

**Rio Mesa Solar Electric Generating Facility (RMSEGF)
(11-AFC-4)**

Applicant's Specific Comments on the Preliminary Staff Assessment

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SPECIFIC COMMENTS

1. **Page 4.2-1, First Full Paragraph:** Please revise to reflect Applicant's General Comments regarding LORS compliance and CEC precedent:

In some cases, staff has recommended all known feasible mitigation, but concludes that certain impacts would not or may not be reduced to a level less than significant even with the recommended conditions of certification.

2. **Page 4.2-2, Native Vegetation and Wildlife Habitat, Paragraph 2:** As discussed in Applicant's General Comments above, with the acceptance of the MODFLOW 2000 model as a valid and reliable assessment of impacts on the PVMGB aquifer, the need for BIO-8 is no longer valid. Please revise the paragraph as shown, including numerical references that reflect the pending LSAA application:

~~Construction and operation of the Rio Mesa SEGF would~~ could result in long-term degradation ~~and, in many power block and common areas (approximately 87 acres),~~ permanent elimination of 3,834 acres of native vegetation and wildlife habitat on the 3,840-acre project site, ~~and would cause indirect impacts such as weed introductions to surrounding vegetation and habitat. These impacts would affect all plant and wildlife species on the site, including special-status species.~~ The majority of this habitat is creosote bush scrub, which is the predominant shrubland throughout the California deserts. However, ~~five~~ six vegetation or habitat types totaling ~~799.6~~ 510.4 acres within the project area are ~~ranked~~ considered to be as special-status plant communities. These include ~~713.7~~ 462 acres that BLM and CDFG identify as important regional habitats in the Northern and Eastern Colorado Desert Management Plan (blue palo verde – ironwood woodland, ~~desert dunes, and bush seepweed scrub – mesquite bosque~~).

3. **Page 4.2-3, BIO-8:** As discussed in general comments above, with the acceptance of the MODFLOW 2000 model as a valid and reliable assessment of impacts on the PVMGB aquifer, the need for BIO-8 is no longer valid. Revise as follows:

~~**BIO 8** — Desert Dry Wash Woodland Monitoring Plan and Off-site Impact Compensation.~~

4. **Page 4.2-3, First Full Paragraph:** Please revise to reflect Applicant's comments regarding mitigation feasibility:

Staff concludes that these measures would reduce the project's impacts to native vegetation and wildlife habitat to a level of less than significant. ~~However, staff is uncertain whether compensation for impacts to blue palo verde – ironwood woodland at the recommended 3:1 ratio will be feasible. Desert dry wash woodland is relatively rare, due to restriction to wash landforms with suitable surface or groundwater hydrology, and large parcels predominantly covered by this habitat may not be available. Feasibility will depend upon availability from willing sellers of 2,126.7 acres of privately owned desert woodland habitat. There is an estimated 40,000 acres of this~~

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- habitat in private ownership in the region. If 3:1 compensation for the impacts to blue palo verde—ironwood woodland is found infeasible then the project's impacts to special status vegetation may be significant and unavoidable. Staff will coordinate with the applicant and public or private entities specializing in compensation habitat acquisition and management to determine feasibility and, if necessary, identify alternate mitigation.
5. **Page 4.2-3, Bottom Paragraph:** Applicant is preparing an LSAA Application which will show the following:
- The applicant reports that a total of ~~817.37~~ 502.6 acres of state waters are located within the project area, including the solar generation facility fenceline and linear components, such as powerlines and roads, outside of the fenceline. ~~However, staff is uncertain whether compensation for impacts to blue palo verde—ironwood woodland at the recommended 3:1 ratio will be feasible. Desert dry wash woodland is relatively rare,~~
6. **Page 4.2-4, First Carryover Paragraph:** Please revise as follows to reflect Applicant's comments regarding mitigation feasibility:
- ~~However, if 3:1 compensation for these impacts is found infeasible then the project's impacts to waters of the state may be significant and unavoidable. As discussed above, feasibility will depend upon availability from willing sellers of 2,126.7 acres of privately owned desert woodland habitat. Staff will coordinate with the applicant and public or private entities specializing in compensation habitat acquisition and management to determine feasibility and, if necessary, identify alternate mitigation. Staff will coordinate with CDFG upon the applicant's submission of a Lake and Streambed Alteration Agreement (LSAA) Application to the CDFG to determine whether Condition of Certification **BIO-9** also would conform to the state's LSAA program according to sections 1600-1616 of the state Fish and Game Code.~~
7. **Page 4.2-4, Last Sentence:** Please revise this sentence as follows to reflect General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically-required analysis of uncertain or undetermined impact risks, and CEC precedent:
- With implementation of these and other staff recommended measures, staff concludes that ~~most~~ project impacts to common wildlife and nesting birds, ~~with the exception of bird mortality during project operations,~~ would be reduced below a level of significance.
8. **Page 4.2-5, First Full Paragraph:** Please revise this paragraph to reflect Applicant's General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:
- Operation of the project ~~is expected to~~ could potentially result in bird collisions with the heliostat mirrors and bird mortality or injury from exposure to concentrated solar energy surrounding the central tower. CEC staff has previously reviewed these issues on several occasions and has concluded that the extent and nature of these risks are not yet understood due to the lack of research-based data on the impacts of avian injury and mortality from solar facilities. ~~Staff at this time cannot quantify the expected impact, but believes this impact would be significant according to CEQA. Staff's proposed~~ Condition of Certification **BIO-12** (Mitigating and Monitoring Operational

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Impacts to Birds and Bats), would provide the information needed to develop and implement adaptive management measures to mitigate bird collision impacts. **BIO-12** which would requires a Bird Monitoring Study to monitor the death and injury of birds. Staff concludes that the bird impact monitoring and adaptive management measures as recommended in Condition of Certification **BIO-12** would result in implementation of further feasible measures as needed to mitigate significant bird collisions, if they should occur, below a level of significance. However, staff concludes that it is not feasible to mitigate this impact below a level of significance, and that collision with heliostats and injury or mortality from exposure to concentrated solar energy would be a significant and unavoidable adverse impact. The collision and burning hazards are applicable for all bird species that may fly over site or near the gen-tie line, including the special status species summarized below. Staff will continue coordinating with the applicant and resource agencies to review any potential for off-site habitat protection and enhancement, particularly in wetland areas and wildlife refuges, where habitat expansion or improvement may offset anticipated loss of migrating or overwintering birds.

9. **Page 4.2-5, Desert Tortoise:** Please revise this paragraph as follows based on Applicant's General Comments:

Desert Tortoise: Construction and operation of the Rio Mesa SEGF would result in long-term degradation, and in many areas permanent elimination, exclusion from of 3,83405 acres of ~~occupied~~ desert tortoise habitat much of which may be occupied on the project site; ~~adverse indirect impacts such as weed introductions to surrounding vegetation and habitat; and~~ Installation of tortoise exclusionary fencing would necessitate translocation of all desert tortoises from the proposed solar generator site. The desert tortoise is listed as a threatened species under the state and federal Endangered Species Acts. To mitigate project impacts to desert tortoises and habitat, staff proposes Conditions of Certification **BIO-1** through ~~**BIO-8**~~ **BIO-7** (above), which would serve to mitigate many of the project's impacts to native vegetation and wildlife habitat, including desert tortoise habitat.

10. **Page 4.2 6, Bald and Golden Eagle:** Please revise this paragraph as follows based on Applicant's General Comments:

Bald and Golden Eagle: The bald eagle is protected by the federal Bald and Golden Eagle Protection Act (BGEPA) and MBTA and fully protected under the California Fish and Game Code. The golden eagle is a BLM sensitive species, also protected under the federal BGEPA and MBTA, and is designated as fully protected under the California Fish and Game Code. There is no suitable bald or golden eagle nesting habitat on the proposed project site. The entire project is suitable golden eagle foraging habitat year-around, and bald eagles may fly over the area or (rarely) forage on the site during winter or migration seasons. Staff's recommended Conditions of Certification **BIO-1** through ~~**BIO-8**~~ **BIO-7** (above) would serve to mitigate ~~many of~~ the project's impacts to native vegetation and wildlife habitat, including eagle foraging habitat to less than significant levels...

The project ~~also would~~ could potentially present long-term operational phase hazards to bald and golden eagles. Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** (above) would minimize adverse impacts to eagles, and. ~~Among their other requirements (above),~~ **BIO-35** would require a series of measures to minimize or avoid

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hazards to wildlife including gen-tie design to minimize or avoid electrocution hazard for birds. Operation of the project may result in eagle collisions with the heliostat mirrors and mortality or injury from exposure to concentrated solar energy surrounding the central towers. Staff proposes Condition of Certification **BIO-12** (Mitigating and Monitoring Operational Impacts to Birds and Bats), which would require an ~~Eagle Conservation Plan~~ Bird Conservation Strategy that will include the analysis of golden eagles in manner consistent with FWS guidelines, ~~to specify the project owner's anticipated take of golden eagles or other large special-status raptors (if any) and would require retrofitting of existing off-site electrical distribution lines to reduce electrocution risk to remediate any take of eagles or other large special-status raptors that may exceed the estimated take (even if estimated take is zero).~~ Staff cannot quantify the expected mortality for bald or golden eagles at this time because potential impacts and eagle response to the proposed heliostats is not well understood. Applicant has submitted survey reports from two operating solar tower facilities in Israel and Spain prepared by qualified academic researchers, and no avian mortalities due to collision or flux were detected in either study. Nevertheless, staff concludes that there is a lack of research-based data concerning these issues, ~~but believes that the Rio Mesa SEGf has the potential to take one or more bald or golden eagles over the life of the project, due either to collision with project facilities or to injury or mortality caused by flying through concentrated solar energy over the heliostat field.~~ Staff is coordinating with the US Fish and Wildlife Service to quantify expected take of eagles (if any) and hopes to include that estimate in its FSA. Staff concludes that the take of a bald or golden eagle, should it occur, would be significant according to CEQA. Staff's recommended Condition of Certification **BIO-12** ~~would mitigate this impact to a level less than significant according to CEQA.~~ CEC staff has previously reviewed these issues on several occasions and has concluded that, with the mitigation and adaptive management measures identified in Staff's recommended Conditions of Certification, any potential impact would be mitigated ~~this impact to a level less than significant and would comply with~~ However, take of bald or golden eagles could violate the California Fish and Game Code, due to the status of both species as migratory birds and fully protected species, and unauthorized take of either species could violate the federal MBTA and BGEPA. Staff's conclusion regarding CEQA significance of this impact does not imply conformance with these other applicable LORS. This conclusion is supported by several project-specific factors that are discussed in detail in the section on golden eagles, below.

11. **Page 4.2-7, Swainson's Hawk:** Please revise to reflect Applicant's General Comments pertaining to CEC precedent and the applicable legal and enforcement context of the MBTA and pertinent sections of the Fish and Game Code:

Swainson's hawk is listed as threatened under CESA and protected under the federal MBTA and California Fish and Game Code. Swainson's hawks do not nest or over-winter in the project region, but migrate through the region en route to breeding and wintering ranges. There is a low potential for take of Swainson's hawk due to collision with heliostats or other project facilities, or injury by concentrated solar energy surrounding the central towers. Mortality or other take would be significant under CEQA and may violate CESA. Staff's recommended Condition of Certification **BIO-12** would mitigate this impact to a level less than significant according to CEQA and fully mitigate the impact according to CESA. ~~However, take of Swainson's hawks also could violate the California Fish and Game Code, due to its status as a migratory bird and unauthorized take could~~

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~~violate the federal MBTA. Staff's conclusion regarding CEQA significance of this impact does not imply conformance with these other LORS.~~

12. **Page 4.2-7, Elf Owl and Gila Woodpecker:** Please revise this section as follows to reflect Applicant's General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and mitigation feasibility. Impacts are highly unlikely for these species. Woodpeckers in general do not fly much higher than the height of trees in the area and solar flux is not elevated to a level that could injure a Gila Woodpecker at this elevation. Elf Owls are not known to fly at high elevations are rarely active during the day when solar flux occurs near the towers. Their nocturnal behavior also precludes their interaction with solar flux. Further Elf Owls were not observed onsite, rather only a single auditory call was heard.

The elf owl and Gila woodpecker are listed as endangered under CESA. The project site is near the western margin of both species' geographic ranges, and desert woodland habitat on the site ~~is~~ could be marginally suitable nesting habitat for ~~them both~~ Gila Woodpecker. ~~Both species~~ Gila Woodpecker have been observed at the proposed solar generator site, ~~but and~~ neither has been documented nesting on the site. Staff concludes that 450.7 acres of desert microphyll woodlands on the site would be lost by construction of the project. This habitat is suitable as migratory stopover and potentially, foraging habitat ~~and perhaps occasionally as breeding habitat for both species~~. Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** would minimize overall project impacts to this habitat (above), including compensation and management of offsite lands at a 3:1 ratio. In addition, staff's recommended Condition of Certification **BIO-11** (above) would require surveys and avoidance measures to prevent destruction of bird nests during construction and operations. Staff concludes that these conditions of certification would avoid ~~any potential construction phase take of elf owl and Gila woodpecker according to CESA and would reduce or avoid construction phase impacts to both species to a level less than significant according to CEQA. However, staff is uncertain whether offset of impacts to blue palo verde – ironwood woodland at the recommended 3:1 ratio will be feasible (see "Habitat Compensation," above). If 3:1 compensation for this habitat is found infeasible then the project's impacts to elf owl and Gila woodpecker habitat may be significant and unavoidable. In addition, project operation may cause take Gila woodpecker or elf owl by collision with heliostats or other project facilities, or burning in concentrated solar energy surrounding the central towers (see "Common Wildlife and Nesting Birds" above). If so, staff concludes that this impact would be significant and unavoidable.~~

13. **Page 4.2-7, Burrowing Owl:** Please revise this section to reflect Applicant's General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

In addition, research shows that burrowing owls usually fly low, live and hunt in open areas, with very low brush, where they can see all around. Burrowing owls in the area use the agricultural fields, adjacent to the BSA for nesting, breeding, and hunting. As stated on page 4.2-17, third paragraph: "Burrowing owl, a California Species of Special Concern, is abundant in these agricultural areas." With incorporation of these recommended conditions of certification, staff concludes that the project's potential

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construction phase impacts to burrowing owl would be less than significant. Project operation may cause take of burrowing owl by collision with heliostats or other project facilities, or burning in concentrated solar energy surrounding the central towers (see "Common Wildlife and Nesting Birds" above). If so, staff concludes that this impact would be significant and unavoidable. The project also could cause mortality to any burrowing owls that may be found on the site during construction, should they retreat into burrows to avoid construction equipment, where they may be crushed or entombed. The burrowing owl is a BLM sensitive species and a California Species of Special Concern. Based on the applicant's field survey data, staff estimates that three burrowing owl territories are found on the proposed solar generator site. These territories may be active during either winter or breeding season. Staff recommends Conditions of Certification **BIO-1** through **BIO-8** **BIO-7** (above). If so, staff concludes that this impact would be significant and unavoidable.

14. **Page 4.2-8, Summary of Conclusions, Burrowing Owl, Paragraph 1, 3rd Sentence:** The PSA states: "Based on the applicant's field survey data, staff estimates that three burrowing owl territories are found on the proposed solar generator site." Please provide an explanation and data on how this estimate was determined, as live burrowing owls and active burrows were not detected during breeding season surveys. In addition, please elaborate on whether or not these estimates are based on burrows specifically within the project fence line.
15. **Page 4.2-8, Other Special-Status Raptors:** Please revise this section to reflect Applicant's General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and comments regarding the analysis of raptor take:

Several other special-status birds of prey are found in the region seasonally, especially during winter, or as year-around residents. These include osprey, ferruginous hawk, Cooper's hawk, sharp-shinned hawk, northern harrier, prairie falcon, peregrine falcon, merlin, Harris hawk, short-eared owl, and long-eared owl. However, not all of these species have been observed on the project site during 2011 and 2012 migratory bird and raptor surveys. Short-eared owls and Long-eared Owls have not been observed during any surveys on the project site or in the immediate vicinity. Two Harris Hawks were observed 4 miles east of the project site in agricultural fields in spring 2011 but none have been observed within the project site. Sharp-shinned Hawks have been observed near the project site but not within the project fenceline. Staff concludes that the project would not affect nest sites for these species, and that the project's adverse impacts to foraging habitat for wintering and migratory species would be less than significant. Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** would minimize or compensate for project impacts to prairie falcon foraging habitat. All of these species may could potentially be subject to be vulnerable to operations impacts including collision with heliostats or other project facilities and injury or mortality from exposure to concentrated solar energy. (see "Common Wildlife and Nesting Birds" above). As discussed above (see "Common Wildlife and Nesting Birds" above), the CEC has considered this issue on several occasions and concludes that the staff's recommended conditions of certification, including Condition of Certification **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) and measures to implement APLIC guidelines to address powerline collision and electrocution risks would require the project owner to retrofit existing off-site electrical distribution lines to reduce electrocution risk to large raptors. Staff concludes that **BIO-12** would offset any

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~~potential take of large special-status raptors to below a level of significance according to CEQA. Smaller special-status raptors are less vulnerable to power line electrocution and staff concludes that distribution line retrofitting would not mitigate take, if any, of those birds. For these species, staff concludes that this impact would be significant and unavoidable. This conclusion is supported by several project-specific factors that are discussed in detail in the section on raptors below, and the lack of any research-based findings suggesting that raptors are likely to be vulnerable to solar reflective renewable energy facilities.~~

16. **Page 4.2-8, Other Special-Status Raptors, Last Two Sentences:** Please state how this conclusion was reached: “Smaller special-status raptors are less vulnerable to power line electrocution and staff concludes that distribution line retrofitting would not mitigate take, if any, of those birds. For these species, staff concludes that this impact would be significant and unavoidable.” Please list the specific species that are considered to have impacts that are significant and unavoidable. Some of the species being referred to in this section have not been observed within the project site and are thus not at risk from operations impacts.
17. **Page 4.2-8, Special-Status Desert Shrubland Passerine Birds:** Please revise the following sections to reflect Applicant's General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

~~Project operation may cause. It is possible that take of these species could be affected by collision with heliostats or other project facilities, or burning in due to concentrated solar energy surrounding the central towers. CEC staff has previously reviewed these issues on several occasions and has concluded that, with the mitigation and adaptive management measures included in Staff's the recommended Conditions of Certification (see “Common Wildlife and Nesting Birds” above), any potential impact would mitigated this impact to a level less than significant. If so, staff concludes that this impact would be significant and unavoidable.~~

18. **Page 4.2-9, Special Status Migratory and Wintering Birds:** Please revise this section to reflect Applicant's General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and comments pertaining to special status species:

~~Several special-status species have been observed on and around the within a survey area that extends for several miles around the project site including agricultural fields east of the Palo Verde Mesa during winter or migration, including greater sandhill crane, bank swallow, willow flycatcher, American white pelican, Vaux's swift, and yellow-headed blackbird. Four Willow Flycatchers have been observed outside of the project site and there is no suitable nesting habitat within the project site to attract this species. A single flyover of 14 individual White Pelicans was observed over the project site in spring 2011 and in 2012 a single individual was observed approximately 1 mile east of the project site in the agricultural fields. Vaux's Swift and Yellow-headed Blackbird have been observed flying over the project site, although a majority of the Yellow-headed Blackbird observations were over the agricultural fields to the east of the project site. Many of these These species are waterbirds or have other habitat preferences that would preclude their use of the site under current conditions, and would further reduce their propensity to occur within, over or near the project area during construction and operations. would not use the site regularly, but they are likely to fly over the site either~~

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~~during migration through the area or during shorter flights among regional wetland habitats. It is possible, but unlikely, that these species may be affected. Project operation may cause take of these species by collision with heliostats or other project facilities, or burning in by concentrated solar energy surrounding the central towers. CEC staff has previously reviewed these issues on several occasions and has concluded that, with the mitigation and adaptive management measures included in the recommended Conditions of Certification (see “Common Wildlife and Nesting Birds” above), any potential impact would be mitigated to a level less than significant. If so, staff concludes that this impact would be significant and unavoidable. However, staff will continue coordinating with the applicant and resource agencies to review any potential for off-site habitat protection and enhancement, particularly in wetland areas and wildlife refuges, where habitat expansion or improvement may offset anticipated loss of migrating or overwintering birds. The greater sandhill crane, bank swallow, and willow flycatcher are listed under CESA, and the greater sandhill crane is fully protected under the state Fish and Game Code; therefore mortality or other t None of these species is likely to occur near the site during construction or operations in a manner that could result in a take (as defined in the Code) may violate under CESA or Section 3511 of the California Fish and Game Code and the regulations for fully protected species.~~

19. **Page 4.2-9, Special-Status Migratory and Wintering Birds:** The PSA states “Project operation may cause take of these species by collision with heliostats or other project facilities, or burning in concentrated solar energy surrounding the central towers (see “Common Wildlife and Nesting Birds” above).” Please clarify which species are included in this statement as some of the species referred to in this section have not been observed within the project site or similar habitat and are thus not at risk from operations impacts. Also, please provide the scientific evidence to support the statement “If so, staff concludes that this impact would be significant and unavoidable.” This is not based on a risk analysis or population level mortality rates.
20. **Page 4.2-9, Large Mammals:** Access to water sources east of the site will still be available as wildlife movement will be unimpeded both north and south of the site. The project would not substantially affect movement for these species. Additionally, the significance of the loss of habitat to these three species resulting from project implementation is an assumption and does not take into account vast areas of available habitat for these species in the region. Please revise text to read:
- The proposed solar generator site provides suitable cover and foraging habitat for Nelson’s bighorn sheep, burro deer, and Yuma mountain lion. All three species would be expected occasionally on the site. All three species require regular access to drinking water, especially during summer, and may cross the site to reach irrigation water to the east. These species may also reach this source of irrigation water east of the project site by crossing north and south of the project site once the project is built. Loss of habitat is not likely to significantly affect Nelson’s bighorn sheep, burro deer, or Yuma mountain lion in the area.
21. **Page 4.2-9, Burrowing Mammals:** Stating that the loss of habitat resulting from the project would significantly affect both species at a regional population level is speculative and requires evidence. Further, all burrows on site that would be large enough to potentially contain a desert tortoise will be excavated and filled, including kit fox and badger burrows. There is very little to no chance project activities would crush or entomb kit fox or badgers. Additionally, it is proposed that BIO-18 provide for kit fox and badger surveys. Please revise text to read:

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- American badgers and desert kit foxes occur throughout the project area. The entire project area is suitable breeding and foraging habitat for both species. Loss of habitat is not likely to ~~would~~ significantly affect kit fox and badgers ~~both animals locally onsite,~~ due to the presence of vast areas of open habitat in the project vicinity. ~~but~~ Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** (above) would minimize and compensate for habitat loss. ~~The project also could crush or entomb these species.~~ California Code of Regulations, section 460, designates kit fox as "protected" in the context of fur trapping activities, which are not relevant to the RMSEGS project. ~~Desert kit fox is protected from any take according to the California Fish and Game Code.~~ Staff's proposed Condition of Certification **BIO-18** would require the project owner to ~~prepare and implement a management plan,~~ conduct preconstruction surveys for kit fox and badger burrows concurrently with desert tortoise exclusion surveys to avoid ~~take~~ impacts by excluding these animals from the project area prior to construction.
22. **Page 4.2-10, Colorado Valley Woodrat:** This section should be revised as follows based on the argument in general comments above where applicant has demonstrated through valid and reliable groundwater aquifer modeling that any impacts to groundwater in the PVMGB are less than significant:
- The Colorado Valley woodrat is generally found in dense patches of beavertail cactus or mesquite. It is not listed or proposed for listing as threatened or endangered and is not ranked as a species of special concern by CDFG. However, the CDFG status S1S2 indicates that Colorado Valley woodrat distribution is very restricted in California, possibly to the point of endangerment. Suitable habitat is found off-site in mesquite bosque habitat. Groundwater pumping has been determined to have a less than significant impact on the PVMGB aquifer, hence no impact to the Colorado Valley woodrat habitat is anticipated. ~~Groundwater pumping for the project has the potential to adversely affect this habitat (see "Hydrology and Groundwater Dependent Vegetation," above). Staff's recommended Condition of Certification **BIO-8** (above) would require the project owner to monitor groundwater levels and plant health and vigor in adjacent desert dry wash woodland and mesquite bosque areas, and avoid or mitigate adverse impacts, should they occur, to this habitat. Staff concludes that this condition would identify and mitigate any adverse project impacts to Colorado Valley woodrat habitat to a level that is less than significant according to CEQA.~~
23. **Page 4.2-10, Special-Status Bats, Last Sentence:** Please revise to reflect Applicant's comments regarding mitigation feasibility:
- ~~Staff is uncertain whether offset of impacts to blue palo verde — ironwood woodland at the recommended 3:1 ratio will be feasible (see "Habitat Compensation," above). If 3:1 compensation for this habitat is found infeasible then the project's impacts to special-status bat habitat may be significant and unavoidable.~~
24. **Page 4.2-10, Wildlife Movement, 7th Sentence:** It is presumptive to state that movement through the project site for burro mule deer, mountain lion or Nelson's bighorn sheep, is adversely affected by the project without supporting information, especially as none of these species was physically seen onsite during two years of surveys during all times of the year. East-west movement will remain north and south of the project, with the large wash just south of the fenceline remaining intact. This large wash is likely the main movement corridor for wildlife moving from the mountains west of the site to the Hodges Drain east of the site and it will not be directly impacted by the project. Additionally, in June 2012, CDFG inquired of Applicant about

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impact to mule deer movement to which Applicant replied as above. Subsequently, on June 8, 2012, CDFG informed Applicant “Following review with the DFG management, this is to let all know that no additional analysis on the topic of deer is necessary.” Please revise text as follows:

The proposed project would not adversely affect east-west movement habitat for these species, as there is ample natural habitat both north and south of the project to allow for movement and would likely cause animals to change their movement routes between the mountains and irrigated lands.

25. **Page 4.2-11, Cumulative Impacts:** Please revise to reflect Applicant’s comments regarding cumulative impacts:

...With the implementation of Conditions of Certification **BIO-1** through **BIO-20**, staff concludes that the Rio Mesa SEGF's contributions to cumulative significant impacts to biological resources would not be considerable, ~~with three possible exceptions:~~

- ~~1. Desert microphyll woodlands (also called dry desert wash woodlands, or blue palo verde — ironwood woodlands; these woodlands also meet jurisdictional criteria as waters of the state, and the cumulative impacts conclusion for waters of the state is the same); if the prescribed 3:1 compensation for impacts to jurisdictional waters and habitats is found infeasible, then the project’s incremental contribution to cumulative impacts to blue palo verde — ironwood woodland and the wildlife species which depend on them may remain cumulatively considerable.~~
- ~~2. Operational impacts to native birds including special status birds and raptors; and~~
- ~~3. Foraging habitat for golden eagles.~~

26. **Page 4.2-11 to 4.2-14, Table 1:** Please revise Table 1 as indicated to accurately reflect the language and legal context of the referenced statutes:

**Biological Resources Table 1.
Laws, Ordinances, Regulations, and Standards (LORS)**

Applicable LORS	Description
FEDERAL	
Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for protection of threatened and endangered plant and animal species and their critical habitat. Take of a federally-listed species, as defined in the Act, is prohibited without incidental take authorization, which may be obtained through Section 7 consultation (between federal agencies) or a Section 10 Habitat Conservation Plan.
Migratory Bird Treaty Act (Title 16, United States Code, sections 703 through 711)	Makes it unlawful to take or possess any migratory bird (or any part of such migratory bird, including active nests) as designated in the Migratory Bird Treaty Act unless permitted by regulation (e.g., duck hunting). The Act states that, “Unless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof....” Many federal court decisions construing these provisions have found that, as a matter of law, the Act does not apply to otherwise legal, commercially useful activities (United States v. Brigham Oil & Gas, L.P.,

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Applicable LORS	Description
	<u>No. 4:11-po-005-DLH et al., 2012 U.S. Dist. LEXIS 5774 (D.N.D. Jan. 17, 2012); see also <i>Newton County Wildlife Association v. United States Forest Service</i> (8th Cir. 1997) 113 F.3d 110, 115.) (MBTA only applies to physical conduct of the sort engaged in by hunters and poachers). The U.S. Fish and Wildlife Service, which has exclusive jurisdiction to enforce the MBTA, has stated that it “selectively” enforces the Act to focus on instances when feasible avian impact avoidance or minimization measures are unreasonably, or in bad faith, not implemented.</u>
Clean Water Act (Title 33, United States Code, sections 1251 through 1376, and Code of Federal Regulations, part 30, section 330.5(a)(26))	Requires the permitting and monitoring of discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for a discharge from dredged or fill materials into waters of the U.S., including wetlands. Section 401 requires a permit from a regional water quality control board (RWQCB) for the discharge of pollutants. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a California water body, including wetlands, must request state certification that the proposed activity will not violate state and federal water quality standards.
Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)	Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. The 1972 amendments increased penalties for violating provisions of the act or regulations issued pursuant thereto and strengthened other enforcement measures. Rewards are provided for information leading to arrest and conviction for violation of the act.
Eagle Permits (Title 50, Code of Federal Regulations, Part 22)	Authorizes take of bald eagles and golden eagles where the take is compatible with the preservation of the bald eagle and the golden eagle; necessary to protect an interest in a particular locality; associated with but not the purpose of the activity; and (1) For individual instances of take: the take cannot practicably be avoided; or (2) For programmatic take: the take is unavoidable even though advanced conservation practices are being implemented. Also provides for the take of eagle nests under certain circumstances, such as where they pose a human health and safety risk or pose a functional hazard that renders a human-engineered structure unusable for its intended function. Take authorization for eagles and nests must be obtained through consultation with the USFWS.
Federal Land Policy and Management Act of 1976 (FLPMA) 43 U.S.C. 1701 section 102	Governs the way in which the public lands administered by the BLM are managed.
California Desert Conservation Area Plan 1980, as amended (reprinted in 1999)	Administered by the BLM, the California Desert Conservation Area (CDCA) Plan requires that proposed development projects are compatible with policies that provide for the protection, enhancement, and sustainability of fish and wildlife species, wildlife corridors, riparian and wetland habitats, and native vegetation resources.
Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)	The BLM produced the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) as an amendment to the 1980 CDCA Plan. The NECO is a federal land use plan amendment that resolves issues of resource demands, use conflicts, and environmental quality in the 5.5-million acre planning area located primarily within the Sonoran Desert in the southeastern corner of California. NECO provides reserve management for the desert tortoise, integrated ecosystem management for special status species and natural communities for all federal lands, and regional standards and guidelines for public land health for BLM lands (BLM and CDFG 2002).
Executive Order 11312	Prevent and control invasive species.
Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994) and Revised Recovery Plan (USFWS 2011a)	Describes a strategy for recovery and delisting of the desert tortoise.

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Applicable LORS	Description
STATE	
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects California's rare, threatened, and endangered species. Take of a state-listed species, as defined in the act, is prohibited except as authorized by California Department of Fish and Game under an Incidental Take Permit or Consistency Determination (for take authorized by US Fish and Wildlife Service under the federal Endangered Species Act).
Protected furbearing mammals (California Code of Regulations, Title 14, section 460)	<u>The California Fish and Game Code (Section 4000 et seq.) defines certain species, including the fisher, marten, river otter, desert kit fox, and red fox, as "fur bearing mammals" and further describes the conditions under which fur bearing mammals may be trapped or hunted. The regulations promulgated under these provisions provide that hunters and trappers may not take the species listed above be taken at any time.</u>
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals of California that are declared rare, threatened, or endangered.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations, Title 14, section 670.7).
Nest or Eggs (Fish and Game Code section 3503)	Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. <u>States that "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."</u>
Birds of Prey (Fish and Game Code section 3503.5)	Birds of prey are protected in California making it "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes)." <u>States that "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by this code or any regulation made pursuant thereto."</u>
Migratory Birds (Fish and Game Code section 3513)	Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds. <u>States that "It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act."</u>
Nongame mammals (Fish and Game Code section 4150)	Makes it unlawful to take or possess any non-game mammal or parts thereof except as provided in the Fish and Game Code or in accordance with regulations adopted by the commission.
California Environmental Quality Act (CEQA), CEQA Guidelines section 15380	CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List.
Streambed Alteration (Fish and Game Code sections 1600-1616)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.
Porter-Cologne Water Quality Control Act	Regulates discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands.

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Applicable LORS	Description
LOCAL	
Riverside County General Plan: Land Use and Multipurpose Open Space Elements of the County General Plan	Contains specific policies to preserve the character and function of open space that benefits biological resources. It also contains specific policies and goals for protecting areas of sensitive plant, soils and wildlife habitat and for assuring compatibility between natural areas and development. The project area is designated as Open Space Conservation in the General Plan and included in the Palo Verde Valley Area Plan.
Lower Colorado River Multi Species Conservation Program (LCRMSCP)	Intended to balance the use of the Colorado River water resources with the conservation of native species and their habitats. Includes general and species-specific conservation measures for twenty-six covered species and five evaluation species. The project site is within one mile of the LCRMSCP planning area, and proposed access road improvements and drainage crossing upgrades are within LCRMSCP Reach #4.

27. **Page 4.2-17, Second Full Paragraph:** Please revise as follows to reflect Applicant’s pending LSAA information provided as requested by CEC staff:

...The BSA also includes additional MWD lands east of the project area’s eastern boundary and BLM lands north of the proposed solar generator site, based on an earlier proposed configuration that would have included a third solar plant (RMS 3). Consistent with CEC staff requests, Applicant will submit a Lake and Streambed Alteration Agreement (LSAA) Notification and up-to-date delineation to the California Department of Fish and Game (DFG) based on focused field evaluations conducted on September 24-28, 2012 and October 13-19, 2012. The evaluations more precisely mapped and field-verified resources subject to state and federal jurisdiction that had previously been estimated by using remote sensing techniques, such as aerial photographs. The analysis in this PSA section makes use of these data from the entire BSA to describe direct and indirect project impacts on the proposed project site (as described by Applicant’s Environmental Enhancement Proposal, BS 2012v and in the LSAA Notification and related documents) and surrounding area.

28. **Page 4.2-19, Plant Communities:** Please revise to reflect Applicant’s pending LSAA and up-to-date delineation as requested by CEC staff:

Several large drainages and associated smaller tributaries support blue palo verde – ironwood woodland, which is a sensitive desert dry wash community. ~~Desert dunes are found at the northern portion of the gen-tie line alignment, but are not present on the proposed solar generator site.~~ The BRTR also describes disturbed areas such as dirt roads and trails, maintenance areas for transmission line poles, and ROWs along underground pipeline routes.

