



DESERT TORTOISE COUNCIL

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Via email only

April 30, 2022

County of San Bernardino, Land Use Services Department

Attn.: Jim Morrissey, Planner

385 North Arrowhead Avenue, First Floor

San Bernardino, CA 92415

Email: Jim.Morrissey@lus.sbcounty.gov

RE: Notice of Preparation of a Draft Environmental Impact Report for Vidal Energy Project - PROJ-2021-00012

Dear Mr. Morrissey,

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

We appreciate this opportunity to provide scoping comments on the above-referenced project, which will be considered in a forthcoming Draft Environmental Impact Report (DEIR). Given the location of the proposed project in habitats likely occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include recommendations that will enhance protection of this species and its habitat during activities authorized by the County of San Bernardino (County), which we recommend be added to project terms and conditions in the authorizing document (e.g., right of way grant, etc.) as appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed project.

Project Description

“CDH Vidal LLC (CORE) plans to construct and operate the Vidal Energy Project (Project), a solar photovoltaic (PV) electricity generation and energy storage facility that would produce up to 160 megawatts (MW) of solar power and include up to 640 megawatt hours (MWh) of energy storage capacity rate in a battery energy storage system (BESS) on up to approximately 1,220 acres of land. The Project would be supported by the existing, adjacent Western Area Power Administration (WAPA) 161-kilovolt (kV) overhead transmission corridor. The Project would include the construction of one on-site substation facility, which would collect and convert the power generated on-site for transmission in an overhead or underground line to the WAPA transmission system and interconnection location. The Project’s permanent facilities would include PV panels, BESS, fencing, service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, a Project substation, and operations and maintenance (O&M) facilities.

“The Project Site is located approximately 2.5 miles southeast of unincorporated Vidal, just east of U.S. Route 95, north of the Riverside County boundary, and west of the Colorado River (see Figure 1). The Project Site encompasses 1,220 acres within 21 privately owned parcels (in their entirety and portions of) that are in the process of lease acquisition by CORE. The County’s Zoning Map identifies the zoning of the Project Site as Resource Conservation (RC), which provides sites for open space and recreational activities, single-family homes on very large parcels, and similar and compatible uses. Commercial renewable energy facilities are an allowable use within the RC land use zoning district. Existing development and disturbed areas within the Project Site include rural access roads that include access to the transmission line, scattered abandoned rural residences, garage (storage) areas, and several WAPA towers. The wash areas are currently being used by off-highway vehicles. Primary access to the Project would be provided via U.S. Route 95 onto a Project-controlled, dirt access road on the west side of the Project Site.”

Scoping Comments

First, we understand that comments were due on April 27, 2022 and these comments are three days late. This tardiness is due to the busy schedule of our volunteer staff responsible to write this letter, and because we only recently learned about this project from a third party, not from the County. In any case, we hope these comments are still received as County planners consider the environmental analysis of this project.

The purpose of scoping is to allow the public to participate in an “early and open process for determining the scope of issues to be addressed, and for identifying the significant issues related to a proposed action” (40 Code of Federal Regulations (CFR) 1501.7). The DEIR should discuss how this proposed project fits within the management structure of the current land management plan for the area [e.g., California Desert Conservation Area Plan (CDCA Plan) (BLM 1980 as amended)]. It should provide maps of critical habitat for the Mojave desert tortoise (USFWS 1994a), Areas of Critical Environmental Concern (ACECs), and other areas identified for special management by BLM [e.g., National Conservation Lands (NCLs)]; U.S. Fish and Wildlife Service (USFWS) (e.g., linkage habitats between desert tortoise populations); Nevada Department of Wildlife (NDOW); other federal, state, and local agencies; and tribal lands.

