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To: Craig Hoffman, Energy Commission Project Manager**From:** Heather Blair, Energy Commission Staff Biologist (Aspen Environmental Group)**Date:** February 5, 2010**Re:** Abengoa Mojave Solar Project – time-sensitive issues and informational needs

Completion of the draft Staff Assessment and its review by USFWS and CDFG facilitated the identification of several time-sensitive issues. Staff believes it will benefit the project schedule to relay this information to the applicant now rather than wait to publish it in the Staff Assessment in March 2010. Staff strongly recommends continued coordination with USFWS (Ashleigh Blackford) and CDFG (Eric Weiss) regarding plan development, permit requirements/timing, compliance with updates to the Bald and Golden Eagle Act (e.g., survey and foraging habitat assessment procedures), and compensatory mitigation. Staff is also available to answer questions about these informational needs.

The documents and information listed below **need to be submitted** by the applicant to the Energy Commission, USFWS, and CDFG:

- Draft Desert Tortoise Exclusion Fencing, Clearance Survey, and Translocation Plan (Desert Tortoise Plan). See below.
- Draft Burrowing Owl Monitoring and Mitigation Plan (Burrowing Owl Plan). See below.
- Swainson's Hawk Survey Results – Spring 2010. As proposed by the applicant in their draft California Endangered Species Act Section 2081 Incidental Take Permit Application.
- Golden Eagle Survey Results and Foraging Habitat Assessment. Required to determine compliance with recent updates to the Bald and Golden Eagle Act, including whether the project would require a take permit. Contact USFWS for guidance on survey protocol and foraging habitat assessment methodology, as it becomes available. Analysis of the survey results and coordination between staff, the applicant, and USFWS is necessary to determine whether a take permit is required for impacts to golden eagle, including loss of foraging habitat.
- Compensatory Mitigation Details:
 - Identification of which 118.2 acre portion of the 233 acre applicant-owned parcel is proposed for mitigation;
 - Evaluation of the degree of disturbance, dumping, historical structures, etc. that may require cleaning, fencing, repairs, demolition, etc.; and
 - Determination of whether the applicant would conduct the aforementioned work (if required) prior to conserving the land or if additional lands or monies will be required to off-set the aforementioned impediments.

It is requested that these plans, survey results, and information be submitted as soon as possible to allow time for review, analysis, and incorporation into conditions of certification, in advance of the Supplemental Staff Assessment (publication scheduled for early May 2010). Of particular importance are the draft Desert Tortoise Plan, draft Burrowing Owl Plan, Swainson's hawk and golden eagle survey results and foraging habitat assessment, and compensatory mitigation details, all of which need to be addressed by staff in the Supplemental Staff Assessment. The following measures, which were developed in coordination with USFWS and CDFG, present substantive guidance for preparation of the draft Desert Tortoise and Burrowing Owl plans. The final Desert Tortoise Plan must be submitted to USFWS with the Biological Assessment, which is currently scheduled to be submitted to the U.S. Department of Energy in February 2010; therefore, a draft plan must be submitted and reviewed as soon as possible.

Staff recommends that careful consideration be given to the timing of burrowing owl and desert tortoise clearance surveys in relation to the overall project construction schedule. As described below, the clearance surveys must be conducted within specific timing and environmental parameters. In coordination with USFWS and CDFG, staff identified two potential scenarios specific to the AMS project that would allow construction to proceed in compliance with these timing restrictions. It is understood that there are other potential scenarios and staff encourages the applicant to present these and other scenarios for approval in the draft Desert Tortoise and Burrowing Owl plans.

1. At site mobilization in Fall/Winter 2010, install temporary desert tortoise exclusion fencing partially around (within 250 feet of) all potential tortoise burrows ***while maintaining connectivity to suitable natural habitat*** adjacent to the project site. Determine presence or absence of burrowing owl during that same timeframe (to determine compensatory mitigation and the number of artificial burrows). Color-banding and passive relocation of non-nesting burrowing owl can occur outside of the temporary exclusion fence (within the proposed project area) at any time. However, if it is determined that an active nest is present onsite, a no disturbance buffer must be established within 250 feet of the active burrowing owl nest and remain until juveniles from the occupied burrows are foraging independently and are capable of independent survival. Desert tortoise clearance would be conducted April through May and/or September through October.
2. Fence the site and conduct burrowing owl and desert tortoise clearance concurrently in September or October (provided the environmental requirements below are satisfied).

