specific data for the translocation area, including the numbers of tortoises translocated there and the known mortalities of displaced tortoises.

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 previous BIA and BLM solar projects be included and analyzed, which would amend the nine projects listed on page 3-55. 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 FEIS (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 comments on this project and trust they 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 BIA 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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