BrightSource

Applicant's Comments on Preliminary Staff Assessment

Volume 2: Specific Comments

California Energy Commission
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Submitted to:

CALIFORNIA ENERGY COMMISSION
1516 9th Street, MS15
Sacramento, CA 95814-5504

Submitted by:

RIO MESA SOLAR I, LLC
RIO MESA SOLAR II, LLC
1999 Harrison Street, Suite 2150
Oakland, CA 94612

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EXECUTIVE SUMMARY

SPECIFIC COMMENTS

1. **Page 1.1-9 (Part A), Executive Summary Table 1:** Table 1 should be modified to reflect the scope of projects considered by staff in their cumulative impacts analyses in the PSA. CEQA Guidelines Section 15355 requires that the cumulative impacts of the project be assessed in relation to "closely related" past, present, and reasonably foreseeable future projects. The list of "Cumulative Projects" in the PSA contains many projects that are neither closely related to the RMS SEGF, nor considered by Staff in the vast majority of PSA sections. Many of these projects are far outside any natural resource boundary that is relevant to environmental analysis (i.e., outside the viewshed, noiseshed, or watershed of the project). In nearly every resource area, Staff considered cumulative impacts associated with projects within a six mile buffer. However, there are a few resource areas (e.g., Socioeconomics, Water Supply) where a broader geographic range is appropriate. Staff should focus its list of projects on those that are considered in the vast majority of the PSA chapters. However, if Staff intends to include this master list of projects, then Staff should clarify which resource areas the list applies to.

2. **Page 1.1-13 (Part A), Soil and Surface Water:** The discussion of soil and surface water resources should include a third bullet explaining how the technology employed by the Project affects the natural storm water regime of the Project site. The following suggested bullet is based on discussion of soil and surface water resources at pages 4.1-1, 11 and 18 of the PSA.

    - The solar field utilizes mirrors that are installed without requirements for concrete foundations. The heliostat field will not require extensive grading or removal of vegetation. As a result, development of the project would maintain original grades and natural drainage features across the majority of the project site without the need for added storm drainage control. Since the project would not significantly alter natural drainage courses, post-project flows leaving the project site will not be significantly different compared to pre-project conditions. The power blocks, substation, heliostat assembly buildings and administrative areas would be protected using diversion channels, bypass channels, or swales to direct run-on flow from up-slope areas and runoff flow through and around each plant, which would be designed to maintain peak flow rates similar to pre-project rates. As the original grades and natural drainage features would be maintained across the majority of the project site, thus requiring no added storm drainage control, the potential for impacts related to soil erosion, such as scour and sediment transport, will be minimized.

3. **Page 1.1-16 (Part A):** The Executive Summary should include a short discussion summarizing other key topics in the PSA. At a minimum, Applicant requests that staff include a discussion of Socioeconomics and the Project Description and Engineering Assessment, as follows:

SOCIOECONOMICS

The project will not result in a significant impact to socioeconomic resources. The project will not induce substantial population growth, displace people or existing housing, or significantly increase the use of public facilities, parks, schools, or recreation facilities as a result of construction or operations. The project will not create a significant adverse direct, indirect, or cumulative impact to public services, such as police, fire, or emergency services.

The project will have several notable beneficial economic impacts as a result of construction and operation. The project will create an average of 840 construction jobs, with a peak of 2,188 jobs created during month 23 of construction. Construction of the project will also create additional indirect and induced employment to supply services and materials for construction of the project and as a result of increased household income and expenditures. An estimated $71.4 million will be spent locally on construction materials, resulting in approximately $5.5 million in total sales taxes from local sales during construction. The project will require 100 full-time jobs for operation and maintenance with an annual operations and maintenance payroll of $12.3 million. This will create additional indirect and induced jobs in the local area to supply goods and services to the project, and provide services as a result of increased household income. Riverside County will generate property taxes of approximately $4.3 million annually over the life of the project. Additionally, local purchases of materials, supplies, equipment, and services are expected to total approximately $589,600 annually, resulting in approximately $45,694 of annual sales tax revenue for Riverside County.

PROJECT DESCRIPTION AND ENGINEERING ASSESSMENT

The project will contain two solar plants and common facilities for water treatment, plant maintenance, Common HV Switchyard, control room and administrative offices. Each plant will have a nominal output capacity of 250-MW.