Proposed Action and Alternatives Considered

We fully expect that the County will comply with all applicable statutes, regulations, Executive and Departmental Orders, and other requirements as they pertain to this project. The County should demonstrate in the DEIR that the proposed project meets all these requirements with respect to the tortoise, that:

- The proposed project will be in conformance with decisions in current land use plan(s), including the Desert Renewal Energy Conservation Plan (DRECP), even though that plan is applicable to public lands managed by the Bureau of Land Management (BLM);
- the proposed project will be consistent with priority conservation, restoration, and/or adaptation objectives in the best available landscape-scale information (e.g., for tortoise population connectivity, etc.);
- the applicant has coordinated with governments and agencies, including consideration of consistency with officially adopted plans and policies (e.g., recovery plans);
- the proposed project is in an area with low or comparatively low resource conflicts and where conflicts can be resolved (e.g., it is our understanding that portions of the project are in the designated tortoise Fenner Critical Habitat Unit, even though how much is not revealed in the Notice of Preparation (NOP);
- the proposed project will be located in, or adjacent to, previously contaminated or disturbed lands;
- the proposed project will minimize adverse impacts on important fish and wildlife habitats and migration/movement corridors including the desert tortoise;
- the proposed project will minimize impacts on lands with wilderness characteristics and the values associated with these lands;
- the proposed project will not adversely affect lands donated or acquired for conservation purposes, or mitigation lands identified in previously approved projects such as translocation areas for desert tortoise;
- significant cumulative impacts on resources of concern should not occur as a result of the proposed project (i.e., exceedance of an established threshold such population viability for the tortoise and connectivity of tortoise populations among recovery units); and,
- the County's analysis would use current data on the tortoise for the project area, population, pertinent Recovery Unit, and range wide, as population numbers and densities have substantially declined in most recovery units, so the County must use data/knowledge currently available on what is needed for habitat linkages for the tortoise (Allison and McLuckie 2018; USFWS 2021, 2022a, and 2022b).

Whereas we understand that the County serves as the Lead Agency and there is (apparently) no BLM involvement, we have serious concerns about BLM's commitment to manage effectively for the sustained yield of the tortoise, which also affects projects permitted by the County. These concerns include past actions regarding:

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

Regarding the first concern, we believe that a multiagency approach is best to ensure the County is meeting its obligations, soliciting review and input from pertinent federal and state resource agencies, Tribal governments/agencies, and non-governmental organizations (NGOs). Mitigation of impacts should include, in priority order, avoidance, minimization and compensation for unavoidable impacts. Mitigation should at a minimum offset all direct, indirect, and cumulative impacts, especially given the status and trend of the tortoise (please see *Affected Environment - Status of the Populations of the Mojave Desert Tortoise* below). The County should ensure it is effectively implementing its section 10(A)(1b) conservation mandate under the FESA.

Mitigation should be applied only in areas where the lands are effectively managed for the benefit of the tortoise for both the short-term and long-term. As currently managed, BLM ACECs in Nevada and the California Desert Conservation Area 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. Please see *Mitigation Plans* below for additional concerns and requested requirements.

Regarding the second concern, a 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.

The Council expects that the County will describe the purpose and need for this project and develop and analyze other viable alternatives, such as rooftop solar, which we believe constitute “other reasonable courses of actions” (40 CFR 1508.25).

The Council supports alternatives to reduce the need for additional solar energy projects in relatively undisturbed habitats in the Mojave Desert. For example, the City of Los Angeles has implemented a rooftop solar Feed-in Tariff (FiT) program, the largest of its kind in America. The FiT program enables the owners of large buildings to install solar panels on their roofs, and sell the power they generate back to utilities for distribution into the power grid.

We request that County include an urban solar alternative. Under this alternative, owners of large buildings or parking areas would grant the project proponent permission to install solar panels on their roofs and cover parking areas, and sell the power they generate back to utilities for distribution into the power grid.

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

In addition, the County should include another viable alternative of locating solar projects on bladed or highly degraded tracts of land (e.g., abandoned agricultural fields). Such an alternative would not result in the destruction of desert habitats and mitigation for the lost functions and values of these habitats. These losses and mitigation are costly from an economic, environmental, and social perspective. We strongly oppose developing this project in critical habitat, which would set a precedent in San Bernardino County.

These two alternatives are important to consider to minimize or avoid the loss of vegetation that sequesters carbon. Studies around the world have shown that desert ecosystems can act as important carbon sinks. For example, the California deserts account for nearly 10 percent of the state's carbon sequestration; below ground in soil and root systems, and above ground in biomass. Protecting this biome can contribute to securing carbon stores in the state (MDLT 2021). Given the current climate change conditions, there is an increasing need for carbon sequestration. Because vascular plants are a primary user of carbon and the proposed Project would result in the loss/degradation of more than a thousand acres of plants and their ability to sequester carbon for decades or longer unless successful measures are implemented to restore the same biomass of native vegetation as it is being destroyed, it is imperative that the proposed Project minimize the loss of vegetation.

