

DESERT TORTOISE COUNCIL

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Via email only

16 February 2023

CDFW Inland Deserts Region Office
Attention: Dr. Shankar Sharma
3602 Inland Empire Boulevard, Suite C-220
Ontario, California 91764
shankar.sharma@wildlife.ca.gov

RE: Soda Mountain Solar Project, San Bernardino County, California – Notice of Preparation
(NOP) of a Draft Environmental Impact Report

Dear Dr. Sharma,

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 that the California Department of Fish and Wildlife (CDFW) email to us 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. Further, we appreciate CDFW contacting the Council about this proposed project and making us aware of the opportunity to provide comments through the public comment process under the California Environmental Quality Act (CEQA).

Given the location of the proposed project in habitats occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include recommendations that will enhance protection of this Federally and State-listed species and its habitat, including habitat needed for connectivity among tortoise populations but not continuously occupied by tortoises. We request that these recommendations be added to all authorizing documents, (e.g., permit, grant, right-of-way, agreement, etc.), as appropriate, if the project is authorized. Please accept, carefully review, and include in the project file the Council's following comments and attachments for the proposed project.

The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), as it 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), population size fewer than 50 individuals, or other factors." It is one of three turtle and tortoise species in the United States to be critically endangered. This status, in part, prompted the Council to join Defenders of Wildlife and the Desert Tortoise Preserve Committee (Defenders of Wildlife et al. 2020) to petition the California Fish and Game Commission in March 2020 to elevate the listing of the Mojave desert tortoise from threatened to endangered in California.

Description of Proposed Action

Original Project

The Original Soda Mountain Solar Project from 2007 included the construction, operation, maintenance, and decommissioning of a 358-megawatt photovoltaic (PV) solar energy generating plant and related facilities on approximately 4,179 acres of land managed by the BLM in San Bernardino County (County). It included installing and using ground water that required a groundwater well permit from the County. BLM and the County jointly prepared a draft EIR/EIS for the original project under the National Environmental Policy Act (NEPA) and CEQA, respectively (BLM and County 2013).

Revised Project

BLM and the County published the final Plan Amendment and EIS/EIR document on June 12, 2015. In 2016, BLM issued a Record of Decision (ROD) approving a Revised Project that included several changes to the Original Project. The changes to the Revised Project included:

- The construction, operation, maintenance, decommissioning, and reclamation of the East Array as a single, larger array block. In the reconfigured design, solar panels would cover an area previously avoided for drainage needs, but upon further analysis, does not require avoidance.
- Reconfiguration of the proposed South Array (=South Arrays 1, 2, and 3) including the array fence line, to avoid encroachment on 52 acres of the Raser Off-highway Vehicle (OHV) Open Area and avoiding construction of solar arrays within the existing alignment of Raser Road.

- Relocation of the proposed flood control berms between the southernmost array blocks to an area just outside of the array fence line to coincide with the revised boundaries of the East and South Arrays.
- Reconfiguration of the East Array and South Array (=South Arrays 1, 2, and 3) to provide greater acreage (1,726 acres) for solar arrays than described in the Final EIS/EIR (1,594 acres).
- Increases from 150 to 200 feet for corridor width to install the collector circuits and allow for sufficient spacing between the collector lines.
- Removal of groundwater treatment features, including the brine ponds from the Original Project.
- Change in the construction schedule from 30 months to an 18-month to 5-year period depending on Revised Project phasing. The arrays and array blocks could be installed in phases where the substation/switchyard, buildings, and groundwater wells would be installed with the first phase.
- Change in temporary and permanent disturbance to 1,767 acres for permanent disturbance and 292 acres of temporary disturbance = total of 2,059 acres of disturbance.
- Total permanent disturbance of the Project in the amended plan of development would be 1,767 acres. The total disturbance, including temporarily disturbed areas, would be 2,059 acres.

BLM posted the NEPA and CEQA documents on the Original and Revised Projects at <https://eplanning.blm.gov/eplanning-ui/project/66043/570>.

Description of Proposed Project:

The current proposed project (Proposed Project) is similar to the Revised Project described above and approved in BLM's ROD. However, the Proposed Project does not rely on groundwater wells, so constructing new wells is not part of the Proposed Project. The County completed CEQA compliance because it would need to issue a permit for the groundwater well(s). Because the Proposed Project no longer requires a permit from the County, CEQA compliance is being done by CDFW, as it anticipates it will need to issue an Incidental Take Permit under the California Endangered Species Act (CESA) and/or a Lake and Streambed Alteration Agreement under California Fish and Game Code. However, these proposed actions in combination do not include or involve the proposed approval by CDFW of the full scope of activities proposed by the Applicant. The permits, if issued, will simply condition how the Applicant implements certain activities subject to CDFW's related regulatory authority under the California Fish and Game Code. Accordingly, the proposed approval requiring CDFW to comply with CEQA as a lead agency does not include the approval of the Applicant's activities overall.

According to CDFW, the Proposed Project is the construction, operation, maintenance, and future decommissioning of a 300-megawatt photovoltaic (PV) solar facility (East Array and South Arrays 1, 2, and 3), and related facilities (e.g., operation and maintenance buildings and structures, stormwater infrastructure, battery energy storage systems across 16 acres, and substation and switchyard, etc.) on approximately 1,490 acres of land administered by BLM (Figure 1) . The Proposed Project would generate and deliver solar-generated power to the regional electrical grid via an interconnection (gen-tie) line following a zigzag path approximately 1.5-miles long to the existing Mead-Adelanto 500-kilovolt transmission line north of Interstate (I)-15. The transmission line is operated by the Los Angeles Department of Water and Power (LADWP).

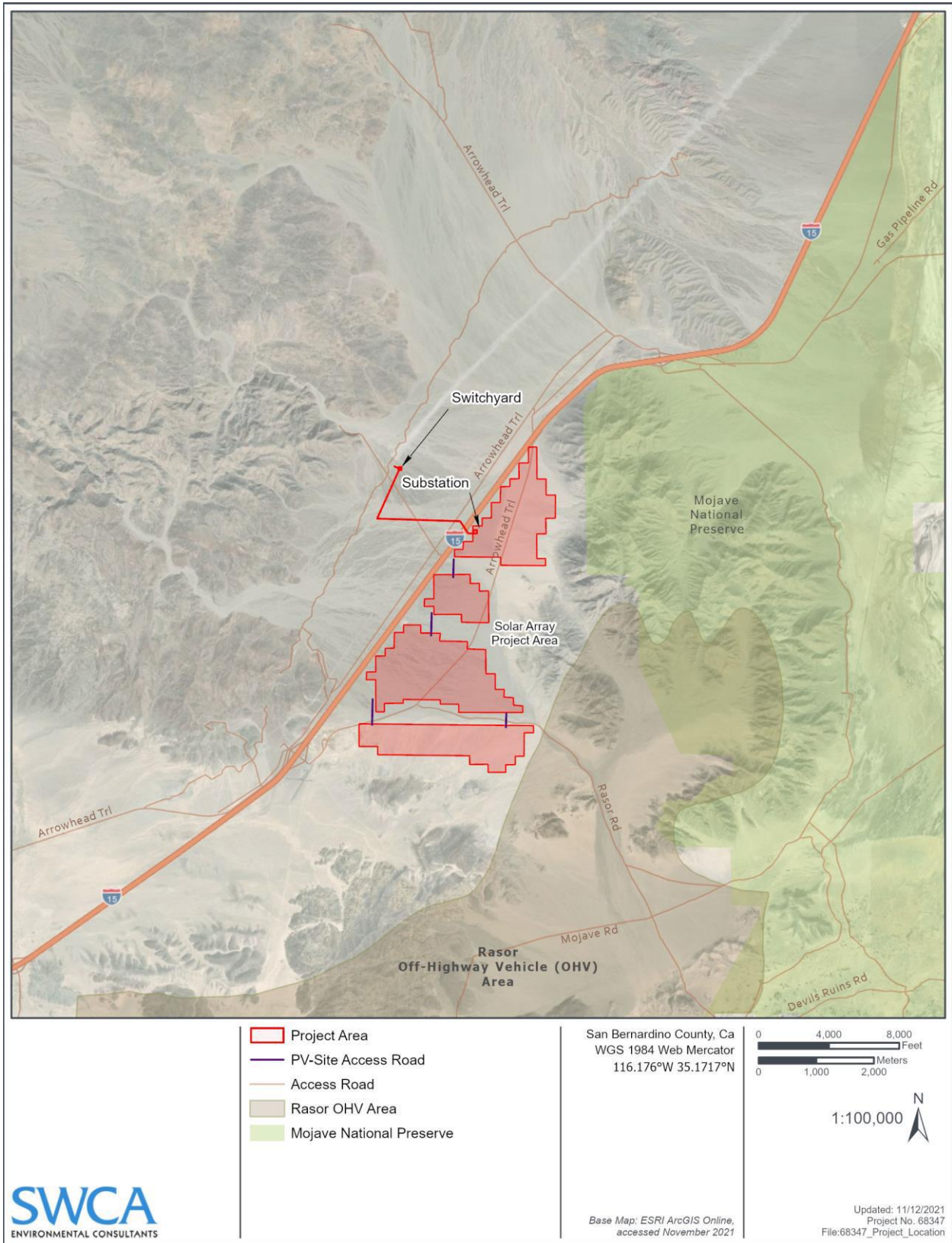


Figure 1. Location and layout of Soda Mountain Solar Project.