Desert Tortoise Exclusion Fencing, Clearance Surveys, and Translocation Plan

A Desert Tortoise Exclusion Fencing, Clearance Surveys, and Translocation Plan shall be developed in consultation with the CPM, CDFG, and USFWS. This plan shall include detailed measures to avoid and minimize impacts to desert tortoise in and near the construction areas as well as methods for clearance surveys, fence installation, tortoise handling, artificial burrow construction, egg handling and other procedures, which shall be consistent with those described in the USFWS Desert Tortoise Field Manual (www.fws.gov/ventura/speciesinfo/protocols_guidelines) or more current guidance provided by CDFG and USFWS. At a minimum, the following measures shall be included in the plan and implemented by the project owner to manage their construction site, and related facilities, in a manner to avoid, minimize, or mitigate impacts to desert tortoise.

1. **Fence Installation.** Prior to ground disturbance, the entire project site shall be fenced with desert tortoise exclusion fence. To avoid impacts to desert tortoise during fence construction, the proposed fence alignment shall be flagged and the alignment surveyed within 24 hours prior to fence construction. Surveys shall be conducted by the Designated Biologist using techniques approved by the USFWS and CDFG. Biological Monitors may assist the Designated Biologist under his or her supervision. These surveys shall provide 100 percent coverage of all areas to be disturbed during fence construction and an additional transect along both sides of the proposed fence line. This fence line transect shall cover an area approximately 90 feet wide centered on the fence alignment. Transects shall be no greater than 30 feet apart. All desert tortoise burrows, and burrows constructed by other species that might be used by desert tortoises, shall be examined to assess occupancy of each burrow by desert tortoises and handled in accordance with USFWS-approved protocol.
 - a. **Timing and Supervision of Fence Installation.** The exclusion fencing shall be installed prior to site clearing and grubbing. The fence installation shall be supervised by the Designated Biologist and monitored by the Biological Monitors to ensure the safety of any tortoise present.
 - b. **Fence Material and Installation.** The permanent tortoise exclusionary fencing shall consist of galvanized hard wire cloth 1 by 2 inch mesh sunk 12 inches into the ground, and 24 inches above ground (refer to parameters for USFWS-approved tortoise exclusion fencing at www.fws.gov/ventura/speciesinfo/protocols_guidelines). For temporary exclusion fencing, a “folded bottom” technique shall be implemented. This method follows the same guidelines as installation of permanent fencing except instead of burying the bottom 12 inches of the fencing, it is bent at a approximately 90 degree angle (to follow the contour of the ground) and spikes or other retaining methods are driven into the ground every two linear feet in such a manner as to “anchor” the bottom of the fence. This method eliminates the need for trenching, which for short-term temporary impacts may be more beneficial to the recovery of the landscape, and thus the species.

- c. Security Gates. Security gates shall be designed with minimal ground clearance to deter ingress by tortoises. The gates shall remain closed except during vehicle passage and may be electronically activated to open and close immediately after vehicle(s) have entered or exited to prevent extended periods with open gates, which might lead to a tortoise entering. Cattle grating designed to safely exclude desert tortoise shall be installed at the gated entries to discourage tortoises from gaining entry.
 - d. Transmission Interconnection Fencing. The Transmission Interconnection Area shall be temporarily fenced with tortoise exclusion fencing to prevent desert tortoise entry during construction. Temporary fencing must follow guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity. Temporary exclusion and translocation of desert tortoise in the Transmission Interconnection Area shall be addressed in the Desert Tortoise Translocation Plan.
 - e. Stormwater Drainage Fencing. The onsite stormwater drainage channels, including the headwalls, outlet, and road crossings, shall be permanently fenced to ensure exclusion of desert tortoise during AMS operation.
 - f. Fence Inspections. Following installation of the desert tortoise exclusion fencing for both the permanent site and stormwater drainage fencing and temporary fencing in the interconnection area, the fencing shall be regularly inspected. Permanent fencing shall be inspected monthly and during/immediately following all major rainfall events. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises out of the site, and permanently repaired within two days of observing damage. Inspections of permanent site fencing shall occur for the life of the project. Temporary fencing must be inspected immediately following major rainfall events. All temporary fencing shall be repaired immediately upon discovery and, if the fence may have permitted tortoise entry while damaged, the Designated Biologist shall inspect the utility corridor or tower site for tortoise.
2. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusionary fencing around the Plant Site, all fenced areas shall be cleared of tortoises by the Designated Biologist, who may be assisted by Biological Monitors. A minimum of two, 100 percent coverage protocol clearance surveys with negative results must be completed and these must coincide with heightened desert tortoise activity from April through May and September through October. Non-protocol clearance surveys may be conducted in areas of certainly unsuitable habitat (e.g., developed) with prior approval of specific areas by USFWS and CDFG (these proposed areas shall be identified in the draft Desert Tortoise Plan). To facilitate seeing the ground from different angles, the second clearance survey shall be walked at 90 degrees to the orientation of the first clearance survey. Additional clearance survey guidelines provided in the USFWS *Desert Tortoise Field Manual* (www.fws.gov/ventura/speciesinfo/protocols_guidelines).
 3. Translocation of Desert Tortoise. If desert tortoises are detected during clearance surveys within the project impact area, the Designated Biologist shall safely