The DEIR should consider the monitoring results of recently developed solar projects where soils have been bladed versus those facilities where the vegetation has been mowed or crushed and allowed to revegetate the area. In the latter case, it may be appropriate to allow tortoises to enter the facilities and re-establish residency (i.e., repatriate) under the solar panels as vegetation recolonizes the area. This could be an *option* for the currently described project alternative. It should be designed/implemented as a scientific experiment to add to the limited data on this approach to determine the extent of effects on Mojave desert tortoise populations and movements/connectivity between populations, which is an important issue for this species, 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.

Affected Environment

Status of the Population of the Mojave Desert Tortoise: The Council provides the following information for the proponent so that these or similar data may be included in the DEIR. The Council believes that BLM's failure to implement recovery actions for the Mojave desert tortoise as given in the recovery plan (both USFWS 1994b and 2011) has contributed to tortoise declines between 2004 and 2014 (Table 1; USFWS 2015). 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).

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

Recovery Unit: Designated Critical Habitat Unit/Tortoise Conservation Area	Surveyed area (km ²)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km ² (SE)	% 10-year change (2004–2014)
Western Mojave, CA	6,294	24.51	2.8 (1.0)	-50.7 decline
Fremont-Kramer	2,347	9.14	2.6 (1.0)	-50.6 decline
Ord-Rodman	852	3.32	3.6 (1.4)	-56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	-61.5 decline
Colorado Desert, CA	11,663	45.42	4.0 (1.4)	-36.25 decline
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	-29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	-37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	-64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	-52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	-60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
Northeastern Mojave	4,160	16.2	4.5 (1.9)	+325.62 increase
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase
Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
Eastern Mojave, NV & CA	3,446	13.42	1.9 (0.7)	-67.26 decline
El Dorado Valley, NV	999	3.89	1.5 (0.6)	-61.14 decline
Ivanpah Valley, CA	2,447	9.53	2.3 (0.9)	-56.05 decline
Upper Virgin River	115	0.45	15.3 (6.0)	-26.57 decline
Red Cliffs Desert	115	0.45	15.3 (6.0)	-26.57 decline
Range-wide Area of CHUs - TCAs/Range-wide Change in Population Status	25,678	100.00		-32.18 decline

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

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

Important points from these tables include the following:

Change in Status for the Mojave Desert Tortoise Range-wide

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

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

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

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

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

Change in Status for the Mojave Desert Tortoise in California

- Eight of 10 populations of the Mojave desert tortoise in California declined from 29 to 64 percent from 2004 to 2014 with implementation of tortoise conservation measures in the Northern and Eastern Colorado Desert (NECO), Northern and Eastern Mojave Desert (NEMO), and Western Mojave Desert (WEMO) Plans.
- Eight of 10 populations of the Mojave desert tortoise in California are no longer viable. These eight populations represent 87.45 percent of the habitat in California that is in CHU/TCAs.
- The two viable populations of the Mojave desert tortoise in California are declining. If their rates of decline from 2004 to 2014 continue, these two populations will no longer be viable in about 2020 and 2031.

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

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

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

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

The Endangered Mojave Desert Tortoise: The Council believes that the Mojave desert tortoise meets the definition of an endangered species. In the FESA, Congress defined an “endangered species” as “any species which is in danger of extinction throughout all or a significant portion of its range...” 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 Department of Fish and Wildlife (CDFW).

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.

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

Standardized Surveys – Desert Tortoise and Other Species

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

Prior to conducting surveys, a knowledgeable biologist should perform a records search of the California Natural Diversity Data Base (CNDDDB; CDFW 2022) for rare plant and animal species reported from the region. The results of the CNDDDB review would be reported in the DEIR with an indication of suitable and occupied habitats for all rare species reported from the region based on performing the species-specific surveys described below.

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 project proponent should document such communities where they occur, and indicate how impacts to them will be minimized.