Access to the Proposed Project south of I-15 would be from Razor Road via a gated entrance. A California Department of Transportation access road to the Opah Ditch pit mine would be used for access to the gen-tie line to the substation and for project site access north of I-15.

The Proposed Project is located approximately 6 miles southwest of the town of Baker, California, 50 miles northeast of the city of Barstow, and 0.5 mile from the western boundary of the Mojave National Preserve. It is bounded on the east by Mojave National Preserve and on the south and southeast by the Razor Off-highway Vehicle (OHV) Open Area managed by BLM.

Scoping Comments

In considering the following comments, we ask an overarching question: Why is this project, which would be developed on public lands managed by BLM, not being analyzed in a joint Environmental Impact Report/Environmental Impact Statement (EIR/EIS), which we feel is the appropriate level of review? We ask this as the Project Description has changed three times. The Original Project Description was analyzed in a DEIS/DEIR and FEIS/FEIR. The Revised Project that was approved by BLM under was changed in the ROD and included a description but no analysis of the changes on the resource issues and was not circulated for public review and comment. Now there is the Proposed Project that will undergo analysis under CEQA but not NEPA.

In addition, since BLM issued the ROD for Soda Mountain Solar Project, the demographic status of the tortoise has changed with the release of USFWS documents on the results of rangewide monitoring that show a trend of substantial declines in tortoise numbers and densities especially in the Western Mojave Recovery Unit (please see Appendix A. Demographic Status and Trend of the Mojave Desert Tortoise including the Western Mojave Recovery Unit). Given these ongoing changes, we note the requirements of NEPA's implementing regulations are "to ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA (40 Code of Federal Regulations 1500.1(b)). Consequently, we request that BLM issue a revised NEPA document for public review and comment on the Proposed Project with updated analyses on impacts to the human environment including the tortoise and other Special animals and special status plants.

Project Description

In comparing the acreage that would be impacted by the Proposed Project in the NOP (1,490 acres) and the Revised Project described by BLM (2,059 acres), the acreages obviously differ. Please explain this difference. One way would be to provide a list of the acres impacted for each component of the solar facility (including access roads) and whether the impacts would persist throughout the construction and operation and maintenance of the project (= long-term permanent impacts) or be restored (= long-term temporary impacts).

We note, too, that this project has already failed once to be developed, and received substantial resistance from environmental groups, including the Council (see Appendix C). Rumors include that LADWP was not willing to buy the Power Purchase Agreement. Others are that the project would have had a significant enough impact to the environment, and particularly to the proximate Mojave National Preserve, that it was abandoned in the response to the public's opposition. We ask that the DEIR address these issues, and document the reasons the earlier project failed. And, in so doing, please explain which conditions have changed that the project is now being reconsidered.

In the NOP under Section D, Potential Environmental Effects, CDFW provided a link to an Environmental Checklist Form to assist the public and agencies in preparing written comments. Unfortunately, when we tried to access it, we received an error message. Consequently, the Council is providing comments following our past practices of commenting on NEPA and CEQA documents without the benefit of seeing the checklist.

Alternatives to Analyze in the DEIR

In the NOP CDFW says, “[t]he Draft EIR will describe and evaluate the effects of a reasonable range of alternatives to the proposed project, including a no-project alternative” and “any environmentally superior alternative(s). The alternatives analyzed in the Draft EIR will be developed during the environmental review process, including consideration of public comments received during the public comment period.”

The Council supports alternatives to reduce the need for additional solar energy projects in relatively undisturbed habitats in the Mojave Desert. The Council’s persisting concern is that proponents of solar projects continue to identify a single site for development without identifying other viable alternative sites. As such, when focused surveys reveal significant numbers 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 substantially reduced. The Council requests that the following alternatives be evaluated in the DEIR:

- Urban/Suburban Solar Alternative – “rooftop solar” or solar placed in already developed areas (= urban/suburban solar), which we believe constitute other reasonable courses of actions. 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.

This alternative puts the generation of electricity where the demand is greatest, in populated areas. It may also reduce:

- Transmission construction costs;
 - greenhouse gas emissions from constructing energy projects far from the sources of power demand and materials for construction;
 - loss of plants from construction and for the life of the project that sequester carbon;
 - the loss/degradation of numerous natural and cultural resources in the desert that must be analyzed under the CEQA; and,
 - mitigation costs for all direct, indirect, and cumulative impacts; monitoring and adaptive management costs; and habitat restoration costs following decommissioning.
- Previously Used Lands Alternative – locating solar projects on bladed or highly degraded tracts of land (e.g., abandoned agricultural fields, etc.). 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. There are large areas of land near Barstow and farther west in the Antelope Valley with previously used, degraded lands.

- Distributed Generation Alternative – Distributed Generation installs smaller scale PV facilities at or near the point of energy use, i.e., metropolitan/urban areas. Distributed Generation Alternatives may include BLM-land only and a combination of BLM land and land owned/managed by others (e.g., private and State lands).
- Vegetation Left In Place Alternative – 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 grow 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 Proposed Project. 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, particularly over the long-term (see Desert Tortoise Habitat Linkages/Connectivity among Populations and Recovery Units below). Long-term monitoring for the life of the project would need to be included to accurately evaluate the effectiveness of this strategy.
- Other Locations in the Mojave Desert – CDFW should use the results of research conducted by Cameron et al. (2012) in the Mojave Desert to determine initial locations that would be potentially suitable for solar energy projects and reduce impacts to biodiversity. In addition, CDFW should incorporate climate change into conservation planning and include strategies for building adaptive capacity, ameliorating the threat posed by climate, and accounting for future changes in human land usage (Smith et al. 2023). Combining these three strategies with genomic and ecological studies of the tortoise and other target species will have the greatest success (Smith et al. 2023).
- Options to the Proposed Project – CDFW should eliminate the arrays in habitats used by tortoises [e.g., Kiva Biological Consulting (2013) surveyed the project area and recommended the eastern half of the East Array be excluded from development to avoid occupied tortoise habitat]. Other options should include reducing/eliminating impacts to desert bighorn sheep movement areas and following existing roads for the gen-tie line.

Evaluating these alternatives in the DEIR is important to minimize or avoid the loss of vegetation that sequesters carbon and to reduce adverse impacts to biodiversity. Studies around the world have shown that desert ecosystems can act as important areas to capture and store carbon. For example, the California deserts account for nearly 10 percent of the state’s carbon sequestration; below ground in soil, in root systems, and above ground in biomass. Protecting this biome can contribute to securing carbon stores in the state (MDLT 2021). Given the current climate change conditions, there is an increasing need for carbon sequestration. Vascular plants are a primary user of carbon and the Proposed Project would result in the loss/degradation of thousands of acres of plants that would (1) release stored carbon currently stored in these plants, and (2) prevent carbon from being captured and held because of the loss of plants from about 1500 acres during the construction, operations and maintenance, and decommissioning phases of the Proposed Project until the vegetation is restored. This time of lost carbon sequestration would be several decades or longer (Abella 2010), longer than the time of production of solar energy. It is imperative that the Proposed Project not result in the loss of native vegetation. Please see “Climate Change” below.