Staff’s observations of the project site are generally consistent with mapping and descriptions provided by the applicant. The predominant vegetation and habitat types of the project site are described below based on staff’s field visits and the applicant’s pending LSAA Notification vegetation maps and descriptions. Several vegetation types on the site are ranked by CDFG (2010) as special-status resources, due to relative rarity or biological resource value.

29. **Page 4.2-19, Table 2:** Please delete Staff's original Table 2 and replace with the table shown below to reflect Applicant’s pending LSAA and up-to-date delineation as requested by CEC staff:

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Biological Resources Table 2

Summary of Vegetation and Habitat in Biological Study Area and Project Area

<u>Vegetation Type</u>	<u>Acreage</u>	
	<u>BSA*</u>	<u>Project Area**</u>
<i>Sensitive</i>		
<u>Blue palo verde-desert ironwood woodland alliance</u>	<u>1,301.8</u>	<u>462.1</u>
<u>Mesquite bosque woodland alliance</u>	<u>48.8</u>	<u>0.2</u>
<u>Brittlebush-ferocactus scrub</u>	<u>102.2</u>	<u>0.0</u>
<u>Bush seepweed scrub shrubland alliance</u>	<u>31.2</u>	<u>0.3</u>
<u>Creosote bush scrub with ocotillo association</u>	<u>37.3</u>	<u>34.2</u>
<u>Big galleta grass herbaceous alliance</u>	<u>72.5</u>	<u>13.5</u>
<u>Narrowleaf cattail herbaceous alliance</u>	<u>1.1</u>	<u>0.0</u>
<u>Arrowweed scrub shrubland alliance</u>	<u>1.4</u>	<u>0.1</u>
<u>Total Sensitive Communities</u>	<u>1,596.3</u>	<u>510.4</u>
<i>Non-sensitive</i>		
<u>Creosote bush-brittlebush shrubland alliance</u>	<u>1.4</u>	<u>0.0</u>
<u>Creosote bush-burrobush shrubland alliance</u>	<u>953.7</u>	<u>482.6</u>
<u>Creosote bush shrubland alliance</u>	<u>8,604.1</u>	<u>3,216.7</u>
<u>Allscale scrub shrubland alliance</u>	<u>46.0</u>	<u>0.4</u>
<u>Tamarisk thickets semi-natural shrubland stands</u>	<u>3.1</u>	<u>0.0</u>
<u>Irrigation ditch</u>	<u>8.5</u>	<u>0.1</u>
<u>Agriculture</u>	<u>114.0</u>	<u>4.9</u>
<u>Developed</u>	<u>166.2</u>	<u>17.7</u>
Total	<u>11,493.4</u>	<u>4,232.7</u>

*BSA includes 14.88 acres of expanded study area near the north end of the Gen-Tie alignment, 71 acres comprised of the Bradshaw Trail access right-of-way (ROW), 25 acres comprised of the 34th Ave. ROW, and 72 acres comprised of Bradshaw Trail and 34th Ave. irrigation ditch crossing buffer areas.

**Project Area includes solar generator site, construction areas, and footprint of gen-tie line and access roads

30. **Pages 4.2-20-4.2-21:** Please revise the description of BSA and project site vegetation communities to reflect Applicant’s pending LSAA and up-to-date delineation as requested by CEC staff, and Applicant’s groundwater and water supply PSA comments:

Creosote Bush Scrubland. Creosote bush scrubland is the most characteristic vegetation of the California deserts. The shrub canopy is dominated by creosote bush (*Larrea tridentate*) and white burr sage (*Ambrosia dumosa*) is often co-dominant. Shrubs are typically widely spaced with bare ground between them. Other common shrubs can include Nevada ephedra (*Ephedra nevadensis*), burrobush (*Hymenoclea salsola*), brittlebush (*Encelia* spp.), and various cactus species (e.g., *Cylindropuntia* spp.). Other common plant species can include Shockley's goldenhead (*Acamptopappus shockleyi*), desert senna (*Senna armata*), ratany (*Krameria* spp.), rayless goldenhead (*Acamptopappus sphaerocephalus*), and water jacket (*Lycium andersonii*). A diverse annual herb layer may flower in late March and April with sufficient winter rains. The BRTR describes several subtypes or associations of creosote bush scrub, shown on **Biological Resources Figure 2** and listed below:

- Creosote bush scrub (with creosote bush the only dominant shrub species).
- Creosote bush – white burr sage scrub (with the two species co-dominant).
- Creosote bush – white burr sage scrub with big galleta grass association, which is similar to above, with big galleta grass (*Pleuraphis rigida*) comprising at least one percent cover; typically found on sandy fans or lower bajadas and occasionally at

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the edges of sand sheets and dunes. Cryptogammic crust is often found in this association, implying no recent disturbance; State Ranked S3 (CDFG 2010).

- Creosote bush – white burr sage scrub with ocotillo association, which is similar to above but with ocotillo (*Fouquieria splendens*) as a codominant or conspicuous shrub. Octotillo is a regulated plant under the California Desert Native Plants Act, therefore, this community is considered sensitive.
- Brittle bush – ferocactus scrub, which is similar to creosote bush scrub but co-dominated by brittle bush (*Encelia farinosa*), and with conspicuous California barrel cactus (*Ferocactus cylindraceus*) (CDFG 2010). California barrel cactus is a regulated plant under the California Desert Native Plants Act, therefore, this community is considered sensitive.

Blue Palo Verde-Ironwood Woodland (G4 S3.2). Blue palo verde – ironwood woodland is often the predominant vegetation of broad desert washes in the Colorado Desert region. The dominant plants are blue palo verde (*Parkinsonia floridum*) and desert ironwood (*Olneya tesota*). Both species are large shrubs or small trees, and are the tallest species in this vegetation. Blue palo verde – ironwood woodland is a State Rank S3 community, which is a high priority for inventory (CDFG 2010). The BLM categorizes blue palo verde – ironwood woodland as “desert dry wash woodland” and manages it as a sensitive habitat type. It is one of several communities included within broader vegetation types called desert wash woodland or microphyll woodland (Holland 1986; Schoenherr and Burk 2007). Vegetation in desert washes is generally taller, up to about 9 meters (30 feet) in height, and denser than the surrounding desert habitats, with the height of the wash vegetation proportional to the size of the arroyo (Laudenslayer 1988). Understory vegetation within these woodlands includes big galleta grass, cheesebush, desert lavender (*Hyptis emoryi*), catclaw acacia (*Acacia greggii*), white burr sage, burrobrush, sweet bush (*Bebbia juncea*), and creosote bush. This plant community is generally found in desert arroyos, alluvial fans, and desert washes and is primarily found in larger desert washes throughout the project site.

Desert Dunes. Desert dunes are a unique habitat for plants and animals, though they are not a vegetation community and generally are not dominated by any plant species (CDFG 2010). Dunes have a State Rank of S2 and are considered sensitive by BLM. Shrubs cover a small proportion of the dunes. Typical species include desert twinbugs (*Dicoria canescens*), desert sand verbena (*Abronia villosa*), speckled milk vetch (*Astragalus lentiginosus* var. *variabilis*), browneyes (*Camissonia claviformis*), California croton (*Croton californicus*), buckwheat (*Eriogonum* spp.), hairy desert sunflower (*Geraea canescens*), broad leaf gilia (*Gilia latifolia*), dune primrose (*Oenothera deltoides*), desert palafox (*Palafoxia arida*), big galleta grass, and often invasive species such as Russian thistle (*Salsola tragus*) and Sahara mustard (*Brassica tournefortii*). Emergent shrubs including white burr sage and creosote bush may also be present.

Bush Seepweed Scrub – Mesquite Bosque. Mesquite bosque is a dense shrubland dominated by mesquite (*Prosopis glandulosa*) found on river terraces, dunes, playa margins, and other rarely inundated landforms throughout the California deserts (Sawyer et al. 2009). Bush seepweed scrub is generally classified as a different vegetation type, in which bush seepweed (*Suaeda moquinii*) is dominant or co-dominant with iodine bush (*Allenrolfea occidentalis*), found on gently sloping valley floors, playas, bajadas, and toe slopes adjacent to alluvial fans. The BRTR (URS 2011) maps areas east of the proposed solar generator site as a mix of these two types, with small patches of

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mesquite bosque within the bush seepweed vegetation. The canopy and herbaceous layers found onsite are continuous and sparse to absent, respectively. This vegetation is dependent on groundwater availability. Bush seepweed scrub and mesquite bosque both have a State Rank of S3 (CDFG 2010; see **Biological Resources Table 5**).

Bush Seepweed (*Suaeda nigra* [*S. moquinii*]) Scrub Shrubland Alliance (G5 S3.2). Bush seepweed scrub occurs on flat to gently sloping valley bottoms, playas, toe slopes adjacent to alluvial fans, and in bajadas, where soils are deep, saline or alkaline. Bush seepweed scrub occurs across California's southeastern deserts, and in the Central Coast Ranges, the Southern Mountains and Valleys, the San Joaquin Valley, and in the Northwestern Basin and Range. However, the alliance is restricted primarily to alkaline substrates in desert and semi-desert habitats. Bush seepweed thickets contain greater than two percent absolute cover of bush seepweed with no other shrub occurring at a greater or equal cover (Sawyer et al. 2009).

Stands were generally monotypic in the BSA, though associated taxa at the edge of stands included allscale, honey mesquite and spidering.

Mesquite (*Prosopis glandulosa*) Bosque Woodland Alliance (G5 S3.2). Mesquite thicket (bosque) occurs on the fringes of playa lakes, river terraces, stream banks, floodplains, rarely-flooded margins of arroyos and washes, and sand dunes. Mesquite bosque occurs throughout California's southeastern deserts and in the southern San Joaquin Valley. The honey mesquite woodland alliance contains greater than three percent absolute cover of honey mesquite. Honey mesquite is the dominant species in the community and is not exceeded in cover by any other species of microphyllous tall shrub or tree (Sawyer et al. 2009). Honey mesquite (*Prosopis glandulosa*) dominated mesquite bosque in the BSA, and stands are common on the far eastern slopes of the Rio Mesa, and on the historic Colorado River floodplain below. Common associated taxa include white bursage, bush seepweed (*Suaeda nigra* [*S. moquinii*]), allscale (*Atriplex polycarpa*), fourwing saltbush (*Atriplex canescens*) and spiderling.

Big Galleta Grass Shrub-Steppe (*Hilaria* [*Pleuraphis*] *rigida*) Herbaceous Alliance (G3 S2.2). Big galleta grass shrub-steppe occurs on flat ridges, lower bajadas, slopes, dune aprons, and stabilized dunes with fine textured soils that are well-drained. Stands occur on sandy and upland sites throughout the Sonoran Desert, but are largely restricted to sandy areas, dune fields, and narrow strands along drainages and washes. This alliance contains 10-35 percent absolute cover of big galleta grass in the herbaceous layer with emergent shrubs or trees at less than 10 percent absolute cover. Alternatively, big galleta grass may be greater than or equal to two percent absolute cover in the herbaceous layer with herbaceous cover exceeding shrub or tree cover (Sawyer et al. 2009). In the BSA, this herbaceous community is found on sandy soils along the Gen-Tie Road, and on slopes of fine-textured sandy soils comprising the far eastern edge of the Rio Mesa. Big galleta grass is also common along narrow active and relic washes within the BSA, however, these were generally included in the surrounding vegetation alliance due to the relatively small size of the community. Common associated species include creosote bush, blue palo verde, California caltrop (*Kallstroemia californica*), white bursage, fanleaf crinklemat (*Tiquilia plicata*), and sixweeks grama.

Cattail Marshes (*Typha* (*angustifolia*, *domingensis*, *latifolia*)) Herbaceous Alliance (G5 S5). Cattail marshes occur in semi-permanently flooded freshwater or brackish marsh areas where soils are clayey or silty, and poorly drained. In the Sonoran Desert, cattail

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stands occur in marshes and also commonly occupy shallow irrigation ditches. In the cattail marsh herbaceous alliance, *Typha angustifolia*, *T. domingensis*, and/or *T. latifolia* occur at greater than 50 percent relative cover in the herbaceous layer (Sawyer et al. 2009). In the BSA, cattail marsh stands occur in standing water of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas. Narrow-leaved cattail (*Typha angustifolia*) is the species that was observed in these monotypic cattail marsh stands. Stands were often surrounded by tamarisk (*Tamarix sp.*) thickets and arrow weed (*Pluchea sericea*) scrub.

Arrow Weed Thickets (*Pluchea sericea*) Shrubland Alliance (G3 S3.3). Arrow weed thickets occur around springs, seeps, irrigation ditches, canyon bottoms, stream borders, and seasonally flooded washes with soils that are usually saline or alkaline. In the Sonoran desert, stands are common along the Colorado River margins and in associated tributaries and irrigation canals. The arrow weed thicket shrubland alliance contains greater than or equal to two percent cover of arrow weed with no other species having an equal or greater cover in the shrub canopy (Sawyer et al. 2009). In the BSA, arrow weed thickets are located on the edge of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas (Bradshaw Trail). Arrow weed thickets grow in monotypic bands adjacent to other riparian vegetation. Arrow weed thickets occur adjacent to saltscare scrub (*Atriplex spp.*), tamarisk thickets, bush seepweed scrub, and cattail marsh-dominated communities that are also common along irrigation ditches.

Fourwing Saltbush (*Atriplex canescens*) Scrub Shrubland Alliance (G5 S4). Fourwing saltbush scrub occurs on playas, old beach and shores, lake deposits, dissected alluvial fans and rolling hills, generally in alkaline soil conditions. The fourwing saltbush alliance contains greater than two percent absolute cover and fifty percent relative cover of fourwing saltbush in the shrub canopy (Sawyer et al. 2009). This alliance occurs at the toeslope of the Rio Mesa in the eastern portion of the BSA, at the edge of the historic Colorado River floodplain. It also occurs along graded road berms and on disturbed soils associated with agriculture and irrigation canals in the western portion of the Project Area. Fourwing saltbush (*Atriplex canescens*) is dominant or co-dominant in the shrub canopy. Associated taxa include allscale, bush seepweed, arrow weed and spiderling.

Allscale (*Atriplex polycarpa*) Shrubland Alliance (G5 S4). Allscale scrub occurs in washes, playa lake beds and shores, and other areas with poorly drained, finely textured alkaline soils, throughout the Colorado, Mojave and Great Basin deserts. The allscale scrub shrubland alliance contains greater than two percent absolute cover and fifty percent relative cover of allscale in the shrub canopy (Sawyer et al. 2009). Total cover is often low with much bare ground between widely spaced shrubs. This alliance is restricted to the historic Colorado River floodplain, in the eastern portion of the BSA. Common associated taxa include bush seepweed, fourwing saltbush and honey mesquite.

Tamarisk Thickets (*Tamarix spp.*) Semi-Natural Shrubland Stands, (No Rank/Non-Native Community). Tamarisk thickets occur on arroyo margins, lake margins, ditches, washes, rivers, and other watercourses with sufficient hydrology to support tamarisk (*Tamarix spp.*) shrubs and trees. In the Sonoran Desert, stands are wide-ranging and occur in a variety of riparian habitats throughout the Colorado River watershed. Tamarisk thickets contain greater than three percent absolute cover and 60 percent

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relative cover of tamarisk compared to other microphyllous trees or shrubs. There may be a minor presence of native species in this alliance (Sawyer et al. 2009).

In the BSA, tamarisk thickets occur on the edge of irrigation ditches adjacent to agricultural fields along the eastern edge of right-of-way access areas. Tamarisk stands also occur in and around the potential forested/shrub wetland and adjacent to agriculture fields on the eastern boundary of the BSA. Associated species include bush seepweed, allscale, arrow weed, and other shrubs tolerant of wet and saline soil conditions.

Irrigation Ditches Irrigation ditches include Hodges Drain, and several other non-named, man-made bermed ditches that regularly carry irrigation water for use in the agricultural fields within and adjacent to the BSA. Irrigation ditches may contain sparse weedy or native vegetation, including tamarisk, arrow weed, or cattails.

Developed Developed areas include paved or bladed roads or graded areas, built structures, and associated infrastructure. Vegetation cover is lacking or sparse, generally non-native, weedy vegetation.

Human dominated land uses. Portions of the BSA have been disturbed or developed for human uses, including agriculture, transportation, electrical transmission lines, underground gas lines, and irrigation channels. In some cases these lands are unvegetated or covered by crops; in other cases, such as compacted soils, graded areas, or parking areas, they support weedy species.

31. **Page 4.2-22 to 4.2-23, Table 3:** Certain species are suggested to be stricken from the table due to misidentification or because the species is not actually invasive. Species that are non-native, but not considered invasive are:

- *Chenopodium murale* (Nettleleaf goosefoot)
- *Phalaris minor* (Littleseed canarygrass)
- *Polygonum arenastrum* (Oval-leaf knotweed)
- *Setaria pumila* (Yellow foxtail)
- *Sisymbrium altissimum* (Tumble mustard)
- *Sonchus oleraceus*
- *Vulpia bromoides* (Squirreltail fescue)

The plant species *Kallstroemia grandiflora* is also stricken from Table 3 because this was a misidentification, and is actually native *K. californica*. Please revise Table 3 as shown:

Invasive Plant Species	Rankings ¹	Habitats, Range, and Control Notes
<i>Brassica tournefortii</i> Sahara mustard	CDFA: n/a Cal IPC: High Impacts/ Invasiveness/ Distribution: A/A/B <u>Just in north</u>	Widespread and abundant in Calif. deserts; common in interior valleys; especially invasive in open sands and in disturbed soils (including natural disturbance); <u>on Project site, primarily along the northern transmission alignment.</u>

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Invasive Plant Species	Rankings ¹	Habitats, Range, and Control Notes
<i>Chenopodium murale</i> Nettleleaf goosefoot	CDFA: n/a Cal IPC: n/a	Common among crops, and also found along roadsides, city streets, and waste places. Can be seasonally common along washes, in wet soils, and disturbed areas.
<i>Cynodon dactylon</i> Bermuda grass	CDFA: C Cal IPC: Moderate Impacts/ Invasiveness/ Distribution: B/B/B <u>Gravel pits, by fields, along BT</u>	Widespread and abundant in much of Calif.; new introductions are probably chronic in region; in deserts, requires mesic soil conditions <u>on Project site, primarily at western gravel excavations, along agricultural fields, and along Bradshaw Trail.</u>
<i>Dactylis glomerata</i> Orchardgrass	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/B/B <u>Ag/BT</u>	Grasslands, broadleaved forest, woodlands. Common forage species. Impacts appear to be minor. <u>On Project site, limited to along agricultural fields and Bradshaw Trail.</u>
<i>Erodium cicutarium</i> Redstem filaree; crane's bill	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/C/A <u>Ag</u>	Ubiquitous and often abundant or dominant throughout region and throughout most of S Calif. <u>On Project site, primarily limited to agricultural field margins.</u>
<i>Kallstroemia grandiflora</i> Arizona poppy	CDFA: n/a Cal IPC: n/a	Broadly distributed from the Sonoran desert to the semiarid west coast of Mexico. Overall uncommon in California. Often found on sandy roadsides.
<i>Lactuca serriola</i> Prickly lettuce	CDFA: n/a Cal IPC: Evaluated but not listed Impacts/ Invasiveness/ Distribution: D/C/B <u>Ag/BT</u>	Primarily an agricultural and roadside weed. <u>On project site, limited to margins of agricultural fields and Bradshaw Trail.</u>
<i>Phalaris minor</i> Littleseed canarygrass	CDFA: n/a Cal IPC: n/a	<u>Both dry and moist sites of disturbed sites, roadsides, irrigation canals, and fallow fields</u>
<i>Polygonum arenastrum</i> Oval leaf knotweed	CDFA: n/a Cal IPC: n/a	Field crops, row crops, orchards, yards, gardens and turf. Tolerant of compacted soils and is frequently found along paths, walkways, driveways, dirt roads, and other disturbed areas.
<i>Salsola paulsenii</i> Barbwire Russian thistle	CDFA: C Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/C/C <u>Dunes, BT</u>	Widespread and often abundant throughout much of Calif.; including deserts. <u>On Project site, limited to the transmission alignment and edges of Bradshaw Trail.</u>
<i>Salsola tragus</i> Russian thistle	CDFA: C Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/B/B <u>Dunes, BT</u>	Widespread and often abundant throughout much of Calif.; including deserts. <u>On Project site, limited to the transmission alignment and edges of Bradshaw Trail.</u>

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Invasive Plant Species	Rankings ¹	Habitats, Range, and Control Notes
<i>Schismus arabicus</i> Mediterranean grass	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: B/C/A <u>Entire project site</u>	Widespread and often abundant throughout much of Calif.; including deserts. <u>Observed in low density throughout the Project site.</u>
<i>Schismus barbatus</i> Mediterranean grass	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: B/C/A <u>Entire project site</u>	Widespread and often abundant throughout much of Calif.; including deserts. <u>Observed in low density throughout the Project site.</u>
<i>Setaria pumila</i> Yellow foxtail	CDFA: n/a Cal IPC: n/a	Roadsides, ditch banks, fields, pastures, cropland, orchards, vineyards, gardens, turf, and other disturbed sites.
<i>Sisymbrium altissimum</i> Tumble mustard	CDFA: n/a Cal IPC: n/a	Common weed of old fields, roadsides, and other disturbed places such as alluvial fans and disturbed rangelands
<i>Sisymbrium irio</i> London rocket	CDFA: n/a Cal IPC: Moderate Impacts/ Invasiveness/ Distribution: B/B/A <u>Ag, BT</u>	Widespread and often common throughout much of Calif.; less common in deserts, mainly in seasonally slightly mesic or shaded sites; <u>on Project site, limited to edges of agricultural fields and Bradshaw Trail.</u>
<i>Sonchus oleraceus</i>	CDFA: n/a Cal IPC: n/a	Primarily an agricultural and roadside weed.
<i>Tamarix ramosissima</i> Saltcedar, tamarisk	CDFA: B Cal IPC: High Impacts/ Invasiveness/ Distribution: A/A/A <u>Gravel pits 5 trees</u>	Widespread and strongly invasive in riparian habitats throughout California and southwestern desert regions; <u>on Project site, primarily limited to 5 trees in western gravel excavation.</u>
<i>Tribulus terrestris</i> Puncture vine	CDFA: C Cal IPC: n/a <u>Ag/BT</u>	Widespread, especially roadsides, disturbed sites, and agricultural lands; <u>on Project site, limited to edge of agricultural fields and Bradshaw Trail.</u>
<i>Vulpia bromoides</i> Squirreltail fescue	CDFA: n/a Cal IPC: Evaluated but not listed Impacts/ Invasiveness/ Distribution: D/C/B	Roadsides, fields, and dry or seasonally wet sites in grassland, chaparral, coastal sage scrub, and open woodland throughout California.

32. **Page 4.2-24, General Wildlife, Paragraph 3:** The PSA states “There are no large trees on the solar generator site suitable for large raptor nesting or roosting, but wide-ranging raptors such as golden eagle (*Aquila chrysaetos*) and prairie falcon (*Falco mexicanus*) nest in the adjacent mountains and are likely to forage over the project area.” Two years of Golden Eagle nesting season surveys have not documented this to be true. Helicopter survey results in 2011 and helicopter and ground survey results in 2012 indicated no active nests within 10 miles of the project site. Please revise the sentence to read:

There are no large trees on the solar generator site suitable for large raptor nesting or roosting, but wide-ranging raptors such as golden eagle (*Aquila chrysaetos*) and prairie falcon (*Falco mexicanus*) nest in the adjacent mountains and may forage over the project area under preconstruction conditions.

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33. **Page 4.2-25, Second Full Paragraph:** Please add the following paragraph as noted to reflect the applicant’s pending LSAA information provided as requested by CEC staff. Further, the 3rd sentence contains speculation. It is likely that woodlands have high insect productivity, but to assume so is not justifiable. Please provide evidence supporting this contention or revise sentence to read as follows:

The entire project area comprises an extensive, contiguous, and intact region of typical native desert habitat although it has been subject to prior disturbance from military training uses, prior onsite engineering assessments for a proposed nuclear power plant, and off-road recreational use. In addition to these general habitat values, ~~two~~ one habitat types in the project area ~~are~~ is particularly important as wildlife habitat. Blue palo verde – ironwood woodland, which covers ~~more than 700~~ approximately 449.5 acres of the proposed solar generator site, provides greater food, nesting, and cover resources, and wildlife diversity is generally greater than in the surrounding desert (McKernan et al. 1996). These woodlands are particularly important as stopover feeding habitat for migratory bird species, and feeding areas for native bat species, due to likely higher ~~high~~ insect productivity than in the surrounding desert scrub habitats. ~~Desert dunes are a specialized habitat type for sensitive species, and dune systems are dependent on sand influx from upwind sources.~~ A BLM sensitive species, Mojave fringe-toed lizard, was documented in the northern portion of the proposed gen-tie alignment.

34. **Page 4.2-25, General Wildlife, Paragraph 3, Last Sentence:** The project site contains areas of disturbance from off road vehicle use, past military training, trash dumping, and dirt roads traversing the site. Vegetation mapping within the project site included some areas of ruderal vegetation. Please reflect this by making the following change to the last sentence:

There are no anthropogenic barriers to wildlife movement or usage at the project site, ~~and no substantial areas of disturbance.~~

35. **Pages 4.2-26 to 4.2-27:** Please revise Table 4 to be consistent with the clarifications made in Table 1 regarding applicable statutory language and coverage:

Species Designation	Agency	Definition
Endangered	USFWS	A species that is in danger of extinction throughout all or a significant portion of its range.
Threatened	USFWS	Any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Candidate	USFWS	A species the USFWS has designated as a candidate for listing under Section 4 of the ESA, published in its annual candidate review; defined as a species for which the USFWS has sufficient information on its biological status and threats to propose it as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.
Proposed	USFWS	A species that the USFWS has proposed for listing under Section 4 of the ESA, by publishing a Proposed Rule in the Federal Register.
Protected under the federal Migratory Bird Treaty Act	USFWS	All native bird species in the U.S. <u>The Act states that, “Unless and except as permitted by</u>

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Species Designation	Agency	Definition
		<p><u>regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof....”</u> Many federal court decisions construing these provisions have found that, as a matter of law, the Act does not apply to otherwise legal, commercially useful activities (<i>United States v. Brigham Oil & Gas, L.P.</i>, No. 4:11-po-005-DLH et al., 2012 U.S. Dist. LEXIS 5774 (D.N.D. Jan. 17, 2012); see also <i>Newton County Wildlife Association v. United States Forest Service</i> (8th Cir. 1997) 113 F.3d 110, 115.) (MBTA only applies to physical conduct of the sort engaged in by hunters and poachers). The U.S. Fish and Wildlife Service, which has exclusive jurisdiction to enforce the MBTA, has stated that it “selectively” enforces the Act to focus on instances when feasible avian impact avoidance or minimization measures are unreasonably, or in bad faith, not implemented.</p>
Protected under the federal Bald and Golden Eagle Protection Act	USFWS	Bald and golden eagles.
Endangered	CDFG	A native species or subspecies that is in serious danger of becoming extinct throughout all or a significant portion of its range due to one or more causes, including loss or change in habitat, overexploitation, predation, competition, or disease.
Threatened	CDFG	A native species or subspecies that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts.
Candidate	CDFG	A native species that has been officially noticed by the California Fish and Game Commission as being under review by the CDFG for addition to the threatened or endangered species lists. CDFG candidate species are given no extra legal protection under state laws.
Rare	CDFG	A plant species that, although not presently threatened with extinction, is in such small numbers throughout its range that it may become

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Species Designation	Agency	Definition
		endangered if its present environment worsens.
Fully Protected (FP)	CDFG	Fully protected under the California Fish and Game Code. The CDFG may not issue take authorization except for scientific purposes or as provided under SB-618 <u>The Natural Communities Conservation Planning Act (2011)</u> .
Species of Special Concern (SSC)	CDFG	<p>A species, subspecies, or distinct population of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria:</p> <ul style="list-style-type: none"> • Is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role; • Is listed as federally but not state threatened or endangered; • Meets the state definition of threatened or endangered but has not formally been listed; • Is experiencing or formerly experienced serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status; or • Has naturally small populations exhibiting high susceptibility to risk from any factor(s) that if realized, could lead to declines that would qualify it for state threatened or endangered status. <p>SSC is an administrative designation and carries no formal legal status. This designation is intended to focus attention on animals at conservation risk, to stimulate research on poorly known species, and to achieve conservation and recovery before these species meet the CESA criteria for listing. California SSC are considered under CEQA and require a discussion of impacts and appropriate mitigation to reduce <u>any significant impacts to below the level of significance</u>.</p>
California Fish and Game Code 3503 and 3513	CDFG	All U.S. native bird species that occur in California. <u>Section 3503 pertains to occupied nests and eggs; Section 3513 states that "It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act."</u>
Protected	CDFG	A species that is not federally or state listed, FP, or SSC, but is protected under the California Fish and Game Code <u>under provisions generally related to hunting</u> . An example is the desert kit fox. The California Fish and Game Code (Section 4000 et seq.) defines certain species, including the desert kit fox as "fur bearing mammals" and further describes the conditions under which fur bearing mammals may be trapped or hunted. The regulations promulgated under these provisions

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Species Designation	Agency	Definition
		<u>provide that hunters and trappers may not take the species listed above-be taken at any time.</u>
NECO Plan/EIS	BLM	Special-status species that were addressed in the NECO Plan/EIS due to management concerns within the NECO Planning Area.
Sensitive	BLM	Plant and wildlife species designated by the BLM State Office (2010). Sensitive species are those species (1) that are under status review by the U.S. Fish and Wildlife Service or National Marine Fisheries Service or federally delisted species which were so designated within the last 5 years, (2) whose numbers are declining so rapidly that federal listing may become necessary, (3) those with typically small and widely dispersed populations, or (4) those inhabiting ecological refugia or other specialized or unique habitats. All CRPR 1B plants that occur on BLM lands are also designated sensitive by the BLM.
California Rare Plant Rank (CRPR) 1A	CDFG/CNPS	Plants presumed to be extinct in California.
CRPR 1B	CDFG/CNPS	Plants rare or endangered in California and elsewhere.
CRPR 2	CDFG/CNPS	Plants rare or endangered in California but more common elsewhere.
CRPR 3	CDFG/CNPS	Plants about which more information is needed – a review list.
CRPR 4	CDFG/CNPS	Plants of limited distribution – a watch list.

36. **Page 4.2-29 to 4.2-31, Special Status Species, Table 5:** Fall 2012 surveys are ongoing and will be completed on November 30, 2012. Survey results from the fall 2012 season have not been analyzed and incorporated into this table, with the exception of new SE/ST or FP species where observations inside the project fence line have been confirmed. These species include Arizona Bell's Vireo, Bald Eagle, and Sandhill Crane.

The following special status avian species should be added to Table 5 because they were observed during spring 2012 surveys and reported in Applicant's submittal of the Spring Migratory Bird Report:

- Double-crested Cormorant (WL) observed inside project fence line during spring 2012;
- Lewis's Woodpecker (BCC) observed outside project fence line during spring 2012
- Long-billed Curlew (BCC, WL) observed outside project fence line during spring 2012
- Olive-sided Flycatcher (BCC, SCC) observed outside project fence line during spring 2012
- Purple Martin (SSC) observed inside project fence line during spring 2012
- White-faced Ibis (WL); observed outside project fence line during spring 2012

The following taxa were removed from Table 5 because CNDDDB or CCH records collections are not documented within the 10-mile agency-recommended (see page 4.2-28) search radius, which was the radius used to search for rare plant records prior to field work:

- *Astragalus lentiginosus* var. *coachellae* (nearest CNDDDB record 69 miles W)

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- *Astragalus tricarinatus* (nearest CNDDDB record site is 55 miles W)
- *Ayenia compacta* (nearest CNDDDB record is 35 miles WNW)
- *Bouteloua trifida* (nearest CNDDDB record is 50 miles NE)
- *Chamaesyce arizonica* (nearest CNDDDB record is 90 miles to W)
- *Horsfordia alata* (nearest CCH record [no CNDDDB records] is about 30 miles S)
- *Matelea parvifolia* (nearest CNDDDB record is about 30 miles W)
- *Nemacaulis denudata* var. *gracilis* (nearest CNDDDB occurrence is 31 miles N)
- *Physalis lobata* (nearest CNDDDB record is 53 miles NW)
- *Psoralea fremontii* var. *attenuatus* (nearest CNDDDB record is 52 miles N)
- *Salvia greatae* (nearest CNDDDB record is 48 miles W)
- *Senna covesii* (nearest CNDDDB record is 29 miles W)
- *Teucrium glandulosum* (nearest CNDDDB record is 57 miles NE)

Additionally, the following taxa were removed from Table 5:

- ***Aimophyla ruficeps***: The *scottii* subspecies is not listed as CDFG WL and was not observed within the project site. The protected subspecies (*canescens*) is not likely to occur in southeastern California.
- ***Polioptila melanura***: This species should be removed from the table as it has no special status.