The project proponent should fund focused surveys for all rare plant and animal species reported from the vicinity of the proposed project. Results of the surveys will determine appropriate permits from CDFW and USFWS and associated avoidance, minimization, and mitigation measures. Focused plant and animal surveys should be conducted by knowledgeable biologists for respective taxa (e.g., rare plant surveys should be performed by botanists), and to assess the likelihood of occurrence for each rare species or resource (e.g., plant community) that has been reported from the immediate region. Focused plant surveys should occur only if there has been sufficient winter rainfall to promote germination of annual plants in the spring. Alternatively, the environmental documents may assess the likelihood of occurrence with a commitment by the proponents to perform subsequent focused plant surveys prior to ground disturbance, assuming conditions are favorable for germination.

Specialized Reptile Surveys: If there are any loose, shifting sands within/near the impact areas of the panels, along the gen-tie lines, or access routes, focused surveys for Mojave fringe-toed lizards (*Uma scoparia*) should be performed (University of California, Riverside 2005, 2007).

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

Burrowing owl: Surveys for western burrowing owl (*Athene cunicularia*) should be performed implementing available methods (CDFG 2012). In addition to the project footprint, the protocol requires that peripheral transects be surveyed at 30-, 60-, 90-, 120-, and 150-meter intervals in all suitable habitats adjacent to the subject property to determine the potential indirect impacts of the project on this species. If burrowing owl sign is found, CDFG (2012) describes appropriate minimization and mitigation measures that would be required. If burrowing owl sign is found, the County and the project proponent should develop a science-based mitigation/monitoring/adaptive management plan with the USFWS and CDFW and ensure that this plan is implemented.

Mojave Desert Tortoise Surveys: Formal protocol surveys for Mojave desert tortoise (USFWS 2019) must be conducted at the proper times of year. Because USFWS (2009) and CDFW require only experienced biologists to perform protocol surveys, USFWS and CDFW biologists should review surveyors’ credentials prior to initiating the surveys. Per this protocol, since the impact area is larger than 500 acres, the surveys must be performed in the time periods of April-May or

September-October so that a statistical estimate of tortoise densities can be determined for the “action area” (please see below). If any tortoise sign is found, the project proponent should coordinate with USFWS and CDFW to determine whether “take” under FESA or CESA is likely to occur from implementation of the proposed project. If tortoises are present, the project proponent must obtain a Section 10(a)(1)(B) incidental take permit from the USFWS for activities on federal lands/actions and a section 2081 incidental take permit from the CDFW prior to conducting any ground disturbance.

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

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

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

Too often, a single impact footprint is identified, all surveys are restricted to that site, and no alternative sites are assessed, as required by NEPA. We are concerned that this project has already pre-determined the project footprint, and, that an undisclosed part of the footprint is designated tortoise critical habitat. As such, there are likely other areas of lower tortoise densities where impacts could be minimized. However, those areas would not be considered if the project footprint is predetermined before survey data are available. As such, we request that more than one site, preferably three, be identified and analyzed in the 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. Proponents of the Gemini Solar Site in southern Nevada, for example, ignored these recommendations, and displaced more than 100 tortoises, when based on their presence-absence tortoise surveys, a shift of the site to the east would have avoided many of those animals.

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

Mojave Desert Tortoise Impacts Analysis:

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

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. 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, a perimeter road, perimeter fencing, substations, battery storage (e.g., the project footprint). We also request that separate calculations document how many acres of desert tortoise habitats would be temporarily and permanently impacted both directly and indirectly (e.g., “road effect zone,” etc.) by the proposed Project. As given below, these acreages should be based on field surveys for tortoises and not just on available models.

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.

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 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 2011, Averill-Murray et al. 2013, Hromada et al. 2020), and how the project, along with other existing projects, would impact the linkages between tortoise populations and all recovery units that are needed for survival and recovery. We strongly request that the environmental consequences section of the DEIR include a thorough analysis of this indirect effect (40 Code of Federal Regulations 1502.16) and appropriate mitigation to maintain the function of population connectivity for the Mojave desert tortoise and other wildlife species be identified. Similarly, please document how this project may impact proximate conservation areas, such as BLM-designated ACECs.

Jurisdictional Waters in California: 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 section 1600 Streambed Alteration Agreement acquired, if deemed necessary by CDFW.

Mitigation Plans

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 when the lease is terminated and the proposed project is decommissioned.

All 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. If not available as appendices in draft documents, all indicated plans must be published in the final environmental documents. Their inclusion is necessary to determine their adequacy for mitigating direct, indirect, and cumulative impacts, and monitoring for effectiveness and adaptive management regarding the desert tortoise. If these plans are not provided, it is not possible for the County, other decisionmakers, 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.