translocate the tortoise the shortest possible distance to the nearest suitable habitat as described below. Any handling efforts shall be in accordance with techniques described in the USFWS's *Desert Tortoise Field Manual* (www.fws.gov/ventura/speciesinfo/protocols_guidelines).

- a. If a tortoise is discovered within the project site, it shall be safely translocated to the nearest desert saltbush scrub or Mojave creosote bush scrub east and south of section 33 or the nearest desert saltbush scrub west and south of section 30.
 - b. If a tortoise will be moved a distance greater than 5 km, disease testing and monitoring shall be conducted in accordance with the approved final Desert Tortoise Translocation Plan.
 - c. If a visibly diseased tortoise is encountered onsite, procedures shall be implemented in accordance with the approved final Desert Tortoise Plan.
4. Burrow Inspection. All potential desert tortoise burrows within the fenced area shall be searched for presence. To prevent reentry by a tortoise or other wildlife, all burrows shall be collapsed once absence has been determined. Immediately following excavation and if environmental conditions warrant immediate translocation, tortoises excavated from burrows shall be translocated to unoccupied natural or artificial burrows within the location approved by USFWS and CDFG per the final Desert Tortoise Translocation Plan.
 5. Burrow Excavation. Burrows inhabited by tortoises shall be excavated by the Designated Biologist using hand tools, and then collapsed or blocked to prevent re-occupation. If excavated during May through July, the Designated Biologist shall search for desert tortoise nests/eggs. All desert tortoise handling and removal, and burrow excavations, including nests, shall be conducted by the Designated Biologist in accordance with the USFWS-approved protocol (Desert Tortoise Council 1999) or more current guidance on the USFWS website.
 6. Monitoring During Clearing. Following the installation of exclusionary fencing and after ensuring desert tortoises are absent from the project site, heavy equipment shall be allowed to enter the project site to perform earth work such as clearing, grubbing, leveling, and trenching. A Biological Monitor shall be onsite at all times during initial clearing and grading activities. Should a tortoise be discovered, it shall be relocated as described above in accordance with the final Desert Tortoise Translocation Plan.
 7. Reporting. The Designated Biologist shall record the following information for any desert tortoises handled: a) the locations (narrative and maps) and dates of observation; b) general condition and health, including injuries, state of healing and whether desert tortoise voided their bladders; c) location moved from and location moved to (using GPS technology); d) gender, carapace length, and diagnostic markings (i.e., identification numbers or marked lateral scutes); e) ambient temperature when handled and released; and f) digital photograph of each handled desert tortoise as described in the paragraph below. Desert tortoise moved from within project areas shall be marked for future identification as described in *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert

Tortoise Council 1999) or more current guidance on the USFWS website. Digital photographs of the carapace, plastron, and fourth costal scute shall be taken. Scutes shall not be notched for identification.

Burrowing Owl Impact Avoidance and Minimization Measures

Prior to preconstruction surveys, a Burrowing Owl Monitoring and Mitigation Plan (Burrowing Owl Plan) shall be developed by the project owner in consultation with the CPM and CDFG. This plan shall include detailed measures to avoid and minimize impacts to burrowing owls in and near the construction areas (if identified during surveys) and shall be consistent with CDFG guidance (CDFG 1995). In addition, the plan shall identify the optimal time to concurrently relocate both desert tortoise and burrowing owl. At a minimum, the following measures shall be included in the plan and implemented by the project owner to manage their construction site, and related facilities, in a manner to avoid, minimize, or mitigate impacts to breeding and foraging burrowing owls.