Environmentally superior alternatives would include the No Action Alternative, the Urban/Suburban Alternative, and Previously Used Land Alternative.

Environmental Setting/Affected Environment

The Endangered Mojave 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 U.S. Fish and Wildlife Service (USFWS) and CDFW.

The summary of data included in “Appendix A – Demographic Status and Trend of the Mojave Desert Tortoise including the Western Mojave Recovery Unit” indicates that recovery actions are not obviously recovering the desert tortoise. As the primary land manager of tortoise habitat, BLM has been ineffective in halting population declines, which has resulted in non-viable populations. The available data support the conclusion that current management actions are inadequate in preventing the extirpation of the Mojave desert tortoise in California and Nevada.

The Mojave desert tortoise is an indicator species and umbrella species of ecosystem health (Berry and Medica 1995). Indicator species are used to monitor environmental changes, assess the efficacy of management, and provide warning signals for impending ecological shifts. An umbrella species is a species whose conservation is expected to confer protections to a large number of co-occurring species. Thus, when the Mojave desert tortoise is declining in density, numbers, and recruitment, this decline is an indicator of environmental change that is degrading the desert environment, ineffective management by land management agencies, and a warning that ecological shifts in the Mojave and Colorado deserts are occurring. In addition, this decline indicates that other species in the Mojave and Colorado deserts are also declining in density, numbers, and recruitment. Consequently, land management and wildlife resource agencies should consider the data on the demographic trend of the tortoise as a “wake-up call,” that more must be done to effectively manage for the tortoise and other species in the Mojave and Colorado deserts. Impacts to other local and wide-ranging species and their habitats should be analyzed in this DEIR.

Standardized Surveys – Desert Tortoise and Other Species

Species designated as Special Animals (= Species of Special Concern or Species at Risk) by CDFW (CNDDDB 2023) occur or use lands at/near the Proposed Project. These include the Mojave desert tortoise, Mohave tui chub (*Siphateles bicolor mohavensis*), desert bighorn sheep (*Ovis canadensis nelsoni*), Western burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), Mohave fringe-toed lizard (*Uma scoparia*), and kit fox (*Vulpes macrotis*).

For the Draft EIR, the following surveys should be performed to determine the extent of rare plant and animal populations occurring within the impact area. The impact area extends beyond the Project footprint and differs for each species. The survey methodologies and survey results should be provided in the DEIR, are needed to fully assess the effects and identify potentially significant impacts of the Proposed Project and alternatives, will determine appropriate permits/authorizations required from CDFW, USFWS, and perhaps others, and will help develop effective mitigation measures to fully offset the impacts. Because of the wetter than average rainfall in much of the

Western Mojave Desert this winter, we strongly suggest conducting these surveys during the upcoming survey season as drought conditions may have subsided, and animal species may be more active and plant species may have germinated. This is important as, to the best of our knowledge, there have been no protocol surveys (USFWS 2019) since 2013, and the impact footprint of the Proposed Project has changed sufficiently that new surveys are warranted.

Prior to conducting surveys, a knowledgeable biologist should perform a records search of the California Natural Diversity Data Base (CNDDDB 2023) for rare plant and animal species reported from the region. The results of the CNDDDB review would be reported in the Draft EIR with an indication of suitable and occupied habitats for all rare species reported from the region based on performing species specific surveys described below.

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.

Mojave Desert Tortoise Surveys: Formal protocol surveys for Mojave desert tortoise (USFWS 2019) must be conducted at the proper times of year and by biologists determined to be qualified by USFWS and CDFW. 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 all areas to be affected directly or indirectly by the Proposed Project and not merely the immediate area involved in the action area/project footprint. If any tortoise sign is found, an incidental take permit from CDFW and federal authorization from USFWS must be obtained prior to ground disturbance.

To determine the full extent of occurrence and impacts to tortoises and to facilitate compliance with the FESA, qualified biologist(s) should consult with the Palm Springs Office of the USFWS to determine the action area for this project. The USFWS defines “action area” in 50 Code of Federal Regulations 402.2 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).”

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

Too often, a single impact footprint is identified, all surveys are restricted to that site, and no alternative sites are assessed. We are concerned that this project has 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 pre-determined before survey data are available. As such, we request that more than one site, preferably three, be identified and analyzed in the DEIR 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 for development. 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.

Current practice is to require desert tortoise protocol surveys (USFWS 2019) on a proposed development site, but all too often potential translocation sites are ignored. We assert that protocol surveys should occur on all proposed translocation sites (USFWS 2020), assuming tortoises will be translocated.

Desert Bighorn Sheep Surveys: CDFW has designated desert bighorn sheep (*Ovis canadensis nelsoni*) in California as “S3: Vulnerable – At moderate risk of extirpation in the state due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.” Chapter 11 section 4900 of California Fish and Game Code says. “[t]he Legislature declares that bighorn sheep are an important wildlife resource of the state to be managed and maintained at sound biological levels.”

Bighorn sheep scat, tracks, and live sheep were observed on the Project site in 2012 and 2013 (Kiva Biological Consulting 2013). This and the results of past and current surveys should be included in the DEIR.

Mohave Fringe-toed Lizard Surveys: Focused surveys for Mojave fringe-toed lizards should be performed, preferably using the methodology from the University of California Riverside, Center for Conservation Biology (2005). Results and effective mitigation measures, as needed, should be published in the Draft EIR.

Western Burrowing Owl Surveys: Protocol surveys for western burrowing owl (*Athene cunicularia*) (CDFG 2012) should be completed. Note that the protocol (CDFG 2012) 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 mitigation measures that would be required. Survey results should be reported in the DEIR and all appropriate mitigation measures listed that would be implemented.

Special Status Plant Surveys: There are likely special status plant species found in the Project area as determined by a CNDDDB (2023) literature review. These species should be surveyed for during field surveys and their presence/absence/abundance discussed in the Draft EIR. Surveys should be completed at the appropriate time of year by qualified biologists (preferably botanists) using the latest acceptable methodologies (CDFG 2009).

California Department of Fish and Game (CDFG 2010) lists hundreds of plant communities occurring in California, including those that are considered Communities of Highest Inventory Priority, or “CHIPs.” Biologists completing surveys on behalf of the Proponent should document such communities where they occur and indicate how impacts to them will be minimized.

Migratory Birds Surveys: CDFW should ensure that all actions it authorizes are implemented in compliance with the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and California Fish and Game Code to avoid mortality or injury to migratory birds and harassment of eagles.

Special Land Management Designations: The DEIR should discuss how this Proposed Project fits within the management structure of the current land management plans for the area [e.g., California Desert Conservation Area Plan (CDCA Plan) (BLM 1980 as amended), Desert Renewable Energy Conservation Plan (DRECP; BLM 2016), Mojave Preserve General Management Plan, etc.]. It should provide maps of critical habitat for the Mojave desert tortoise (USFWS 1994), Areas of Critical Environmental Concern (ACECs), and other areas identified for special management by BLM; National Park Service lands; other lands with special management designation/use (e.g., Desert Studies Center, etc.); State lands; and any private lands. Similar maps of occurrence/habitat for other special animal species mentioned above should be included in the DEIR.

Analysis of Direct, Indirect, and Cumulative Impacts

Economic Analysis of Resources Degraded/Destroyed: 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 resource issues, including biological resources, that would be adversely impacted from implementing the Proposed Project – direct, indirect, and cumulative impacts. Please note, this analysis would include habitat replacement or restoration costs including the time needed to achieve full replacement (i.e., the temporal loss), not just acquisition, management, monitoring, and adaptive management costs.

Mojave Desert Tortoise: The Proposed Project is in the Western Recovery Unit for the Mojave desert tortoise (USFWS 2011). The DEIR 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 (see Appendix A). 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 DEIR 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 DEIR 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, perimeter roads, perimeter fencing, substations, battery storage, etc., which comprise 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.

The DEIR should include a description and analysis of “heat sink” impacts on the tortoise from solar arrays.

Road Effect Zone: We request that the DEIR 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. We provide Appendix B into the record as an accumulation of pertinent literature so that the CDFW may thoroughly analyze the impacts of vehicles on tortoises and their habitats.

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 tortoise 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 DEIR 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 (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 DEIR from project construction, operations and maintenance, decommissioning, and habitat restoration.