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

The project proponent should implement the USFWS' Translocation Guidance (USFWS 2020) and coordinate translocation with CDFW and USFWS. 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/CDFW 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.

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, operations and maintenance, decommissioning, and restoration phases of the proposed project, the County should require science-based management of common raven, coyote, and badger predation on tortoises in the action area. This would include the translocation sites.

For local impacts, the Predator Management Plan should include reducing/eliminating human subsidies of food and water, and for the common raven, sites for nesting, roosting, and perching to address local impacts (footprint of the proposed project). This includes buildings, fences, and other vertical structures associated with the project site. In addition, the Predator Management Plan should include provisions that eliminate the pooling of water on the ground or on roofs. The Predator Management Plan should include science-based monitoring and adaptive management throughout all phases of the project to collect data on the effectiveness of the Plan's implementation and implement changes to reduce/eliminate predation on the tortoise if existing measures are not effective.

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

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

We request that for any of the transmission options, the project use infrastructure (particularly towers) that prevent raven nesting and perching for hunting. For example, for gen-ties/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 provide resources for ravens, like new perching and nesting sites.

According to Appendix A of Common Raven Predation on the Desert Tortoise (USFWS 2010), "The BLM's biological assessments and the USFWS' biological opinions for the California Desert Conservation Area (CDCA) plan amendments reiterate the need to address the common raven and its potential impacts on desert tortoise populations." Please ensure that all standard measures to mitigate the local, regional, and cumulative impacts of raven predation on the tortoise are included in this DEIR, including developing a raven management plan for this specific project. USFWS (2010) provides a template for a project-specific management plan for common ravens. This template includes sections on construction, operation, maintenance, and decommissioning (including restoration) with monitoring and adaptive management during each project phase (USFWS 2010).

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.

Habitat Compensation Plan: When the project proponent seeks an incidental take permit from the CDFW, because their project would result in take of a listed species under CESA, compensatory mitigation would be required. The mitigation lands must be occupied by the species and secured and managed in perpetuity for the listed species. Hence, the DEIR should include a Habitat Compensation Plan for the loss/degradation of habitat. This plan should calculate how it will fully mitigate for the impacts of the proposed project including direct, indirect, cumulative, and temporal impacts.]

Climate Change and Non-native Plants

Climate Change: We request that the DEIR address the effects of the proposed action on climate change warming and the effects that climate change may have on the proposed action. For the latter, we recommend including: an analysis of habitats within the project area that may provide

refugia for tortoise populations; an analysis of how the proposed action would contribute to the spread and proliferation of nonnative invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including the frequency and size of human-caused fires); and how the proposed action may affect the likelihood of human-caused fires. We strongly urge that the County require the project proponent to develop and implement a management and monitoring plan using this analysis and other relevant data that would reduce the transport to and spread of nonnative seeds and other plant propagules within the project area and eliminate/reduce the likelihood of human-caused fires. The plan should integrate vegetation management with fire prevention and fire response.

Impacts from 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 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 that the County require the project proponent to develop and implement a management and monitoring plan for nonnative plant species. The plan should integrate management/enhancement of native vegetation with fire prevention and fire response to wildfires.

Hydrology and Water Quality

Regarding water quality of surface and ground water, the DEIR should include an analysis of the impacts of water acquisition, use, and discharge for panel washing, potable uses, and any other uses associated with this proposed project, and cumulative impacts from water use and discharge on native perennial shrubs and annual vegetation used for forage by the Mojave desert tortoise, including downstream and downstream impacts. The DEIR should analyze how much water is proposed to be used during construction and operation; how any grading, placement, and/or use of any project facilities will impact downstream/downslope flows that are reduced, altered, eliminated, or enhanced. This analysis should include impacts to native and non-native vegetation and habitats for wildlife species including the Mojave desert tortoise, for which washes are of particular importance for feeding, shelter, and movements.

Therefore, we request that the DEIR include an analysis of how water use during construction, operations and maintenance, decommissioning, and habitat restoration will impact the levels of ground water in the region. These levels may then impact surface and near-surface flows at springs, seeps, wetlands, 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 beginning with avoidance and continuing through CEQ's other forms of mitigation (40 CFR 1508.20).