Scientific Name	Common Name	Status	Potential For Occurrence
PLANTS			
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral sand verbena	CRPR 1B.1 BLM S S 2	Moderate-Low. Suitable habitat is present on site, was not detected during 2011-2012 focused botanical surveys.
<i>Acleisanthes longiflora</i>	Angel trumpets	CRPR 2.3 S 1	Moderate-Low. Suitable habitat is present on site. One known occurrence in Maria Mountains, though preferred carbonate/ limestone substrate absent. Was not detected during 2011-2012 focused botanical surveys.
<i>Androstegium breviflorum</i>	Pink funnel-lily, Small-flowered androstegium	CRPR 2.2 S2S3	Low. Suitable habitat is present but site probably outside geographic range. Was not detected during 2011-2012 focused botanical surveys.
<i>Astragalus insularis</i> var. <i>harwoodii</i>	Harwood's milk-vetch	CRPR 2.2 S 2.2?	Present. 119 104 plants reported in the current project area in 2011, primarily in northwestern portion of the existing transmission alignment and sandy washes in the eastern portion of the BSA.
<i>Astragalus lentiginosus</i> var. <i>borreganus</i>	Borrego milk-vetch	CRPR: 4.3 S 3.3	Moderate Low. Suitable habitat is present on site, but only CCH* record near site is from 1905; Was not detected during 2011-2012 focused botanical surveys.
<i>Astragalus lentiginosus</i> var. <i>cochellae</i>	Coachella Valley milk-vetch	FE CRPR 1B.2 BLM S S-2.1	Not Likely to Occur. No suitable aeolian soils on plant site; marginally suitable soils on transmission line; all known occurrences well to west.
<i>Astragalus sabulonum</i>	Gravel milk-vetch	CRPR 2.2 S2	Moderate-Low. Suitable habitat is present on site; two historic occurrences in vicinity of gen-tie line. Was not detected during 2011-2012 focused botanical surveys.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Astragalus tricarinatus</i>	Triple-ribbed-milk-vetch	FE CRPR 1B.2 BLM S S 2.1	Not Likely to Occur. All known occurrences well to west in canyons and washes of Little San Bernardino, San Jacinto, and eastern San Bernardino mtns.
<i>Ayenia compacta</i>	California ayenia	CRPR 2.3 S 3.3	Not Likely to Occur. All known occurrences well to west; generally occurs in rocky canyons; no such habitat on project site.
<i>Bouteloua trifida</i>	Three-awned grass	CRPR 2.3 S 2?	Low. Spring blooming annual, generally found in rocky foothills; habitat on site is marginally suitable; not seen during field surveys.
<i>Calliandra eriophylla</i>	Pink fairy duster	CRPR 2.3 S2S3	High-Not Likely To Occur. Suitable habitat on the site; records adjacent to the site. <u>Was not detected during 2011-2012 focused botanical surveys.</u>
Camissonia – see Chylismia			
<i>Carnegiea gigantea</i>	Saguaro	CRPR 2.2 S 1.2	Low-Not Likely To Occur. Suitable habitat on site, and records in adjacent areas; however, this is a conspicuous cactus that was not recorded during botanical surveys in the BSA.
<i>Cassia</i> – see <i>Senna</i>			
<i>Castela emoryi</i>	Emory's crucifixion thorn	CRPR: 2.3 S2S3	Low Not Likely To Occur. Reported in the region; but it is a conspicuous shrub and was not located during field surveys.
<i>Chamaesyce abramsiana</i> (<i>Euphorbia abramsiana</i>)	Abram's spurge	CRPR 2.2 S 1.2	High Present. Suitable habitat on the site; records adjacent to the site. <u>Based on abundance of the plant as detected in the past two years, Applicant will be submitting information to support lowering the ranking of this plant.</u>
<i>Chamaesyce arizonica</i> (<i>Euphorbia arizonica</i>)	Arizona spurge	CRPR 2.3 S 1.3	Low. Limited potential in washes or sandy sites of transmission line corridor.
<i>Chamaesyce platysperma</i> (<i>Euphorbia platysperma</i>)	Flat-seeded spurge	CRPR 1B.2 BLM S S 1.2?	High-Low. Although nearest CNDDDB record is 68 miles away, <u>predicted suitable habitat (TJM2**) occurs in project area; Limited to washes or sandy sites of transmission line corridor; Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Chylismia arenaria</i>	Sand evening-primrose	CRPR 2.2 S 2	Moderate-Low. Suitable habitat is present and historic records exist in the region. <u>Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Colubrina californica</i>	Las Animas colubrine	CRPR 2.3 S2S3.3	Low-Not Likely To Occur. Conspicuous shrub, not located during field surveys.
<i>Condalia globosa</i> var. <i>pubescens</i>	Spiny abrojo	CRPR 4.2 S 3.2	Low-Not Likely To Occur. Conspicuous shrub, not located during field surveys.
<i>Coryphantha alversonii</i> (<i>Escobaria vivipara</i> var. <i>alversonii</i>)	Foxtail cactus	CRPR: 4.3 S 3.2	High Low. Suitable habitat on site, recorded in adjacent areas. <u>Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Cryptantha costata</i>	Ribbed cryptantha	CRPR: 4.3 S 3.3	Present. About 13,000 <u>10,225</u> plants reported in <u>current Project area in 2011</u> in dunes in the northwestern portion of the existing transmission line ROW

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Cryptantha holoptera</i>	Winged cryptantha	CRPR: 4.3 S 3?	Moderate-Low. Suitable habitat is present. <u>Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Cylindropuntia munzii</i>	Munz's cholla	CRPR 1B.3 BLM S S 1.2	Moderate-Not Likely To Occur. Suitable habitat is present. <u>Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Cylindropuntia wigginsii</i> (<i>Opuntia wigginsii</i>)	Wiggins' cholla	CRPR 3.3 S 1?	High. Suitable habitat on site; recorded in areas adjacent to the project site.
<i>Funastrum Cynanchum utahense</i> (<i>Funastrum Cynanchum utahense</i>)	Utah vine milkweed, Utah cynanchum	CRPR: 4.2 S 3.2	Present. 98 plants found in the BSA in 2011, and 121 during the fall surveys 2011-2012.
<i>Ditaxis claryana</i>	Glandular ditaxis	CRPR: 2.2 S1S2	Moderate Low. Limited to gen-tie alignment. <u>Suitable habitat on site. Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Ditaxis serrata var. californica</i>	California ditaxis	CRPR: 3.2 S 2	Moderate Low. Suitable habitat on site. <u>Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	CRPR: 1B.2 BLM S S 2	Present. 160 115 plants within the current project area in 2011, at two locations in dunes in the northwestern portion gen-tie alignment.
<i>Escobaria</i> – see <i>Coryphantha</i>			
<i>Euphorbia</i> – see <i>Chamaesyce</i>			
<i>Horsfordia alata</i>	Pink velvet mallow	CRPR: 4.3 S 3.3	Moderate. Occurs in canyons and washes; suitable habitat present.
<i>Hymenoxys odorata</i>	Bitter hymenoxys	CRPR 2 S 2	High. Suitable habitat on site; recorded in areas adjacent to the project site.
<i>Imperata brevifolia</i>	California satintail	CRPR 2.1 S 2.1	Low. Marginal habitat occurs on site <u>within the ROW of Bradshaw Trail by Hodges drain and the agricultural fields; was not detected during 2011-2012 focused botanical surveys.</u>
<i>Matelea parvifolia</i>	Spearleaf	CRPR: 2.3 S 2.2	Low. Marginal habitat is present; no local occurrences.
<i>Mentzelia puberula</i>	Argus blazing star	CRPR 2.2 S 2	High-Low. Suitable habitat present; records in surrounding areas, <u>was not detected during 2011-2012 focused botanical surveys.</u>
<i>Mentzelia tricuspis</i>	Spinyhair blazing star	CRPR 2.1 S 1?	Low. Marginal habitat is present; no local occurrences, <u>was not detected during 2011-2012 focused botanical surveys.</u>
<i>Nemacaulis denudata var. gracilis</i>	Slender woolly-heads	CRPR: 2.2 S2S3	Moderate. Limited to gen-tie alignment.
<i>Opuntia</i> – see <i>Cylindropuntia</i>			
<i>Physalis lobata</i>	Lobed ground-cherry	CRPR: 2.3 S 1.3?	Not Likely to Occur. Occurs on dry lake margins and playas; no suitable habitat on the project site.
<i>Proboscidea althaeifolia</i>	Desert unicorn plant	CRPR 4.3 S 3.3	Present. 132-39 plants in current project area reported in 2011.
<i>Psoralea fremontii var. attenuatus</i>	Narrow-leaved Psoralea	CRPR: 2.3 S 2.3	Not likely to occur. Probably outside geographic range; conspicuous shrub not located during early-season field surveys.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Salvia greatae</i>	Orocopia sage	CRPR 1B.3 BLM S S-2.2	Low. Desert shrublands on alluvial slopes; known occurrences well to west.
<i>Senna covesii</i> (<i>Cassia covesii</i>)	Coves' cassia	CRPR: 2.2 S-2.2	Low. Suitable habitat is present; no local occurrences.
<i>Teucrium cubense</i> <i>ssp. depressum</i>	Dwarf germander	CRPR: 2.2 S 2	High-Low. Suitable habitat on site; recorded in areas adjacent to the project site; <u>was not detected during 2011-2012 focused botanical surveys.</u>
<i>Teucrium glandulosum</i>	Desert germander	CRPR: 2.3 S 1.3	Low. Marginal habitat, probably outside geographic range; <u>was not detected during 2011-2012 focused botanical surveys.</u>
<i>Wislizenia refracta</i> <i>ssp. refracta</i>	Jackass-clover	CRPR: 2.2 S 1.2?	Moderate Low. Limited to gen-tie alignment; <u>nearest CNDDDB record is 71 miles W, but predicted suitable habitat (TJM2**) includes project area; Was not detected during 2011-2012 focused botanical surveys.</u>
<i>Wislizenia refracta</i> <i>ssp. palmeri</i>	Palmer's jackass clover	CRPR: 2.2 S 1?	Moderate Low. Limited to gen-tie alignment; <u>nearest CNDDDB record is 22 miles NW, but predicted suitable habitat (TJM2**) includes project area; Was not detected during 2011-2012 focused botanical surveys.</u>
INVERTEBRATES			
<i>Hedychridium argenteum</i>	Riverside cuckoo wasp	S 1?	Low. Reported by CNDDDB about 6 miles northwest of the northern terminus of the gen-tie line based on a 1971 record.
<i>Melitta californica</i>	California mellitid bee	S 2?	Low. Reported by CNDDDB about 6 miles northwest of the northern terminus of the gen-tie line based on a 1974 record.
AMPHIBIANS			
<i>Scaphiopus couchi</i>	Couch's spadefoot	BLM S CSSC	Low. Drainage, sandy soils, and topography are unlikely to provide sufficiently inundated pools or ditches to support breeding, growth, and metamorphosis.
<i>Incilius alvarius</i> (<i>Bufo alvarius</i>)	Sonoran desert toad	CSSC	Not Likely to Occur. Formerly present in region, now possibly extirpated from California; no suitable breeding habitat on site.
REPTILES			
<i>Gopherus agassizii</i>	Desert tortoise	FT ST	Present. 6 live tortoises and multiple sign (carcasses, active burrows, pellets, etc.) observed in BSA; 8 additional live tortoises and additional sign observed incidentally during other surveys.
<i>Heloderma suspectum cinctum</i>	Banded Gila monster	BLM S CSSC	Low. Site is at margin of geographic range and habitat generally only marginally suitable; more likely in rocky areas in the surrounding mountains.
<i>Lichanura trivirgata</i>	Rosy boa	n/a (former BLM S)	Moderate. Marginal habitat on site, more likely in rocky areas in the surrounding mountains.
<i>Phrynosoma mcallii</i>	Flat-tailed horned lizard	BLM S CSSC	Not Likely to Occur. Suitable habitat at northern end of gen-tie; marginal habitat on SEGF sit. Outside geographic range (BLM and CDFG 2002).
<i>Uma notata</i>	Colorado Desert fringe-toed lizard	BLM S CSSC	Not Likely to Occur. Project area at margin of geographic range. Fringe-toed lizards in area are the similar Mojave fringe-toed lizard (below).

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Uma scoparia</i>	Mojave fringe-toed lizard	BLM S CSSC	Present. 115 observations in dune habitat at the northern end of the gen-tie alignment; not expected on the solar field site.
BIRDS			
<i>Accipiter cooperii</i>	Cooper's hawk	CDFG WL (nesting)	Present. Detected in the BSA. No breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and likely to forage on site.
<i>Accipiter striatus</i>	Sharp-shinned hawk	CDFG WL (nesting)	Present-High. Observed <u>offsite</u> during fall 2011; no breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and likely to forage on site.
<i>Aimophila ruficeps</i>	Rufous-crowned sparrow	CDFG WL	Present. Detected in BSA (apparently subspecies <i>scottii</i>, more common in Arizona and eastward).
<i>Aquila chrysaetos</i>	Golden eagle	Bald and Golden Eagle Protection Act FBCC CDFG FP CDFG WL	Present. Two individuals observed in BSA in early March; nesting territories present in surrounding mountains but no nesting activity observed in 2011 or 2012.
<i>Asio otus</i>	Long-eared owl	CSSC (nesting)	High. Suitable foraging habitat throughout project site, nearby agricultural fields and river floodplain.
<i>Athene cunicularia</i>	Western burrowing owl	BLM S FBCC CSSC	Present. Observed on site. Also occurs in adjacent agricultural lands.
<i>Buteo regalis</i>	Ferruginous hawk	FBCC CDFG WL	Present. Suitable winter foraging habitat throughout site. Expected during migratory and winter seasons; not expected to breed onsite (well outside breeding range).
<i>Buteo swainsoni</i>	Swainson's hawk	FBCC ST	Present. Migrant observed in BSA. Occasionally flies over during migration, not expected to breed onsite (well outside breeding range).
<i>Chaetura vauxi</i>	Vaux's swift	CSSC	Present. Observed in BSA during migration; well outside breeding range; no breeding habitat.
<i>Charadrius montanus</i>	Mountain plover	FPT FBCC BLM S CSSC	Low-High (winter only). May winter in fallow agricultural lands east of the project site; <u>uncommon transient and irregular winter resident</u> ; potential overflight during winter and migratory seasons.
<i>Chlidonias niger</i>	Black tern	CSSC (nesting colony)	Low. Present. Detected in BSA in spring 2012.
<i>Circus cyaneus</i>	Northern harrier	CSSC (nesting)	Present. Detected in BSA; margin of breeding range but suitable habitat present along Colorado River; expected mainly in winter.
<i>Coccyzus americanus</i>	Western yellow-billed cuckoo	FC FBCC SE	Low. No habitat on or adjacent to the site; historic records along the Colorado River to the east.
<i>Colaptes chrysoides</i>	Gilded flicker	FBCC SE	Low. Margin of geographic range and marginally suitable nesting habitat (large microphyll trees may cavity nests); recorded along the Colorado River 15 miles southeast.
<i>Dendroica petechia</i>	Yellow warbler	FBCC	Present. Detected in BSA in spring 2012.

BIOLOGICAL RESOURCES

Scientific Name	Common Name	Status	Potential For Occurrence
		CSSC (nesting)	
<i>Empidonax traillii</i>	Willow flycatcher	FBCC SE	Present-Moderate. Four individuals observed in 2012 <u>offsite</u> . No breeding activity was observed. <u>No suitable habitat onsite.</u>
<i>Eremophila alpestris actia</i>	Horned lark	CDFG WL	Present. Detected in BSA; potential overflight year around.
<i>Falco columbarius</i>	Merlin	CDFG WL	Present. Observed in BSA during 2011; no breeding habitat and outside breeding range; potential foraging throughout site during winter or migratory seasons.
<i>Falco mexicanus</i>	Prairie falcon	FBCC CDFG WL (nesting)	Present. Detected in BSA and off site in the McCoy, Hodges, and Mule Mountains during golden eagle surveys; no breeding habitat on site; potential foraging year-around.
<i>Falco peregrinus</i>	Peregrine falcon	FBCC CDFG FP	Present. Detected in BSA, and off site in the McCoy Mountains during golden eagle surveys; no breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and potential to forage on site.
<i>Grus canadensis tabida</i>	Greater sandhill crane	ST CDFG FP	Present. Observed flying over agricultural lands east of the project site and a fall 2012 observation over <u>the project site</u> ; no suitable breeding or wintering habitat present on the site, but expected as <u>potential for rare</u> fly-over during winter and migratory seasons.
<i>Haliaeetus leucocephalus</i>	Bald eagle	FBCC SE CDFG FP	High Present. Single individual observed flying over <u>the project site during fall 2012</u> . No breeding habitat and outside breeding range; expected as <u>potential for rare</u> fly-over or foraging during winter and migratory seasons.
<i>Icteria virens</i>	Yellow-breasted chat	CSSC (nesting)	Moderate. No suitable breeding habitat; reported from riparian habitat at the Colorado River about 8 miles southeast; potential overflight during migration.
<i>Lanius ludovicianus</i>	Loggerhead shrike	FBCC CSSC (nesting)	Present. Detected in BSA during multiple surveys.
<i>Melanerpes uropygialis</i>	Gila woodpecker	FBCC SE	Present. Observed during 2011 fall and spring point count surveys. <u>No observations during 2012 focused surveys.</u> Expected to nest on site in palo verde – ironwood woodland.
<i>Micrathene whitneyi</i>	Elf owl	FBCC SE	Present. Detected in BSA (two heard calling in May <u>April 2012</u>); not relocated during follow-up focused surveys and apparently not nesting on site in 2012; marginal nesting habitat , these birds apparently migrating.
<i>Myiarchus tyrannulus</i>	Brown-crested flycatcher	CDFG WL (nesting)	Present. Detected during elf owl surveys in spring 2012.
<i>Oreothlypis luciae</i>	Lucy's warbler	FBCC CSSC (nesting)	Present. Detected in BSA; secondary cavity-nester, expected during breeding season.
<i>Pandion haliaetus</i>	Osprey	CDFG WL (nesting)	Present. Observed during 2012 golden eagle surveys; no breeding habitat and outside breeding range; expected as fly-over during winter and migratory seasons.

BIOLOGICAL RESOURCES

Scientific Name	Common Name	Status	Potential For Occurrence
<i>Parabuteo unicinctus</i>	Harris hawk	CDFG WL (nesting)	Present, High. Detected off site; northern margin of geographic range; expected uncommonly as flyover.
<i>Pelecanus erythrorhynchos</i>	American white pelican	CSSC (nesting colony)	Present. Observed over project site; no breeding habitat and outside breeding range; expected as <u>potential for rare fly-over</u> during winter and migratory seasons.
<i>Poliophtila melanura</i>	Black-tailed gnatcatcher	n/a (former species of concern)	High. Suitable habitat in shrublands, especially around washes; populations apparently stable.
<i>Pyrocephalus rubinus</i>	Vermillion flycatcher	CSSC (nesting)	Moderate. No suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during migration.
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail	FE ST CDFG FP	Low. No suitable breeding or foraging habitat; occurs along Colorado River, low potential for overflight during migration or dispersal.
<i>Riparia riparia</i>	Bank swallow	ST	Present. Observed migrating through the BSA in spring 2012. Not expected to nest (out of breeding range, no nesting habitat on site).
<i>Spizella breweri</i>	Brewer's sparrow	FBCC	Present. Detected in BSA.
<i>Toxostoma crissale</i>	Crissal thrasher	CSSC	Present. Detected in BSA.
<i>Toxostoma lecontei</i>	LeConte's thrasher	FBCC CSSC	Present. Detected in BSA.
<i>Vireo bellii arizonae</i>	Arizona Bell's vireo	FBCC SE	Present. <u>A single individual was observed within the project site during fall 2012 surveys.</u> No suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during migration.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	CSSC	Present. Detected off site; no suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during winter or migration.
MAMMALS			
<i>Antrozous pallidus</i>	Pallid bat	BLM S CSSC	Present. Detected during acoustic monitoring of the project site; roosts in rock outcrops of shrublands; potential roosting in nearby mountains (offsite) and foraging through the Palo Verde Mesa.
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	BLM S CSSC	Moderate (foraging). Roosts primarily in caves, tunnels, mines; feeds mainly on moths; may roost in nearby mountains and forage through Palo Verde Mesa; recorded from agricultural lands just east of site.
<i>Euderma maculatum</i>	Spotted bat	BLM S CSSC	Low. The site is southeast of range.
<i>Eumops perotis californicus</i>	Western mastiff bat	BLM S CSSC	Present. Detected during acoustic monitoring; roosts in deep rock crevices and forages over wide area; may roost in nearby mountains and forage throughout the Palo Verde Mesa.
<i>Lasiurus blossevillii</i>	Western red bat	CSSC	Present. Detected during acoustic monitoring.
<i>Lasiurus xanthinaus (Nycteris ega xanthina)</i>	Western (southern) yellow bat	CSSC	Moderate. Within geographic range and habitat but no local reports.

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Scientific Name	Common Name	Status	Potential For Occurrence
<i>Macrotus californicus</i>	California leaf-nosed bat	BLM S CSSC	High. Roosts at Roosevelt and Hodge Mines less than 3 miles from project site; expected to forage over site.
<i>Myotis occultus</i>	Occult little brown bat, Arizona myotis	CSSC	Moderate. Potential roosting in caves and mines to west; potential flyover en route to feeding areas over open water.
<i>Myotis thysanodes</i>	Fringed myotis	BLM S	Moderate. Potential roosting in caves and mines to west; potential foraging on site or flyover en route to feeding areas.
<i>Myotis velifer</i>	Cave myotis	BLM S CSSC	High. Roosts at Roosevelt and Hodge Mines less than 3 miles from project site; expected to forage over site.
<i>Myotis yumanensis</i>	Yuma myotis	BLM S	Moderate. Potential roosting in caves and mines to west; potential flyover en route to feeding areas over open water.
<i>Nyctinomops femorosaccus</i> (<i>Tadarida femorosaccus</i>)	Pocketed free-tailed bat	CSSC	Present. Detected during acoustic monitoring; roosts mainly in crevices of high cliffs; may roost in nearby mountains and forage throughout the Palo Verde Mesa.
<i>Nyctinomops macrotis</i> (<i>Tadarida macrotis</i>)	Big free-tailed bat	CSSC	Moderate. Potential roosting in caves and mines to west; potential flyover en route to feeding areas over open water.
<i>Chaetodipus fallax pallidus</i>	Pallid San Diego pocket mouse	CSSC	High. Reported from Mule Mountains west of the site.
<i>Sigmodon arizonae plenus</i>	Colorado River cotton rat	CSSC	High-Low. Suitable habitat probably limited to mesquite bosque <u>offsite</u> .
<i>Puma concolor browni</i>	Yuma mountain lion	CSSC	High Moderate. Uncommon; expected to forage on site and cross site en route between local mountains and riparian habitats.
<i>Odocoileus hemionus eremicus</i> (= <i>O. h. crooki</i>)	Burro mule deer, desert mule deer	n/a	High-Moderate. Uncommon; expected in microphyll woodland.
<i>Ovis canadensis nelsoni</i>	Nelson's bighorn sheep	BLM S	Present. Sign (hoof, horns, and skull) found on the project site.
<i>Taxidea taxus</i>	American badger	CSSC	Present. Detected in BSA; wide-ranging and expected throughout area.
<i>Vulpes macrotis arsipus</i>	Desert kit fox	n/a	Present. Burrow complexes throughout site.

Federal Designations:

- FT = Federally listed Threatened
- FD = Federally Delisted
- FC = Federal Candidate
- FBCC = Federal Bird of Conservation Concern
- BLM S = BLM Sensitive

State Designations:

- SE = State listed Endangered
- ST = State listed Threatened (wildlife)
- SR = State listed Rare (plants)
- CSSC = California Species of Special Concern (wildlife)
- SP = State Fully Protected Species
- CDFG WL = California Department of Fish and Game Watch List

BIOLOGICAL RESOURCES

Scientific Name	Common Name	Status	Potential For Occurrence
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CRPR (California Native Plant Society) Designations:

- List 1A = Plants presumed extinct in California
- List 1B = Plants considered by CRPR to be rare, threatened, or endangered in California, and throughout their range
- List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere in their range
- List 3 = Plants about which we need more information – a review list.
- List 4 = Plants of limited distribution – a watch list

CRPR Threat Rank:

- .1 = Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- .2 = Fairly endangered in California (20-80% occurrences threatened)
- .3 = Not very endangered in California (<20% of occurrences threatened or no current threats known)

CDFG Natural Diversity Database Designations (Applied to special-status plants and sensitive plant communities; where correct category is uncertain, CDFG uses two categories or question marks):

- S1 = Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres
- S1.1 = Very threatened
- S1.2 = Threatened
- S1.3 = No current threats known
- S2 = 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above)
- S3 = 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above)
- S4 = Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.
- S5 = Demonstrably secure or ineradicable in California. No threat rank.
- SH = All California occurrences historical (i.e., no records in > 20 years).

* CCH – California Consortium of Herbaria specimen records provided in Jepson eFlora (<http://ucjeps.berkeley.edu/IJM.html>)

** TJM2 is The Jepson Manual, 2nd edition (2012)

37. **Pages 4.2-40 through 4.2-44, Table 6:** This table should be revised to reflect the General Comments, including removal of reference to BIO-8 as applicant has demonstrated through valid and reliable groundwater aquifer modeling that any impacts to groundwater in the PVMGB are less than significant. Please note the following comments and revise Table 6 as shown below:

Nesting Birds:

- The impacts discussed are not significant for common species and Species of Special Concern.
- This portion of the table states “Collision and concentrated solar energy hazards would be significant and unavoidable for most bird species that may fly over or near the site, including special-status species (below).” This is not accurate as not all bird species will fly at elevations where elevated flux is present. Please see REAT spring 2012 migratory bird report for observed flight heights for species seen at Rio Mesa. In addition, there is no evidence that the impacts from concentrated solar energy would be significant.

Bald and Golden Eagle:

- This portion of the table states “**Direct Impacts:** Foraging habitat loss (year-around for golden eagle; winter and migration seasons for bald eagle);”, however the project site is not a significant use area for either eagle species.

Elf Owl and Gila Woodpecker:

- Habitat use of the project site is not significant and impacts are not significant. Both Gila Woodpecker and Elf Owl are not expected to fly at elevations where elevated flux is present. Additionally, Elf Owls fly during the night when there is no flux risk.

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Burrowing Owl:

- For Direct Impacts, the PSA states “Habitat loss (estimated as 3 breeding or wintering territories); potential for take of burrowing owls during construction or operation; risks of collision.” Please provide an explanation and data on how this estimate was determined, as live burrowing owls and active burrows were not detected during breeding season surveys. In addition, please elaborate on whether or not these estimates are based on burrows specifically within the project fence line.
- Please provide data to back up the determination that burrowing owls will collide with heliostats or burn in the flux surrounding the central towers. Research shows that burrowing owls usually fly low, live and hunt in open areas, with very low brush. Burrowing owls in the area use the agricultural fields, adjacent to the BSA for nesting, breeding, and hunting. As stated on page 4.2-17, third paragraph : “Burrowing owl, a California Species of Special Concern, is abundant in these agricultural areas.”
- Flux risk is not expected as the species stays close to the ground, and does not fly at elevations where flux is present.

Other Special Status Raptors:

- No electrocution mortality is expected for any raptors, and habitat loss is not significant.

Special-Status Desert Shrubland Passerine Birds:

- It is unlikely that many of the species included in this grouping will fly at heights where elevated flux could be encountered. Additionally, most passerines at the Project site do not fly at elevations where flux is present during the day. Please see spring 2012 migratory bird REAT report for observed flight heights of species at Rio Mesa. Determining that impacts from concentrated solar energy hazards are “significant and unavoidable” is not supported by the available evidence and is speculative.

Special-Status Special-Status Migratory and Wintering Birds:

- Please clarify what species are included in this grouping; it should only include the species from this group that were observed on the project site. Additionally, most birds at Rio Mesa do not fly at elevations where flux is present during the day. Please see spring 2012 migratory bird REAT report for observed flight heights of species at Rio Mesa. Determining that impacts from concentrated solar energy hazards are “significant and unavoidable” is not supported by the available scientific evidence and is speculative.

BIOLOGICAL RESOURCES TABLE 6

Summary of Impacts and Conditions of Certification (COCs)

Impact	Conditions of Certification	Determination
<p><u>Native Vegetation And Wildlife Habitat.</u> Direct Impacts: Permanent and long-term loss of <u>3,873</u> acres desert shrubland, including <u>3,805</u> acres within the solar generation facility fence line, and approximately <u>68</u> acres within the gen-tie and roadway right of ways, including <u>450.6</u></p>	<p>BIO-1 would require monitoring and reporting of project activities by qualified project Biology Staff. BIO-2 would require a Biological Resources Mitigation Implementation and Monitoring Plan to specify all requirements, verification, and reporting dates.</p>	<p>Less than significant with staff’s recommended conditions of certification; however, staff is uncertain whether recommended microphyll woodland compensation at the 3:1 ratio is feasible.</p> <p>Contribution to cumulative impacts</p>

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Impact	Conditions of Certification	Determination
<p>acres of microphyll woodland habitat (also called desert dry wash woodland or blue palo verde – ironwood woodland) <u>in these project locations.</u></p> <p>Indirect Impacts: Spread of non-native invasive plants; changes in drainage patterns downslope; increased risk of fire; disturbance (noise, lights) to adjacent wildlife habitat; fugitive dust; groundwater pumping may affect off-site groundwater dependent vegetation.</p> <p>Cumulative Impacts: Does not contribute to cumulatively significant loss of habitat, fragmentation, and indirect effects from past, present, and foreseeable future projects throughout the region.</p>	<p>BIO-3 would require compensation of vegetation and habitat at a ratio of 1:1 for creosote bush scrub occupied by desert tortoise and 3:1 for microphyll woodland.</p> <p>BIO-4 would require worker training regarding sensitive biological resources and worker responsibilities for avoidance and reporting.</p> <p>BIO-5 would require a series of impact avoidance and minimization measures to avoid or minimize impacts to biological resources.</p> <p>BIO-6 would require revegetation of temporary project disturbances to soils and vegetation to minimize vulnerability to further erosion, weed infestation, or as sources of dust.</p> <p>BIO-7 would require a weed management plan to minimize the introduction and spread of weeds, including prevention, detection, and control, and management of any herbicide use to avoid further impacts.</p> <p>BIO-8 would require on-site and off-site groundwater dependent vegetation monitoring and follow-up mitigation or compensation of adverse impacts to off-site habitat.</p>	<p>would not be considerable. however, if 3:1 compensation is not feasible, contribution to cumulatively significant impacts may remain cumulatively considerable.</p>
<p>Waters of the State.</p> <p>Direct Impacts: Permanent and long-term impacts to <u>489.5</u> acres of state-jurisdictional desert washes, ephemeral channels, and adjacent riparian habitat (i.e., microphyll woodland, which is the regional riparian vegetation), <u>including 484.5 acres within the solar generation facility, and 5 acres within the gen-tie line and roadway right of ways.</u></p> <p>Indirect Impacts: Altered surface drainage and groundwater recharge downslope; spread of invasive plants in off-site streambeds; altered groundwater level due to groundwater pumping; potential erosion from head-cutting upstream; potential erosion or sedimentation downstream; loss or decreased habitat function and value for woodland wildlife off-site.</p> <p>Cumulative Impacts: Contributes to cumulatively significant loss of desert wash habitat function and values, fragmentation, erosion, sedimentation, altered surface drainage patterns, and</p>	<p>BIO-1 through BIO-8 <u>BIO-7</u> (above). BIO-9 would require minimization measures and Best Management Practices (BMPs) to minimize impacts to state waters both on the site and adjacent and downstream waters off the site; it also would require compensation and protection of off-site state waters at a 1:1 ratio to offset the on-site impacts to non-microphyll woodland channels and 3:1 for microphyll woodlands.</p>	<p>Less than significant with staff's recommended conditions of certification; however, staff is uncertain whether recommended compensation at the 3:1 ratio is feasible. Contribution to cumulative impacts would not be considerable with implementation of conditions of certification; however, if compensation at the 3:1 ratio is not feasible, contribution to cumulatively significant impacts may remain cumulatively considerable</p>

BIOLOGICAL RESOURCES

Impact	Conditions of Certification	Determination
the spread of invasive weeds into desert washes from past, present, and foreseeable future projects in region.		
<p>Special-Status Plants.</p> <p>Direct Impacts: Loss of Harwood’s milk-vetch occurrences on-site; potential direct impacts to Harwood’s eriastrum occurrences near the northern segment of the generator tie-line alignment. Field surveys are in progress to identify any additional late-season special status species that may also occur on the site.</p> <p>Indirect Impacts: Introduction and spread of non-native invasive plants; increased risk of fire; altered drainage patterns downstream of site; erosion and sedimentation of disturbed soils; accidental chemical and herbicide drift; dust.</p> <p>Cumulative Impacts: Does not contribute to cumulatively significant direct and indirect effects from past, present, and foreseeable future projects in Colorado Desert region.</p>	<p>BIO-1 through <u>BIO-7 and</u> BIO-9 (above). BIO-10 would require avoidance of substantial impacts to special-status plants to the extent feasible, and would require mitigation of any unavoidable impacts through one or a combination of additional measures, such as off-site compensation, plant salvage, horticultural propagation, or enhancement of off-site occurrences.</p>	<p>Less than significant with staff’s recommended conditions of certification.</p> <p>Contribution to cumulative impacts would not be considerable..</p>
<p>Common Wildlife and Nesting Birds.</p> <p>Direct Impacts: Mortality, displacement and disturbance to wildlife throughout project area; habitat degradation and disturbance to wildlife near the site; collision hazards with project facilities (especially heliostat mirrors), electrocution hazard on gen-tie line; drowning or toxicity at evaporation ponds; and concentrated solar energy hazard in elevated energy flux area surrounding SRSs.</p> <p>Indirect Impacts: Fragmentation of local populations; introduction and spread of non-native invasive plants; increased risk of fire; noise, and light. Disruption of nesting and foraging behaviors.</p> <p>Cumulative Impacts: Does not contribute to cumulatively significant loss of habitat, fragmentation, and indirect effects from past, present, and foreseeable future projects in the Colorado Desert.</p>	<p>BIO-1 through BIO-5 (above); BIO-5 includes gen-tie line design and receiver tower lighting recommendations to minimize electrocution and collision hazards.</p> <p>BIO-11 would require nesting birds clearance survey prior to construction and a Nest Management Plan to ensure no take of native birds or their nests; the Plan would specify buffer areas for impact avoidance to nesting birds, dependent on the bird species or family, conservation status, and nature of disturbance, and would specify procedures for situations where it may be necessary to reduce buffer areas.</p> <p>BIO 12 would require a Bird Monitoring Study to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines.</p>	<p>Most impacts would be mitigated to less than significant with staff’s recommended conditions of certification.</p> <p><u>Applicant has submitted empirical studies indicating that modern solar tower technology may not generate significant collision and concentrated solar energy hazards, particularly in comparison with the 1986 McCrary study. Considering this evidence, and consistent with prior CEC staff determinations, staff considers the extent and nature of these potential risks to be currently unknown for avian species due to the lack of research-based data on impacts to bird species that may fly over or near the site, including special-status species (below). Implementation of staff’s proposed conditions of certification, including BIO-12, which provides a mechanism to monitor for bird collisions and implement adaptive management measures, would identify, avoid, minimize and mitigate direct and indirect potential impacts. These hazards would be mitigated to less than significant levels with staff’s</u></p>