Desert Tortoise Habitat Linkages/Connectivity among Populations and Recovery Units: The DEIR should analyze how this proposed project will impact the movement of tortoises relative to linkage habitats/corridors. The DEIR should include an analysis of the minimum linkage design necessary for conservation and recovery of the desert tortoise (e.g., USFWS 2021; Averill-Murray et al. 2013, 2021; 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 DEIR include a thorough analysis of this indirect impact and appropriate mitigation to maintain the function of population connectivity for the Mojave desert tortoise and other wildlife species. Similarly, please document how the Proposed Project would impact proximate conservation areas, such as BLM-designated ACECs and the National Park Service’s Mojave National Preserve.

Desert Tortoise Translocation: The Draft EIR should include an analysis of the effectiveness of tortoise translocation. Although viewed as a mitigation measure, tortoise translocation has adverse impacts on the resident and translocated tortoises including failure of translocated males to mate during the years they were monitored (Mulder et al. 2017). These impacts should be analyzed in the DEIR. Review of past translocation efforts, their successes and failures, and modifications to avoid future failures should be presented in the DEIR.

Cumulative Impacts: The DEIR 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. 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.

To help CDFW and the public understand the complexity of the cumulative and interactive nature of multiple anthropogenic threats to desert tortoise populations and to help develop an accurate analysis of cumulative impacts in the DEIR, we have included a map of some of these multiple threats and their relationships to other threats (Tracy et al. 2004) (please see Figure 2 below).

Mohave Tui Chub (MTC): Although new groundwater wells would not be constructed and operated for the Proposed Project, will existing wells near the Proposed Project/in the Soda Lake Valley Groundwater Basin be used? If so, the amount of water needed for each of the three phases of the Proposed Project should be provide in the EIR and an analysis of the potential impacts to water quality and quantity at MC Spring, Lake Tuendae, and West Pond located about 3 miles away and in the Soda Lake Valley Groundwater Basin, the likely source of the water for the Proposed Project. We are concerned about possible indirect impacts to the ground water and the spring that supplies water to the Mohave tui chub (*Siphatales bicolor mohavensis* = *Gila bicolor mohavensis*), an endangered species under FESA and CESA and a fully protected species under California Fish and Game Code.

The DEIR should provide data and an analysis of the direct, indirect, and cumulative impacts to the ground water and water bodies that the MTC relies on. MC Spring is the only natural water body – it is about 8 feet in diameter – where the MTC occurs. All other water bodies that support MTCs are man-made and intensively managed or located outside the Mojave River system, which is the historic range of the species. We suggest coordinating with the Science and Natural Resources Advisor at Mojave National Preserve and the Desert Studies Center in Zzyzx as a starting point to obtain data; also, the California State Water Resources Control Board and U.S. Geological Survey for groundwater data, models, and modeling expertise.

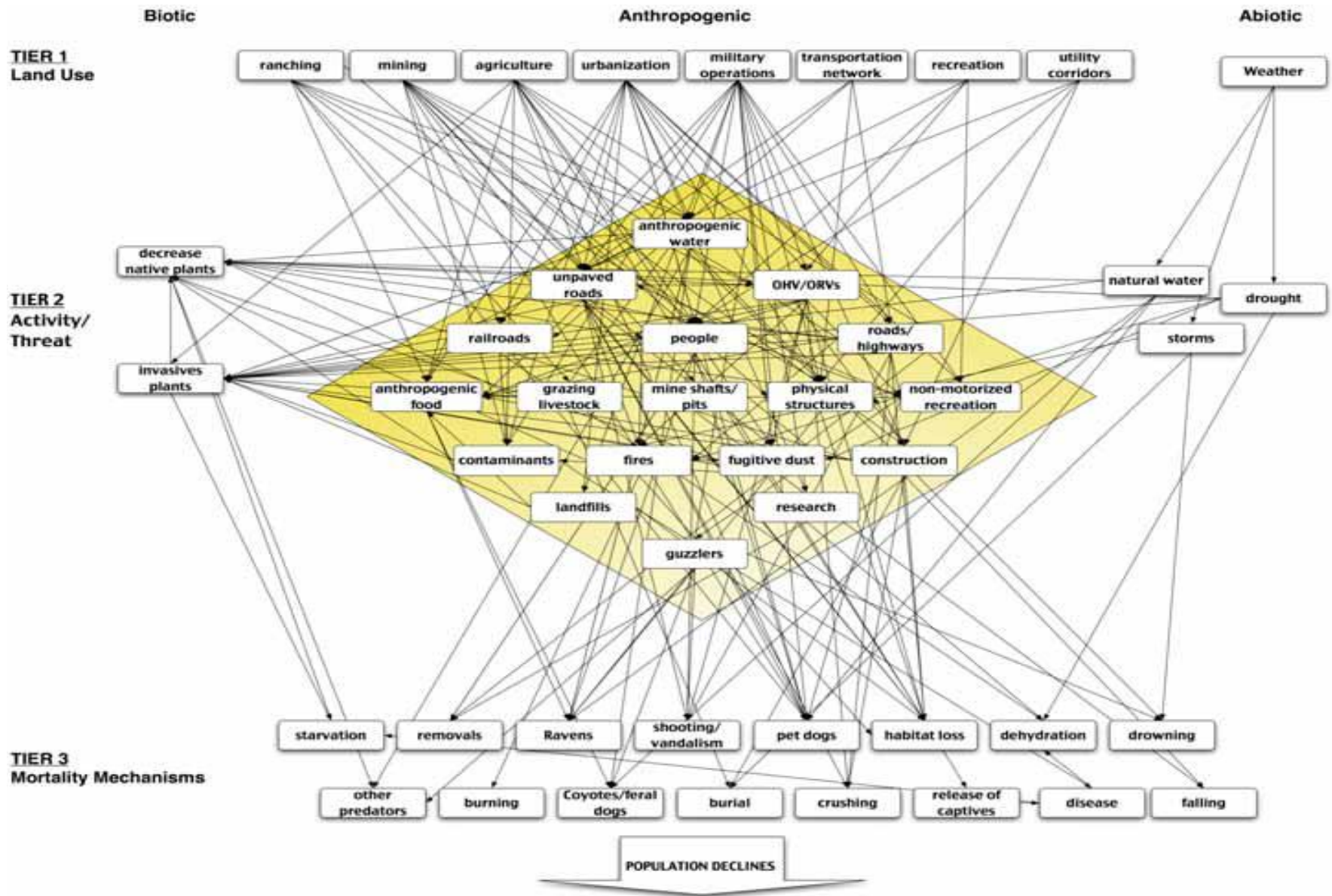


Figure 2. Network of threats demonstrating the interconnectedness between multiple human activities that interact to cause mortality and prevent recovery of tortoise populations. Tier 1 includes the major land use patterns that facilitate various activities (Tier 2) that impact tortoise populations through a suite of mortality factors (Tier 3). Just one land use results in several activities that are threats to the tortoise and cause numerous mortality mechanisms (from Tracy et al. 2004).

Desert Bighorn Sheep: The three water bodies – MC Spring, Lake Tuendae, and West Pond – located near the Project site also provided crucial waters for desert bighorn sheep in the area. The occurrence of perennial water means that bighorn sheep occur during the dry season at/near these water bodies and near the Proposed Project.

The DEIR should include an analysis of the impacts of increased human presence, noise, use of motorized vehicle and equipment, and other actions that may disturb or prevent bighorn sheep from accessing these water bodies or population movements especially during the construction and decommissioning phases of the Proposed Project when the number of people, operational equipment, and noise will be greatest.

Regarding future management and persistence of desert bighorn sheep, Epps et al. (2013) conducted an analysis of the impacts of the Proposed Project in 2013. The findings of that report were the Original Project would preclude the reestablishment of a critical bighorn sheep movement corridor. The “North-South Soda Mountain Connection is the most important restorable corridor for long term demographic potential across the entire southeastern Mojave Desert of California as it would provide the best and only opportunity for movement of bighorn populations in the Mojave National Preserve and the large complex of populations to the north of Interstate 15, and would facilitate gene flow as well as resulting in long term connections with bighorn sheep populations in Death Valley National Park” (Epps et al. 2013). We contend that this conclusion has not changed, would still be applicable to the Proposed Project, and is a solid reason why this project should not be developed.