Cumulative Effects

With regards to cumulative effects, 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. The Council asks that the relationship between this proposed project and the DRECP (BLM 2015) be analyzed, as the project area does not appear to be in a designated

Development Focused Area (DFA) identified in the final Record of Decision by the BLM for the DRECP (BLM 2016). 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.

We appreciate this opportunity to provide scoping 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 County that may affect species of desert tortoises, and that any subsequent environmental documentation for this project is provided to us at the contact information listed above. Additionally, we ask that you respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this project.

Respectfully,

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

Literature Cited

- Allison L.J. and McLuckie, A.M. 2018. Population trends in Mojave desert tortoises (*Gopherus agassizii*). *Herpetological Conservation and Biology*. 2018 Aug 1;13(2):433-52.
- Averill-Murray, R.C., C.R. Darst, N. Strout, and M. Wong. 2013. Conserving population linkages for the Mojave desert tortoise (*Gopherus agassizii*). *Herpetological Conservation and Biology* 8(1):1–15.
- Berry, K.H., L.J. Allison, A.M. McLuckie, M. Vaughn, and R.W. Murphy. 2021. *Gopherus agassizii*. The IUCN Red List of Threatened Species 2021: e.T97246272A3150871. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T97246272A3150871.en>
- [BLM] U.S. Bureau of Land Management. 1980. California Desert Conservation Area Plan, as Amended. Prepared by the Desert District, Riverside, CA.
- [BLM] U.S. Bureau of Land Management. 2015. Desert Renewable Energy Conservation Plan proposed land use plan amendment and final environmental impact statement (BLM/CA/PL-2016/03+1793+8321). Prepared by the BLM in partnership with U.S. Fish and Wildlife Service, California Energy Commission, and California Department of Fish and Wildlife. Sacramento, CA.
- [BLM] U.S. Bureau of Land Management. 2016. Record of Decision for the Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan for the Desert Renewable Energy Conservation Plan (DRECP). Dated September 2016. Sacramento, CA.]

Boarman, W.I, M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. *Journal of Arid Environments* 67 (2006) 248–261.

[CDFG] California Department of Fish and Game. 2010. List of Vegetation Alliances and Associations. Vegetation Classification and Mapping Program, California Department of Fish and Game, September 2010. Sacramento, CA.

[CDFG] California Department of Fish and Game. 2012. Staff report on burrowing owl mitigation. [The 7 March 2012 memo replaces the 1995 staff report and includes the Burrowing owl survey protocol], State of California Natural Resources Agency, Department of Fish and Game. Sacramento, CA.
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline>

[CDFW] California Department of Fish and Wildlife (CDFW). 2022. Electronic database of rare plant and animal species reported to The State Resources Agency, Natural Heritage Division, California Natural Diversity Data Base. Updated monthly. Sacramento, CA.

Driscoll, D.E. 2010. Protocol for golden eagle occupancy, reproduction, and prey population assessment. American Eagle Research Institute, Apache Jct., AZ. 55pp.
<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83955&inline>

Esque, T.C., K.E. Nussear, K.K. Drake, A.D. Walde, K.H. Berry, R.C. Averill-Murray, A.P. Woodman, W.I. Boarman, P.A. Medica, J. Mack, and J.H. Heaton. 2010. Effects of subsidized predators, resource variability, and human population density on desert tortoise populations in the Mojave Desert, U.S.A. *Endangered Species Research*, Vol. 12-167-177, 2010, doi: 10.3354/esr00298.

Hromada, S. J., T.C. Esque, A.G. Vandergast, K.E. Dutcher, C.I. Mitchell, M.E. Gray, T. Chang, B.G. Dickson, and K.E. Nussear. 2020. Using movement to inform conservation corridor design for Mojave desert tortoise. *Movement Ecology* 8, 38 (2020).
<https://movementecologyjournal.biomedcentral.com/track/pdf/10.1186/s40462-020-00224-8.pdf>

Jaeger, J., L. Fahrig, and K. Ewald. 2005a. Does the configuration of road networks influence the degree to which roads affect wildlife populations? *International Conference on Ecology and Transportation 2005 Proceedings*, Chapter 5 - Integrating Transportation and Resource Conservation Planning - Landscapes and Road Networks, pages 151-163. August 29, 2005.