BIOLOGICAL RESOURCES

Impact	Conditions of Certification	Determination
		<p>recommended conditions of certification. for large raptors (see below).</p> <p><u>Staff's recommended conditions of certification, including BIO-12, which provides a mechanism to monitor for bird collisions and implement adaptive management measures would address the project's potential contribution to cumulative bird mortality due to potential collision and solar energy flux hazards to most birds, with the exception of large raptors, and would not be cumulatively considerable.</u></p>
<p>Desert Tortoise.</p> <p>Direct Impacts: Loss of 3,83405 acres of <u>mostly</u> occupied desert tortoise habitat; potential mortality or disturbance during construction and operation, additional disturbance and risk from translocation, including mortality and spread of disease.</p> <p>Indirect Impacts: Habitat fragmentation; introduction and spread of non-native invasive plants; increased risk of fire; noise, and light. Mortality by raven predation, road kill, and fire.</p> <p>Cumulative Impacts: Does not contribute to cumulatively significant loss and fragmentation of habitat, and indirect effects from past, present, and foreseeable future projects in the Colorado Desert Recovery Unit.</p>	<p>BIO-1 through BIO-8 <u>BIO-7</u> (above). BIO-13 would require desert tortoise fencing, preconstruction clearance surveys, the capture and translocation of all desert tortoises from the site according to an approved translocation plan to be prepared by Applicant. BIO-14 would require acquisition, set-aside, and enhancement of compensatory habitat in perpetuity at the ratio of 1:1. BIO-15 would require preparation and implementation of a Raven Management Plan and the payment of a fee for region-wide raven management and control to prevent any increased predation by ravens.</p>	<p>Less than significant with staff's recommended conditions of certification.</p> <p>Contribution to cumulative impacts would not be considerable.</p>
<p>Other Special-Status Amphibians and Reptiles.</p> <p>Direct Impacts: Gen-tie construction impacts to aeolian sand habitat or seasonal summer rain pools; also see "Common Wildlife and Nesting Birds" (above).</p> <p>Indirect Impacts: See "Common Wildlife and Nesting Birds" (above).</p> <p>Cumulative Impacts: See "Common Wildlife and Nesting Birds" (above).</p>	<p>BIO-1 through BIO-5 (above).</p>	<p>Less than significant with staff's recommended conditions of certification.</p> <p>Contribution to cumulative impacts would not be considerable.</p>
<p>Bald and Golden Eagle.</p> <p>Direct Impacts: Foraging habitat loss (year-around for golden eagle; winter and migration seasons for bald eagle); <u>less than significant</u> electrocution hazard on gen-tie line; collision and concentrated solar energy hazards at solar generator facility.</p>	<p>BIO 1 through BIO 5 (above). BIO-14 (above); staff believes that compensation land meeting selection criteria as desert tortoise habitat also would serve as suitable golden eagle foraging habitat.</p> <p>BIO 12 would require an Eagle Conservation Plan to evaluate risk to bald</p>	<p>Collision and concentrated solar energy hazards would be mitigated to less than significant.</p> <p><u>Consistent with previous CEC staff assessments, and considering nest and use surveys documenting that the project is located in region where</u></p>

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Impact	Conditions of Certification	Determination
<p>Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: Does not contribute to cumulatively significant foraging habitat loss throughout the Colorado Desert region.</p>	<p>and golden eagles and require distribution line retrofitting if an eagle is taken; the Plan would be prepared and implemented according to USFWS guidelines, would require a Bird Monitoring Study that would include golden eagles to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines and incorporating appropriate measures related to golden eagles.</p>	<p>golden eagle occurrence is very low and expected to remain low due to several characteristics of the region, including the lack of active , the lack of suitable nesting sites, and persistent climate conditions that limit the relative abundance of species food sources, and the project-specific mitigation of foraging habitat impacts to less than significant level, the project’s Contribution to cumulative impacts to foraging habitat would be less than considerable even with conditions of certification.</p>
<p>Swainson’s hawk. Direct Impacts: Less than significant electrocution hazard on gen-tie line; collision and concentrated solar energy hazards at solar generator facility. Indirect Impacts: None expected. Cumulative Impacts: No significant cumulative impact.</p>	<p>BIO 12 would require an Eagle Conservation Plan to evaluate risk to bald and golden eagles and require distribution line retrofitting if an eagle or other large special status raptor including Swainson’s hawk is taken; the Plan would be prepared and implemented according to USFWS guidelines, would require a Bird Monitoring Study that would monitor any death and/or injury of birds, including Swainson’s Hawk, and develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines and incorporating appropriate measures related to Swainson’s Hawk.</p>	<p>Collision and concentrated solar energy hazards would be mitigated to less than significant.</p>
<p>Elf Owl and Gila Woodpecker. Direct Impacts: Habitat loss (marginal breeding habitat occasionally seldom occupied by both species, no breeding in 2012; suitable as foraging and migration stopover); risks of collision or concentrated solar energy. Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).</p>	<p>BIO-1 through BIO-5 (above). BIO-11 (above). BIO-12 (above).</p>	<p>Less than significant with staff’s recommended conditions of certification. Staff concludes that collision and concentrated solar energy hazards would be significant and unavoidable. Contribution to most cumulative impacts (i.e., habitat) would not be considerable with conditions of certification; however, contribution to mortality due to collision and solar energy flux hazards would remain cumulatively considerable.</p>
<p>Burrowing Owl. Direct Impacts: Habitat loss (estimated as 3 breeding or wintering territories); potential for take of burrowing owls during construction or operation; risks of collision or concentrated solar energy.</p>	<p>BIO-1 through BIO-5 (above). BIO-11 (above). BIO-12 (above). BIO-19 would require measures to avoid take or direct impacts to burrowing owls, and to compensate for habitat loss based on the estimated</p>	<p>Habitat loss and potential take would be less than significant with recommended conditions of certification. Staff concludes that collision and concentrated solar energy hazards would be significant and unavoidable. Contribution to cumulative impacts</p>

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Impact	Conditions of Certification	Determination
<p>Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).</p>	<p>number of territories on the site; compensation lands may be “nested” within lands required for other biological resources (BIO-3, above).</p>	<p>would not be considerable with implementation of conditions of certification; however, contribution to collision and solar energy flux hazards would remain cumulatively considerable.</p>
<p>Other Special-Status Raptors Direct Impacts: Habitat loss; risks of collision, electrocution, or concentrated solar energy. Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).</p>	<p>BIO-1 through BIO-5 (above). BIO-14 (above); staff believes that compensation land meeting selection criteria for desert tortoise habitat also would serve as raptor foraging habitat. BIO-12 would require a Bird Monitoring Study to monitor the death and injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines. BIO-12 also would require an Eagle Conservation Plan to evaluate risk to include bald and golden eagles and require distribution line retrofitting if an eagle or other large special status is taken; the Plan and would be prepared and implemented according to USFWS guidelines.</p>	<p>Foraging habitat impacts would be mitigated to less than significant with staff’s recommended conditions of certification. For large special-status raptors, collision and concentrated solar energy hazards would be mitigated to less than significant, and contribution to cumulative impacts would not be considerable. For small special-status raptors, staff concludes that collision and concentrated solar energy hazards would be significant and unavoidable and contribution to cumulative impacts would be considerable.</p>
<p>Special-Status Desert Shrubland Passerine Birds. Direct Impacts: See “Common Wildlife and Nesting Birds” (above), including risks of collision or concentrated solar energy. Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).</p>	<p>BIO-1 through BIO-5 (above). BIO-11 (above). BIO 12 (above).</p>	<p>Habitat loss and construction phase impacts would be mitigated to less than significant with staff’s recommended conditions of certification, and contribution to cumulative impacts would not be considerable. Staff concludes that collision and concentrated solar energy hazards would be significant and unavoidable and contribution to cumulative impacts would be considerable.</p>
<p>Special-Status Migratory and Wintering Birds. Direct Impacts: Risks of collision, electrocution, or concentrated solar energy. Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).</p>	<p>BIO-12 (above).</p>	<p>Staff concludes that collision and concentrated solar energy hazards would be <u>As discussed above with reference to Common Wildlife and Nesting Birds, project and cumulative impacts would not be significant and unavoidable</u> and contribution to cumulative impacts would be not considerable.</p>
<p>Large Mammals. Direct Impacts: See “Common Wildlife and Nesting Birds” (above). Indirect Impacts: See “Common Wildlife and Nesting Birds” (above).</p>	<p>BIO-1 through BIO-5 (above).</p>	<p>Less than significant with staff’s recommended conditions of certification, and contribution to cumulative impacts would not be considerable.</p>

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Impact	Conditions of Certification	Determination
Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).		
Burrowing Mammals (Desert Kit Fox And American Badger). Direct Impacts: See “Common Wildlife and Nesting Birds” (above). Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).	BIO-1 through BIO-5 (above). BIO-18 would require the project owner to prepare and implement a management plan to avoid take by excluding these animals from the project area prior to construction.	Less than significant with staff's recommended conditions of certification, and contribution to cumulative impacts would not be considerable.
Colorado Valley Woodrat. Direct Impacts: Potential habitat loss in mesquite bosque habitat. Indirect Impacts: Groundwater pumping may cause groundwater level drop and consequent impact to mesquite bosque habitat. Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).	BIO-1 through BIO-7 (above). BIO-8 (above) would require groundwater and off-site groundwater dependent vegetation monitoring and follow-up mitigation or compensation of adverse impacts to off-site habitat.	Less than significant with staff's recommended conditions of certification, and contribution to cumulative impacts would not be considerable.
Special-Status Bats. Direct Impacts: Foraging habitat loss; risks of collision, electrocution, or concentrated solar energy. Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).	BIO-1 through BIO-5 (above).	Less than significant with staff's recommended conditions of certification, and contribution to cumulative impacts would not be considerable.
Wildlife Movement. Direct Impacts: Interruption of north-south movement (especially for relatively immobile species, including desert tortoise); interruption of east-west movement (especially for large mammals' access to water at irrigation lands). Indirect Impacts: See “Common Wildlife and Nesting Birds” (above). Cumulative Impacts: See “Common Wildlife and Nesting Birds” (above).	None recommended.	Less than significant, and contribution to cumulative impacts would not be considerable.

38. **Page 4.2-47, Overview of Wildlife Habitat Impacts, Paragraph 2:** The PSA states “However, during construction and operations, the remnant or recovering vegetation and habitat would be unsuitable for most species, particularly species with specific habitat requirements, including most special-status wildlife species.” Please clarify which special-status species are being referred to in this statement. The only special-status bird species currently observed to nest on site was loggerhead shrike. Most special-status bird species do not have suitable nesting habitat present within the project site.

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39. **Page 4.2-47, Overview of Wildlife Habitat Impacts, Paragraph 2:** The PSA states “The project’s direct adverse impacts to native vegetation and wildlife habitat would be substantial.” Please explain the basis for characterizing this impact as substantial. The approximately 3,800 acres within the project site is small compared to the surrounding landscape that has been conserved by BLM and other land management agencies for the benefit of wildlife.
40. **Page 4.2-48, Top Line:** should be revised to remove reference to adverse effects from groundwater pumping based on the argument in General Comment 1 above where applicant has demonstrated through valid and reliable groundwater aquifer modeling that any impacts to groundwater in the PVMGB are less than significant:
- ...estimates and that off-site and indirect impacts may extend greater or lesser distances, depending on circumstances. ~~Additionally, groundwater-dependent vegetation off site may be affected by groundwater draw down that may be caused by the well pumping for project’s construction and operations phase water use.~~
41. **Page 4.2-48, Table 7:** Please delete Staff's original Table 7 and replace with the updated table provided by Applicant which reflects the pending LSAA and up-to-date delineation as requested by CEC staff:

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**Biological Resources Table 7
Summary of Project Disturbance Acreage by Vegetation Type**

<u>Vegetation Type</u>	<u>Acreage</u>					
	<u>Solar Generator Site</u>	<u>Gen-Tie Line ROW</u>	<u>Paved Access Roads</u>	<u>Total Direct</u>	<u>Total Indirect</u>	<u>Total Impact</u>
<i><u>Sensitive</u></i>						
<u>Blue palo verde-desert ironwood woodland alliance</u>	<u>449.8</u>	<u>0.8</u>	<u>0</u>	<u>450.6</u>	<u>159.7</u>	<u>610.3</u>
<u>Mesquite bosque woodland alliance</u>	<u>0</u>	<u>0</u>	<u>0.2</u>	<u>0.2</u>	<u>0.1</u>	<u>0.3</u>
<u>Brittlebush-ferocactus scrub</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>8.3</u>	<u>8.3</u>
<u>Bush seepweed scrub shrubland alliance</u>	<u>0</u>	<u>0</u>	<u>0.3</u>	<u>0.3</u>	<u>0.2</u>	<u>0.5</u>
<u>Creosote bush scrub with ocotillo association</u>	<u>34.2</u>	<u>0</u>	<u>0.7</u>	<u>34.9</u>	<u>1.2</u>	<u>36.1</u>
<u>Big galleta grass herbaceous alliance</u>	<u>0</u>	<u>2.6</u>	<u>0</u>	<u>2.6</u>	<u>1.6</u>	<u>4.2</u>
<u>Narrowleaf cattail herbaceous alliance</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Arrowweed scrub shrubland alliance</u>	<u>0</u>	<u>0</u>	<u>0.1</u>	<u>0.1</u>	<u>0.2</u>	<u>0.3</u>
<u>Total Sensitive Communities</u>	<u>484.0</u>	<u>3.4</u>	<u>4.2</u>	<u>488.7</u>	<u>171.3</u>	<u>660.0</u>
<i><u>Non-sensitive</u></i>						
<u>Creosote bush-brittlebush shrubland alliance</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1.4</u>	<u>1.4</u>
<u>Creosote bush-burrobush shrubland alliance</u>	<u>405.7</u>	<u>9.4</u>	<u>0.7</u>	<u>415.8</u>	<u>33.8</u>	<u>449.6</u>
<u>Creosote bush shrubland alliance</u>	<u>2915.3</u>	<u>21.3</u>	<u>11.8</u>	<u>2948.4</u>	<u>907.8</u>	<u>3856.2</u>
<u>Allscale scrub shrubland alliance</u>	<u>0</u>	<u>0</u>	<u>0.4</u>	<u>0.4</u>	<u>0.3</u>	<u>0.7</u>
<u>Tamarisk thickets semi-natural shrubland stands</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>Irrigation ditch</u>	<u>0</u>	<u>0</u>	<u>0.1</u>	<u>0.1</u>	<u>0</u>	<u>0.1</u>
<u>Agriculture</u>	<u>0</u>	<u>0</u>	<u>4.9</u>	<u>4.9</u>	<u>2.7</u>	<u>7.6</u>
<u>Developed</u>	<u>0</u>	<u>0.7</u>	<u>11.3</u>	<u>12.0</u>	<u>13.1</u>	<u>25.1</u>
<u>Total</u>	<u>3805.0</u>	<u>34.7</u>	<u>33.4</u>	<u>3873.2</u>	<u>1130.4</u>	<u>5003.7</u>

Total indirect is any vegetation within 500 feet of the Solar Generating Site and within 10 feet of the Gen-Tie line and access roads.

42. **Page 4.2-48, Special-Status Plant Communities:** Please revise Table 7 to reflect Applicant's pending LSAA and up-to-date delineation as requested by CEC staff and Applicant's comments regarding groundwater, water supply and the absence of impacts to surface vegetation from groundwater use. Further, the PSA does not provide significant data to support this assumption. Microphyll woodlands are dependent on bi modal surface flows. Also, please include the recommended revision as another source of how common regional desert wash woodlands are in the Colorado Desert. This is a more applicable estimate of the percentage of microphyll woodland habitat within the regional desert land base as it only considers the Colorado Desert Region and not the entire Sonoran Desert (as does McCreedy), which occurs primarily in Mexico

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with over two thirds of its area in Baja California and the state of Sonora (National Park Service 2012).

~~Five~~ Eight vegetation or habitat types mapped within the ~~project study~~ area are ranked as special-status plant communities, based on CDFG Vegetation Program compilations (CDFG 2010). ~~Six occur within the project area, including the generation site, gen-tie line and roadway right-of-ways.~~ Direct project impacts to these ~~five~~ six vegetation types would total ~~799.6~~ 488.7 acres, including ~~713.7~~ 451.1 acres of vegetation or habitat types for which BLM requires compensation at a ratio of 3:1 (BLM and CDFG 2002: blue palo verde – ironwood woodland, ~~desert dunes, and bush seepweed scrub— and~~ mesquite bosque). ~~Two of these (blue palo verde – ironwood woodland, and bush seepweed scrub – mesquite bosque) may be dependent on groundwater availability within the root zone and thus may be vulnerable to any project related depletion of the groundwater table.~~

Blue palo verde – ironwood woodland (also called desert dry wash woodland, or microphyll woodland) provides habitat resources such as taller perch and nest sites, shade and cover, substrate for woodpecker nest cavities and secondary cavity nesting species, and high biological productivity (including productivity of insect biomass as prey for birds and bats) that are not available to the same degree in the surrounding creosote bush scrub. Desert wash woodlands are the primary habitat of burro deer, a high priority management species for the CDFG. Desert microphyll woodland is a more productive habitat than surrounding uplands and supports breeding desert bird species in higher densities (Laudenslayer 1988). During migration seasons, it is important as stopover habitat for large numbers of migratory songbirds. The assemblage of birds using these woodlands is similar to those of honey mesquite habitats to the east, including riparian species and frugivores (which feed on mistletoe berries) (Rosenberg et al. 1991). Also, desert upland birds are more numerous in desert washes than in surrounding creosote bush scrub. Desert wash woodlands are relatively uncommon in terms of overall area they cover. The Northern and Eastern Colorado Desert Resource Management Plan area, which includes 5,544,750 acres (over 79 percent) of the Colorado Desert Region, estimates that microphyll woodland habitat makes up 675,000 acres or 12.2 percent of the planning area (BLM 2002). According to McCreedy (2011), desert wash woodlands support 85 percent of all bird nests built in the Colorado Desert, despite accounting for only 0.5 percent of the desert land base (McCreedy 2011). This is the only habitat on site for which NECO requires mitigation at a ratio of 3:1 (on federal land).

Similarly, bush seepweed scrub-mesquite bosque is relatively small in overall area but, with its mesquite component, may be disproportionately important in terms of wildlife habitat and diversity (Rosenberg et al. 1991). The Colorado River cotton rat is a CDFG Species of Special Concern that is found in these habitats. Bush seepweed and mesquite bosque may be dependent on groundwater availability within the root zone and thus may be vulnerable to any project related depletion of the groundwater table. Both bush seepweed scrub and bush seepweed scrub-mesquite bosque would be considered special-status plant communities by CDFG. Creosote bush-white burr sage scrub with big galleta grass association is also considered special-status plant communities by CDFG. None of these four sensitive habitat types has a prescribed mitigation ratio.

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43. **Page 4.2-50, Assessment of Impacts and Discussion of Mitigation, Special-Status Plant Species, Paragraph 3, 4th Sentence:** Table 3 was updated only to show invasive weeds, as originally intended. Please revise this sentence to reflect the table appropriately:

~~Invasive~~ ~~W~~weeds documented in the BSA are shown in **Biological Resources Table 3**.

44. **Page 4.2-52, Hydrology and Groundwater-Dependent Vegetation:** Please revise this section to delete references to groundwater in its entirety because the project's use of groundwater will not significantly affect groundwater levels or groundwater dependent vegetation (see also applicant comments to the water supply and groundwater sections of the PSA):

~~Project construction could affect off-site vegetation, particularly the blue palo verde–desert ironwood woodland and bush seepweed – mesquite bosque west of the proposed solar generator site, by altering water quality, hydrology, and possibly by altering depth to groundwater. If pollutants, silt, or other materials are carried off-site by intermittent stream flows, they could be deposited in downstream washes or could enter the soil or groundwater, where they could adversely affect native woodland vegetation.~~

~~In addition, groundwater pumping during construction and operation of the project could lower local ground-water levels. Groundwater pumping for agriculture has caused loss of phreatophytic (groundwater-dependent) woodlands in Arizona (Jackson and Comus, 1999). Depending on the rate and extent of groundwater drawdown and on the ability for groundwater-dependent plants to adjust by extending their root systems, groundwater pumping could cause mortality of desert dry wash woodland trees (desert ironwood and blue palo verde). Staff recommends Condition of Certification **BIO-3** to prevent or offset any project impacts to groundwater-dependent vegetation that may result from groundwater pumping. BIO-3 would require the project owner to monitor groundwater levels and plant health and vigor in adjacent desert dry wash woodland areas; if plant stress or mortality occurs and is determined to be related to project activities, then the project owner shall either refrain from pumping, reduce pumping to allow for recovery of the groundwater table, or offset any additional habitat losses through off-site compensation. Staff concludes that **BIO-3** would mitigate any project impacts to off-site groundwater dependent vegetation to a less than significant level.~~

45. **Page 4.2-53, Habitat Compensation:** This resource does not seem relevant. Please provide resources that consider California and US material and revise this information in the text as shown. Also, please remove the reference to Moilanen et al (2009) as it pertains to wetland/aquatic restoration, it is not relevant AI

~~Staff reviewed available literature addressing selection of appropriate offset ratios for habitat loss. Quantitative guidelines for determining compensation ratios are generally lacking except where land management plans or other agency policies direct specific ratios. In a review of offset ratios in developed nations worldwide, McKenney and Kiesecker (2010) found that all recommended ratios are 1:1 or greater, but that an improved “accounting framework” for assigning ratios is needed. There is a small body of literature addressing quantitative ratios to offset impacts to biological resources, and ~~M~~much of it ~~is not relevant because it~~ addresses ratios for habitat restoration (rather than off-site protection), especially for wetlands and aquatic habitats. ~~Moilanen et al. (2009) found that typical ratios may be far too low to account for uncertain success or~~~~

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restoration compensation, and McKenney and Kieseker (2010) noted that preservation ratios generally must be higher than restoration ratios, and also include habitat improvement (“additionality”) to achieve no net loss of habitat value.

46. **Page 4.2-53, Assessment of Impacts and Discussion of Mitigation, Mitigation of Impacts to Native Vegetation and Wildlife Habitat, Habitat Compensation, Paragraph 3:** The NECO Plan specifically states “Plan decisions apply only to federal lands,” so for most of the project it can only serve as reference material, not regulation. Based on NECO, the only possible basis for requiring 1:1 is for desert tortoise mitigation which is a separate item and not relevant to vegetation mitigation sensu stricto; tortoise mitigation is addressed in BIO 14. Please provide a basis for this ratio. Applicant has been given no information on why a ratio of 3:1 was selected for the vegetation communities that are considered special-status by CDFG but for which mitigation ratios are not suggested in NECO. Please provide the basis for the decision.

... In the California desert, creosote bush scrub is the predominant habitat and, depending on other factors, may range widely in terms of its habitat value for desert tortoise or other special-status plants or animals. Recommended compensation ratios in the NECO Plan within the context of desert tortoise mitigation are generally 1:1, but range up to 5:1 (based primarily on importance to desert tortoise or location relative to a Desert Wildlife Management Area/Area of Critical Concern); therefore, mitigation will not be required for impacts to creosote bush scrub as a plant community, de facto mitigation will be provided through mitigation for impacts to desert tortoise.

Compensation ratios for desert tortoise impacts are discussed further in the subsection entitled “Impacts to Special Status Wildlife.”

47. **Page 4.2-54, Habitat Compensation:** Please revise as follows:

The NECO Plan assigns a 3:1 compensation ratio for desert dry wash woodland based on (1) ~~similar importance to desert tortoises;~~ (2) disproportionately high importance to biodiversity and special-status species due to high biological productivity and habitat heterogeneity (e.g., shade, cover, elevated perch sites, and substrates for nesting cavities); and (3) ~~relative rarity,~~ due to restriction to wash landforms with suitable surface or groundwater hydrology.

48. **Page 4.2-55, Calculation of Financial Security for Compensation Lands, Table 8:** Please replace Biological Resources Table 8 with the table shown below. The table has been revised to eliminate duplicative accounting of impacts, reflect the pending LSAA and up-to-date delineation, and reflect appropriate mitigation ratios for vegetated State Waters.

	<u>Native Vegetation and Wildlife Habitat (creosote bush scrub at 1:1; special-status vegetation/vegetated State Waters at 3:1)</u>	<u>Desert Tortoise and Golden Eagle Habitat Compensation (total impact area at 1:1)</u>	<u>Burrowing Owl Habitat Compensation (3 territories at 19.5 acres each)</u>	<u>Unvegetated State Waters Compensation (34.42 acres at 1:1)</u>
<u>Special Status Vegetation and Vegetated State Waters - 450.7 acres (3:1)</u>	<u>1,352.1</u>	<u>3,834</u>	<u>58.5</u>	<u>34.42</u>
<u>Creosote Bush Scrub (1:1)</u>	<u>2,913.2</u>			
<u>Total Number of acres</u>	<u>4,265.3</u>			

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	<u>Native Vegetation and Wildlife Habitat (creosote bush scrub at 1:1; special-status vegetation/vegetated State Waters at 3:1)</u>	<u>Desert Tortoise and Golden Eagle Habitat Compensation (total impact area at 1:1)</u>	<u>Burrowing Owl Habitat Compensation (3 territories at 19.5 acres each)</u>	<u>Unvegetated State Waters Compensation (34.42 acres at 1:1)</u>
<u>Estimated number of parcels to be acquired, at 160 acres per parcel²</u>	<u>27</u>	<u>24</u>	<u>1</u>	<u>1</u>
<u>Land cost at \$1,500/acre³</u>	<u>\$6,397,950</u>	<u>\$5,751,000</u>	<u>\$87,750</u>	<u>\$51,630</u>
<u>Level 1 Environmental Site Assessment at \$3,000/parcel</u>	<u>\$79,974</u>	<u>\$71,888</u>	<u>\$3,000</u>	<u>\$3,000</u>
<u>Appraisal at no less than \$5,000/parcel</u>	<u>\$133,291</u>	<u>\$119,813</u>	<u>\$5,000</u>	<u>\$5,000</u>
<u>Initial site clean-up, restoration or enhancement, at \$250/acre⁴</u>	<u>\$1,066,325</u>	<u>\$958,500</u>	<u>\$14,625</u>	<u>\$8,605</u>
<u>Closing and Escrow Cost at \$5,000/parcel⁵</u>	<u>\$133,291</u>	<u>\$119,813</u>	<u>\$5,000</u>	<u>\$5,000</u>
<u>Biological survey for determining mitigation value of land (habitat based with species specific augmentation) at \$5,000/parcel</u>	<u>\$133,291</u>	<u>\$119,813</u>	<u>\$5,000</u>	<u>\$5,000</u>
<u>3rd Party Administrative Costs (Land Cost x 10%)⁶</u>	<u>\$639,795</u>	<u>\$575,100</u>	<u>\$8,775</u>	<u>\$5,163</u>
<u>Agency cost to accept land⁷ [(Land Cost x 15%) x 1.17] (17% of the 15% for overhead)</u>	<u>\$1,122,840</u>	<u>\$1,009,301</u>	<u>\$15,400</u>	<u>\$9,061</u>
<u>Subtotal - Acquisition and Initial Site Work</u>	<u>\$9,706,756</u>	<u>\$8,725,226</u>	<u>\$144,550</u>	<u>\$92,459</u>
<u>Long-term Management and Maintenance Fund (LTMM) fee at \$1,450/acre⁸</u>	<u>\$6,184,685</u>	<u>\$5,559,300</u>	<u>\$84,825</u>	<u>\$49,909</u>
-	-	-	-	-
<u>Financial Security Requirement Subtotal if the application-directed compensatory mitigation option</u>	<u>\$15,891,441</u>	<u>\$14,284,526</u>	<u>\$229,375</u>	<u>\$142,368</u>
-	-	-	-	-

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	<u>Native Vegetation and Wildlife Habitat (creosote bush scrub at 1:1; special-status vegetation/vegetated State Waters at 3:1)</u>	<u>Desert Tortoise and Golden Eagle Habitat Compensation (total impact area at 1:1)</u>	<u>Burrowing Owl Habitat Compensation (3 territories at 19.5 acres each)</u>	<u>Unvegetated State Waters Compensation (34.42 acres at 1:1)</u>
<u>NFWF Fees</u>	-	-	-	-
<u>Establish Project Specific Account⁹</u>	<u>\$12,000</u>	-	-	-
<u>Call for and Process Pre-Proposal Modified RFP or RPF¹⁰</u>	<u>\$30,000</u>	<u>\$30,000</u>	<u>\$30,000</u>	<u>\$30,000</u>
<u>NFWF Management fee For Acquisition and Enhancement Actions (Subtotal x 3%)</u>	<u>\$291,203</u>	<u>\$261,757</u>	<u>\$4,337</u>	<u>\$2,774</u>
<u>NFWF Management Fee for LTMM account (LTMM x 1%)</u>	<u>\$61,847</u>	<u>\$55,593</u>	<u>\$848</u>	<u>\$499</u>
<u>Subtotal of NFWF Fees if NFWF option selected</u>	<u>\$395,050</u>	<u>\$347,350</u>	<u>\$35,185</u>	<u>\$33,273</u>
<u>TOTAL Estimated cost for deposit in project specific REAT-NFWF Account¹¹</u>	<u>\$16,286,491</u>	<u>\$14,631,875</u>	<u>\$264,560</u>	<u>\$175,641</u>
<u>Amount Expected to be Nested</u>	<u>\$0</u>	<u>\$14,631,875</u>	<u>\$264,560</u>	<u>\$0</u>
<u>TOTAL Remaining</u>	<u>\$16,286,491</u>	<u>\$0</u>	<u>\$0</u>	<u>\$175,641</u>

49. **Page 4.2 56, Last Paragraph:** As discussed in Applicant's General Comments, please remove reference to BIO-8.

50. **Page 4.2-59, Second Bullet:** As discussed in Applicant's General Comments, please remove reference to BIO-8.

51. **Page 4.2-59, Feasibility of Recommended Compensation Acreage:** Please remove this paragraph to be consistent with Applicant's General Comments concerning mitigation feasibility:

Feasibility of the recommended compensation acreage for desert dry wash woodland habitat. Staff is uncertain whether compensation for impacts to desert dry wash woodland (blue palo verde— ironwood woodland) at the recommended 3:1 ratio will be feasible. Desert dry wash woodland is relatively rare, due to restriction to wash landforms with suitable surface or groundwater hydrology, and large parcels predominantly covered by this habitat may not be available. Staff overlaid land ownership and vegetation GIS shapefiles obtained from BLM to estimate total acreage of desert dry wash woodland in private ownership within the NECO Plan area. The total estimate was about 40,000 acres. Therefore, while staff believes that sufficient acreage is present in the region, feasibility of the recommended mitigation will depend upon availability from willing sellers of 2,126.7 acres of privately owned desert woodland

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habitat. If 3:1 compensation for these impacts is found infeasible then the project's impacts to special status vegetation may be significant and unavoidable.

52. **Page 4.2-60, second full paragraph:** Please revise to reflect Applicant's pending LSAA and up-to-date delineation as requested by CEC staff:

Most of the state and federal jurisdictional waters throughout the Colorado Desert are ephemeral streams. All channels observed in the Rio Mesa SEGF site and crossed by the proposed transmission line are ephemeral (~~URS 2011; BS 2012v~~).

53. **Page 4.2-61, Third Full Paragraph:** Please revise to reflect Applicant's pending LSAA and up-to-date delineation as requested by CEC staff:

The applicant has ~~provided a~~ submitted to the U.S. Army Corps of Engineers proposed corrections and revisions to the preliminary delineation of state and federal jurisdictional waters (i.e., ephemeral streambeds) throughout the BSA and proposed project area (URS 2011; BS 2012v, see Table 5.2-14). **Biological Resources Figures 4a and 4b** show the waters of the US identified by the applicant on the project site and gen-tie route, respectively. based on the field verifications conducted to complete the LSAA Notification and the up-to-date delineation requested by CEC staff. **Biological Resources Figure 5a and 5b** show the applicant's delineation of potential waters of the state on the project site and gen-tie route, respectively. ~~Staff is coordinating with CDFG to verify this delineation upon the applicant's submittal of an~~ identified in the LSAA Application to be submitted to the CDFG. The applicant's conclusions are summarized in **Biological Resources Table 9**. Project impacts to jurisdictional streambeds and adjacent riparian vegetation are described below in the subsection entitled "Impacts to Waters of the State." Staff's understanding is that the state jurisdictional acreages are inclusive of all federally jurisdictional waters and wetlands; thus, the total jurisdictional acreages in **Biological Resources Table 9** include all federally jurisdictional waters.

54. **Page 4.2-61, Second Full Paragraph:** Please delete the existing Table 9 and replace with the following updated Table to reflect Applicant's pending LSAA and up-to-date delineation as requested by CEC staff:

Biological Resources Table 9
Summary of Applicant's Jurisdictional Waters Delineation

<u>Jurisdiction</u>	<u>Acreages</u>				
	<u>BSA</u>	<u>Solar Generator Site</u>	<u>Linear Components</u>	<u>Temporary Constr. Area</u>	<u>Total Within Project Area</u>
<u>Wetlands (state and federal)</u>	<u>10.6</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0.0</u>
<u>Non-wetland Waters of U.S.</u>	<u>634.4</u>	<u>145.8</u>	<u>9.8</u>	<u>0.3</u>	<u>156.0</u>
<u>Total federally jurisdictional waters</u>	<u>645.0</u>	<u>145.8</u>	<u>9.8</u>	<u>0.3</u>	<u>156.0</u>
<u>Non-wetland Waters of the State (incl. adjacent riparian veg.)</u>	<u>1572.5</u>	<u>484.5</u>	<u>17.8</u>	<u>0.3</u>	<u>502.6</u>
<u>Total state jurisdictional waters</u>	<u>1583.1</u>	<u>484.5</u>	<u>17.8</u>	<u>0.3</u>	<u>502.6</u>

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55. **Page 4.2-62, First Full Paragraph:** Please revise to reflect Applicant's pending LSAA and up-to-date delineation as requested by CEC staff:

The applicant reports a total of approximately ~~817.37~~ 502.6 acres of state-jurisdictional waters, including ephemeral channels and adjacent riparian habitat, ~~and 0.65 acre of wetlands located within the project area including the generation facility and the gen-tie line and roadway right of ways~~ (**Biological Resources Table 9, Biological Resources Figures 5a and 5b**) . Staff ~~is coordinating with~~ and the CDFG to ~~are verifying~~ this delineation, upon which is included in the applicant's submittal of an LSAA Application to the CDFG. Staff concludes that all of these areas would be directly or indirectly impacted by construction and operation of the project (e.g., by ground disturbance, vegetation removal, vehicle access crossings, etc.). Staff concludes that all direct or indirect impacts to these channels are subject to state regulation.

56. **Page 4.2-64, Third Full Paragraph:** Please revise to be consistent with Applicant's General Comments concerning mitigation feasibility:

With implementation of staff's proposed conditions of certification, project impacts to state jurisdictional waters would be mitigated below a level of significance under CEQA by minimizing project impacts to streambeds; revegetating disturbed waters of the state in temporary construction areas to minimize further degradation; protecting off-site acreage to compensate for on-site impacts; and reclaiming on-site streambeds to minimize erosion and weed infestation upon eventual closure of the Rio Mesa SEG. ~~However, if 3:1 compensation for these impacts is found infeasible then the project's impacts to waters of the state may be significant and unavoidable (see "Feasibility of the recommended compensation acreage for desert dry wash woodland habitat" above). Staff will continue to coordinate with CDFG to determine whether these conditions may also fulfill requirements of the state LSAA program pursuant to Fish and Game Code Sections 1600-1616 upon the applicant's submittal of an LSAA Application to CDFG. Staff will coordinate with the applicant and public or private entities specializing in compensation habitat acquisition and management to determine feasibility and, if necessary, identify alternate mitigation.~~

57. **Page 4.2-64, Existing Conditions, First Paragraph:** Please revise the first sentence as follows, to reflect that Table 10 does not include any other species of the region than those found on-site:

Biological Resources Table 10 summarizes special-status plants ~~of the region, including the species~~ identified in the BSA and on the proposed project site.