Mitigation Plans and Mitigation Implementation

In the NOP, CDFW says, “the Draft EIR will describe feasible mitigation measures to avoid or substantially reduce the proposed project’s significant adverse environmental impacts.”

The DEIR 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; non-native 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 to be implemented when the lease/right-of way is terminated and the Proposed Project is decommissioned.

All mitigation plans should be provided in the DEIR 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 later, which does not allow the reviewers to assess their adequacy, which is unacceptable. 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 the decisionmaker and the interested public 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.

The monitoring plan should (1) be scientifically and statistically credible; (2) be implementable; and (3) require the Project proponent to implement adaptive management to correct land management practices if the mitigation is not accomplishing its intended purposes. 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. For example, as currently managed, BLM ACECs in Nevada and in the CDCA are not meeting this criterion. Consequently, mitigation should be implemented on lands with a durable conservation designation, or on privately owned lands with a conservation easement or other legal instrument that ensures conservation in perpetuity.

These comments on mitigation and monitoring plans would apply for other Special Animal and Plant species and their mitigation plans.

Translocation Plan - Translocated Tortoises, Resident 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 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? Will tortoises translocated to a site be protected from threats (e.g., off-highway vehicles, future development, etc.)? These questions should be answered in the DEIR.

The Project proponent should implement the USFWS's Translocation Guidance (USFWS 2020) and coordinate translocation with CDFW and BLM. 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). (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 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 proponent confer with the USFWS 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 site development until which time conditions are favorable to enhance translocation success.

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

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 durable 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 in perpetuity.

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.

The DEIR 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, operation, maintenance, decommissioning, and restoration phases of the Proposed Project, the Applicant should be required to implement science-based management of common ravens, coyotes, and badgers to reduce 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 Applicant should be required to participate in efforts to address regional and cumulative impacts. For example, the project proponent should be required to contribute to the National Fish and Wildlife Foundation's Raven Management Fund to help mitigate 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 13 years to provide for effective implementation. The National Fish and Wildlife Foundation should revise the per acre fee.

We request that for any gen-tie lines, the project use infrastructure (particularly towers) that prevent raven nesting and perching for hunting. For example, for gen-tie/transmission lines 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. New fencing should not result in new raven perching and nesting site opportunities.

Fire Prevention/Management Plans: The proposed project could include numerous 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 DEIR

include a Fire Prevention Plan in addition to a Fire Management Plan specifically targeting 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 purpose of these Fire Plans is to prevent a fire, but if one occurs, to ensure there are sufficient resources to immediately detect the fire and extinguish it before it spreads to desert vegetation/habitat.

Restoration Phase Implemented After/Concurrent with Decommissioning Phase: The Proposed Project should include a Restoration Phase – restore the lands impacted by the Proposed Project to their pre-construction condition to the extent feasible (i.e., soils, soil crust, vegetation, etc.). We provide Abella and Berry (2016)² as an excellent resource to be implemented as best management practices for arid lands restoration.

Kiva Biological Consulting (2013) also recommended tortoise exclusion fencing. If the Vegetation Left in Place Alternative is selected, we recommend that tortoise exclusion fencing be installed and maintained only during the construction and decommissioning phases and removed at the completion of these phases.

Climate Change and Non-native Plants: The Council finds it ironic that BLM is proposing to destroy hundreds of thousands of acres of native vegetation on BLM land for several decades or longer when this native vegetation sequesters carbon so that we can reduce our emissions of carbon from fossil fuel burning, especially when other viable alternatives are available (see Cameron et al. 2012, Smith et al. 2023). The irony of converting wild lands in the Mojave Desert to energy production is that it threatens the biodiversity in the Mojave Desert (Parker et al., 2018, cited in Smith et al. 2023). Fifty-eight Mojave Desert species are now recognized as rare, threatened, or endangered under Federal and California Endangered Species Acts (Smith et al. 2023).

We request that the DEIR address the effects of the Proposed Project on climate change and the effects that climate change may have on the Proposed Project. For the latter, we recommend including: an analysis of habitats in the Project area that may provide connectivity for tortoises populations; 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 action may affect the likelihood of human-caused fires. We strongly urge CDFW to require 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 to and 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 during all phases of the Proposed Project.

Proliferation of Nonnative Plant Species and Management Plan: The DEIR 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 frequency and size of human-caused fires) and other Special Animal and Plant species; and how the Proposed Project may affect the frequency, intensity, and size of human-caused and naturally occurring fires. For reasons given in the previous paragraph, we strongly urge CDFW to require the Project Proponent to develop and implement a management and monitoring plan for nonnative plant species. The plan should integrate management for and enhancement of native vegetation, substantial reduction of non-native plant species, and fire prevention and fire response to wildfires.

² <https://www.dropbox.com/s/nx1b5m2b5ehya12/%23Abella%20and%20Berry%202016.pdf?dl=0>

Water Quality, Water Quantity, and Surface Hydrology: Regarding water quality of surface and ground water, the DEIR should include an analysis of the impacts of water acquisition, use, and discharge for construction and decommissioning, panel washing, potable uses, dust suppression, any other uses associated with the 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 and other Special Animals and Plants in the vicinity of the Proposed Project, including downstream and downslope impacts. The DEIR should analyze how much water is proposed to be used during construction, operation, maintenance, decommissioning, and restoration phases; how 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 non-native vegetation and habitats for Special Animals including the Mojave desert tortoise, for which washes are of particular importance for feeding, shelter, and movements (Jennings and Berry 2015, Todd et al. 2016). In addition, any impacts to downstream channels and washes will need to be monitored long-term to ensure that the stormwater plan is successful and both washes and habitats are protected during potential project operation.

The description of the Revised Project in the ROD (BLM 2015) stated that certain drainages would now have solar panels as these drainages would no longer need to be avoided. Consequently, a jurisdictional waters analysis should be performed for all potential impacts to washes, streams, and drainages. This analysis should be reviewed by the CDFW as part of the permitting process and a Streambed Alteration Agreement acquired.

The Proposed Project has a stormwater plan. Details of this plan should be provided along with an analysis of how these structures may adversely impact both hatchling and adult tortoises, including entrapment and drowning.

We request that the DEIR include an analysis of how water used during construction, operation, 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, pools, and groundwater-dependent vegetation 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 by avoidance.

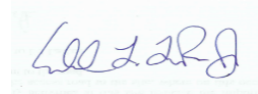
Restoration Plan: The Proposed Project should include a restoration phase that occurs with decommissioning. The DEIR should include a restoration plan with (1) the measurable objectives that would be required to be met before restoration was determined to be completed and (2) monitoring to restore that all areas impacted by the Proposed Project to their pre-Project condition. Given the important role that native vegetation plays in sequestering carbon and reducing the impacts of climate change, the development, implementation, monitoring, and adaptive management of a restoration plan should be a major component of the Proposed Project.

Previous Comments on Soda Mountain Solar Project: Previously, the Council provided comments on the Soda Mountain Solar Project to BLM and Senator Dianne Feinstein. A summary of these comments is provided in Appendix C. Synopsis of Comments Submitted by the Desert Tortoise Council from 2012 to 2016 for the Soda Mountain Solar Project. These persisting comments are entered into the Scoping Record and should also be addressed in the DEIR.

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 CDFW 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.
Ecosystems Advisory Committee, Chairperson
Desert Tortoise Council

Attachments:

Appendix A: Status and Trend of the Mojave Desert Tortoise (*Gopherus agassizii*)
Appendix B: Bibliography on road impacts in desert ecosystems
Appendix C. Synopsis of Comments Submitted by the Desert Tortoise Council from 2012 to 2016 for the Soda Mountain Solar Project

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Appendix A
Demographic Status and Trend of the Mojave Desert Tortoise
including the Western Mojave Recovery Unit

Status of the Population of the Mojave Desert Tortoise: The Council provides the following information for resource and land management agencies so that these data may be included and analyzed in their project and land management documents and aid them in making management decisions that affect the Mojave desert tortoise (tortoise).

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).