Jaeger, J., J. Bowman, J. Brennan, L. Fahrig, D. Bert, J. Bouchard, N. Charbonneau, K. Frank, B. Gruber, and K. Tluk von Toschanowitz. 2005b. Predicting when animal populations are at risk from roads: an interactive model of road avoidance behavior. *Ecological Modelling* 185 (2005) 329–348.

[MDLT] Mojave Desert Land Trust. 2021. Climate change. <https://www.mdlt.org/climate-change/>.

- Nafus, M.G., T.D. Tuberville, K. A. Buhlmann, and B.D. Todd. 2013. Relative abundance and demographic structure of Agassiz's desert tortoise (*Gopherus agassizii*) along roads of varying size and traffic volume. *Biological Conservation* 162 (2013) 100–106.
- Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.
https://www.fws.gov/southwest/es/oklahoma/documents/te_species/wind%20power/usfws_interim_goea_monitoring_protocol_10march2010.pdf
- Roedenbeck, I., L. Fahrig, C. Findlay, J. Houlihan, J. Jaeger, N. Klar, S. Kramer-Schadt, and E. van der Grift. 2007. The Rauschholzhausen Agenda for Road Ecology. *Ecology and Society* 12(1): 11. [online] URL: <http://www.ecologyandsociety.org/vol12/iss1/art11/>
- Servin, J., V. Sanchez-Cordero, and S. Gallina. 2003. Distances traveled daily by coyotes, *Canis latrans*, in a pine–oak forest in Durango, Mexico. *Journal of Mammalogy* 84(2):547–552.
- University of California Riverside, Center for Conservation Biology. 2005. Coachella Valley Multiple Species Habitat Conservation Plan Monitoring Program (Final Report). 2002-2005 unpublished progress report to Coachella Valley Association of Governments. Riverside, CA. 164 pp. (Coachella Valley fringe-toed lizard survey protocol revised in 2007).]
- [USFWS] U.S. Fish and Wildlife Service. 1994a. Determination of critical habitat for the Mojave population of the desert tortoise. 59 *Federal Register* 5820-5866.]
- [USFWS] U.S. Fish and Wildlife Service. 1994b. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, OR. Pp. 73, plus appendices.
- [USFWS] U.S. Fish and Wildlife Service. 2009. Desert Tortoise (Mojave Population) Field Manual: (*Gopherus agassizii*). Region 8, Sacramento, California.
- [USFWS] U.S. Fish and Wildlife Service. 2010. Common raven predation on the desert tortoise. USFWS, Ventura Fish and Wildlife Office, Ventura, CA.
- [USFWS] U.S. Fish and Wildlife Service. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.
- [USFWS] U.S. Fish and Wildlife Service. 2014. Status of the desert tortoise and critical habitat. Unpublished report available on the Desert Tortoise Recovery Office's website: "02/10/2014 Status of the Desert Tortoise and Critical Habitat (.704MB PDF)." Reno, NV.

- [USFWS] U.S. Fish and Wildlife Service. 2015. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2013 and 2014 Annual Reports. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. 44 pages.
- [USFWS] U.S. Fish and Wildlife Service. 2019. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). USFWS Desert Tortoise Recovery Office. Dated 21 August 2017. Reno, NV.]
- [USFWS] U.S. Fish and Wildlife Service. 2020. Translocation of Mojave Desert Tortoises from Project Sites: Plan Development Guidance. U.S. Fish and Wildlife Service, Las Vegas, Nevada.
https://www.fws.gov/nevada/desert_tortoise/documents/reports/2020/RevisedUSFWSDTTranslocationGuidance20200603.pdf.]
- [USFWS] U.S. Fish and Wildlife Service. 2021. Status of the desert tortoise and its critical habitat. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. Dated 8 March 2021. 27 pages.
- [USFWS] U.S. Fish and Wildlife Service. 2022a. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2020 Annual Reporting DRAFT. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.
- [USFWS] U.S. Fish and Wildlife Service. 2022b. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2021 Annual Reporting DRAFT. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.
- von Seckendorff Hoff, K., and Marlow, R.W. 2002. Impacts of vehicle road traffic on desert tortoise populations with consideration of conservation of tortoise habitat in southern Nevada. *Chelonian Conservation and Biology* 4:449–456.