58. **Page 4.2-65, Biological Resources Table 10:** Please revise the table as shown below; two new columns have been added to provide information on new numbers provided in text regarding potential indirect plant impacts related to transmission line construction (see Specific Comment below that provides edits to page 4.2-69). Also delete the word "Observed" from top line of table as shown:

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Table 10
Impacts to Special-Status Plants

Scientific Name	Common Name	Status ²	Number of Plants Observed ¹						
			BSA	Solar Generator Site	Gen-Tie Line	Total Direct Impacts	500-foot Buffer from Fence	250-foot Buffer from Gen-Tie Const.	Total Indirect Impacts (in Buffers)
<i>Astragalus insularis</i> var. <i>harwoodii</i> *	Harwood's milk-vetch	CRPR 2.2	119	2	0	2	0	46	46
<i>Cryptantha costata</i> *	Ribbed cryptantha	CRPR: 4.3	Ca. 13,000	0	0	0	0	0	0
<i>Cynanchum utahense</i> (= <i>Funastrum u.</i>)	Utah vine milkweed, Utah cynanchum	CRPR: 4.2	98	47	0	47	2	0	0
<i>Eriastrum harwoodii</i> *	Harwood's eriastrum	CRPR: 1B.2 BLM S	160	0	0	0	0	4	4
<i>Proboscidea althaeifolia</i>	Desert unicorn-plant	CRPR 4.3	132	32	0	32	12	15	27

59. **Page 4.2-65, First Paragraph Below Table 10:** Add a sentence describing Harwood's eriastrum ranking, because this information is provided for Harwood's milk-vetch, and add phrases explaining the decimal parts of the rankings for both species, then remove repeated phrase, such that the paragraph reads:

None of the affected species are state or federally listed as threatened or endangered, or state-listed as rare, and none are candidates for state or federal listing. Harwood's eriastrum is ranked by the CDFG and California Native Plant Society (CNPS) as CRPR 1B.2, meaning it is considered "rare or endangered in California and elsewhere" and "fairly endangered in California." ~~Harwood's milk-vetch is ranked by the CDFG and California Native Plant Society (CNPS) as CRPR 2.2, meaning it is considered "rare or endangered in California, more common elsewhere-"~~ and "fairly endangered in California." Utah vine milkweed and desert unicorn plant are ranked as CRPR 4.2 and 4.3, respectively. CRPR 4 plants are those of limited distribution, and CRPR 4 is considered a watch list.

60. **Page 4.2-66, Impact Evaluation and Mitigation Strategy section, first paragraph, first sentence:** Because the "factors described below" are not directly based on the relevant significance criterion (which states that impacts to biological resources are considered significant if the project would result in "a substantial adverse effect to plant species considered by the California Native Plant Society (CNPS), CDFG, or USFWS to be rare, threatened, or endangered in California or with strict habitat requirements and narrow distribution"), but are *in addition* to that significance criterion, the sentence should be changed to:

For impacts to special-status plants, staff applies the significance criteria (see "Methodology and Thresholds for Determining Significance"), ~~based on and also~~ considered the factors described below.

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61. Page 4.2-67, Proportion and Extent of Affected Occurrences:

Plants, like wildlife, are vulnerable to the effects of habitat fragmentation (see “Wildlife Movement,” below). Small habitat patches (“fragments”) can support only small populations, which are more vulnerable to extinction. Even minor habitat changes or other effects can cause extinction of a small, localized plant population. As a CRPR 2 plant, the Colorado Desert populations of Harwood’s milk-vetch represent a substantial portion of its known distribution within California. Loss of plants and occupied habitat in the project area ~~would~~ could make it more vulnerable to extirpation within the state.

Harwood’s eriastrum is a California endemic with a relatively limited geographic range; is rare throughout its range; and its habitat, semi-stabilized dunes, is uncommon. It was not found within the project footprint, but it is present in the BSA and adverse offsite effects to the plants or occupied habitat, if any, could affect a substantial portion of its regional population and make it more vulnerable to extirpation. However, because the project’s direct impacts will be minimal and indirect impacts are not anticipated to be significant, the project is unlikely to make Harwood’s milkvetch substantially more vulnerable to extirpation within the state.

62. Page 4.2-67, Habitat Quality: This paragraph does not accurately characterize the disturbed condition of the northern part of the gen-tie line alignment, and should be edited to include information on this disturbance, as follows:

Staff notes that habitat at the solar generator site and along the southern section of the proposed gen-tie line alignment is generally undisturbed and supports a low proportion of weeds (see “Setting and Existing Conditions,” above). The solar generator site appears to be good-quality habitat for these special-status plants. The northern section of the proposed gen-tie alignment has been disturbed by activity related to construction of the Colorado River Substation and Sahara mustard infestation.

63. Page 4.2-67, Threats: This paragraph does not accurately characterize the disturbed condition of the northern part of the gen-tie alignment. Please revise as follows:

Threats to special-status plants in the region include land use changes, grazing, mining, off-road vehicle (ORV) use, and invasive non-native plants (CNPS 2012a). The project area is relatively remote and there has been only minimal habitat damage by these or other disturbances, except for the northern section of the proposed gen-tie alignment, which has been disturbed by Sahara mustard infestation and Colorado River Substation construction activity. Most disturbances ~~would be~~ are localized on access routes and utility alignments.

64. Page 4.2-67, Direct and Indirect Impacts to Special-Status Plants: The first sentence states that project impacts would be significant, but an argument is provided for why they would not be, in following paragraphs in this section (see below); therefore, this sentence should be edited as follows:

Potential direct or indirect project impacts to two special-status plants, Harwood’s milk-vetch and Harwood’s eriastrum, ~~would meet the~~ were evaluated according to CEQA significance criteria described above.

65. Page 4.2-68, First Full Paragraph: Please add a new last sentence containing important information about where this species grows on the Project site:

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Harwood's milk-vetch is an annual herb found in desert dunes and sandy or gravelly desert scrub from about sea level to 2,300 feet elevation. It flowers between January and May. Like most desert species, its above-ground growth and flowering season vary from year to year, depending on the amount and timing of seasonal rainfall. In California, Harwood's milk-vetch is found in Imperial, Riverside, San Bernardino, and San Diego counties. It also occurs in Arizona and Mexico. On the Project site, Harwood's milk-vetch grows in an area that has already experienced disturbance through activity related to construction of the Colorado River Substation and invasion by Sahara mustard.

66. **Page 4.2-68, Second Full Paragraph:** Please revise to reflect more accurate information related to the blooming season and add important information about where this species grows on the Project site:

Harwood's milk-vetch is an annual herb found in desert dunes and sandy or gravelly desert scrub from about sea level to 2,300 feet elevation. It flowers between January and May. Like most desert species, its above-ground growth and flowering season vary from year to year, depending on the amount and timing of seasonal rainfall. It flowers in early April ~~March to June~~. The proposed gen-tie line would pass through suitable habitat (which has already experienced disturbance through activity related to construction of the Colorado River Substation and invasion by Sahara mustard), though all recorded locations are outside the proposed alignment.

67. **Page 4.2-68, Last Paragraph:** Please add a new last sentence containing important information about the disturbed condition of where these plants are growing, as well as two new paragraphs:

However, in the case of this project, these plants are already growing in an area subject to disturbance due to their location near an existing transmission line access road, established Sahara mustard, and local disturbance associated with construction of the nearby Colorado River Substation.

The project proposes to impact no Harwood's eriastrum plants directly (0%), and only four individuals of 160 (2.5%) could be subject to indirect impacts within 250 feet of new construction in the gen-tie alignment. The plants found within 250 feet of new construction in the gen-tie alignment are already successfully growing near the existing dirt access road, which suggests that they tolerate a certain level of disturbance. Because indirect impacts to 2.5% of the on-site total are not expected to result in substantial adverse effects to Harwood's eriastrum, impacts to this species would be less than significant.

The project will directly impact two of the 119 Harwood's milkvetch individuals found within the BSA (1.7%), and up to 46 (39%) could be subject to indirect impacts within 250 feet of new construction in the gen-tie alignment. Because direct impacts to 1.7% of the on-site total are not expected to result in a substantial adverse effect, direct impacts to this species would also be less than significant. Indirect impacts to 39% of individuals on-site could potentially be significant; however, because these plants are established in an area already subject to disturbance (along the existing dirt access road), these indirect impacts are not expected to result in substantial adverse effects and would be less than significant.

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68. **Page 4.2-69, Conclusions and Discussions of Special-Status Plant Mitigation, First Full Paragraph:** Please revise this section as follows to indicate that proposed impacts will *not* be significant:

The proposed project would directly affect Harwood's milk-vetch and may indirectly affect Harwood's eriastrum on sand dunes in the northwestern portion of the proposed gen-tie alignment. However, only a very small number of Harwood's milk-vetch would be impacted directly, only a small number of Harwood's eriastrum would be indirectly impacted, and indirect impacts to Harwood's eriastrum and Harwood's milk-vetch are expected to be minimal due to their apparent tolerance of disturbance along the existing access road. Staff concludes that the likely direct and indirect project impacts to Harwood's eriastrum and Harwood's milk-vetch would not be significant.

To reduce project impacts to any other CRPR 1 and 2 plants to below a level of significance, staff recommends a mitigation strategy to (1) determine whether any additional late-season special-status plants would be affected by the project, minimize overall project disturbance to native vegetation and habitat, (2) avoid occupied ~~Harwood's milk-vetch or Harwood's eriastrum~~ habitat to the extent feasible (e.g., by selectively locating gen-tie line towers and work sites), (3) ~~determine whether any additional late-season special-status plants would be affected by the project,~~ and (4) identify and mitigate any ~~additional~~ significant adverse impacts to CRPR1B and 2 plants through avoidance measures, by protecting acquired lands off-site, or through other off-site measures such as habitat improvement or management. [...]

69. **Page 4.2-70, Overview of Impacts to Wildlife, Common Wildlife, Third Paragraph:** Applicant disagrees that all value would be lost as the original statement implies. Twelve to 18 inches of vegetation still provides cover, which is functionally valuable. Please revise this paragraph as shown:

The AFC does not describe vegetation management during construction and operations. Staff understands that the applicant's Hidden Hills project would remove vegetation for access routes, and would cut vegetation to 12-18 inches to provide clearance for heliostats, but leave the root structures intact. Staff assumes that the Rio Mesa SEGF would manage vegetation similarly. This approach would maintain some vegetation function for soils stability and erosion control, but functional habitat values for most species of wildlife would be ~~lost~~ diminished.

70. **Page 4.2-72, First Full Paragraph:** Please delete reference to BIO-8 to reflect Applicant's General Comments.
71. **Page 4.2-72, Nesting Birds, First Paragraph:** Please revise to include reference to the 2012 avian surveys:

Native birds are protected under the California Fish and Game Code and federal Migratory Bird Treaty Act (MBTA), though most native birds have no other special conservation status. The entire project site and surrounding area provides suitable nesting habitat for numerous resident and migratory bird species. The applicant provided point count data on bird diversity within the BSE (URS 2011, 2012) and continues to collect additional data on bird diversity and abundance on the site in response to staff's data requests. These additional data will be submitted for staff review and incorporated into the FSA. The project's impacts to special-status birds are discussed under Special Status Wildlife, below.

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72. **Page 4.2-74, First Paragraph:** Please revise this section to reflect General Comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

~~This subsection presents staff's analysis of expected impacts to wildlife during the project's operation. Each of the impacts analyzed below could potentially ~~would~~ affect ~~large groups a variety~~ of wildlife species, such as ground-dwelling vertebrates (roads and traffic impacts) or birds (collision and concentrated solar energy impacts). Most of the wildlife species likely to be affected by ~~these factors~~ the project are common species. ~~However, in many cases, the impacts also would affect special-status wildlife species.~~ Where appropriate, ~~those~~ potential impacts to special-status species are ~~briefly mentioned~~ discussed in the subsection, "Impacts to Special-Status Wildlife".~~

73. **Page 4.2-74, Evaporation Ponds:** Please revise this section to reflect measures Applicant will implement to avoid potential impacts to wildlife from the evaporation ponds:

~~The proposed Rio Mesa SEGF includes two netted 2-acre evaporation ponds (BS 2012v, Fig 2-8 (rev)). Staff presumes that one or both of these ponds would hold surface water year around. The ponds would be within the project's security fence and tortoise exclusion fence and will be netted to preclude wildlife. ~~However, absent further measures, they would be accessible to small mammals, reptiles, and other wildlife within the project boundaries and to birds or bats that may fly into the area. In addition, if dilute saline wastewater is present in the evaporation ponds, it could serve as a water subsidy for ravens (see the discussion of subsidized predators under "Desert Tortoise," below).~~~~

~~The primary evaporation pond risks to wildlife are drowning, salt toxicosis, and salt encrustation. Absent mitigation, these risks could constitute a significant impact to special-status wildlife species and migratory birds. Terrestrial wildlife are at risk of drowning if they fall into the water and cannot climb back out. However, terrestrial wildlife exposure to the evaporation ponds would be limited by the security and exclusion fencing, and any animals that could encounter the ponds would likely be those that remain within the fenceline after the fence is erected at the start of construction activities (i.e., small mammals and reptiles, not including desert tortoise, desert kit fox, or other special-status species). Because the evaporation pond will be netted, wildlife including ~~Small~~ mammals (including bats), reptiles, waterfowl, shorebirds, and other resident or migratory birds ~~that cannot drink from the ponds and could~~ would not be exposed to toxic levels of hyper-saline water, depending on the salts and concentrations present. ~~Numerous waterfowl died from salt toxicosis at the Harper Lake Solar Electric Generating System in the Mojave Desert evaporation ponds (Luz 2007). As water evaporates away, the dissolved salts would precipitate from solution, so that evaporation ponds may contain sludge beneath the water surface. If birds land on the pond surfaces or wade in the ponds, this material may accumulate on feathers and interfere with flight. Encrusted salts may also cause toxicosis if birds absorb them through the skin or ingest them during preening.~~~~

~~Additionally, the evaporation ponds are expected to attract birds, whether or not they land on the ponds, increasing potential risk of collision with heliostats or burning due to concentrated solar energy above the project area. These hazards are described in the subsection entitled "Operational Impacts to Birds and Bats." Foraging bats also may be~~

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~~attracted to the evaporation ponds, but staff believes that potential adverse impacts to bats would be minimal because they would be able to detect collision hazards and would not be active during daylight hours (i.e., when concentrated solar energy is present).~~

74. **Page 4.2-75, Lighting, Second Paragraph:** The PSA states: “PLP can alter the ability of wildlife to seek out suitable habitat, elude or detect predators, and the ability to detect natural polarized light patterns which can affect navigation and ultimately affect dispersal and reproduction (Horvath et al. 2009).” This statement is too general. Please provide the wildlife species or group of species to which the CEC is referring. Additionally, this reference is not found in the references section.

The PSA also states: “The project also may have a “mirage” effect caused by appearance of the proposed heliostat field from a distance. Both of these potential effects could attract birds or bats to the facility, where they may be susceptible to mortality or injury by collision or burning (below).” The PSA provides no evidence or substantiation that this would in fact occur. Please explain how this effect would attract birds and bats to the facility, and provide scientific evidence to support this.

Finally, the PSA comments on a “mirage” effect associated with lighting are unfounded, and no basis is provided to associate a “mirage” effect with lighting of the project during construction or operation. The document needs to directly define mirage effect and provide a factual basis for linking this concept to potential impacts to wildlife. The link that the Staff appears to be making between a nocturnal “mirage” effect and burning of birds and bats is not reasonable, as lighting should not be an attractant for either group of species during the day, which would be the only period when risk of “burning” would be potentially evident. Furthermore, the link of collision risk to bats attracted by lighting associated with this mirage effect is also unfounded. Although substantial evidence does suggest that bats are attracted to insect concentrations associated with point-source lighting, Orbach and Fenton (2010) offer strong evidence that bats may avoid dim and brightly lit areas, and that at certain times of year, collision risk may be lower for bats in lighted areas than in nonlighted areas. Please revise this section as follows:

Lighting may affect essential behavioral activities, physiology, population ecology, and ecosystems of diurnal, crepuscular, and nocturnal wildlife, and light pollution may affect competition and predation for some species (Longcore and Rich 2004). Lighting may also increase the risk of predation of wildlife because they may be more detectable to nocturnal predators (USACE and CDFG 2009). Many insects are drawn to lights, and bats or other insectivores may be attracted to lighted construction areas ~~which would increase the potential for disturbance and mortality~~. However, many small species, such as rodents, rabbits, snakes, and bats, are less active in bright lighting (Longcore and Rich 2004), which may be a biological adaptation to avoid predation during bright moonlight. Overall, chronic ecological light pollution project lighting may create an environment, or localized environments within the project site, that favors light-tolerant species over those that are dark-adapted and presently using the site (Longcore and Rich 2004).

The heliostat fields may be sources of polarized light pollution (PLP) which results from light reflecting from anthropogenic structures. PLP can alter the ability of ~~wildlife aquatic insects to correctly detect waterbodies under certain illumination conditions seek out suitable habitat, elude or detect predators, and ability to detect natural polarized light patterns which can affect navigation and ultimately affect dispersal and reproduction~~ (Horvath et al. 2009). ~~The project also may have a “mirage” effect caused by appearance~~

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~~of the proposed heliostat field from a distance. Both of these~~ This potential effects could attract aquatic insects, birds or bats to the facility, and subsequently predators or other species associated with their presence, which could in turn where they may become susceptible to mortality or injury by collision or burning (below). The association of PLP impacts on organisms associated with waterbodies is possible; however, the extent to which birds, bats, reptiles and similar species in or near the project would be influenced by PLP potentially produced by project features is unknown.

75. **Page 4.2-75, Bird and Bat Collisions with Project Facilities:** The summary of bird collision information should be corrected to accurately reflect the cited references and other information pertaining to this topic. Please revise the first paragraph as follows:

Birds collide with many types of structures, including communications towers, transmission lines, and buildings. Numerous studies have documented ~~extensive~~ bird mortality from collisions with buildings and other structures such as smokestacks or monuments, and estimates of annual bird mortality from reports evaluating avian collisions with transmission and distribution lines nationwide range from hundreds tens of thousands to as many as 174-75 million, although that is considering approximately 500,000 miles of bulk transmission lines and an unknown number of miles of distribution lines (Erickson et al., 2001). Many of the studies reviewed were conducted in response to known or perceived problems with avian collisions and therefore may be biased high.

Collisions typically result when the structures are not visible (e.g., power lines, guy wires, or unlighted towers at night), deceptive (e.g., glazing and reflective glare), or confusing (e.g., light refraction or reflection from mist) (Jaroslow 1979). Collision rates generally increase in low light conditions, during strong winds, and during panic flushes when birds are startled by a disturbance or are fleeing from danger. Most or all of the project components present collision risks for birds ~~or bats~~. Nocturnal visibility of the gen-tie and internal distribution line conductors and towers would depend on moonlight. The receiver towers would be lighted to conform to Federal Aviation Administration (FAA) regulations but most of their surfaces would not be lighted and visibility at night would also depend on moonlight. Facilities lighting at night may attract insects and, consequently, feeding bats; however, bats would not reasonably be expected to collide with static structures presented by the project, which may then be at risk of colliding with heliostats or other structures. During daylight In most lighting conditions, the mirrored heliostats would reflect images of open sky or desert shrubland from most nearby viewpoints, (similar to mirrored windows, which birds commonly strike. The CEC in previous cases determined that conclusions cannot be drawn from collisions with glass surfaces. The evaporation ponds may attract birds, or insects and avian insectivores (and feeding bats). The magnitude frequency of collision mortality to birds and bats will depend upon multiple factors, including the size and location of project features, numbers of birds and bats in the project vicinity, diurnal and seasonal patterns of bird use timing of Bird flights across of the site, and specific flight behavior of birds and bats.

76. **Page 4.2-76, First Full Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

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Staff has reviewed a study conducted by SRSG technology necessitates an extensive heliostat field made up of many large mirrors, which presents a collision hazard for birds. Staff has reviewed research by McCrary et al. (1986) which quantified bird mortality, including collisions, at a 10 MW pilot SRSG pilot facility (Solar One) near Daggett, California. The Solar One facility consisted of a 32-hectare (79-acre) heliostat field and 86-meter (282-foot) solar receiver tower. Results of that study indicated that much of the documented bird mortality consisted predominantly of collisions with mirrors. The study found that the mortality associated with the facility was, however, minimal in comparison with the bird population within the immediate vicinity of the project site, and “obviously much less” in comparison with the much larger regional avian population. McCrary 1986, p. 140. Staff has previously considered the issue of mirrored surface collision risks that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and Ivanpah Solar Energy Project (concentrating solar tower technology). The applicant has submitted survey reports from two operating solar tower facilities in Israel and Spain prepared by qualified academic researchers, and no avian mortalities due to collision or flux were detected in either study. Nevertheless, consistent with prior assessments and certifications of the same and similar projects that include arrays of mirrored surfaces in desert environments, staff concludes that there is a lack of research-based data concerning these issues and has recommended conditions of certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels.

77. **Page 4.2-76, Heliostats:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent. If retained, please provide justification for the stated conclusions. Even if collision rates are consistent with McCrary et al., the impact should not be considered significant at a population level for common species. Additionally, the section below contains speculation regarding a conclusion not reached in McCrary et al. 1986 (“The heliostat field also may reflect a deceptive mirage-like image to birds aloft, perhaps causing birds to mistake them as water and increase the collision risk.”):

Heliostats. Bird mortality at the Solar One facility consisted predominantly of collisions with mirrors (McCrary et al. 1986). The reasons for this result at the Solar One facility are not known, and could be related to several factors, including heliostats would reflections images of sky or open areas, that may have confused birds in the same way that large glass or mirrored surfaces may be appear as open sky or conditions unique to the study site. A substantial number of the observed mortalities involved certain species, such as grebes, that are known to have poor flying skills, and require long, unobstructed areas when initiating flight. The heliostat field also may reflect a deceptive mirage-like image to birds aloft, perhaps causing birds to mistake them as water and increase the collision risk. Unlike modern solar reflective renewable energy facilities, the Solar One project, was immediately adjacent to 130 acres of open, unscreened ponds

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that provided an artificial aquatic subsidy for, and attracted bird populations that would otherwise not have occurred near the facility in the same numbers. The 1986 study found that, "Of the habitats surveyed in this study, the evaporation ponds were the most heavily used by birds." McCrary 1986, p. 138. No such open ponds will exist within or near, the Rio Mesa site, and open, artificial water subsidies in desert environments will not be maintained immediately adjacent to any of the proposed solar facilities as occurred at the Solar One plant. project is surrounded by barren, leveled terrain. CEC staff has also previously identified structure height as a major factor affecting avian collision risks. The Solar One heliostats were over 23 feet high. In contrast, the proposed project heliostats would be approximately 13 feet above the ground at maximum elevation. Applicant has submitted survey reports from two operating solar tower facilities in Israel and Spain prepared by qualified academic researchers, and no avian mortalities due to collision or flux were detected in either study. Nevertheless, due in part to the unique conditions of the older facility examined in the 1986 study, staff concludes that there is a lack of research-based data concerning these issues and insufficient information to quantify or estimate the project's potential avian collision risks. The CEC has considered the issue of potential mirrored-surface avian collision risks relative to available empirical and research-based information regarding such risks during the review and certification of several solar reflective renewable energy facilities since 2009. Consistent with these decisions, and based on the best available information, staff's recommended conditions of certification, including Condition of Certification **BIO-12**, would provide the information needed to develop and implement adaptive management measures to mitigate bird collision impacts should any be identified and will reduce such potential impacts to less than significant levels. Staff expects an unknown numbers of birds will strike the mirrors and perish. Staff is coordinating with the applicant and USFWS to review the project's risks to birds and hopes to evaluate this risk more completely in the FSA.

78. **Page 4.2-76, Receiver Towers:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

Receiver towers. One bird mortality at the Solar One facility resulted from a collision with the 282 ft. receiver tower (McCrary et al. 1986). ~~The study determined that the overall avian mortality rate associated with the facility was less than significant.~~ The Rio Mesa SEGF receiver towers would be 750 ft tall, and lighted to comply with aviation safety requirements ~~but no other lighting on the tower is proposed~~ (BS 2011). Most nocturnally migrating birds fly above about 300 m (984 ft) and only about 15 percent fly below that altitude (Felix et al. 2008). However, nocturnally migrating songbirds strike lighted communications towers, especially towers greater than 300 to 500 feet tall (Manville 2001; Kerlinger 2004). The extent of this potential risk is in part a factor of weather conditions, such as fog or rain, which can obscure bird perception of structures at night. The project is located in a desert region in which the incidence of any such conditions is extremely low and nights are characterized by clear, unobstructed conditions. The type of aviation lighting appears to affect bird behavior and collision hazard. Many of the avian fatalities at communications towers and other tall structures have been associated with steady-burning, red incandescent L-810 lights, which seem to attract birds (Gehring et al. 2009). Longcore et al. (2008) concluded that strobe or flashing lights on towers resulted in less bird aggregation and, by extension, lower bird

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mortality than steady burning lights. Staff believes that the Rio Mesa SEGF towers would present a collision hazard, particularly for birds flying over the site at night. However, the applicant has identified measures to reduce this hazard (URS 2012a): FAA lighting should be only red lights with the longest permissible interval between flashes and the shortest permissible flash duration, and with flashes synchronized to increase the flash effect. The eastern Mojave region is typically characterized by clear nights, and with aviation lighting that complies with current guidelines for addressing nocturnal avian impacts, this risk will be mitigated to less than significant levels.

79. **Page 4.2-77, First Bullet:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

Gen-tie line conductors and towers. Bird collisions with power lines generally occur when: (1) a power line or other aerial structure transects a daily flight path used by a concentration of birds, or (2) migrant birds are traveling at reduced altitudes and encounter tall structures in their path. Collisions are more probable near wetlands (where bird numbers are high), within valleys that are bisected by power lines, and within narrow passes where power lines run perpendicular to flight paths (APLIC 1996). Songbirds (passerines) and waterfowl collide with wires, particularly during nocturnal migrations or poor weather (APLIC 2006; Avery et al. 1978). However, nonmigrating diurnal passerines and waterfowl tend to fly beneath power lines and thus have lower potential for collisions than larger birds, such as raptors, which generally fly over conductor lines and risk colliding with higher static lines. Also, many smaller birds tend to reduce their flight activity during poor weather (Avery et al. 1978), which may reduce collision risk to smaller birds. The proposed gen-tie line would be on single-pole towers, with final heights to be determined during final design. (BS 2012v, Fig. 3.3-2 (rev), depicting 110-foot-tall design). The towers would be well below the elevations of most nocturnal migrating birds, but would present a collision risk to birds flying at night in the area, or to birds flying during fog or rain in daylight hours or in certain lighting conditions. The gen-tie line is not expected to pose a significant collision risk to bats due to their echolocation ability, though information on bat collisions with transmission lines is minimal (Manville 2001). Staff believes that the gen-tie line would pose some risk of collision for birds ~~and bats~~, however, that risk is expected to be no greater, and possibly less than that posed by similar structures elsewhere, due to infrequent rain and fog in the Sonoran desert. The CEC regularly considers the issue of collision risks potentially associated with gen-tie line and similar power transmission facilities, and has found that measures included in staff's recommended conditions of certification, including APLIC power line design compliance, will mitigate potential impacts to less than significant levels.

80. **Page 4.2-77, Second Bullet:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

Additional structures (above-ground infrastructure, generation facilities, electrical distribution lines, administration buildings, vehicles, etc.) All structures, facilities, and vehicles have some potential for bird ~~or bat~~ collisions. Among the project components described in the AFC, the collector and distribution lines, the heliostats, and the windows or other reflective surfaces of any structures present the greatest hazards. ~~The~~

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~~most likely collision risk for bats is likely to be from vehicles operating during bat foraging hours as bats forage near roads or work areas. Staff believes that these project features facilities pose some risk of collision for birds and bats, though that risk is expected to be no greater than similar structures elsewhere (e.g., similar to typical residential, commercial, or industrial land uses structures). The CEC regularly considers the issue of collision risks potentially associated with such structures and has found that measures included in staff's recommended conditions of certification will mitigate potential impacts to less than significant levels.~~

81. **Page 4.2-77, Last Paragraph:** Review of the ornithological literature suggests that the Lower Colorado River Valley is a secondary bird migration route on the Pacific Flyway. Desert scrub habitat is not primary habitat for birds that use the Colorado River as a migratory corridor. Additionally, it is important to include acreage of evaporation ponds for comparison. Please revise this row as shown below. Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent:

As discussed above, bird collisions with a 10 MW pilot SRSG pilot facility (Solar One) near Daggett, California were documented by McCrary et al (1986). The Solar One facility consisted of a 32-hectare (79-acre) heliostat field and 86-meter (282-foot) solar receiver tower. The researchers documented 70 bird fatalities during the course of a 40-week study, and estimated that about 10 to 30 percent of bird carcasses went undocumented because animal scavengers removed them before researchers detected them. Adjusting for the estimated number of undocumented birds, the total average mortality rate was 1.9 to 2.3 birds per week. The study found that the mortality associated with the facility was, however, minimal in comparison with each species' populations within the immediate vicinity of the project site, and "obviously much less" in comparison with the much larger regional avian populations. McCrary 1986, p. 140. The bulk of bird mortality (more than 80 percent) resulted from collisions. The average weekly mortality rate for collisions was 1.5 to 1.8 birds. Most of these mortalities were from collisions with the heliostat mirrors and one known mortality resulted from collision with the solar receiver tower. The authors partially attributed these collisions to high numbers of waterbirds attracted to the adjacent evaporation ponds and agricultural fields. Over a third of the species that collided with the heliostats were waterbirds and a third of the individuals found dead were waterbird species. None of these waterbird species were observed at Rio Mesa. Staff is not aware of any other scientific study of bird mortality at any other comparable generator. The applicant has provided a detailed fatality study completed at its 6 MW SEDC project in Israel (URS 2012b), where the avian community is diverse (62 species observed) and inclusive of a high number of migrant (n=40) and resident (n=22) bird species, many of which would be considered ecological counterparts to the birds occurring at RMS due to the arid desert conditions at each site. Fatality surveys were completed 4 times per week each morning from March 12, 2012 to May 15, 2012, using transects spaced 20 meters apart within the heliostat field. During this survey, two dead birds (chiffchaff and blackcap) were found within the heliostat field and 1 nestling (Tristram's grackle) was found at the base of the tower and apparently had fallen from its nest on the tower. made no anecdotal observations of bird mortalities at its 6 MW SEDC project in Israel (URS 2012b). The proposed Rio Mesa SEGF would use similar technology and design features

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as SEDC, but the tower would be substantially higher and the heliostat field substantially larger than the Solar One or the SEDC project.

Staff has previously considered the issue of mirrored surface collision risks that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and Ivanpah Solar Energy Project (concentrating solar tower technology). Numerous factors, including the refinement and further development of solar reflective technology since the 1986 study of the pilot facility was conducted, local factors, such as 130 acres of unscreened ponds in a desert environment immediately adjacent to the Solar One facilities that are not present in modern facilities and that appear to have attracted grebes and other waterfowl that are known to have relatively poor flying skills when initiating flight, and the height and size of the Solar One heliostats, which were approximately twice the height and area of the proposed project heliostat, preclude the use of the study to generate scientifically valid assessments of collision risks that may be associated with modern solar reflective renewable energy technology. The applicant has submitted survey reports from two operating solar tower facilities in Israel and Spain prepared by qualified academic researchers, and no avian mortalities due to collision or flux were detected in either study. Nevertheless, consistent with prior assessments and certifications of the same and similar projects that include arrays of mirrored surfaces in desert environments, staff concludes that there is a lack of research-based data concerning these issues and has recommended conditions of certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels.

82. **Page 4.2-78, Table 11 and Page 4.2-79/80:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent. The sections are redundant, speculative and not relevant because staff has determined that the collision risks addressed in the PSA cannot be determined on the basis of the information considered in the analysis.

**Biological Resources Table 11
Avian Mortality Hazard: Comparison of SRSG Projects**

Project Component	Solar One (San Bernardino Co., CA)	SEDC (Israel)	Rio Mesa (Riverside Co., CA)
Acreage / MW	80 acres / 10 MW	Unknown acres / 6 MW	3,805 acres / 500 MW
Mirrors	1,818 heliostats, each one 22.6 x 22.6 ft (512 ft ²); Total = 931,000 ft ²	1,610 heliostats, 75-150 ft ² each. Total = 120,000 – 240,000 ft ²	2 generators x 85,000 heliostats each (170,000 total); 2 mirrors per heliostat; each mirror 8.5 x 12 ft (102 ft ² each, 205 ft ² per heliostat); Total = 34.8 million ft ²
Tower(s)	One; 282 ft. tall	One; 256 ft tall	Two; each one 760 ft tall

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Adjacent land use/habitat	Desert shrubland; adjacent agriculture & evaporation ponds	No agriculture or wetlands; adjacent evaporation ponds; within major migratory flyway	Major migratory flyway; evaporation ponds on-site; adjacent to desert shrubland and microphyll woodland; irrigated agriculture within +/- 1 mile; Colorado River wetlands and wildlife refuges within +/- 5 miles
Bird Mortality	70 mortalities documented during 40 weeks of surveys 19 were waterfowl & shorebirds; 51 (incl. all burns) were other species	No monitoring protocol or replicable study; no anecdotal mortality reports	unknown

Source: URS 2012b.

McCrary et al. (1986) also inventoried bird carcasses on the Solar One project site and estimated the number of birds in the surrounding approximately 150 ha (370 ac), including the solar facility, evaporation ponds, and adjacent agricultural fields. They estimated total bird mortality as 1.9 to 2.2 birds per week (including collisions and burns; collisions alone account for 1.5 to 1.8 of the weekly mortalities). Based on the total number of birds observed in the area weekly, collisions and burns accounted for a 0.6 to 0.7 percent weekly mortality rate in the survey area. The authors characterized this mortality rate as “minimal.”

The applicant has indicated that heliostat mirrors at the Rio Mesa SEGF project would be shorter than those at the Solar One site, and that this design difference would reduce collision hazard for birds. However staff has been unable to find documentation of relative collision hazards of taller or shorter mirrors. Staff believes that collision hazard is more likely to be a function of the total area of mirror surface than the height of the individual mirrors.