As the primary land management entity in the range of the Mojave desert tortoise, the Bureau of Land Management's (BLM's) implementation of a conservation strategy for the Mojave desert tortoise in the CDCA through implementation of its Resource Management Plan and Amendments through 2014 has resulted in the following changes in the status for the tortoise throughout its range and in California from 2004 to 2014 (**Table 1, Table 2**; USFWS 2015, Allison and McLuckie 2018). The Council believes these data show that BLM and others have failed to implement an effective conservation strategy for the Mojave desert tortoise as described in the recovery plan (both USFWS 1994a and 2011), and have contributed to tortoise declines in density and abundance between 2004 to 2014 (**Table 1, Table 2**; USFWS 2015, Allison and McLuckie 2018) with declines or no improvement in population density from 2015 to 2021 (**Table 3**; USFWS 2016, 2018, 2019, 2020, 2022a, 2022b).

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 Western Mojave Recovery Unit – Nevada and California

- This recovery unit had a 51 percent decline in tortoise density from 2004 to 2014.
- Tortoises in this recovery unit have densities that are below viability.

Change in Status for the Superior-Cronese Tortoise Population in the Western Mojave Recovery Unit.

- The population in this recovery unit experienced declines in densities of 61 percent from 2004 to 2014. In addition, there was a 51 percent decline in tortoise abundance.
- This population has densities less than needed for population viability (USFWS 1994a).

Table 1. Summary of 10-year trend data for the 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) or showing a decline from 2004 to 2014 are in red.

Recovery Unit: Designated Critical Habitat Unit¹/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

¹ U.S. Fish and Wildlife Service. 1994b. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the desert tortoise. Federal Register 55(26):5820-5866. Washington, D.C.

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%

Table 3. Summary of data for Agassiz’s desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise) from 2004 to 2021 for the 5 Recovery Units and 17 Critical Habitat Units (CHUs)/Tortoise Conservation Areas (TCAs). 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 percent change in population density between 2004-2014 (USFWS 2015). Populations below the viable level of 3.9 breeding individuals/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) (USFWS 1994a, 2015) or showing a decline from 2004 to 2014 are in **red**.

Recovery Unit: Designated CHU/TCA &	% of total habitat area in Recovery Unit & CHU/TCA	2004 density/ km ²	2014 density/ km ² (SE)	% 10- year change (2004– 2014)	2015 density/ km ²	2016 density/ km ²	2017 density/ km ²	2018 density/ km ²	2019 density/ km ²	2020 density/ km ²	2021 density/ km ²
Western Mojave, CA	24.51		2.8 (1.0)	–50.7 decline							
Fremont-Kramer	9.14		2.6 (1.0)	–50.6 decline	4.5	No data	4.1	No data	2.7	1.7	No data
Ord-Rodman	3.32		3.6 (1.4)	–56.5 decline	No data	No data	3.9	2.5/3.4*	2.1/2.5*	No data	1.9/2.5*
Superior-Cronese	12.05		2.4 (0.9)	–61.5 decline	2.6	3.6	1.7	No data	1.9	No data	No data
Colorado Desert, CA	45.42		4.0 (1.4)	–36.25 decline							
Chocolate Mtn AGR, CA	2.78		7.2 (2.8)	–29.77 decline	10.3	8.5	9.4	7.6	7.0	7.1	3.9
Chuckwalla, CA	10.97		3.3 (1.3)	–37.43 decline	No data	No data	4.3	No data	1.8	4.6	2.6
Chemehuevi, CA	14.65		2.8 (1.1)	–64.70 decline	No data	1.7	No data	2.9	No data	4.0	No data
Fenner, CA	6.94		4.8 (1.9)	–52.86 decline	No data	5.5	No data	6.0	2.8	No data	5.3
Joshua Tree, CA	4.49		3.7 (1.5)	+178.62 increase	No data	2.6	3.6	No data	3.1	3.9	No data
Pinto Mtn, CA	1.98		2.4 (1.0)	–60.30 decline	No data	2.1	2.3	No data	1.7	2.9	No data
Piute Valley, NV	3.61		5.3 (2.1)	+162.36 increase	No data	4.0	5.9	No data	No data	No data	3.9

Northeastern Mojave AZ, NV, & UT	16.2		4.5 (1.9)	+325.62 increase							
Beaver Dam Slope, NV, UT, & AZ	2.92		6.2 (2.4)	+370.33 increase	No data	5.6	1.3	5.1	2.0	No data	No data
Coyote Spring, NV	3.74		4.0 (1.6)	+ 265.06 increase	No data	4.2	No data	No data	3.2	No data	No data
Gold Butte, NV & AZ	6.26		2.7 (1.0)	+ 384.37 increase	No data	No data	1.9	2.3	No data	No data	2.4
Mormon Mesa, NV	3.29		6.4 (2.5)	+ 217.80 increase	No data	2.1	No data	3.6	No data	5.2	5.2
Eastern Mojave, NV & CA	13.42		1.9 (0.7)	-67.26 decline							
El Dorado Valley, NV	3.89		1.5 (0.6)	-61.14 decline	No data	2.7	5.6	No data	2.3	No data	No data
Ivanpah Valley, CA	9.53		2.3 (0.9)	-56.05 decline	1.9	No data	No data	3.7	2.6	No data	1.8
Upper Virgin River, UT & AZ	0.45		15.3 (6.0)	-26.57 decline							
Red Cliffs Desert**	0.45	29.1 (21.4-39.6)**	15.3 (6.0)	-26.57 decline	15.0	No data	19.1	No data	17.2	No data	
Rangewide Area of CHUs - TCAs/Rangewide Change in Population Status	100.00			-32.18 decline							

*This density includes the adult tortoises translocated from the expansion of the MCAGCC, that is resident adult tortoises and translocated adult tortoises.

**Methodology for collecting density data initiated in 1999.

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 by about 2030.

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.

Important points to note from the data from 2015 to 2021 in Table 3 are:

Change in Status for the Mojave Desert Tortoise in the Western Mojave Recovery Unit:

- Density of tortoises continues to decline in the Western Mojave Recovery Unit
- Density of tortoises continues to fall below the density needed for population viability

Change in Status for the Mojave Desert Tortoise in the Colorado Desert Recovery Unit:

- The population that had the highest density in this recovery unit had a continuous reduction in density since 2018 and fell substantially to the minimum density needed for population viability in 2021.

Change in Status for the Mojave Desert Tortoise in the Northeastern Mojave Recovery Unit:

- Two of the three population with densities greater than needed for population viability declined to level below the minimum viability threshold.
- The most recent data from three of the four populations in this recovery unit have densities below the minimum density needed for population viability.
- The population that had the highest density in this recovery unit declined since 2014.

Change in Status for the Mojave Desert Tortoise in the Eastern Mojave Recovery Unit:

- Both populations in this recovery unit have densities below the minimum density needed for population viability.

Change in Status for the Mojave Desert Tortoise in the Upper Virgin River Recovery Unit:

- The one population in this recovery unit is small and appears to have stable densities.

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...” In the California Endangered Species Act (CESA), the California legislature defined an “endangered species” as a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant, which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes (California Fish and Game Code § 2062). 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 and California Fish and Game Commission.

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.

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**Appendix C. Synopsis of Comments Submitted by the Desert Tortoise Council
from 2012 to 2016
for the Soda Mountain Solar Project**

The Desert Tortoise Council (Council) has been involved in the proposed Soda Mountain Solar Project (Project) since the public was allowed to participate in its review during the National Environmental Policy Act (NEPA) Scoping Process in 2012. Below is a chronological compilation of comments the Council submitted on the Project to the Bureau of Land Management (BLM) and San Bernardino County (County) from 2012 to 2016. A copy of submitted letters and literature cited is available from the Council upon request. We consider each of these issues to be persisting and applicable to the current Project, so we incorporate these comments by reference, and expect them to be addressed in the DEIR.

December 13, 2012 Scoping Comments to Bureau of Land Management (BLM)

The Desert Tortoise Council (Council) formally requested of BLM to be considered an “Affected Party,” and asks that all correspondence regarding analysis of this potential project be sent to the Council’s address.

Three documents were available to review prior to the scoping meeting:

- Panorama Environmental, Inc. July 2012. Analysis of habitat suitability and connectivity in the Soda Mountain area, San Bernardino County, California (herein, “Panorama”)
- RMT, Inc. March 2011. Plan of Development, Soda Mountain Solar Project (herein “RMT”)
- Soda Mountain Solar, LLC. 9 August 2012. Comments from Ms. Adriane Wodey representing this subsidiary of Bechtel Development Company, Inc. (herein “Ms. Wodey”).