1. Pre-Construction Surveys and Nest Avoidance. The Designated Biologist shall conduct pre-construction surveys for burrowing owls within the project site and a 160-foot buffer. These surveys shall be conducted concurrent with desert tortoise clearance surveys, to the maximum extent possible. The following shall be included in the Plan and implemented to avoid and minimize impacts to burrowing owls onsite:
 - a. Ground-disturbing actions should be carried out from September 1 to January 31, which is prior to the burrowing owl nesting season and also potentially within the desert tortoise active season, depending on ground and climate conditions.
 - b. A 250-foot exclusion area around occupied burrows will be flagged and this area will not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. The exclusion area shall remain connected to natural area(s) to the extent possible, to avoid completely surrounding the owl with construction activities and/or equipment.
2. Artificial Burrow Installation. Prior to any ground-disturbing activities, the project owner shall install five artificial burrows for each identified burrowing owl burrow in the project area that would be destroyed, within in the approved compensatory habitat area. The Designated Biologist shall survey the site selected for artificial burrow construction to verify that such construction will not affect desert tortoise or Mohave ground squirrel or existing burrowing owl colonies in the relocation area. Installation of the artificial burrows shall occur after baseline surveys of the relocation area and prior to ground disturbance or heavy equipment staging. Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 1995) and shall be approved by the CPM in consultation with CDFG.
3. Passive Relocation. Prior to passive relocation, any owls that will be relocated shall be color banded in accordance with the guidance provided by USGS bird banding lab (<http://www.pwrc.usgs.gov/bbl>) to monitor relocation success; this shall not be conducted during the breeding season. During the non-breeding season, owls would

be given a minimum of three weeks to become familiar with the new artificial burrows, after which eviction of owls within the project site could begin. Use of one-way doors described by Trulio (1995) and Clark and Plumpton (2005) would be used to facilitate passive relocation of owls.

- a. Monitoring and Success Criteria. The Designated Biologist shall survey the relocation area during the nesting season to assess use of the artificial burrows by owls using methods consistent with Phase II and Phase III Burrowing Owl Consortium Guideline protocols (CBOC 1993). Surveys shall start upon completion of artificial burrow construction and shall continue for a period of five years. If survey results indicate burrowing owls are not nesting on the relocation area, remedial actions shall be developed and implemented in consultation with the CPM, CDFG and USFWS to correct conditions at the site that might be preventing owls from nesting there. A report describing survey results and remedial actions taken shall be submitted to the CPM, CDFG and USFWS no later than January 31 of each year for five years.
4. Preserve and Manage Compensatory Habitat. For each individual owl or pair identified on the project site during pre-construction surveys, 6.5 acres shall be preserved and managed in perpetuity for the occupation of burrowing owls. This compensatory habitat shall be in addition to the acreage required to mitigate impacts to desert tortoise and Mohave ground squirrel.

The compensatory habitat shall be managed for the benefit of burrowing owls, with the specific goals of:

- a. Maintaining the functionality of artificial and natural burrows; and
- b. Minimizing the occurrence of weeds (species considered “moderate” or “high” threat to California wildlands as defined by CAL-IPC [2006] and noxious weeds rated “A” or “B” by the California Department of Food and Agriculture and any federal-rated pest plants [CDFA 2009]) at less than 10 percent cover of the shrub and herb layers.

The Burrowing Owl Plan shall also include monitoring and maintenance requirements, details on methods for measuring compliance goals and remedial actions to be taken if management goals are not met.

The final Burrowing Owl Plan is due before preconstruction surveys begin to ensure that an approved relocation methodology will be followed for any owls occurring within the project area. Therefore, it is understood that the compensatory mitigation acreage (if required) will not be identified in the Burrowing Owl Plan. However, the Plan shall propose a location for compensatory mitigation land and the methodology to quantify the acreage required, as outlined above. If owls are identified during the pre-construction survey, the project owner shall submit an addendum to the Burrowing Owl Plan, which identifies the exact acreage to be preserved and

managed in perpetuity for burrowing owl based on the results of the preconstruction survey and as agreed to in consultation with CDFG.