The applicant extrapolated from the Solar One data to estimate “worst case” bird mortality rates from collision with the heliostats as 5.8 to 6.7 birds per week (URS 2012b). It is not clear how that estimate was derived. The Rio Mesa SEGF would cover 48 times more acreage than the Solar One project and would have 37 times more surface area of mirrors. Based on those factors, the Solar One collision mortality rates extrapolate linearly as 55 to 86 bird mortalities per week at the larger Rio Mesa SEGF project site. The low value (55 birds per week) is based on the low estimate for Solar One collision mortalities (1.5 birds per week) multiplied by 37 (the mirror surface ratio). The higher value (86 birds per week) is based on the higher estimate for Solar One collision mortalities (1.8 per week) multiplied by 48 (the acreage ratio). Similar calculations are provided for burn mortality under “Concentrated Solar Energy,” below. These extrapolations are intended as rough projections of the anticipated scale of bird collision mortality. Staff cautions, however, that this is not an estimated or predicted mortality rate. McCrary et al. (1986) noted that “The greater magnitude of these [larger commercial-scale] facilities may produce non-linear increases in the rate of avian mortality when compared to Solar One and extrapolations from this study should be made with caution.” Due to the many factors contributing to bird collision risk, staff

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cannot quantify expected bird mortalities from collision with project facilities. Nevertheless, staff believes that the risk is significant.

The actual mortality rate for bird collisions with heliostats will depend on a series of further considerations and variables. Some of these may imply that the extrapolated Solar One values would overestimate potential collision mortality at the Rio Mesa SEGF, whereas others may imply an underestimate. A partial list of these considerations includes:

Factors suggesting that linear extrapolation from Solar One data would overestimate Rio Mesa SEGF collision mortality:

- Immediate proximity of the Solar One project to irrigated agricultural fields and evaporation ponds;
- No observed collision mortality at BSE's SEDC project; and
- Larger heliostats at Solar One (URS 2012b; note however that staff does not concur and believes, instead, that collision hazard is more likely to vary according to total area of reflective surface than size of individual heliostats).

Factors suggesting that linear extrapolation from Solar One data would underestimate Rio Mesa SEGF collision mortality:

- Proposed on-site evaporation ponds;
- Location within significant migration corridor (Colorado River branch of the Pacific flyway);
- Proximity to local agricultural lands (approximately one mile); birds en route among agricultural lands and other habitat areas are likely to fly over the site;
- Proximity to significant regional wintering waterfowl habitat (several miles); birds en route among wetlands, refuges, and other habitat areas are likely to fly over the site;
- Proximity to large areas of desert microphyll woodland, which supports disproportionate numbers of nesting birds;
- McCrary et al. conclusion that large scale projects may produce non-linear increases in mortality rates;
- Observations at BSE's SEDC project were anecdotal and not based on rigorous methodologies;
- Solar One study did not account for injury, morbidity, or late mortality effects (e.g., birds injured by heliostat collisions, but still able to fly off-site, likely leading to delayed or off-site mortality); and
- Substantially taller solar receiver towers present increased collision hazard.

83. **Page 4.2-80, Electrocutation:** Please revise to be consistent with Applicant's General Comments concerning mitigation feasibility:

Large birds such as egrets, herons, and raptors, including special-status species, are susceptible to transmission line electrocution if they simultaneously contact two energized phase conductors (i.e., wire or cable) or an energized conductor and grounded hardware. Electrocution can occur when horizontal separation is less than the

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wrist-to-wrist (flesh-to-flesh) distance of a bird’s wingspan or where vertical separation is less than a bird’s length from head to foot. Electrocutation can also occur when birds perched side-by-side span the distance between these elements (APLIC 2006).

~~Transmission tower or pole design is a major factor in electrocution hazard.~~

Electrocution happens most frequently when a bird attempts to perch on a transmission tower or pole with insufficient clearance between the energized or grounded elements; therefore, transmission tower or pole design is a major factor in electrocution hazard.

The majority of bird electrocutions are caused by distribution lines and relatively small transmission lines, energized at voltage levels between 1 kV and 60 kV. Higher voltage transmission lines have wider spacing between the conductors and grounds, reducing the threat of electrocution. ~~Electrocution can occur when horizontal separation is less than the wrist to wrist (flesh to flesh) distance of a bird’s wingspan or where vertical separation is less than a bird’s length from head to foot. Electrocutation can also occur when birds perched side-by-side span the distance between these elements (APLIC 2006).~~

~~The largest bird that is likely to come in contact with the gen-tie line is a golden eagle (average wingspan to 7.5 feet; wrist to wrist length of 3.5 feet; height to 2.2 feet). The red-tailed hawk is the most common large bird that could come in contact with the gen-tie lines (average wingspan to 4.7 feet; wrist-to-wrist length of 1.9 feet; height to 1.8 feet); whereas, the largest bird that is likely to come in contact with the gen-tie line is a golden eagle (average wingspan to 7.5 feet; wrist-to-wrist length of 3.5 feet; height to 2.2 feet).~~ Other large birds in the area are turkey vulture (average 5.8 foot wingspan, 2.0 foot wrist-to-wrist length, 1.8 feet tall) and great horned owl (average 4.3 foot wingspan, 2.1 foot wrist-to-wrist length, 1.3 feet tall). Swainson’s hawk, which may migrate over the area, has a 4.5 foot wingspan, and can be 1.3 feet tall (bird sizes from APLIC, 2006).

The Avian Powerline Interaction Committee (APLIC, 2006) guidelines recommend 60 inch separations between components to protect eagles and most other birds from electrocution, a design standard to which the applicant has committed to (URS 2012b). The applicant does not specify gen-tie line or other electrical infrastructure clearance distances between electrical components and grounds, except to state that transmission system design will “meet all national, state, and local code requirements” (BS 2011: p 3-9) and be designed according to guidelines in APLIC (2006) and Edison Electric institute (2004) to prevent avian electrocution and minimize electrocution hazard for raptors. ~~However, the applicant has identified measures to reduce this hazard (URS 2012b) by designing and constructing gen-tie poles according to guidelines in APLIC (2006) and Edison Electric institute (2004) to prevent avian electrocution and minimize electrocution hazard for raptors.~~

84. **Page 4.2-81, Table 12:** Please delete this table, as it is derived from fire hazard risks and does not consider effects that are related to solar flux:

Biological Resources Table 12

Energy Flux Effects to Organic Materials, Bird Carcasses, and Human Skin

Description of effect	Energy flux level	Time of exposure
Unpiloted combustion (redwood)	50 kW/m ²	3 seconds
Unpiloted combustion (redwood)	16 kW/m ²	12 minutes
Singed or burned feathers; tissue	50 kW/m ²	20-30 seconds

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discoloration and drying (bird carcass) (BSE 28 Aug 2012)		
Pain (human skin)	23.5 kW/m ²	1.6 seconds
Pain (human skin)	10.5 kW/m ²	5 seconds
Pain (human skin)	8.2 kW/m ²	5 seconds
Pain (human skin)	4.8 kW/m ²	10 seconds
Blisters (human skin)	4.2 kW/m ²	30 seconds
Limit for human circulatory system to dissipate heat	3.4 kW/m ²	n/a
Generally safe	2.5 kW/m ²	n/a (“lower limit for pain after a long period”)

Source: “Toxicity assessment of combustion products,” accessed April 30, online: http://go.totalsafety.nl/uploads/heat/fire_dynamics_exposure_to_heat.pdf.

85. **Page 4.2-81, Last Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent. The section is redundant, speculative and not relevant because staff has determined that the solar flux risks addressed in the PSA cannot be determined on the basis of the information considered in the analysis:

Feathers are “instrumental in flying [and] they play a critical role in temperature regulation” (Sibley 2002). They are composed of protein (keratin), similar to the material of human hair and nails. The long relatively rigid feathers of the wings and tail (flight feathers) are the bird’s aerodynamic flight surfaces. Surface feathers, or contour feathers, cover and streamline the remainder of the body and also contribute to aerodynamics. Insulating feathers are found beneath the contour feathers. Seemingly minor damage to flight feathers may affect a bird’s ability to maneuver or its flight speed; more significant damage to flight feathers would prevent flight altogether. Significant damage to contour feathers also may affect aerodynamics. And damage to insulating feathers may affect the bird’s thermoregulation (body temperature control). Feathers normally become worn over time and birds periodically lose and replace them during molting. Molting generally occurs once yearly (twice yearly in some species; generally every second year in raptors). Birds have no physiological means to replace damaged feathers other than the normal molting cycle.

McCrary et al. (1986) found that 13 of the bird carcasses (19 percent) at the Solar One facility had been burned, reporting that the “heavily singed flight and contour feathers indicated that the birds burned to death.” The authors interpreted these mortalities as the result of birds flying through that facility’s standby points, which used a single focal point approach that generated substantially higher solar flux levels than would occur at the proposed facility, where flux will be more diffused in the event that standby conditions occur. The study found that overall mortality associated with the facility was, however, minimal in comparison with the bird population within the immediate vicinity of the project site, and “obviously much less” in comparison with the much larger regional avian population. McCrary 1986, p. 140. Solar flux-related mortality accounted for less than 20% of the total mortality considered in the study. Staff has previously considered the issue of solar flux or concentrated solar reflection risks that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the

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Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and Ivanpah Solar Energy Project (concentrating solar tower technology).

Applicant has submitted survey reports from two operating solar tower facilities in Israel and Spain prepared by qualified academic researchers, and no avian mortalities due to collision or flux were detected in either study. Applicant has also submitted a study of flux impacts performed by a qualified scientist at the SEDC facility demonstrating that no flux impacts are likely to occur for exposure levels of less than approximately 50 kw/m². Less than 1% of the airspace above the solar facility would be subject to flux levels of 50 kw/m², and this level of flux would only occur in the immediate vicinity (approximately 65 meters from the center) of the top of each tower. Nevertheless, consistent with prior assessments and certifications of the same and similar projects that include arrays of mirrored surfaces in desert environments, staff concludes that there is a lack of research-based data concerning these issues and has recommended conditions of certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels. though they did not observe the incidents, and the mortalities also may have been caused by flying within elevated flux levels surrounding the SRSF during normal operation. Risk of burning was evidently higher for aerial foragers (swifts and swallows) because of their feeding behavior. The McCrary study was based on systematic searches of the 32 hectare (79 acre) Solar One site but not beyond the site boundaries. Thus, if any birds were injured but were able to fly beyond the site's boundaries (about 1,200 ft from the receiver tower), they would not have been found by the field biologists. For this reason, staff believes that actual mortality from burning may have been higher than reported.

The applicant has investigated effects of concentrated solar energy on bird carcasses and presented its findings to staff during a workshop on August 28, 2012. Carcasses of three species (chickens, doves, and quail) were exposed to various energy flux levels for periods of 10 to 30 seconds. Burned or singed feathers and discolored or dried muscle tissue were observed in the carcasses exposed for 20 to 30 seconds to flux levels above 50 kW/m². These effects were not observed in carcasses exposed to lower flux levels for the same intervals. No data on longer exposures were available. The applicant notes that feather temperatures in living birds probably would not reach the same temperatures during the same exposure periods due to convective heat dissipation by air motion surrounding them and because the birds' movement would change the amount and locations on its body of impacts from the solar flux.

Staff believes that the levels of feather and tissue damage reported for these exposures at 50 kW/m² or above would be likely to kill living birds. In addition, staff believes that shorter exposures at these energy flux levels would be likely to cause other tissue or feather damage that could impair flight or vision or cause physiological effects and ultimately cause or contribute to mortality from other causes (e.g., reduce ability to forage, escape from predators, or thermoregulate). Staff also believes that longer exposures to lower energy flux levels are likely to cause feather damage or physiological effects.

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Feathers are composed of protein (keratin) and contain some moisture, both on the surfaces and bound to the protein. Reflected solar energy is converted to heat as it is absorbed by an object (i.e., feather). Continued heating will drive off all moisture and the keratin structure will begin to deform. Once fully dry, the feathers will singe or burn after continued heating. Surface heating and feather damage is a function of energy flux level and exposure time. Staff's research of heating effects on keratin indicate that short exposures to radiant flux levels above 4 kW/m^2 may cause irreversible damage to feathers (see **Biological Resources Appendix: Risk Assessment Of Avian Exposure To Concentrated Radiant Solar Flux**). Staff estimates that a one-time exposure to radiant flux between 2.5 kW/m^2 and 4 kW/m^2 for duration not exceeding 1 minute would cause little if any damage to flight feathers and could be considered safe. Staff estimates that exposure to 5 kW/m^2 for a similar period may cause feather damage (depending on exposure angle and other factors), and that shorter exposures at higher flux levels could cause similar damage.

Birds have higher metabolic rates and higher body temperatures than mammals. Passerine birds (songbirds) have the highest basal metabolic rates among all vertebrates. In order to maintain constant body temperature, birds employ several physiological mechanisms to reduce excess metabolic heat (Sibley 2002). In humans, symptoms of hyperthermia include hyperventilation, respiratory problems, and muscle spasms. Similar symptoms, if they occur in birds, would likely cause decreased ability to forage or escape predators, and increased risk of mortality. Feathers may help to insulate the body from some level of increased heat. But small animals (including birds) have much higher ratios of body surface to body volume and, as a result, are more susceptible to internal temperature changes through surface heat absorption. Staff is unaware whether birds in the Colorado Desert are at or near their physiological ability to dissipate heat during ordinary summer flight activity. Thus staff cannot predict the level of increased heating from concentrated solar energy that may cause hyperthermia. Staff notes that hyperthermia or its effects to living birds cannot be evaluated through carcass experiments such as the applicant's work described above.

86. **Page 4.2-83, Second Full Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent and the use of an inapplicable risk model with known predictive problems to evaluate unrelated risks:

Concentrated radiant flux could also cause glare that might result in eye damage to birds. Staff has previously considered the issue of glare risks that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and Ivanpah Solar Energy Project (concentrating solar tower technology). Consistent with prior assessments and certifications of the same and similar projects that include arrays of mirrored surfaces in desert environments, staff concludes that there is a lack of research-based data concerning these issues and has recommended conditions of

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certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels. For humans the maximum permissible exposure (MPE) to radiant flux for momentary exposure (0.25 second or less) is 2 kW/m², and MPE for continuous exposure (for a period greater than 0.25 second) is 1 kW/m². The Rio Mesa SEGF would concentrate sunlight at much higher radiant flux values than these, and staff believes that birds flying over the heliostat fields, especially near the SRSs may be at risk of eye damage or permanent blindness upon relatively brief exposures. Birds looking directly into concentrated light would likely suffer some damage to the central part of the retina, perhaps causing significant visual impairment, depending on radiant flux level and exposure time. Birds viewing the reflected light obliquely may experience some damage to peripheral vision.

87. **Page 4.2-84, Second-Fourth Paragraphs:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or underdetermined impact risks, and CEC precedent. The section is redundant and not relevant because staff has determined that the solar flux risk addressed in the PSA cannot be determined on the basis of the information considered in the analysis:

Based on staff's understanding of energy flux intensity and exposure times, staff believes that birds flying for short periods through energy flux exceeding about 25 kW/m² will likely suffer significant damage to flight feathers, eyes, or skin so that they would be unable to survive longer than a few days. In some cases, where they fly through higher flux levels, these birds would fall to the ground with evidence of severe burning as reported by McCrary et al. (1986). Staff believes that many such birds may continue flying for a few seconds or minutes, perhaps long enough to escape the hazard, but would be unable to fly effectively, find food, or escape predators and would die within a few days of the exposure.

Staff also believes that birds exposed for longer durations to energy flux exceeding about 5 kW/m² would be at risk of suffering (1) feather damage and consequent flight impediment, or (2) hyperthermia or other damaging physiological or anatomical effects. These energy flux levels cause pain or blistering on human skin within a few seconds (**Biological Resources Table 12**). The minimum exposure period and flux levels that would injure birds are unknown. To some extent, plumage may insulate birds from hyperthermia. Heat absorption rates will depend on plumage color, density, and structure; and any air cooling effect during flight. Further, it is unknown whether birds would attempt to escape from elevated energy flux, perhaps by flying upward or by turning around. Even presuming that most birds would attempt to move away from the energy flux, they would have no way of determining which direction to move.

Typical flight speeds are 20 to 50 miles per hour (mph) (USGS 1998), but can vary widely. Staff calculates a bird flying 20 mph (approximately 9 meters per second), would take approximately 90 seconds to fly across a disk-shaped volume of 400 m radius where energy flux would be above 5 kW/m². Based on the heating effects of concentrated solar energy, staff concludes that these exposure periods would be hazardous to birds, and that higher energy flux levels would be hazardous at considerably shorter exposure periods.

88. **Page 4.2-84, Last Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and

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scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and the use of an inapplicable risk model with known predictive problems to evaluate unrelated risks. The section is redundant, speculative, and not relevant because staff has determined that the solar flux risk addressed in the PSA cannot be determined on the basis of the information considered in the analysis. Any information derived from the methodology suggested in the sections related to wind energy models would likely be misleading and high prejudicial for the assessment of solar reflective renewable energy technologies:

~~The USFWS (2011b) recommends that developers and operators evaluate potential risk of wind energy projects to bald and golden eagles to determine whether eagle mortality may be expected and, if so, whether it can be mitigated. The risk assessment is based on multiple factors including eagle occurrence and habitat use, habitat characteristics, and the level of hazard posed by wind turbine technology (i.e., number, size, and locations of turbines). Turbines would pose a particularly high risk if they are in areas where eagles tend to congregate for breeding, roosting, foraging, or migration. From these data, the USFWS and applicants can model a predicted number of eagle fatalities per year or over the life of the project. For the Rio Mesa SEGF project, USFWS biologists hope to revise the wind energy risk assessment model to account for the zone of concentrated solar energy surrounding the towers in general and SRSGs in particular, and to model risks to other bird species.~~

~~Staff notes that the assessment model was designed for wind energy projects and some modeled fatality predictions have not corresponded closely to actual fatalities (de Lucas et al 2008; Ferrer et al 2011), probably due to the difficulty of accounting for local topographic conditions or eagle flight behavior. The current USFWS model takes into account recommendations by de Lucas et al. (2008) but was published prior to the follow-up work of Ferrer et al. (2011). Nevertheless, the predictive risk assessment model is the only tool available to evaluate likely impacts of energy developments to bald or golden eagles. Staff hopes to incorporate the USFWS risk assessment for the project's potential impacts to eagles into the FSA. Staff is not aware of a comparable model to assess risk to other birds. However, staff will continue to work with the applicant and resource agencies to evaluate energy flux risks to all bird species as completely as possible.~~

89. **Page 4.2-85, Third Full Paragraph through Page 4.2-86:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and CEC precedent. The section is redundant and not relevant because staff has determined that the collision risks addressed in the PSA cannot be determined on the basis of the information considered in the analysis:

~~The applicant concluded that “worst case” bird mortality rates caused by concentrated solar energy would be zero birds per week (URS 2012b). It is not clear how that estimate was derived. McCrary et al. estimated bird mortality from burns as approximately 0.4 birds per week. The volume of hazardous airspace surrounding the Solar One SRSG is unknown but, due to the relative scale of the project, could not have approached the volume of similar radiant energy flux hazard that would surround the Rio Mesa SRSGs. Staff believes that relative surface of heliostats is the best available proxy for volume of hazardous airspace at each project. The Rio Mesa SEGF’s reflective surface area would be 37 times greater than Solar One’s. Based on those factors, the Solar One radiant~~

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energy flux mortality rate extrapolates linearly as 15 bird mortalities per week at the larger Rio Mesa SEGF project site. This extrapolation is intended as a rough projection of the anticipated scale of radiant energy flux mortality. Staff cautions, however, that this is not an estimated or predicted mortality rate. McCrary et al. (1986) noted that “The greater magnitude of these [larger commercial scale] facilities may produce non-linear increases in the rate of avian mortality when compared to Solar One and extrapolations from this study should be made with caution.” Due to the many factors contributing to bird collision risk, staff cannot quantify expected bird mortalities from radiant energy flux. Nevertheless, staff believes that the risk is significant.

The actual radiant energy flux mortality rate will depend on a series of further considerations and variables. Some of these may imply that the extrapolated Solar One values would overestimate potential radiant energy flux mortality at the Rio Mesa SEGF, whereas others may imply an underestimate. A partial list of these considerations includes:

Factors suggesting that linear extrapolation from Solar One data would overestimate Rio Mesa SEGF radiant energy flux mortality:

- Immediate proximity of the Solar One project to irrigated agricultural fields and evaporation ponds;
- Estimated higher maximum radiant energy flux level at Solar One standby points, compared with lower levels at Rio Mesa SEGF standby ring;
- Probable extended periods in standby positions during Solar One testing, compared with minimal standby time at Rio Mesa SEGF; and
- No observed radiant energy flux mortality at BSE’s SEDC project.

Factors suggesting that linear extrapolation from Solar One data would underestimate Rio Mesa SEGF radiant energy flux mortality:

- Proposed on-site evaporation ponds;
- Location within significant migration corridor (Colorado River branch of the Pacific flyway);
- Proximity to local agricultural lands (approximately one mile); birds en route among agricultural lands and other habitat areas are likely to fly over the site;
- Proximity to significant regional wintering waterfowl habitat (several miles); birds en route among wetlands, refuges, and other habitat areas are likely to fly over the site;
- Proximity to large areas of desert microphyll woodland, which supports disproportionate numbers of nesting birds;
- McCrary et al. conclusion that large scale projects may produce non-linear increases in mortality rates;
- Solar One study (McCrary et al.) did not account for injury, morbidity, or late mortality effects (e.g., birds injured by heliostat collisions, but still able to fly off-site, likely leading to delayed or off-site mortality);

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- ~~Much larger volume of Rio Mesa SEGF standby ring compared with Solar One standby points;~~
- ~~Observations at BSE's SEDC project were anecdotal and not based on rigorous methodologies; and~~
- ~~Substantially larger volume of concentrated solar energy.~~

90. **Page 4.2-87 through 4.2-88:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and the inapplicability of compensatory mitigation for uncertain or undetermined impact risks. Bats are not at risk from collisions. It is stated in other parts of this document that bats would avoid project components. Further, not all bird species in the project vicinity are expected to fly over the Project or in the flux zone. Please review applicants Spring 2012 Migratory Bird report for the average flight heights of bird species observed at Rio Mesa. Most did not regularly fly at elevations where elevated flux risk is present. Please revise as shown:

Staff has previously considered the issue of collision risks that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and Ivanpah Solar Energy Project (concentrating solar tower technology). As discussed above, consistent with prior assessments and certifications of the same and similar projects that include arrays of mirrored surfaces in desert environments, staff concludes that there is a lack of research-based data concerning these issues and has recommended conditions of certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels. Staff concludes that bird mortality caused by collisions with project facilities would be significant without mitigation. To minimize the risk of collision with the gen-tie line and towers, staff recommends Condition of Certification **BIO-5** (Impact Avoidance and Minimization Measures), which specifies that gen-tie design and construction shall conform to Avian Powerline Interaction Committee (APLIC, 2004) guidelines to minimize collisions and flashing red lights rather than steady burning lights atop the towers. Staff's recommended Condition of Certification **BIO-12** (Mitigation and Monitoring of Operational Impacts to Birds and Bats) would require preparation and implementation of a Bird Conservation Strategy (BBCS) and a including Golden Eagles Protection Plan according to USFWS guidelines. ~~These plans which~~ would require the project owner to identify adaptive management measures to minimize potential collisions or solar flux impacts, should any be detected, and incinerations. The BBCS would also require implementation of remedial actions such as screening to minimize access to the heliostat field and placement of aerial markers or other devices to reduce bird mortality on gen-tie lines.

Staff's recommended Condition of Certification **BIO-3** (Compensatory Mitigation: Offset for Loss and Degradation of Native Vegetation and Wildlife Habitat) would require the project owner to preserve wildlife habitat in perpetuity to compensate for habitat loss

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on the project site. Habitat compensation is intended primarily to offset project-related habitat loss, but also may compensate in part for project related bird mortality.

Condition of Certification **BIO-12** would require the project owner to monitor, record, and report Bird mortality within the project footprint, whether from collision or other causes. The monitoring plan would address seasonal factors, species or taxonomic groups of birds affected, and types of injuries. Monitoring of operational impacts to birds and implementing adaptive management measures would not reduce these impacts or and mitigate them to less than significant levels, according to CEQA. However, staff believes that a carefully designed and implemented scientific monitoring program would provide valuable data which would document the actual impacts to birds and would inform environmental analysis of future projects proposing similar technologies.

Staff is considering the possibility that installing bird flight diverters on project-related and existing power lines in the vicinity of the Colorado River would minimize and offset potential take of sandhill cranes associated with the Rio Mesa SEGF, as flight diverters have reduced power line collision mortality for this species in some studies (Murphy et al. 2009).

Staff believes that these conditions of certification are feasible and, consistent with prior assessments and certifications of the same and similar projects that include arrays of mirrored surfaces in desert environments, would partially mitigate the anticipated potential impacts to birds and bats that could be caused by collisions with the Rio Mesa SEGF components to less than significant levels. However, staff concludes that significant residual impacts to birds and perhaps bats would remain. In particular, staff is not aware of any feasible means of minimizing or avoiding bird collisions with the heliostats. Staff will continue coordinating with the applicant and resource agencies to review any potential for off-site habitat protection and enhancement, particularly in wetland areas and wildlife refuges, where habitat expansion or improvement may offset anticipated loss of migrating or overwintering birds. At this time, staff cannot determine appropriate acreage or other criteria for such compensation habitat, but believes that further analysis may enable quantification of expected project-related bird mortality and productivity of bird populations in regional wetland areas. Acquisition or other compensation measures may serve to partially mitigate this impact. However, staff concludes that it is not feasible to mitigate this impact below a level of significance, and that collision with project facilities, particularly heliostats, is a significant and unavoidable adverse impact.

91. **Page 4.2-88, Concentrated Solar Energy:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or underdetermined impact risks, CEC precedent, and the inapplicability of compensatory mitigation for uncertain or underdetermined impact risks:

Staff has previously considered the issue of solar flux risks that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and

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Ivanpah Solar Energy Project (concentrating solar tower technology). As discussed above, consistent with prior assessments and certifications of the same and similar projects that could produce solar flux risks to avian species in desert environments, staff concludes that there is a lack of research-based data concerning these issues and has recommended conditions of certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels. Staff concludes that the impacts from exposure to elevated energy flux to all bird species in the project vicinity, including golden eagle and migratory birds, would be significant. These measures include impact would be mitigated in part by staff's recommended Conditions of Certification **BIO-12** (Mitigation and Monitoring of Operational Impacts to Birds and Bats) and **BIO-3** (Compensatory Mitigation: Offset for Loss and Degradation of Native Vegetation and Wildlife Habitat). Staff believes that these conditions of certification are feasible and would partially mitigate the anticipated impacts to birds caused by exposure to concentrated solar energy. However, staff concludes that significant residual impacts to birds would remain. No other feasible mitigation is known or has been identified. In particular, staff is not aware of any feasible means of minimizing or avoiding bird mortality due to energy flux. Therefore staff concludes that it is not feasible to mitigate this impact below a level of significance, and that bird mortality or injury from exposure to concentrated solar energy is a significant and unavoidable adverse impact. Staff will coordinate with the applicant and resource agencies to review any potential for off-site habitat protection and enhancement, particularly in wetland areas and wildlife refuges, where habitat expansion or improvement may offset anticipated loss of migrating or overwintering birds.

92. **Page 4.2-103, Special-Status Birds, Overview of Impacts:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undertermined impact risks, CEC precedent, and general comments related to special status species:

The applicant has reported several special-status bird species observed or detected during field surveys for the project (**Biological Resources Table 5**), addressed further in the following subsections. In general, project impacts to special-status birds would be similar to impacts described above (see subsections entitled "Overview of Impacts to Wildlife" and "Nesting Birds"). Some special-status raptors of the area would may currently utilize the project site for foraging but not nesting. Other special-status species may use the site during winter or migration season, but would do not nest on the site. The possibility that any special status species would use or occur near the site during construction or operations is remote for several reasons, including the following:

- a. All such special status species have been detected only on comparatively rare occasions and in low numbers notwithstanding the existing microphyll woodlands and other habitats within the project are. Staff concludes that the project has a low potential to take state-listed birds, including willow flycatcher, bank swallow, greater sandhill crane, Gila woodpecker, and elf owl, due to potential collision or concentrated solar energy hazards. There is also an inherently low incidence of golden eagles in the region around the project because: (i) bald and golden eagles are uncommon throughout the area; (ii) the project is situated in a location where no active golden eagle nest has been detected within 10 miles of the proposed facility and (iii) the region's ecology, geography and topography is likely result in a low number of golden eagles across seasons and years compared to other areas they inhabit in the western United States

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due to climate severity and limited water resources, except near the Colorado River which is largely in close proximity to regular anthropogenic disturbance and activity, scant vegetation for primary prey resources such as lagomorphs, the documented presence limited primary prey during surveys conducted in 2011 and 2012, and the likelihood, based on the lack of nests in the region, that existing and particularly newer transmission line towers by design are structurally incapable of supporting eagle nests (BBI 2012).

b. When operational, the project will maintain, mow, and reduce the extent of existing vegetation within the solar plant fenceline. A network of heliostats would also be placed around the two central power towers throughout the site. CEC staff has previously concluded that, when constructed, solar reflective projects would have characteristics that would be expected to reduce the extent to which avian species would occur within or near a site. The low latent risk that special status species could be impacted by the project would be further reduced by operational conditions within the project fenceline.

c. The project will implement a number of measures that will further reduce the potential attractiveness of the solar facilities for avian species, including perch- and nest- proofing the central towers and larger structures so to discourage or avoid raptor and other avian use of the site. Onsite water sources, and trash or other potential scavenging attractants, will also be strictly controlled to further reduce the propensity of birds to occur in or near the site.

d. Certain special status species, including waterbirds like the greater sandhill crane, are unlikely to use the site or adjacent areas under current conditions, and would be even less likely to traverse the site during construction or when operating as a solar facility.

The effects of foraging, migration stopover, and wintering habitat loss for these species would be comparable to other habitat loss effects (see “Overview of Wildlife Habitat Impacts,” above) and would be fully mitigated to less than significant levels by the implementation of staff’s recommended conditions of certification. Staff has previously considered the issue of potential special status avian impacts that might be associated with modern solar reflective renewable energy facilities, including facilities substantially similar to the proposed project, on several occasions, including the Abengoa Mojave Solar Project, Beacon Solar Energy Project, Blythe Solar Power Project, and the Palen Solar Power Project (solar trough/reflective concentrating mirror technology); the Calico Solar Project and Imperial Valley Solar Project (approved originally for reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project and Ivanpah Solar Energy Project (concentrating solar tower technology). As discussed below, consistent with prior assessments and certifications of the same and similar projects that could be associated with potential special status avian impacts in desert environments, staff concludes that the risk of such impacts is low, that there is a lack of research-based data concerning these issues in general, and has recommended conditions of certification that include adaptive management measures that will reduce such impacts, should they occur, to less than significant levels and ensure that the project will comply with all LORS. All native birds, including special status species described below, are protected under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (see “Laws, Ordinances, Regulations, and Standards,” above). The project’s collision hazards and concentrated solar energy hazards have the

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~~potential to take any of the special status bird species discussed below, and staff concludes that these hazards present a significant and unavoidable impact to each species (see “Operational Impacts to Wildlife,” above).~~

93. **Page 4.2-104, Carryover Paragraph:** Please revise this section to reflect general comments pertaining to golden eagles and to accurately characterize the prior survey results:

~~...The mountain ranges to the north, west, and south of the proposed solar generator site provide suitable golden eagle nesting and foraging habitat, although cliffs and/or rock outcrops of the size that attract nesting eagles are few in number in this area and where they do occur, nesting Red-tailed Hawks and/or Prairie Falcons may be a deterrent (Bloom Biological, Inc. 2012). Golden eagle nesting territories generally comprise several nests within a given area. In any given year, the eagles may complete breeding by laying eggs and raising chicks, or may abandon breeding activities without ever laying eggs or successfully raising young. In any given year, all or most nests in a territory may be inactive, but eagles may return in future years to nest at previously inactive sites. No active golden eagle nest has been detected within 10 miles of the proposed facility. The most recent survey of the region was conducted by Bloom Biological Inc. in 2012 using applicable FWS protocols (BBI 2012). The survey failed to document three previously reported unoccupied golden eagle nests that were identified in a 10-mile protocol survey conducted in 2011 (WRI 2011). These reported nests were located at the extreme southern edge of the survey area. The BBI survey instead found two nests that were occupied by red-tailed hawks near the approximate area identified in prior surveys and no nests at the locations reported in the 2011 surveys. Extensive project area avian surveys conducted in 2011 and 2012 have observed golden eagles flying near the site on only a few, isolated occasions (URS 2011, 2012). Consequently, the best available evidence demonstrates that the occurrence of golden eagles in the project region is inherently limited and extremely low in comparison with other desert locations. Three inactive golden eagle nests have been documented within a 10-mile radius of the proposed Rio Mesa-SEGF project site, to the north and south of the proposed solar generator site. One additional inactive nest was identified outside of the 10-mile radius to the north (approximately 12 miles from the solar generator site). The nearest inactive nests are about 8 miles to the south. These are two nests located about 0.25 mile apart, one on the east side and one on the west side of Palo Verde Peak. The closest nest where territorial or pre-nesting activity (but not breeding) was observed is more than 14 miles from the project site. In addition, two golden eagles were observed soaring over the BSA in early March 2011 (BS 2011).~~

94. **Page 4.2-104, Second Paragraph:** Please revise this section to reflect Applicant's General Comments pertaining to golden eagles and to accurately characterize the prior survey results:

~~The proposed solar generator site and the gen-tie alignment do not provide suitable golden eagle nesting habitat but do provide suitable foraging habitat. Due to the limited number of identified potential site's proximity to several nest sites within 10 miles of project (inactive in 2011 and 2012 but that could be used in future years), and generally low incidence of golden eagles in the region, it is unlikely that mated pairs or nesting golden eagles would forage on the project site during breeding season. Nor that non-nesting eagles also could forage there throughout the remainder of the year. These foraging birds could include wintering or migratory eagles (outside the breeding season) and unmated golden eagles or adult eagles whose nests may have failed (in the~~

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breeding season). Staff expects that golden eagles forage occasionally on the site at any time of year, particularly during winter and migration seasons due to larger numbers of golden eagles in the region and their larger winter foraging ranges. Eagles may return in future years to nest at previously inactive sites.