The Council reviewed these documents.

Comments on Alternatives

The Bechtel representative for the Project indicated at the public scoping meeting that this was one of five potential sites, that the other four had been rejected, and that this one was the preferred alternative. The draft EIS should clearly report the data behind this decision, both the reasons the other sites are not suitable and the reason this site is preferred.

The Council would like to see additional viable sites (not just those already rejected) analyzed in the draft EIS.

Comments on Affected Environment

Tortoise Surveys: All three documents extensively reference 2009 focused desert tortoise surveys of the 4,400 acres± performed by URS (2009). When asked for a copy of the document, BLM’s response was the document was currently under internal review and not available to the public. BLM should be forthcoming with the document, or publicly reject it.

The 2009 tortoise surveys are now outdated. Assuming the site is not rejected based on scoping comments, new surveys should be performed to see if tortoises are truly absent. There should be complete disclosure of surveyor qualifications. If tortoises do occur in low densities, inexperienced surveyors should not be employed. The current tendency given the USFWS four-month survey period is to have hydrologists, geologists, ornithologists, even office staff and secretaries perform tortoise surveys. We strongly believe that only qualified tortoise biologists should perform any new surveys.

The new tortoise survey should implement transects that are closer together from the proposed 10-meter width to perhaps 5-meter width and orient transects in an east-west direction to facilitate detection in washes. Mr. Ed LaRue and Mr. Michael Radakovick, tortoise biologists, walked approximately 11 miles through the three proposed array areas, referred to on a project map (Panorama Environmental, Inc., dated 9/14/2012) as “North Array,” “South Array,” and “East Array” on December 12, 2012. They visually inspected about 150 wood rat middens for tortoise scat and carcass pieces on surveyed portions of the North Array. There must be thousands of such middens, which should be individually checked for tortoise sign. If tortoises occur at low densities as Soda Mountain Solar and their consultant suggest, this heightened survey methodology would be warranted.

When the BLM representative was asked if there had been any recent surveys performed, he was hesitant and noncommittal. We are aware that there have been surveys in addition to the 2009 surveys, but it is not clear why these materials are being withheld. The Council would be much better informed if existing materials had been made available. It is important that the BLM remain independent in its assessment of this project, and not become a project proponent.

Prior to beginning any new surveys, the project proponents and biologists should confer with USFWS biologists to determine an affected “action area” (see definition in USFWS 2010 and 50 Code of Federal Regulations 402.2) for this project. In 2009, only the project footprint was surveyed. Had a larger action area encompassing both direct and indirect impact areas been surveyed, we are certain that tortoises or their sign would have been detected.

If new surveys do not find tortoises within the North Array area, the BLM should conclude that the project “May Effect” tortoises based on the 2001 AMEC findings at the Opah Ditch Mine, which is located within a half-mile to the west (see Figure 10 in Panorama 2012). During that survey, 5 burrows, 3 rock cover sites, 9 scat, and 3 carcasses were found, demonstrating that tortoises are in the immediate vicinity of the proposed project.

Affected Environment: Tortoise Habitat - Nussear et al. (2009) indicated that their habitat modeling exercise for the tortoise is intended to provide “...output of the statistical probability of habitat potential that can be used to map potential areas of desert tortoise habitat.” Both Ms. Wodey and Panorama report that Nussear’s et al. (2009) analysis produced a habitat rating of 0.6 to 0.8, where 1.0 is the most suitable habitat. If survey results indicate tortoises are not abundant onsite, this does not dismiss Nussear’s relatively high habitat suitability index for this site.

Rather than make unsubstantiated statements about habitat degradation due to the proximity to the open area, additional studies should assess the levels of impacts in all three array areas and situate a few transects inside the Razor open area for comparison. [In other words, use science – i.e., data collected at/near the project area and results and conclusions available from scientific literature should be used to analyze the impacts and implement appropriate mitigation.]

Mohave Fringe-toed Lizard: The project proponent concludes that there is no habitat for Mojave fringe-toed lizard, there is suitable habitat within the eastern portions of both the East and South arrays, in sand fields against the west slopes of Soda Mountains. Additional surveys should be conducted for the occurrence of this species and its distribution.

Western Burrowing Owl: Radakovich found burrowing owl sign at the project site. This species was not identified in the RMT, Inc. document. There should be focal surveys for burrowing owl and the results presented in the draft EIS.

Comments on Regional and Cumulative Impacts

Regional and Cumulative Impacts to the Tortoise: The draft EIS should review additional materials to determine the potential local and regional impacts to tortoises including indirect impacts. At the very least, this should include reviews of the Fort Irwin expansion data, any findings associated with the proposed high-speed rail line, and any data Caltrans may have.

Literature Cited

Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.

Panorama Environmental, Inc. 2012. Analysis of habitat suitability and connectivity in the Soda Mountain area, San Bernardino County, California. An unpublished report prepared by Susanne Heim and Laurie Hietter, dated July 2012. San Francisco, CA.

RMT, Inc. 2011. Plan of Development, Soda Mountain Solar Project. Unpublished report prepared for BLM, submitted by Caithness Soda Mountain, LLC, dated 15 March 2011. San Mateo, CA.

[USFWS] U.S. Fish and Wildlife Service. 2010. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*) . Ventura, CA. 18 pages.

March 1, 2014 Comment Letter on DEIS to BLM

Comment on Alternatives

The Council's preferred alternative is that "The BLM would continue to manage the land consistent with the site's multiple use classification as described in the CDCA Plan with the exception that solar development would be precluded on the site" also called Alternative G in the DEIS (BLM 2014, Section 2.6.3., page 2-37). As such, this alternative has the advantage of specifically excluding this particular site from future solar development.

Another alternative identified in the DEIS was the No Action Alternative. In this alternative, BLM “would continue to manage the land consistent with the site’s multiple use classification as described in the CDCA [California Desert Conservation Area] Plan. Based on the CDCA Plan amendments made in the Solar PEIS [Programmatic Environmental Impact Statement] ROD [Record of Decision], for future applications the site would be identified primarily as variance areas open to future applications for solar development, subject to the procedures identified in the Solar PEIS, and some exclusion areas in the southeast portion of the site that would be closed to such applications. In the case of variance areas, future projects would still require a CDCA Plan Amendment to move forward. These projects would be subject to applicable laws and land use plans” (BLM 2013, Section 2.6.1., page 2-36). Although the Council appreciates that this alternative would result in no project at this site, this alternative would leave the site open to future solar development.

The Council requested that there be a discussion of other site alternatives such as the thousands of acres of biologically-impaired habitats east of Barstow, between Interstate-15 and Interstate-40. In a number of places, it seems that if the alternative site does not occur between Las Vegas and Barstow, it is unacceptable, which dismisses thousands of acres of impaired private lands in the Victor Valley, for example. It seems as if all potential alternatives had the same regional restriction that the site must occur along I-15 between Vegas and Barstow, which eliminates many other, better suited alternative sites outside this corridor.

Kiva Biological Consulting (2013) surveyed the project area and recommended the eastern half of the East Array be excluded from development to avoid occupied tortoise habitat. We requested that this alternative be discussed and analyzed for its reduced impacts to tortoises compared to the proponent’s preferred alternative.

Actions to Minimize Take from Direct Impacts

If the Project is authorized, we strongly recommend that authorized biologists be onsite for all ground-disturbing activities, throughout the year. The wording in APM 71 on page 3.4-29 should require that authorized biologists and/or environmental monitors be onsite whenever ground-disturbing activities occur, regardless of the time of year; excepting those fenced areas that have already been cleared of tortoises during previous clearance surveys.

Whatever formula is used for estimating the number of tortoises that may occur based on survey findings, this estimated number must be included in the Final EIS to accurately determine the level of anticipated take, and to allow the regulatory agencies to determine how accurate that estimate is, if the project is developed.

The Designated Biologist and field contact representative are not synonymous. Whereas the Designated Biologist serves to implement all protective measures and minimize impacts to tortoises and occupied habitats, the field contact representative serves as the liaison among the many involved parties, particularly in regards to compliance reporting.

Translocation/Relocation Areas: A Desert Tortoise Translocation/Relocation Plan should be finalized and approved **before** any ground-disturbance activities occur or any tortoises are handled. This Plan should include the areas identified for translocation/relocation and an analysis of the proposed relocation/translocation areas to determine whether they are appropriate to receive displaced tortoises. Issues on tortoise health and disease transmission should also be discussed and analyzed for displaced and resident (host) tortoises.

In the event a tortoise is found dead, the Final EIS should include restrictive measures that may be required by U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) to prevent this from occurring again. If mortality exceeds the mortality take limit identified in the federal biological opinion or section 2081 permit, project construction may need to be halted until formal consultation is completed or the permit is amended. This and any other remedial actions should be described in the FEIS.

Actions to Minimize Take from Indirect and Cumulative Impacts

A raven management plan is still to be submitted to the regulatory agencies for their review and approval. It was not included in the DEIS. In addition, the Council believes that the proponent should commit to providing funds to the USFWS for raven control and management via a fund established at the National Fish and Wildlife Foundation.

In the DEIS, all impacts are considered permanent. The estimated compensable habitat should be tallied and identified in the Final EIS.

Rather than state the compensation ratio will be 1:1, it is advisable to state that the compensation ratio will be determined in consultation with CDFW and other agencies. This suggestion was made because CDFW will require habitat compensation, endowment funds, and enhancement fees. It is extremely unlikely that CDFW will accept only 1:1 habitat compensation.

The DEIS did not recognize that 5 tortoise burrows, 3 rock cover sites, 9 scat, and 3 carcasses were found at the Opah Ditch Mine in 2001 by AMEC, which is in the vicinity of the North Array study area. Survey results presented in the text of the DEIS must be augmented by results depicted in the appendices to be comprehensive in the Final EIS, particularly when known, published data clearly show that more than two dead tortoises occur (or have recently occurred) within the North Array study area, all of which must be considered compensable habitat.

A habitat management plan (habitat plan) will be written for lands acquired for compensation and include in the Final EIS. The habitat plan will analyze threats to those lands based on field surveys identifying those threats, and require that the compensatory lands will be fully funded and managed in perpetuity for the benefit of the compensated species and not be subject to future development or incompatible uses.

Mitigation should be required for all phases of the project including operations and maintenance and decommissioning.

American Badger: The Draft EIS indicates that only one burrow with American badger (*Taxidea taxus*) digs was found. During a brief reconnaissance survey in December 2012, LaRue and Radakovich found 11 diagnostic badger digs within the North Array area and 8 digs within the East and South Array areas. We note that there are no mitigation measures identified in Table 2-5 for this species. Given our survey observations on only a fraction of the project area, we suggest that American badger is far more common than the Draft EIS suggests, and that mitigation measures are warranted to minimize impacts to this California Species of Special Concern.

Mohave Fringe-Toed Lizard: This species was found on the Project site and impacts to this species from the proposed project should be analyzed in the EIS.

Western Burrowing Owl: Sign from burrowing owls was observed on the Project site. Impacts to this species from the proposed project should be analyzed in the EIS.

Literature Cited

AMEC. 2001. Desert Tortoise Survey of the Opah Ditch Mine.

[BLM and County] Bureau of Land Management and San Bernardino County. 2013. Soda Mountain Solar Project Draft Plan Amendment/Environmental Impact Statement/Environmental Impact Report. November 2013.

Kiva Biological Consulting. 2013. Protocol desert tortoise survey for Soda Mountains Solar Project, Spring 2013. Unpublished report produced by Peter Woodman on behalf of Panorama Environmental and BLM. Ridgecrest, CA.

October 7, 2014 Letter to California State Director Jim McKenna on BLM's Soda Mountain Solar and Silurian Valley Solar Projects

The Council and other organizations request that the BLM relocate the Soda Mountain Solar Project to an area that does not jeopardize natural, cultural, archaeological or community resources on the grounds that the project violates:

- The goals and recommendations of the formal independent scientific panel to the Desert Renewable Energy Conservation Plan (DRECP)
- The intent of the Solar Programmatic Environmental Impact Statement (Solar PEIS)
- The Secretary of the Interior's order 3330 and the public's substantial investment in trust resources.

The letter identified critical movement corridors for desert bighorn sheep for long-term demographic potential (Epps et al. 2013) and occurrence of tortoise both north and south of Interstate 15 in the Project site (Kiva Biological Consulting 2013, La Rue personal communication 2013) with a tortoise habitat rating of 0.6 to 0.8 with 1.0 being the highest rating (Nussear et al. 2009). The Department of the Interior seeks to avoid potential environmental impacts from projects through steps such as advanced landscape level planning that identifies areas suitable for development because of low or relatively low natural and cultural resource conflicts" (Department of Interior 2013).

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- Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.

November 7, 2014 Letter to Senator Dianne Feinstein on BLM's Soda Mountain Solar and Silurian Valley Solar Projects

The Council and other organizations request that the Senator take a position opposing these projects because the projects violate:

- The goals and recommendations of the formal independent scientific panel to the Desert Renewable Energy Conservation Plan (DRECP)
- The intent of the BLM's Solar Programmatic Environmental Impact Statement (Solar PEIS)
- The Secretary of the Interior's Order 3330 and the public's substantial investment in trust resources.

The letter identified critical movement corridors for desert bighorn sheep for long-term demographic potential (Epps et al. 2013) and occurrence of tortoise both north and south of Interstate 15 in the Project site (Kiva Biological Consulting 2013, La Rue personal communication 2013) with a tortoise habitat rating of 0.6 to 0.8 with 1.0 being the highest rating (Nussear et al. 2009). The Department of the Interior seeks to avoid potential environmental impacts from projects through steps such as advanced landscape level planning that identifies areas suitable for development because of low or relatively low natural and cultural resource conflicts" (Department of Interior 2013).

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- Nussear, K.E., Esque, T.C., Inman, R.D., Gass, Leila, Thomas, K.A., Wallace, C.S.A., Blainey, J.B., Miller, D.M., and Webb, R.H. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p.

March 30, 2016 Letters to San Bernardino County Supervisors Lovingood and Ramos for Well Permit for Soda Mountain Solar Project

The proposed project should not be developed at this location.

Impacts include important travel corridors to desert bighorn sheep and additional impacts to the Mojave desert tortoise that has lost 50 percent of its numbers in the West Mojave Desert since 2004.

BLM rejected the recommendation by their consultant that the project be redesigned to avoid tortoises and occupied habitat.

BLM is not considering the best science in this decision and is unwilling to redesign the project to avoid tortoise impacts. The Board of Supervisors is requested to ensure that the best science is being used, that impaired and degraded habitats be targeted for solar development, and the well permit be denied.

In 2015, Los Angeles Department of Water and Power (LADWP) refused to buy power associated with this project from the Proponent because of the environmental impacts that would occur. Even the National Park Service (NPS) has been an outspoken opponent of this Project, which is within a quarter mile of the boundary of the Mojave National Preserve.

San Bernardino County's Partnership for Renewable Energy and Conservation (SPARC) may provide responsible energy development in impaired habitats and offset, in part, BLM's ill-conceived plans to develop solar energy facilities on pristine public lands in San Bernardino County. The County withdrew from the Desert Renewable Energy Conservation Plan (DRECP), which among other things, would allow for the unprecedented development of up to 8,000 acres of designated desert tortoise critical habitat in the California deserts, including much of the West Mojave Desert in San Bernardino County. Solar development should occur on thousands of acres of fallow agriculture, brown fields, and suburban areas where tortoises have already been eliminated.

**August 12, 2016 Letter on San Bernardino County
Well Permit 12 August 2016 to San Bernardino County Supervisors**

The site is comprised of pristine habitats, occupied by desert tortoises, and used as a corridor for bighorn sheep. Despite numerous recommendations and objections, we feel that the BLM has ignored all of our and other groups' science-based suggestions and approved this project.

The San Bernardino County Partnership for Renewable Energy and Conservation (SPARC) could be a better way to identify and plan for renewable energy development, in part, because it is smaller in scale than the multi-county, million-acre DRECP and route designation planning documents proposed on public lands managed by the BLM. In a phone conversation with Ms. McClain in April 2016, the Council requested that it be included in future correspondence so that we may participate in future planning efforts to revive and finalize the SPARC planning process.

We support the County's refusal to support DRECP that would develop tortoise critical habitats when so much degraded habitat would be better suited for development, and rooftop solar has never been analyzed or even considered in the DRECP planning process.