95. **Page 4.2-105, Project Impacts to Bald and Golden Eagle:** Please revise this section to reflect general comments pertaining to golden eagles and cumulative impacts:

Habitat loss: The project would eliminate 3,840 acres of suitable golden eagle foraging habitat ~~within range of known nesting territories~~. Without mitigation, staff concludes that the loss of foraging habitat would be significant under CEQA. The USFWS considers that foraging habitat loss may be interpreted as take under the BGEPA if it causes territory abandonment or reduced productivity (USFWS 2007; USFWS 2009b), but this has never been established for any project and would be inherently difficult to assess due to the effects of other unrelated factors. ~~Staff believes that these effects, should they occur in local golden eagle nesting territories, would be difficult at best to attribute to any given land use or project site.~~ Staff believes that golden eagle foraging habitat loss at the project site, with mitigation as recommended below, would not constitute take under state or federal LORS. ~~Staff believes that the cumulative loss of golden eagle foraging habitat throughout the region may result in abandonment of nesting territories during some years and that the project's contribution to this impact, should it occur, would be considerable (see "Cumulative Impacts").~~

96. **Page 4.2-105, Operational Impacts:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and general comments related to golden eagles:

The project ~~would~~ could potentially create collision hazards and concentrated solar energy hazards for bald and golden eagles as discussed above with respect to avian species in general ("Operational Impacts to Wildlife," above). ~~Staff is coordinating with the US Fish and Wildlife Service to quantify expected take of eagles (if any).~~ Based on the best available information, the incidence of bald and golden eagles in the region is low and expected to remain relatively limited in comparison with other desert regions over time. The low latent possibility of eagle occurrence near the project will be substantially reduced to an additional extent by construction and operational conditions and applicant measures that will discourage species use. Golden eagles are known to generally avoid artificial structures that do not afford perching or nesting locations. The towers and larger structures will be perch- and nest- proofed in a manner that will discourage any use or attraction for golden eagles, particularly in the vicinity of the upper portion of each tower where higher flux levels occur. Golden eagles are also diurnal raptors with excellent eyesight and flying skills. The species is not likely to collide with any project structures. No eagle impact or mortality was documented in the Solar One study (McCrary 1986). The surrounding heliostat field will also be highly unlikely to attract eagle foraging interest, and potential prey attractants, such as carcasses or water sources, will be strictly controlled. Staff concludes that the implementation of recommended conditions of certification, including BIO-1 through BIO-5, BIO-12, BIO-14, and BIO-16, will result in less than significant impact and comply with applicable LORS. ~~take of an eagle, should it occur, would be significant according to CEWA and could violate the California Fish and Game Code, due to the status of both species as~~

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migratory birds and fully protected species. In addition, unauthorized take of either species could violate the federal BGEPA and MBTA.

97. **Page 4.2-105, Last Paragraph:** Please revise this section to reflect general comments pertaining to mitigation feasibility and golden eagles:

Mitigation of habitat loss: Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** would minimize overall project impacts to golden eagle foraging habitat, require worker training to minimize disturbances, biological monitoring and reporting of project disturbances, and would compensate for habitat loss through the acquisition and management of offsite lands. Staff believes that all compensation land meeting recommended requirements and selection criteria as desert tortoise habitat, creosote bush scrub, and blue palo verde – ironwood woodland according to Conditions of Certification **BIO-3** and **BIO-14** also would serve as suitable golden eagle foraging habitat. Taken together, staff concludes that these conditions of certification are feasible and effective and that their implementation would reduce the project's impacts to golden eagle foraging habitat to a level less than significant according to CEQA. ~~Although staff is concerned that adequate compensation acreage for blue palo verde – ironwood woodland may not be available (see "Summary and Conclusion of Recommended Mitigation of Impacts to Native Vegetation and Wildlife Habitat" and "Waters of the State") staff concludes~~ and that foraging habitat impacts to golden eagles would be mitigated to a level less than significant through upland habitat compensation.

98. **Page 4.2-106, Mitigation of operational impacts:** Please revise this section to reflect general comments Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or underdetermined impact risks, CEC precedent, golden eagles and comments on proposed Condition of Certification **BIO-12** below:

Staff's recommended Condition of Certification **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. Bats are not considered to be at significant risk from collisions or solar flux based on their nocturnal flights and echolocation techniques for object avoidance. The BBCS will incorporate an analysis of golden eagles that includes the following: (a) all applicable golden eagle occurrence analysis guidelines recommended by the USFWS (2011b) or more current guidelines that may be released regarding the; (b) all available baseline data on golden eagle occurrence, seasonality, activity, and behavior throughout the project area and vicinity; (c) a study protocol as may be required or necessary to include additional pedestrian and/or helicopter surveys of golden eagle breeding sites within a 10 mile radius of the project site, to be reviewed and approved by the CPM, in consultation with the USFWS; (d) a description of all proposed measures to minimize death or injury to eagles from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines, electrocutions on transmission lines or other project components, and (2) concentrated solar energy (radiant flux) over the solar field; (e) if required or necessary, an inventory of existing electrical distribution lines within a 20-

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mile radius of the project site that do not conform to APLIC (2006) design standards to prevent golden eagle electrocution in a manner consistent with FWS guidelines and practice; (f) any feasible modifications to proposed plant operation to avoid or minimize focusing heliostats at standby points and, instead, move heliostats into a stowed position or another alternative configuration when the power plant is in standby mode; (g) any additional feasible adaptive management measures to minimize collisions and exposure to solar flux; and (h) a reporting schedule for all monitoring or other activities related to bird or bat conservation or protection to be taken during project construction or operation. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff has previously considered potential impacts to golden eagles that may be associated with solar reflective renewable energy projects, including locations where the potential incidence of golden eagles could be greater than anticipated within the project region. Consistent with this analysis, staff concludes that the likelihood of golden eagle take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision, and solar flux risks and comply with LORS. The BBCS would specify the project owner's anticipated take (if any) of bald or golden eagles or other large raptors and would require retrofitting of existing off-site electrical distribution lines to reduce electrocution risk to remediate any anticipated or unanticipated take of eagles or other large raptors. Staff concludes that these measures are feasible and effective, and would offset any potential take of bald or golden eagles to below a level of significance according to CEQA.

~~Staff notes that any take of bald or golden eagles, even if mitigated as required under CEQA, could violate the state Fish and Game Code due to the both species' status as migratory birds and fully protected species, and could violate the federal BGEPA and MBTA. Staff's conclusion regarding CEQA significance of this impact does not imply conformance with these other LORS. Staff believes that if bald or golden eagles become a covered species under the Desert Renewable Energy Habitat Conservation Plan (in preparation) or another plan meeting state requirements as a Natural Community Conservation Plan, such take could be authorized under the law.~~

~~Staff also recommends Condition of Certification **BIO-16** (Construction Phase Golden Eagle Nesting Surveys) which would require annual breeding season surveys for golden eagle nest activity within a 10-mile radius of the project area throughout the project construction phase. If nesting activity is observed, then the project owner would implement a Golden Eagle Nest Monitoring Plan to (1) identify any evidence of project-related alterations to golden eagle behavior, and (2) specify adaptive management actions in the event that behavioral changes are observed. These surveys would serve to document golden eagle nesting activity in the area and contribute to resource agencies' understanding of the species' response to ongoing land use changes in the region.~~

99. **Page 4.2-107, First and Second Full Paragraphs:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or underdetermined impact risks, CEC precedent, and special status species:

The project ~~would~~ could potentially create collision hazards and concentrated solar energy hazards for Swainson's hawk as discussed above with respect to avian species in

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general (“Operational Impacts to Wildlife,” above). Staff believes that the Rio Mesa SEGF has the potential (albeit a low potential) to take one or more a Swainson’s hawks due to the factors cited above (see Special Status Birds: Overview of Impacts) and because the species is highly mobile, has excellent eyesight, and would avoid collision risks and would not be attracted to the solar facility location during operations. The towers and larger structures will be perch- and nest- proofed in a manner that will discourage any use or attraction for the species, particularly in the vicinity of the upper portion of each tower where higher flux levels occur. The surrounding heliostat field will also be highly unlikely to attract species foraging interest, and potential prey attractants, such as carcasses or water sources, will be strictly controlled. ~~among other factors, over the life of the project, due either to collision with project facilities or to injury or mortality caused by flying through concentrated solar energy over the heliostat field. Staff concludes that the take of a Swainson’s hawk, should it occur, would be significant according to CEQA.~~ Staff’s recommended Condition of Certifications include **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) and require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the likelihood of Swainson’s hawk take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision, and solar flux risks and comply with LORS.

~~Staff’s recommended Condition of Certification **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would require the project owner to prepare and implement an Eagle Conservation Plan (ECP). The ECP would specify the project owner’s anticipated take (if any) of bald or golden eagles or other large raptors, including Swainson’s hawk, and would require retrofitting of existing off-site electrical distribution lines to reduce electrocution risk to offset any anticipated or unanticipated take that may exceed the estimated take (even if estimated take is zero). Staff concludes that these measures are feasible and effective, and would offset any potential take of Swainson’s hawk to below a level of significance according to CEQA. In addition, staff concludes that distribution line retrofitting would fully mitigate the project’s impacts to Swainson’s hawk according to CESA. However, staff notes that take, should it occur, could violate the California Fish and Game Code and federal MBTA, due to the Swainson’s hawk’s status as a migratory bird. Staff’s conclusions regarding CEQA and CESA do not imply conformance with these other LORS.~~

100. **Page 4.2-108, Second Full Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, CEC precedent, and special status species:

Staff’s assessment and conclusions regarding the potential collision hazard and concentrated solar energy hazard impact risks are addressed above with respect to avian species in general under Operational Impacts to Wildlife. The project has a very low potential to take a prairie falcon due to the factors cited above (see Special Status

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Birds: Overview of Impacts) and because the species occurs only rarely in the vicinity of the project, is highly mobile, has excellent eyesight, and would avoid collision risks and would not be attracted to the solar facility location during operations. The towers and larger structures will be perch- and nest- proofed in a manner that will discourage any use or attraction for the species, particularly in the vicinity of the upper portion of each tower where higher flux levels occur. The surrounding heliostat field will also be highly unlikely to attract species foraging interest, and potential prey attractants, such as carcasses or water sources, will be strictly controlled. Staff's recommended Conditions of Certification include BIO-12 (Mitigation and Monitoring Operational Impacts to Birds and Bats) and require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the likelihood of prairie falcon take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision and solar flux risks, and comply with LORS. ~~Would require the project owner to prepare and implement an Eagle Conservation Plan (ECP). The ECP would specify the project owner's anticipated take (if any) of bald or golden eagles or other large raptors, including prairie falcon, and would require retrofitting of existing off-site electrical distribution lines to reduce electrocution risk to offset any anticipated or unanticipated take that may exceed the estimated take (even if estimated take is zero). Staff concludes that these measures are feasible and effective, and would offset any potential take of prairie falcon to below a level of significance according to CEQA. However, staff notes that take, should it occur, could violate the California Fish and Game Code and federal MBTA, due to the prairie falcon's status as a migratory bird. Staff's conclusion regarding CEQA significance of this impact does not imply conformance with these other LORS.~~

101. **Page 4.2-109, First Paragraph 1, Second Sentence:** Please provide scientific evidence for this conclusion. No Elf Owls have been documented to nest in this area. Suggest removing this sentence.
102. **Page 4.2-109, First Paragraph, Last Sentence:** Please provide the dimensions of the cavity or some other scientific evidence for this conclusion. Additionally, the site visit was in April. Please revise text to read:

...Staff observed a woodpecker nesting cavity, possibly suitable as a nest site for ~~elf owl~~ or other a secondary cavity nesting species, in a dead ironwood limb on the project site during its visit in ~~January~~ April 2012.
103. **Page 4.2-109, Second and Third Full Paragraphs:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undertermined impact risks and general comments pertaining to special status species and mitigation feasibility. Further, Please provide scientific evidence for this conclusion. Assessment of breeding habitat is not supported by survey data. It is recommended to change the sentence as shown:

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Take of elf owl as defined by the California Fish and Game Code would necessitate permitting under Section 2081 of the code. Staff concludes that take of elf owls or substantial habitat loss or other adverse impacts would be significant under CEQA. In some years, elf owls may nest in blue palo verde – ironwood woodland on the project site. They also may stop over in this habitat during migration, as documented by the applicant (URS 2012c). Potential impacts to elf owl would be limited to the loss of suitable, but marginal and apparently unoccupied, breeding habitat and loss of the same lands as migratory stopover habitat. Although the habitat is only marginally suitable, it is extensive (related to approximately 708.9450.7 acres of blue palo verde – ironwood woodland that would be directly impacted; (see **Biological Resources Table 7**) and staff concludes that this habitat loss would be significant without mitigation under CEQA. In addition, the project has a low likelihood of taking elf owls or their nests if elf owls were to nest on the site during initial clearing or grading activities and recommended conditions of certification would avoid any such impact.

Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** would minimize overall project impacts to elf owl habitat, require worker training to minimize disturbances, biological monitoring and reporting of project disturbances, and compensate for habitat loss through the acquisition and management of offsite lands at a 3:1 ratio. In addition, staff's recommended Condition of Certification **BIO-11** would require surveys and avoidance measures to prevent destruction of bird nests during construction and operations. Taken together, staff concludes that these conditions of certification would be effective and that their implementation would avoid any potential take of elf owls according to CESA and would reduce or avoid any potential impacts to elf owls to a level less than significant, according to CEQA. Staff concludes that these measures are feasible, with the possible exception of BIO-3. Staff is uncertain whether offset of impacts to blue palo verde – ironwood woodland at the recommended 3:1 ratio will be feasible (see "Habitat Compensation," above). If 3:1 compensation for this habitat is found infeasible then the project's impacts to elf owl habitat may be significant and unavoidable. Staff's assessment and conclusions regarding potential collision hazard and concentrated solar energy hazard impact risks are addressed above with respect to avian species in general under Operational Impacts to Wildlife. The project has a very low potential to take an elf owl due to the factors cited above (see Special Status Birds: Overview of Impacts) and because the species occurs only rarely in the vicinity of the project, and would not be attracted to the solar facility location during construction or operations due to the lack of suitable habitat. Staff's recommended Conditions of Certification include **BIO-12 (Mitigation and Monitoring Operational Impacts to Birds and Bats)** and require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the likelihood of elf owl take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision and solar flux risks, and comply with LORS. Staff notes that take, should it occur, could violate the California Fish and Game Code and federal MBTA, due to the elf owl's status as a

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migratory bird. Staff's conclusion regarding CEQA significance does not imply conformance with these other LORS.

104. **Page 4.2-110, End of Second Full Paragraph:** The PSA states "Based on these field surveys and incidental observations, staff concludes that the site is suitable burrowing owl habitat year around and is regularly occupied by burrowing owls, likely during the winter but also potentially during the breeding season. Burrowing owls could nest or winter on the site in future years." This is not consistent with the project-specific owl survey data and the biology of the species. Burrowing owls prefer agricultural fields over desert habitat for breeding and foraging. The pre-construction survey will determine burrowing owl occupation for the purposes of assessing off-site habitat mitigation and determine the need to passively remove owls from the project work areas. Please revise as follows:

...Based on these field surveys and incidental observations, staff concludes that the site is suitable burrowing owl habitat ~~year around~~ and is ~~regularly~~ potentially occupied by burrowing owls, likely during the winter, but also potentially during the breeding season. ~~Burrowing owls could nest or winter on the site in future years.~~"

105. **Page 4.2-111, First Full Paragraph, Last Sentence:** The PSA should not assume the loss of even the three estimated burrowing owl territories would be significant in the regional context of the species population. When you also factor in the uncertainty of whether there are any owl territories on the project site, to say the Project would significantly impact burrowing owl is not appropriate. Please revise as follows:

Based on the observations of burrowing owls and their sign on the site, the ongoing decline in burrowing owl populations throughout their range, and habitat conditions on the project site, staff concludes that impacts of the proposed project would be significant. The pre-construction survey will determine burrowing owl occupation for the purposes of assessing off-site habitat mitigation and determine the need to passively remove owls from the project work areas.

106. **Page 4.2-111, Second Full Paragraph:** The 3:1 ratio is not consistent with the proposed mitigation ratio elsewhere in the document. Burrowing owl is not a listed species and the owl population in the desert region of the state is not at risk compared to the coastal regions of the state. The bulk of the owl sightings in the project vicinity are in the owl-preferred agricultural fields east of the site. Desert habitat is marginally useful when irrigated agricultural fields are available to the local owl population. This ratio is too high for lands that have not been shown as actually being occupied by resident owls based on survey results. The pre-construction survey will determine burrowing owl occupation for the purposes of assessing off-site habitat mitigation and determine the need to passively remove owls from the project work areas. Please revise as follows:

Staff's recommended Conditions of Certification BIO-1 through BIO-5 would minimize overall project impacts to burrowing owl habitat, require worker training to minimize disturbances, biological monitoring and reporting of project disturbances, and compensate for habitat loss through the acquisition and management of offsite lands at a ~~3:1~~ 1:1 ratio.

107. **Page 4.2-111, Third Paragraph:** The PSA states: "In addition, BIO-17 would require acquisition and protection of 900 acres of suitable burrowing habitat to offset the project's impacts." Breeding burrowing owls were not detected or confirmed on site. Protocol level surveys concluded a lack of current occupation. The pre-construction survey will determine burrowing

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owl occupation for the purposes of assessing off-site habitat mitigation and determine the need to passively remove owls from the project work areas. Specification of habitat acreage is not needed since the required tortoise and dry wash woodland mitigation requirements will adequately mitigate for any owl occupation. Additionally, it is inappropriate to use 300 acres as the mitigation acreage for one burrowing owl territory when no reasonable justification for using this number is provided, and more so that this amount of mitigation for burrowing owl is much higher than any burrowing owl mitigation approved for similar projects in the California desert. The mitigation should be revised to reflect these precedents at 19.5 acres per single bird or nesting pair or 9.75 acres per single bird or nesting pair if burrowing owls are observed to occupy the compensated lands. Applicant has provided revisions to BIO-17 consistent with this comment.

In addition, the PSA states: "Home ranges vary widely; the mean home range for burrowing owls at Naval Air Station in Lemoore, California was estimated at about 450 acres (CDFG 2012c)." As stated in the PSA, home ranges vary widely, and given this, it is inappropriate to make a comparison between home ranges of desert habitat with that of central valley agricultural habitat? Please provide studies of desert dwelling burrowing owls that justify the recommendation of 300 acres for desert owl territory size. The pre-construction survey will determine burrowing owl occupation for the purposes of assessing off-site habitat mitigation and determine the need to passively remove owls from the project work areas. Additionally, it is inappropriate to use 300 acres as the mitigation acreage for one burrowing owl territory when no reasonable justification for using this number is provided, and more so that this amount of mitigation for burrowing owl is much higher than any burrowing owl mitigation approved for similar projects in the California Desert.

108. **Page 4.2-111, Third Paragraph, Fourth Sentence:** The PSA states: "For the purposes of recommending compensation lands, staff estimates that each territory encompasses approximately 300 acres. This estimate takes into consideration the wide variation of territory size and that territories likely overlap. Burrowing owls may use between one and 11 burrows, with an average of about 5, within a territory (CDFG 2012c). Based on the applicant's report of 18 previously active burrows within the BSA, staff estimates that 3 burrowing owl territories are present on site." Burrowing owl is not a listed species and the owl population in the desert region of the state is not at risk compared to the coastal regions of the state. The bulk of the owl sightings in the project vicinity are in the owl preferred agricultural fields east of the site. Desert habitat is marginally useful when irrigated agricultural fields are available to the local owl population. This mitigation is too high for lands that cannot be shown as actually being occupied by resident owls. The pre-construction survey will determine burrowing owl occupation for the purposes of assessing off-site habitat mitigation and determine the need to passively remove owls from the project work areas. Additionally, it is inappropriate to use 300 acres as the mitigation acreage for one burrowing owl territory when no reasonable justification for using this number is provided, and more so that this amount of mitigation for burrowing owl is much higher than any burrowing owl mitigation approved for similar projects in the California Desert.
109. **Page 4.2-111, Last Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks and burrowing owl and general mitigation requirements and feasibility, and previous specific comments:

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In addition, **BIO-17** would require acquisition and protection of ~~900~~ 19.5 acres per burrowing owl territory discovered during protocol-level preconstruction surveys of suitable burrowing habitat to offset the project's impacts. Should compensation lands be observed as occupied by burrowing owls, the project will mitigate at 9.75 acres per burrowing owl territory. Compensation acreage is based on estimates of burrowing owl home range sizes and number of territories on the proposed project site and consistent with mitigation levels implemented by the CEC for similar projects in the California Desert. ~~Home ranges vary widely; the mean home range for burrowing owls at Naval Air Station in Lemoore, California was estimated at about 450 acres (CDFG 2012c). For the purposes of recommending compensation lands, staff estimates that each territory encompasses approximately 300 acres. This estimate takes into consideration the wide variation of territory size and that territories likely overlap.~~ Burrowing owls may use between one and 11 burrows, with an average of about 5, within a territory (CDFG 2012c). Based on the applicant's report of 18 previously active burrows within the BSA, staff estimates that 3 burrowing owl territories are present on site. These compensation lands may be nested within the lands acquired for desert tortoise and native vegetation; provided that those lands also meet the selection criteria for burrowing owl habitat compensation (see **BIO-17**). ~~Although staff is concerned that adequate compensation acreage for blue palo verde – ironwood woodland may not be available (see “Summary and Conclusion of Recommended Mitigation of Impacts to Native Vegetation and Wildlife Habitat” and “Waters of the State”)~~ Staff concludes that habitat impacts to burrowing owls would be mitigated to a level less than significant through upland habitat compensation associated with tortoise and dry wash woodland.

110. **Page 4.2-112, First Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, and special status species:

~~...Staff's assessment and conclusions regarding potential collision hazard and concentrated solar energy hazard impact risks are addressed above with respect to avian species in general under Operational Impacts to Wildlife. The project has a very low potential to take a burrowing owl due to the factors cited above (see Special Status Birds: Overview of Impacts) and because the species occurs only rarely in the vicinity of the project, and due to the burrowing owl habitat survey and impact avoidance measures included in staff's recommended Conditions of Certification. **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would also require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the likelihood of burrowing owl take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision and solar flux risks, and comply with LORS. Staff notes that take, should it occur, could violate the California Fish and Game Code and federal MBTA, due to the~~

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~~burrowing owl's status as a migratory bird. Staff's conclusion regarding CEQA significance does not imply conformance with these other LORS.~~

111. **Page 4.2-112, Second Paragraph:** Please include site specific survey results from 2011 and 2012 documenting that not all of these species have been observed within the project site. Please include the following information following the second sentence:

However, not all of these species have been observed on the project site during 2011 and 2012 migratory bird and raptor surveys. Short-eared owls and Long-eared Owls have not been observed during any surveys on the project site or in the immediate vicinity. Two Harris Hawks were observed 4 miles east of the project site in agricultural fields in spring 2011 but none have been observed within the project site. Sharp-shinned Hawks have been observed near the project site but not within the project fence line.

112. **Page 4.2-112, Third and Fourth Paragraphs:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, special status species, Section 3503.5 (raptors), electrocution risks, and the inapplicability of compensatory mitigation for undetermined and unlikely impacts:

All of these species may be vulnerable to operations impacts of the proposed project, including collision with heliostats or other project facilities and injury or mortality from exposure to concentrated solar energy. Staff's description of collision and concentrated solar energy hazards are provided above, as discussed above under "Operational Impacts to Wildlife." The project has a very low potential to take a raptor or other bird-of prey due to the factors cited above (see Special Status Birds: Overview of Impacts). In addition, there is no research-based data or analysis suggesting that raptors are at significant risk from collisions, solar flux or any other potential impacts that may be related to solar reflective technology. The Solar One study (McCrary, 1986) identified a single raptor mortality (American kestrel) but did not observe the cause of this observation, which might have been due to unrelated or natural factors. No raptor impacts from solar flux of any kind were identified in the study. Staff's recommended nest avoidance measures will avoid any potential impact to an occupied raptor nest or eggs and require that powerline "bird-safe" and electrocution avoidance measures consistent with APLIC guidelines be implemented by the project. Raptors are also characterized as having excellent eyesight and flying skills and would be expected to avoid collision hazards in general. The towers and larger structures will be perch- and nest- proofed in a manner that will discourage any use or attraction for the raptors, particularly in the vicinity of the upper portion of each tower where higher flux levels occur. The surrounding heliostat field will also be highly unlikely to attract raptor foraging interest, and potential prey attractants, such as carcasses or water sources, will be strictly controlled. Staff's recommended conditions of certification include **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats), which require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the likelihood of raptor take is extremely remote, and that the recommended conditions of certification require

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avoidance, minimization and adaptive management measures that would avoid take, significant impacts related to potential powerline, similar collision and solar flux risks, and comply with LORS.

Take, if any, of large raptor species can be offset through retrofitting of distribution lines that present electrocution hazards to large birds. Staff's recommended Condition of Certification ~~BIO-12~~ (Mitigation and Monitoring Operational Impacts to Birds and Bats) would require the project owner to prepare and implement an Eagle Conservation Plan (ECP). The ECP would specify the project owner's anticipated take (if any) of bald or golden eagles or other large raptors, including osprey, ferruginous hawk, Harris' hawk, northern harrier, and peregrine falcon, and would require retrofitting of existing off-site electrical distribution lines to reduce electrocution risk to offset any anticipated or unanticipated take that may exceed the estimated take (even if estimated take is zero). Staff concludes that these measures are feasible and effective, and would offset any potential take of large raptors to below a level of significance according to CEQA. Smaller special-status raptors are less vulnerable to power line electrocution and staff concludes that distribution line retrofitting would not mitigate take, if any, of those birds. The smaller special status raptors of the area are Cooper's hawk, sharp-shinned hawk, merlin, short-eared owl, and long-eared owl. For these species, staff assessment and conclusions regarding the collision and concentrated solar energy hazards are provided above, under "Operational Impacts to Wildlife."

Staff notes that take of any special-status raptors, could violate the California Fish and Game Code and federal MBTA, due to these species' status as migratory birds. In addition, the The peregrine falcon is also fully protected under the state Fish and Game Code. For the reasons described above, and due to the species' low latent occurrence in or near the site, exception eyesight, flight skills, flight speeds and collision avoidance capabilities, construction and operational conditions and applicant-implemented measure that will further reduce the likelihood that the species would occur at or near the site during construction and operations, staff concludes that the likelihood of peregrine falcon take under the Fish and Game Code is extremely low. and take (as defined by the Code) may violate regulations providing fully protected status. Staff's conclusion regarding CEQA significance does not imply conformance with these other LORS.

113. **Page 4.2-113, Gila Woodpecker, First Paragraph:** Please revise text to include most trees at Rio Mesa do not have large enough Diameter at Breast Height (DBH) for nesting Gila Woodpeckers. Additionally, staff observed the woodpecker cavity on site in April 2012.

...Desert ironwood is generally too dense and trees are too small for nest excavation (though staff observed a woodpecker cavity in a dead ironwood limb on the site in January-April 2012). ...

114. **Page 4.2-113, Gila Woodpecker, Second Paragraph, Fourth Sentence:** Please provide more scientific evidence. Given Gila Woodpecker nesting ecology, they would have been detected multiple times in the same area, which was not the case. They are very territorial and would aggressively defend territory. Applicant suggests this sentence be removed.
115. **Page 4.2-113, Gila Woodpecker, Second Paragraph, Last Sentence:** The PSA states that a Gila Woodpecker was observed in January 2012. The observation was made in April 2012. Please revise this sentence as follows:

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USFWS staff observed a Gila woodpecker on the site during a field visit in ~~January~~ April 2012.

116. **Page 4.2-114, Assessment of Impacts and Discussion of Mitigation, Impacts to Special Status Species, Special-Status Birds, Gila Woodpecker, Paragraph 1, Second Sentence:** Please provide scientific evidence for this conclusion. Surveys do not suggest breeding habitat is present. Historically occupied habitat is not near site. Please revise accordingly:

Project impacts to Gila woodpecker would be the loss of 450.7 acres of marginally suitable and ~~intermittently occupied~~ breeding habitat.

117. **Page 4.2-114, Gila Woodpecker, Second Paragraph, Seventh Sentence:** As mentioned previously, woodpeckers do not fly much higher than tree line and would not fly at elevations where elevated flux occurs. Suggest to edit the sentence accordingly:

Staff's assessment and conclusions regarding the collision hazard ~~and concentrated solar energy hazard~~ are provided above, under Operational Impacts to Wildlife.

118. **Page 4.2-113, Last Carryover Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, the feasibility of mitigation requirements, and special status species and to reflect the 2012 Gila Woodpecker survey report (URS 2012) submitted by the applicant:

~~Take of Gila woodpecker as defined by the California Fish and Game Code would necessitate permitting under Section 2081 of the Code. Staff concludes that take of Gila woodpeckers or substantial habitat loss or other adverse impacts would be significant under CEQA. In some years, Gila woodpeckers have been detected only rarely and for short periods of time on the site. The applicant conducted a focused survey for the species in 2012 as requested by the REAT agencies, and concluded that, based on the lack of response to calls, the absence of significant detections, the generally marginal habitat for the species and lack of appropriately-sized softwood cavities in onsite woodlands, the species was not nesting and would be highly unlikely to nest on the site (URS 2012) apparently nest in blue palo verde – ironwood woodland on the project site (BS 2011). Project impacts to Gila woodpecker would be the loss of 708.9 450.7 acres of lower quality, suitable and intermittently rarely occupied breeding foraging habitat associated with microphyll woodlands on the site. Staff concludes that this habitat loss would be significant under CEQA. In addition, the project could take Gila woodpeckers or their nests if Gila woodpeckers were to nest on the site during initial clearing or grading activities.~~

Staff's recommended Conditions of Certification **BIO-1** through **BIO-5** would minimize overall project impacts to Gila woodpecker habitat, require worker training to minimize disturbances, biological monitoring and reporting of project disturbances, and compensate for habitat loss through the acquisition and management of offsite lands at a 3:1 ratio. In addition, staff's recommended Condition of Certification **BIO-11** would require surveys and avoidance measures to prevent destruction of bird nests during construction and operations. Taken together, staff concludes that these conditions of certification would be effective and that their implementation would avoid any potential take of Gila woodpeckers according to CESA and would reduce impacts to Gila woodpeckers to a level less than significant ~~according to CEQA. Staff concludes that these measures are feasible, with the possible exception of **BIO-3**. Staff is uncertain~~

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whether offset of impacts to blue palo verde—ironwood woodland at the recommended 3:1 ratio will be feasible (see “Habitat Compensation,” above). If 3:1 compensation for this habitat is found infeasible then the project’s impacts to Gila woodpecker habitat may be significant and unavoidable. Staff’s assessment and conclusions regarding potential collision hazard and concentrated solar energy hazard impact risks are addressed above with respect to avian species in general under Operational Impacts to Wildlife. The project has a very low potential to take a Gila woodpecker due to the factors cited above (see Special Status Birds: Overview of Impacts) and because the species occurs only rarely in the vicinity of the project under pre-construction and operational conditions. **BIO-12 (Mitigation and Monitoring Operational Impacts to Birds and Bats)** would also require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the likelihood of Gila woodpecker take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision and solar flux risks, and comply with LORS. Staff notes that take, should it occur, could violate the California Fish and Game Code and federal MBTA, due to the Gila woodpecker’s status as a migratory bird. Staff’s conclusion regarding CEQA significance does not imply conformance with these other LORS.

119. **Page 4.2-115, Last Paragraph:** Please use site specific survey results from 2011 and 2012 to differentiate between species observed within the project site and those observed offsite in different habitat types. Please also remove the (BS 2011) citation as it is not a relevant reference for this statement. Several of the species in this text are not discussed in BS 2011 as they had not been observed at the time the report was submitted. Further, the site is not between regional wetlands. Please make the following revisions:

Species observed ~~within on and around~~ the project site during ~~winter or~~ migration include greater sandhill crane, bank swallow, ~~willow flycatcher~~, American white pelican, Vaux’s swift, and yellow-headed blackbird ~~(BS 2011)~~. In general, these species are not expected to use the site for foraging or resting during migration or winter seasons. However, they ~~could~~ are likely to fly over or near the site ~~either~~ during migration through the area or during shorter flights among regional wetland habitats, including wildlife refuges at the Salton Sea and along the Colorado River, several miles from the project site.

120. **Page 4.2-115, Last Carryover Paragraph to Page 4.2-116:** Please delete this section in its entirety to the extent it discusses “special-status migratory and wintering birds ” without further clarification on a species by species basis. The category is redundant with other sections and is imprecise and ambiguous. If retained, please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, the feasibility of mitigation requirements, and special status species:

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...Staff's assessment and conclusions regarding potential collision hazard and concentrated solar energy hazard impact risks are addressed above with respect to avian species in general under Operational Impacts to Wildlife. The project has a very low potential to significantly impact special-status migratory and wintering birds due to the factors cited above (see Special Status Birds: Overview of Impacts). **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would also require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid significant impacts to special-status migratory and wintering birds potentially related to powerline, similar collision and solar flux risks, and comply with LORS. Staff will continue coordinating with the applicant and resource agencies to review any potential for off site habitat protection and enhancement, particularly in wetland areas and wildlife refuges, where habitat expansion or improvement may offset anticipated loss of migrating or overwintering birds.

The greater sandhill crane, bank swallow, and willow flycatcher are state-listed species, and the greater sandhill crane is fully protected under the state Fish and Game Code. The project has a very low potential to take any of these species due to the factors cited above (see Special Status Birds: Overview of Impacts) and because (a) each species occurs only rarely in the vicinity of the project, (b) the project area and vicinity provide either virtually no (sandhill crane and willow flycatcher) suitable nesting habitat, and construction and operational conditions will further reduce the possibility of occurrence in or near the project site. Staff's recommended conditions of certification, including **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would require the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. Staff concludes that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid significant impacts to special-status migratory and wintering birds potentially related to powerline, similar collision and solar flux risks, and comply with LORS. Staff concludes that the likelihood of bank swallow or willow flycatcher take is extremely remote, and that the recommended conditions of certification require avoidance, minimization and adaptive management measures that would avoid species take, significant impacts related to potential powerline, similar collision and solar flux risks, and comply with LORS.; therefore mortality or other take (as defined in the Code) may violate CESA and the regulations for fully protect species. Staff's conclusion regarding CEQA significance does not imply conformance with these other LORS.

Staff is considering the possibility that installing bird flight diverters on project-related and existing power lines in the vicinity of the Colorado River would minimize and offset

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potential take of sandhill cranes associated with the Rio Mesa SEGF, as flight diverters have reduced power line collision mortality for this species in some studies (Murphy et al. 2009).

121. **Page 4.2-117, Fourth Paragraph:** There is open, natural habitat both north and south of the site that would still allow for movement east and west. The site would not significantly affect this movement for these species. Please revise sentence as shown:

Loss of habitat is not likely to significantly affect Nelson's bighorn sheep, burro deer, or Yuma mountain lion in the area due to the presence of open habitat both north and south of the project, including a large wash complex just south of the project.

122. **Page 4.2-118, American Badger and Kit Fox, Second Full Paragraph:** Badgers and kit fox burrows should all be hand excavated and/or scoped during DT clearance surveys, eliminating the chance for crushing either of these animals. This information should be added to BIO-2 and BIO-18. Please revise paragraph as shown:

American badgers burrows will be located and excavated during desert tortoise clearance surveys. American badgers observed during these surveys will be moved off site and the burrows will be hand excavated and collapsed. As such, no direct impacts to American badgers are expected on site other than potential translocation stress and loss of habitat. Potential direct impacts to American badger include mechanical crushing of animals or burrows by vehicles and construction equipment, noise, dust, and loss of habitat. The tortoise exclusion fence could entrap badgers that are on the site when the fence is built. Animals trapped within the fence would almost surely die from direct or indirect effects of project construction (e.g., vehicle strike, inability to find sufficient food or thermal cover). Potential indirect and off-site impacts include construction and operational noise and disturbance, impediments to local or regional movement, alteration in prey base, introduction or spread of invasive plants, and risk of mortality by vehicle strikes.

123. **Page 4.2-118, Bottom Paragraph:** The PSA should reflect the fact that given the RMSEGF will not be engaged in any fur trapping activities or trade, Section 460 of the California Code of Regulations (14 CCR 460) does not provide any protections related to Desert Kit Fox. Please revise paragraph as shown:

Desert kit fox occurs on the Rio Mesa project site. The applicant reported 193 den complexes on the site (BS 2011), though it is not clear how many of the den complexes were active or how many kit foxes (single adults, paired adults, or family groups) inhabit the site. California Code of Regulations, section 460, designates kit fox as "protected" in the context of fur trapping activities, which are not relevant to the RMSEGS project. The desert kit fox is designated as a furbearer and, under Title 14 Section 460 of the California Code of Regulations, "may not be taken at any time." The California Fish and Game Code defines "take" as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (§ 1-89.1). The CDFG does not issue Incidental Take Permits or Memoranda of Understanding to permit the capture or handling of desert kit fox.

124. **Page 4.2-120, Third Full Paragraph:** Please revise as follows to be consistent with Applicant's comments on conditions of certification:

Staff's recommended Conditions of Certification BIO-1 through BIO-5 would minimize overall project impacts to habitat, require worker training to minimize disturbances,

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biological monitoring and reporting of project disturbances, and compensate for habitat loss through the acquisition and management of offsite lands. Staff's proposed Condition of Certification BIO-18 would require the project owner to perform preconstruction surveys which would prepare and implement a Desert Kit Fox and American Badger Management Plan to passively exclude any desert kit foxes or American badgers from all work sites prior to any ground-disturbing project activity at each site. ~~The plan would be subject to review and approval by the Energy Commission compliance project manager (CPM) in consultation with CDFG, BLM and USFWS. The plan would require describing all methods that may be used for desert kit fox and American badger passive relocation, including the components listed below.~~ For kit foxes or badgers within 250 feet of project facilities, utility corridors, and access roads, the project owner would be required to minimize impacts, observe buffer areas around the burrows, and monitor work activities in the area. Female kit foxes or badgers with young would not be directed off-site until the young are ready to leave the dens. Staff concludes that implementation of these conditions would avoid take of American badger or desert kit fox and would offset the loss of habitat for desert kit fox and American badger by providing protection and enhancement for suitable habitat, as well as minimize habitat loss and other disturbance to desert kit fox and American badger. Implementation of these conditions of certification would reduce impacts to these species to less than significant levels under CEQA.

125. **Page 4.2-121, First Carryover Paragraph, Last Sentence:** Please revise this section to reflect general comments pertaining project groundwater impacts and water supply and the LSAA application that is being prepared and will be submitted by the applicant to CDFG as requested by CEC staff:

~~However, suitable habitat is may be found off-site, but the project will not impact any such habitat, including due to the project's use of groundwater. As discussed in conjunction with the analysis of the project's water use and groundwater impacts, the project will not significantly affect groundwater levels and the existing depth to groundwater is below the root levels of surface vegetation. ~~in mesquite bosque habitat. Groundwater pumping for the project has the potential to adversely affect this habitat (see "Hydrology and Groundwater Dependent Vegetation," above).~~~~

126. **Page 4.2-121, First Full Paragraph** should be deleted based on the argument in Applicant's General Comments above where applicant has demonstrated through valid and reliable groundwater aquifer modeling that any impacts to groundwater in the PVMGB are less than significant:

~~Staff's recommended Condition of Certification **BIO-8** (Desert Dry Wash Woodland Monitoring Plan and Off-site Impact Compensation) is recommended to minimize project impacts to off-site groundwater dependent vegetation (see "Mitigation of Impacts to Native Vegetation and Wildlife Habitat," above). It would require the project owner to monitor groundwater levels and plant health and vigor in adjacent desert dry wash woodland and mesquite bosque areas; if plant stress or mortality occurs and is determined to be related to project activities, then the project owner shall either refrain from pumping, reduce pumping to allow for recovery of the groundwater table, or provide additional habitat compensation as described in staff's recommended Condition of Certification **BIO-3**. Staff concludes that implementation of this condition is feasible~~

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~~and effective, and would identify and mitigate any adverse project impacts to Colorado Valley woodrat habitat to a level that is less than significant according to CEQA.~~

127. **Page 4.2-123, Second, Third and Fourth Full Paragraphs:** Previous paragraphs state that there are east-west movement corridors north and south of the project. The project site itself does not adversely prevent east-west movement as these corridors are still available and unimpacted by the project. Please revise the paragraph as shown:

Larger and more mobile animals such as Nelson’s bighorn sheep, burro deer, and Yuma mountain lion may travel east and west across the valley regularly, as a part of daily or seasonal movement patterns. The proposed project would ~~adversely affect~~ prevent east-west movement habitat for these species through the project site, and would likely cause animals to change their movement routes between the mountains and irrigated lands, but east-west movement is unimpeded just north and south of the project. These large mammals are wide-ranging by their nature, and staff believes that local populations would adapt to the changed land use.

Staff concludes that the project would ~~adversely~~ minimally affect wildlife movement in the Palo Verde Mesa, for desert tortoises and other “corridor dweller” species and for wide-ranging large mammals. However, staff concludes that this impact would be less than significant according to CEQA.

~~However,~~ Staff concludes that these measures would effectively mitigate habitat impacts for special-status bats. Staff also concludes that the measures are feasible, ~~with the possible exception of BIO-3. Staff is uncertain whether offset of impacts to blue palo verde – ironwood woodland at the recommended 3:1 ratio will be feasible (see “Habitat Compensation,” above). If 3:1 compensation for this habitat is found infeasible then the project’s impacts to special-status bat habitat may be significant and unavoidable.~~

128. **Page 4.2-127, Last Paragraph:** This section should be revised to delete references to BIO-8 based on the argument in Applicant's General Comments.
129. **Page 4.2-128:** The PSA incorrectly references BIO-19, rather than BIO-20. Please correct as this reference.
130. **Page 4.2-129, Top of Page:** Please revise this section to reflect general comments pertaining to mitigation feasibility:

Best Management Practices (BMPs) during project construction and operation.
~~However, if 3:1 compensation for these impacts is found infeasible then the project’s incremental contribution to cumulative impacts to jurisdictional waters may remain cumulatively considerable.~~

131. **Page 4.2-131, Second Full Paragraph:** Please provide scientific evidence to support this conclusion. There are no active nesting territories on site and Golden Eagle are rarely seen in region. Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, golden eagles, and as discussed with respect to Condition of Certification **BIO-12** below:

~~The Rio Mesa SEGF would contribute to the cumulatively significant loss of golden eagle foraging habitat. The solar generator site does not provide suitable golden eagle nesting habitat, but there are inactive recent golden eagle nest sites known within 10 miles of the proposed project site (BBI-2012), and these sites could be used again in the future.~~

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The entire Rio Mesa SEGF project site, including the proposed gen-tie line alignment, provides potential foraging habitat and is within foraging range of known or potential nest sites. Other existing and proposed renewable projects in the NECO planning area would have similar impacts to foraging habitat, and cumulative development in the California deserts would have significant impacts on golden eagle foraging habitat. The cumulative loss of golden eagle foraging habitat throughout the region may result in abandonment of nesting territories.

Conditions of Certification **BIO-1** through **BIO-5** would minimize overall project impacts to golden eagle foraging habitat, require worker training to minimize disturbances, biological monitoring and reporting of project disturbances, and would compensate for habitat loss through the acquisition and management of offsite lands. Taken together, staff concludes that these conditions of certification are feasible and effective and that their implementation would reduce the project's contribution to cumulative impacts to golden eagle foraging habitat (staff's concern regarding feasibility of acquiring adequate compensation for blue palo verde — ironwood woodland habitat would not limit the feasibility of acquiring adequate golden eagle foraging habitat). However, because of the magnitude of ongoing loss of foraging habitat across large portions of its range, combined with overall population declines, the project's contribution to cumulatively significant impacts to golden eagle foraging habitat would remain considerable even with the implementation of mitigation.

Staff's recommended Condition of Certification **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would require the project owner to prepare and implement an Eagle Conservation Plan (ECP) that would include measures to offset any potential take of golden eagles to less than cumulatively considerable. Staff also recommends Condition of Certification **BIO-16** (Construction Phase Golden Eagle Nesting Surveys) which would require annual breeding season surveys for golden eagle nest activity within a 10-mile radius of the project area throughout the project construction phase. If nesting activity is observed, then the project owner would implement a Golden Eagle Nest Monitoring Plan to (1) identify any evidence of project-related alterations to golden eagle behavior, and (2) specify adaptive management actions in the event that behavioral changes are observed. These surveys would serve to document golden eagle nesting activity in the area and contribute to resource agencies' understanding of the species' response to ongoing land use changes in the region. Even with implementation of these measures, the Rio Mesa SEGF's contribution to cumulative impacts to golden eagles from disturbance, net loss of foraging habitat, or other take would be cumulatively considerable.

As discussed above (see Golden Eagle section and Table 6), the project's potential impacts to golden eagle foraging habitat will be mitigated to less than significant levels and the project is expected to avoid take with staff's recommended conditions of certification. Golden eagle surveys performed in accordance with FWS guidelines have demonstrated that the project is located in a region that provides generally marginal golden eagle habitat and in which significant golden eagle populations are not likely to occur over time. No occupied golden eagle nests have been documented within 10 miles of the project. Staff has considered golden eagle habitat cumulative impacts on several occasions during the review and certification of projects in the eastern Mojave desert region. Consistent with these analyses, and based full project-level mitigation of

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foraging habitat impacts and the considerations summarized above, staff concludes that the project would not cumulatively contribute to a significant loss of golden eagle foraging habitat.

132. **Page 4.2-132, Last Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mortality risks, CEQA and related legal issues regarding the legally and scientifically required analysis of uncertain or undetermined impact risks, special status species, raptors and electrocution risks, and as discussed with respect to Condition of Certification **BIO-12** below:

Past, present, and reasonably foreseeable projects in the Palo Verde Mesa and surrounding areas have contributed to significant cumulative effects to birds. These effects include the loss of habitat, disturbance from increased noise and lighting, road kills, habitat fragmentation, spread of invasive species, and hydrological impacts. The Rio Mesa SEGF would contribute incrementally to the cumulative loss of habitat and direct and indirect effects to several migratory, wintering, and resident special-status birds. Sixteen special-status birds and eleven special-status raptors, in addition to those discussed above, were identified on site (see **Biological Resources Table 5**). The Rio Mesa SEGF's primary impacts to resident and migratory birds include habitat loss, disturbance to foraging and breeding, and risk of injury or mortality due to collision with project features or solar flux hazards. These effects, ~~when combined with the anticipated effects to remaining habitat and populations described above, are~~ are not cumulatively considerable. The project's contribution to these effects would be reduced ~~and mitigated~~ through implementation of several conditions of certification designed to address direct and indirect effects as well as habitat loss; ~~however, staff has determined that residual impacts of project operation are still expected.~~ These conditions of certification include **BIO-1** through **BIO-5** which would minimize overall project impacts to nesting bird habitat, require worker training to minimize disturbances, biological monitoring and reporting of project disturbances, and compensate for habitat loss through the acquisition and management of offsite lands. **BIO-5** also requires transmission lines and all electrical components to be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee guidelines. **BIO-11** requires surveys and avoidance measures to prevent destruction of bird nests during construction and operations. **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats), requires the project owner to prepare and implement a BBCS that will describe all proposed measures to minimize death and injury of birds or bats from (1) collisions with facility features including the heliostats, power towers, and gentle line towers or transmission lines and (2) concentrated solar energy (flux) present between the heliostats and each solar receiver tower. The BBCS will be developed and implemented in coordination with the Energy Commission, BLM, CDFG, and USFWS. ~~**BIO-12** requires the project owner to monitor and mitigate operational impacts to birds and develop and implement a Bird Conservation Strategy. **BIO-8** requires development and implementation of a Desert Dry Wash Woodland Monitoring Plan to ensure impacts to groundwater dependent vegetation do not result in habitat degradation for species that depend on this habitat, including special status birds and raptors. **BIO-8** also requires remedial action if monitoring detects impending ecosystem changes.~~

~~Staff concludes that the project would have a considerable contribution to cumulatively significant effects to special-status migratory birds including small raptors due to~~

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potential take of birds during project operation from collision with facilities or exposure to concentrated solar energy. Although conditions of certification recommended above would reduce the severity of impacts, these effects would not be mitigable to a level less than cumulatively considerable. Staff's recommended Condition of Certification **BIO-12** (Mitigation and Monitoring Operational Impacts to Birds and Bats) would require the project owner to prepare and implement an Eagle Conservation Plan (ECP) that would include measures to offset any potential take of golden eagles to less than cumulatively considerable. These measures, including retrofitting power poles to minimize electrocution risks and the remediation of other existing hazards, would also offset potential take of other large raptors. Therefore, the project's incremental contribution to cumulative impacts to large raptors would be mitigated to less than cumulatively considerable.

As discussed above, the project's potential impacts to special-status migratory birds, including small raptors, will be mitigated to less than significant levels. The project will avoid CESA-listed and fully protected species take, and is expected to avoid raptor take. As noted above, there is no research-based evidence suggesting that raptors are likely to be adversely affected by reflective solar renewable energy facilities. The project will also avoid significant impacts to other species with staff's recommended conditions of certification. Staff has considered cumulative impacts to avian species, including special-status migratory birds and small raptors on several occasions during the review and certification of projects in the eastern Mojave desert region. Consistent with these analyses, and based the full project-level mitigation of foraging habitat impacts, and the considerations summarized above, staff concludes that the project would not cumulatively contribute to significant impacts to these species.

133. **Page 4.2-134, Carryover Paragraph:** Please revise this section to reflect general comments pertaining to the analysis of mitigation feasibility:

including compensation for desert wash microphyll vegetation (blue palo verde – ironwood woodland) at a 3:1 ratio. Staff notes, however, that feasibility of acquiring adequate compensation for blue palo verde – ironwood woodland habitat has not been confirmed.

134. **Page 4.2-134, American Badger and Kit Fox, Bottom Paragraph:** Applicant will alter BIO-18 to be a Kit Fox and American Badger Survey, while inserting impact avoidance and minimization measures into BIO-2. Please revise sentences as follows:

...These include development and implementation of a Desert Kit Fox and American Badger Plan Survey Plan to include badger and kit fox specific pre-construction surveys, as well as impact avoidance and minimization measures in BIO-18. BIO-2 (Biological Resources Mitigation Implementation and Monitoring Plan) will contain impact avoidance and minimization measures; BIO-5 (General Impact Avoidance and Minimization Measures) contains specific measures to minimize noise and lighting impacts; ...

135. **Page 4.2-135, Cumulative Impacts – Summary of Conclusions:** Please revise this section to reflect general comments pertaining to the analysis of mitigation feasibility and cumulative impacts:

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Cumulative Impacts: Staff concludes that without mitigation, the Rio Mesa SEGf would contribute to the cumulatively significant loss of regional resources, including the state and federally threatened desert tortoise and other special-status species discussed above. Impact avoidance and minimization measures described in staff’s analysis and included in the conditions of certification would help reduce impacts to these resources. These and additional compensatory measures are necessary to offset project-related losses, and to assure compliance with state and federal laws such as CESA and the federal ESA. With the implementation of Conditions of Certification **BIO-1** through **BIO-20**, staff concludes that the Rio Mesa SEGf’s contributions to cumulative significant impacts to biological resources would not be considerable, ~~with three possible exceptions:~~

- ~~1. Desert microphyll woodlands (also called dry desert wash woodlands, or blue palo verde—ironwood woodlands; these woodlands also meet jurisdictional criteria as waters of the state, and the cumulative impacts conclusion for waters of the state is the same); if the prescribed 3:1 compensation for impacts to jurisdictional waters and habitats is found infeasible, then the project’s incremental contribution to cumulative impacts to blue palo verde—ironwood woodland and the wildlife species which depend on them may remain cumulatively considerable.~~
- ~~2. Operational impacts to native birds including special-status birds and raptors; and~~
- ~~3. Foraging habitat for golden eagles.~~

136. **Page 4.2-136-140, Table 14:** Table 14 should be revised to reflect Applicant's General Comments presented above and to conform with CEC and applicable legal precedent and delete references to BIO-8 as Applicant has demonstrated through valid and reliable groundwater aquifer modeling that any impacts to groundwater in the PVMGB are less than significant:

Biological Resources Table 14

Summary of the Rio Mesa Solar Electric Generating Facility’s Compliance with LORS

Applicable LORS	Description	Conclusions and Rationale for Compliance
FEDERAL		
Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.)	Designates and provides for protection of threatened and endangered plant and animal species and their critical habitat. “Take” of a federally-listed species is prohibited without an incidental take permit, which may be obtained through Section 7 consultation (between federal agencies) or a Section 10 Habitat Conservation Plan.	Yes. BLM will consult with USFWS per Section 7 of the ESA regarding project impacts to desert tortoise (federally listed as threatened). Proposed Conditions of Certification BIO-1 through BIO-7 and BIO-13 through BIO-15 would require measures to avoid or mitigate impacts to desert tortoise, including translocation off-site and protection of compensation habitat. These measures would ensure that the project is not likely to jeopardize the continued existence of desert tortoise.
Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711)	Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act unless permitted by regulation (e.g., duck hunting). The Act states	No Yes. Condition of Certification BIO-11 would require preconstruction nest surveys and a Nesting Bird Management Plan to include no-disturbance buffers around active nests and monitoring of

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Applicable LORS	Description	Conclusions and Rationale for Compliance
	<p><u>that, “Unless and except as permitted by regulations made as hereinafter provided in this subchapter, it shall be unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof...”</u> Many federal court decisions construing these provisions have found that, as a matter of law, the Act does not apply to otherwise legal, commercially useful activities (<i>United States v. Brigham Oil & Gas, L.P.</i>, No. 4:11-po-005-DLH et al., 2012 U.S. Dist. LEXIS 5774 (D.N.D. Jan. 17, 2012); see also <i>Newton County Wildlife Association v. United States Forest Service</i> (8th Cir. 1997) 113 F.3d 110, 115.) (MBTA only applies to physical conduct of the sort engaged in by hunters and poachers). <u>The U.S. Fish and Wildlife Service, which has exclusive jurisdiction to enforce the MBTA, has stated that it “selectively” enforces the Act to focus on instances when feasible avian impact avoidance or minimization measures are unreasonable, or in bad faith, not implemented.</u></p>	<p>nests to minimize impacts to nesting birds; BIO-4 would require a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations including MBTA; BIO-16 would require golden eagle nesting surveys during the construction phase; and BIO-12 would <u>require a Bird Monitoring Study to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial.</u> It also would require a <u>Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines.</u> <u>require a Bird Conservation Strategy, an Eagle Protection Plan, and a Bird Monitoring Study to address potential bird injury or mortality during operation, including adaptive management actions.</u> <u>Consistent with prior CEC approvals of projects utilizing the same or similar technology, these conditions of certification would require that impacts, mitigation and avoidance measures be identified and adaptively managed and implemented to the extent feasible and would therefore comply with the MBTA.</u> <u>However, even with these avoidance and minimization measures, take of birds covered by the MBTA is expected, primarily from collision and solar flux hazards during operation of the project.</u></p>
<p>Clean Water Act (Title 33, United States Code, sections 1251 through 1376, and Code of Federal Regulations, part 30, section 330.5(a)(26))</p>	<p>Requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for a discharge from dredged or fill materials into waters of the US, including wetlands. Section 401 requires a permit from a regional water quality control board (RWQCB) for the discharge of pollutants.</p>	<p>Yes. BLM or the applicant will consult with USACE and RWQCB to obtain necessary permits under Sections 404 and 401 of the CWA.</p>
<p>Bald and Golden Eagle Protection Act (Title 16, United States Code section 668)</p>	<p>Provides for the protection of the bald eagle and the golden eagle by prohibiting, except under certain specified conditions, the take, possession, and commerce of such birds. Defines the “take” of an eagle to include a broad range of actions, including disturbance (i.e., to agitate or bother an eagle to a degree that causes, or is likely to cause, injury, decreased productivity by substantially interfering with behavior, or nest abandonment).</p>	<p>Yes. BIO-3 would require compensation habitat for wildlife including golden eagle foraging habitat; BIO-16 would require golden eagle nesting surveys during the construction phase; and BIO-12 would <u>require a Bird Monitoring Study that would include golden eagles to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial.</u> It also would require a <u>Bird Conservation Strategy, to be prepared and implemented according to</u></p>

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Applicable LORS	Description	Conclusions and Rationale for Compliance
		<p><u>USFWS guidelines and incorporating appropriate measures related to golden eagles. require a Bird Conservation Strategy, an Eagle Protection Plan, and a Bird Monitoring Study to address potential injury or mortality of birds, including eagles, during operation of the project. These plans also would include adaptive management actions.</u></p>
<p>Eagle Permits (Title 50, Code of Federal Regulations, Part 22)</p>	<p>Authorizes take of bald eagles and golden eagles where the take is compatible with the preservation of the bald eagle and the golden eagle; necessary to protect an interest in a particular locality; associated with but not the purpose of the activity; and (1) For individual instances of take: the take cannot practicably be avoided; or (2) For programmatic take: the take is unavoidable even though advanced conservation practices are being implemented. Also provides for the take of eagle nests under certain circumstances, such as where they pose a human health and safety risk or pose a functional hazard that renders a human-engineered structure unusable for its intended function. Take authorization for eagles and nests must be obtained through consultation with the USFWS.</p>	<p>Yes. BIO-16 would require golden eagle nesting surveys during the construction phase; BIO-12 <u>require a Bird Monitoring Study that would include golden eagles to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines and incorporating appropriate measures related to golden eagles.</u></p>
<p>Federal Land Policy and Management Act of 1976 (FLPMA) 43 U.S.C. 1701 section 102</p>	<p>Governs the way in which the public lands administered by the BLM are managed.</p>	<p>Yes. BLM will prepare an EIS in compliance with NEPA for the portions of the proposed project on public lands under BLM’s jurisdiction, and will evaluate the proposed solar generator project as a connected action.</p>
<p>California Desert Conservation Area Plan 1980, as amended (reprinted in 1999)</p>	<p>Administered by the BLM; requires that projects are compatible with policies that provide for the protection, enhancement, and sustainability of fish and wildlife species, wildlife corridors, riparian and wetland habitats, and native vegetation resources.</p>	<p>Yes. Staff’s proposed Conditions of Certification BIO-1 through BIO-7 and BIO-9 through BIO-20 minimize, avoid, and compensate for impacts to biological resources covered by the CDCA Plan. The BLM will evaluate plan conformance of project components proposed on BLM lands and potential requirement for Plan Amendment in its NEPA analysis.</p>
<p>Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)</p>	<p>BLM land use plan amendment that resolves issues of resource demands, use conflicts, and environmental quality in the 5.5-million acre planning area located primarily within the Colorado Desert in southeastern California; provides land use management for the desert tortoise, integrated ecosystem management for special status species and natural communities for all federal lands, and regional standards and guidelines for public lands (BLM and CDFG 2002).</p>	<p>Yes. Staff’s proposed Conditions of Certification BIO-1 through BIO-7 and BIO-9 through BIO-20 minimize, avoid, and compensate for impacts to biological resources covered by the NECO.</p>
<p>Executive Order 11312</p>	<p>Prevent and control invasive species.</p>	<p>Yes. BIO-7 would require an Integrated</p>

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Applicable LORS	Description	Conclusions and Rationale for Compliance
		Weed Management Plan to prevent and control invasive weeds.
Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994) and Revised Recovery Plan (USFWS 2011a)	Describes a strategy for recovery and delisting of the desert tortoise.	Yes. BIO-1 through BIO-7 and BIO-13 through BIO-15 would require measures to avoid or mitigate impacts to desert tortoise, including translocation off-site and protection of compensation habitat. These measures would ensure that the project is not likely to jeopardize the recovery efforts or the continued existence of desert tortoise.
STATE		
California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098)	Protects listed rare, threatened, and endangered species; “take” of a state-listed species except as authorized under Section 2081.	Yes. BIO-1 through BIO-97 and BIO-11 through BIO-15 would fully mitigate project impacts to the state listed desert tortoise. Staff concludes that the project has a low potential to take state-listed birds, including willow flycatcher, bank swallow, greater sandhill crane, Gila woodpecker, elf owl, and Swainson’s hawk due to potential collision or concentrated solar energy hazards.
California Code of Regulations (Title 14, sections 670.2 and 670.5)	Lists the plants and animals of California that are declared rare, threatened, or endangered.	Yes. BIO-1 through BIO-97 and BIO-11 through BIO-15 would fully mitigate project impacts to the state listed desert tortoise and most potential impacts to other listed species. Staff concludes that the project has the potential to take state listed birds, including Swainson’s hawk, willow flycatcher, bank swallow, greater sandhill crane, Gila woodpecker, and elf owl.
Protected furbearing mammals (California Code of Regulations, Title 14, section 460)	Fisher, marten, river otter, desert kit fox, and red fox may not be taken at any time. The California Fish and Game Code (Section 4000 et seq.) defines certain species, including the <u>F</u> fisher, marten, river otter, desert kit fox, and red fox, as “fur bearing mammals” and further describes the conditions under which fur bearing mammals may be trapped or hunted. <u>The regulations promulgated under these provisions provide that hunters and trappers may not take the species listed above</u> be taken at any time.	Yes. BIO 1 thorough BIO-5 and BIO-18 would require measures to avoid take of desert kit fox.
Fully Protected Species (Fish and Game Code, sections 3511, 4700, 5050, and 5515)	Designates certain species as fully protected and prohibits the take of such species or their habitat unless for scientific purposes (see also California Code of Regulations, Title 14, section 670.7).	No Yes. Condition of Certification BIO-12 would require a Bird Conservation Strategy, an Eagle Protection Plan, and a Bird Monitoring Study to address potential bird injury or mortality during operation of the project, including adaptive management actions. However, even with these avoidance and minimization measures staff concludes

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Applicable LORS	Description	Conclusions and Rationale for Compliance
		<p>that the project has the potential to take <u>require a Bird Monitoring Study that to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines. Consistent with prior CEC approvals of projects utilizing the same or similar technology, staff's recommended conditions of certification would be expected to avoid impacts to fully protected birds, including golden eagle, and peregrine falcon, and greater sandhill crane. These species and other fully protected species would also be expected to avoid the project site during construction and operation due to factors such as the lack of suitable habitat, perch and nest-proofing of potentially attractive structures, and the management of other potential attractants, such as water sources or scavenging materials noise associated with generation facilities near the base of the central towers.</u></p>
<p>Nest or Eggs (Fish and Game Code section 3503)</p>	<p>Protects California's birds, making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. States that "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."</p>	<p>Yes. BIO-11 would require preconstruction nest surveys and a Nesting Bird Management Plan, to include no-disturbance buffers around active nests and monitoring of nests; BIO-4 would include a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.</p>
<p>Birds of Prey (Fish and Game Code section 3503.5)</p>	<p>Birds of prey are protected making it "unlawful to take, possess, or destroy any birds of prey (in the order Falconiformes or Strigiformes)." States that "It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird, except as otherwise provided by this code or any regulation made pursuant thereto."</p>	<p>NoYes. BIO-11 would require preconstruction nest surveys and a Nesting Bird Management Plan, to include no-disturbance buffers around active nests and monitoring of nests; BIO-4 would include a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 3503.5; BIO-12 would <u>require a Bird Monitoring Study to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines. Consistent with prior CEC approvals of projects utilizing the</u></p>

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Applicable LORS	Description	Conclusions and Rationale for Compliance
		<p><u>same or similar technology, staff's recommended conditions of certification would be expected to avoid impacts to raptors. Raptors would also be expected to avoid the project site during construction and operation due to factors such as the lack of suitable habitat, perch and nest-proofing of potentially attractive structures, and the management of other potential attractants, such as water sources or scavenging materials noise associated with generation facilities near the base of the central towers. Raptor mortality was not detected to a significant degree in the 1986 McCrary study of a solar reflective renewable energy facility. require a Bird Conservation Strategy, an Eagle Protection Plan, and a Bird Monitoring Study to address potential bird injury or mortality during operation of the project, including adaptive management actions. However, even with these avoidance and minimization measures, take of covered birds is expected, primarily from collision and solar flux hazards during operation of the project.</u></p>
<p>Migratory Birds (Fish and Game Code section 3513)</p>	<p><u>Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds. States that "It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act."</u></p>	<p>No/Yes. BIO-11 would require preconstruction nest surveys and a Nesting Bird Management Plan, to include no-disturbance buffers around active nests and monitoring of nests; BIO-4 would include a Worker Environmental Awareness Program to educate workers about compliance with environmental regulations, including Fish and Game Code section 351303.5; BIO-12 require a Bird Monitoring Study to monitor any death and/or injury of birds, and to develop and implement adaptive management measures if those impacts are substantial. <u>It also would require a Bird Conservation Strategy, to be prepared and implemented according to USFWS guidelines. require a Bird Conservation Strategy, an Eagle Protection Plan, and a Bird Monitoring Study to address potential bird injury or mortality during operation, including adaptive management actions. Section 3513 is intended as a state counterpart statute to the MBTA. As discussed above, and consistent with prior CEC approvals of projects utilizing the same or similar technology, staff recommended conditions of certification would require</u></p>

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Applicable LORS	Description	Conclusions and Rationale for Compliance
		that impacts, mitigation and avoidance measures be identified and adaptively managed and implemented to the extent feasible and would comply with the MBTA and the state counterpart statute. would require a Bird Conservation Strategy, an Eagle Protection Plan, and a Bird Monitoring Study to address potential bird injury or mortality during operation of the project, including adaptive management actions. However, even with these avoidance and minimization measures, take of covered birds is expected, primarily from collision and solar flux hazards during operation of the project.
Streambed Alteration Agreement (Fish and Game Code sections 1600-1616)	Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process.	Yes. BIO-9 would include measures to minimize, avoid, and compensate for impacts to jurisdictional waters of the state; staff is coordinating with CDFG to determine whether the conditions conform to the state LSAA program.
LOCAL		
Riverside County General Plan: Land Use and Multipurpose Open Space Elements of the County General Plan (2003)	Contains specific policies to preserve the character and function of open space that benefits biological resources. It also contains specific policies and goals for protecting areas of sensitive plant, soils and wildlife habitat and for assuring compatibility between natural areas and development. The Rio Mesa SEGF area and most of eastern Riverside County is designated as Open Space Conservation in the General Plan. Although the Rio Mesa SEGF is not within one of the 19 area plans contained within the General Plan, it is addressed in the Eastern Riverside County Desert Areas (Non-Area Plan).	Yes. BIO-1 through BIO-7 and BIO-9 through BIO-20 would ensure that the project remains in compliance with the Riverside County General Plan regarding biological resources.
Lower Colorado River Multi-Species Conservation Program	Intended to balance the use of the Colorado River water resources with the conservation of native species and their habitats. Includes general and species-specific conservation measures for twenty-six covered species and five evaluation species. The project site is within one mile of the LCRMSCP planning area, and proposed access road improvements and drainage crossing upgrades are within LCRMSCP Reach #4.	Yes. The proposed project is not within the planning area for this plan and is not a "covered activity" as defined in the LCRMSCP. BIO 1 through BIO 7 and BIO 9 through BIO 20 would minimize and avoid impacts to resources covered under the LCRMSCP.

137. **Page 4.2-141, first paragraph:** Please revise this section to reflect the fact that the project's contribution to renewable energy and renewable energy technology will generate substantial

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public benefits related to reducing state, national and global reliance on fossil fuel technology that is the primary factor causing climate change:

~~In addition to the impacts associated with the Rio Mesa SEGF as summarized above, the facility would comprise one of the first operational, large-scale renewable energy electric power generation facilities in the world. The governments of the United States and California have each encouraged the development of large-scale renewable energy facilities to reduce the use of non-renewable, largely fossil fuels, that disproportionately contribute to the growing problem of anthropogenic climate change. The adverse biological and environmental effects of anthropogenic climate change have been extensively documented by state and federal resource agencies. When constructed and operational, the proposed project would generate enough power to meet the demands of approximately 200,000 homes in California during the peak hours of the day and will reduce carbon dioxide (CO₂) emissions associated with comparable levels of electrical energy production using conventional fossil fuel technology by approximately 13 million tons over 25 years (BSE 2012), <http://www.brightsourceenergy.com/rio-mesa>, accessed October 27, 2012). The project will result in significant biological and environmental benefits related to project-specific reductions in CO₂ emissions and also contribute towards the biologically and environmentally significant development of renewable energy generation technology in general. The Rio Mesa SEGF would result in significant impacts to sensitive biological resources, and would permanently diminish the extent and value of native plant and animal communities in the region. Staff has therefore concluded that the Rio Mesa SEGF would not provide any noteworthy public benefits related to biological resources.~~

138. **Page 4.2-142, Carryover Paragraph:** Please revise this section to reflect the fact that Applicant has submitted the information requested by CEC staff:

~~Energy Commission staff will be reluctant to make any recommendation to the Commissioners on either issue until after conferring with CDFG to ensure consistency with CDFG's LSAA and ITP programs. CDFG will review the project upon receipt of the applicant's documentation with both programs. Therefore, staff has requested As requested by CEC staff (CEC 2012h) that the applicant (1) the applicant will prepare and submit to CDFG a complete LSAA Notification with up-to-date state waters delineation, project impacts, proposed mitigation, and any other supporting documents, including the appropriate filing fees and has docketed a copy of these documents with the Energy Commission, and will (2) provide to CDFG an ITP Application for desert tortoise, including an impact assessment, proposed mitigation, and supporting documents, including the appropriate filing fees and will docket a copy of these documents with the Energy Commission. (3) provide to CDFG the appropriate filing fee(s) for both documents, and (4) docket copies of both documents with the Energy Commission.~~