The heliostat (or mirror) fields collect and focus the sun's energy on the solar receiver steam generator (SRSG), or solar boiler, located atop a tower near the center of each of the heliostat arrays. The SRSG is the heart of the plant and the device that converts the sun's light energy to thermal energy (or Heat). Using the Sun's energy, the SRSG heats water and makes high pressure, superheated steam. From the SRSG, the steam is sent to the turbine generator, and power is generated using a conventional, Rankine Steam-Power cycle.

Each plant will consist of the following elements:

- One heliostat array comprising approximately 85,000 heliostats of LH-2.3 design
- One 750-foot tall SRSG tower
- One Rankine-cycle non-reheat steam turbine connected to the SRSG
- One auxiliary/startup natural gas-fired boiler, rated at 249 mmBtu/hr
- One natural gas-fired night-time preservation boiler, rated at 15 mmBtu/hr to maintain system steam seals and critical systems overnight
- One Air-Cooled Condenser for main steam cooling to minimize water usage
- Auxiliary equipment supporting the SRSG, Solar Field and turbine / generator at each plant:

- Boiler Feedwater and Condensate Pumps
- Feedwater Heaters
- Deaerator
- Condensate Polisher
- Wet Surface Air Cooler (Wet-SAC) for critical support systems
- Transformers
- Emergency Diesel Generator
- Diesel engine and electric motor-driven fire pumps

The Rio Mesa SEGF will be interconnected to the SCE grid through the newly constructed Colorado River Substation. Power from Rio Mesa SEGF will be transmitted at 220-kV to the new substation along a common 10-mile approximate gen-tie line. The new substation is expected to be completed and operational in 2013. The project will be able to provide the utility grid stabilizing ancillary services such as VARs, inertial momentum, load following and gradual up/down ramping associated with a synchronous rotating generator. Since the system includes an auxiliary gas-fired boiler, each plant has the capability to use fuel gas to pre-heat the system pre-dawn and allow for solar operation earlier in the morning and later into the afternoon, as well as augment main steam production during transient periods (e.g., when a large cloud passes over the heliostat field).

3. **Page 1.1-13 (Part), Biological Resources:** The Applicant recommends that the Biological Resources section in the Executive Summary (Part B) be revised to be consistent with Applicant's comments on the Biological Resources section of the PSA.
4. **Page 1.1-19 (Part B), Cultural Resources** (Part B): The Applicant recommends that the Cultural Resources section in the Executive Summary (Part B) be revised to be consistent with Applicant's comments on the Cultural Resources section of the PSA.

PROJECT DESCRIPTION

SPECIFIC COMMENTS

1. **Page 3-4, Project Facility Features, Design, and Operation, First Full Paragraph:** Applicant requests that the PSA include an additional figure which shows the power block plot plan. Please refer to the attached Figure Project Description 1.

2. **Page 3-8, Natural Gas Fuel System:** Please revise the description of the natural gas fuel system as follows:

   The natural gas supply for the Rio Mesa SEGF will connect to the North Baja Pipeline (NBPL), a subsidiary of TransCanada Gas Transmission Company (TCGT~~) North Baja pipeline~~, which runs along ~~adjacent to~~ the east side of the project ~~eastern edge of the proposed solar fields~~. However, TCGT is not a natural gas retailer. Current plans are for the gas supply to be obtained from one or more suppliers on the ~~TCGT~~ NBPL pipeline. Separate contracts for Rio Mesa Solar I, LLC and Rio Mesa Solar II, LLC would be executed with such suppliers. A master gas metering station would be required ~~at~~ near the NBPL tap point to measure and record gas volumes for custody transfer. In addition, facilities would be installed either at the tap station or the power block to regulate the gas pressure and to remove liquids, solid particles, or other impurities. The metering station would require a minimum area of approximately 150 feet by 150 feet. The approximate location of the project gas line and the location of the gas metering yard are shown on Project Description Figures 7 and 8.

3. **Page 3-9, Plant Cooling Systems:** Please correct the page reference as noted below:

   The main steam-cycle heat rejection system would consist of an air-cooled steam condenser system described on page ~~3.1-8~~ 3-7. The condenser would be designed to normally operate at a pressure of about 3.25 inHgA.

4. **Page 3-11, Project Construction, Vegetation Clearing and Cutting:** Please revise the last sentence as follows:

   In areas where general site grading is not required, vegetation clearing would not occur, except for the drive zones, which would be grubbed, ~~bladed, and~~ smoothed, and where required for safety purposes, bladed.

5. **Page 3-11, Paragraph Immediately Below Table 3-3.** Applicant is requesting the option to implement a double shift schedule as described in Applicant's comments on the Traffic & Transportation section of the PSA.

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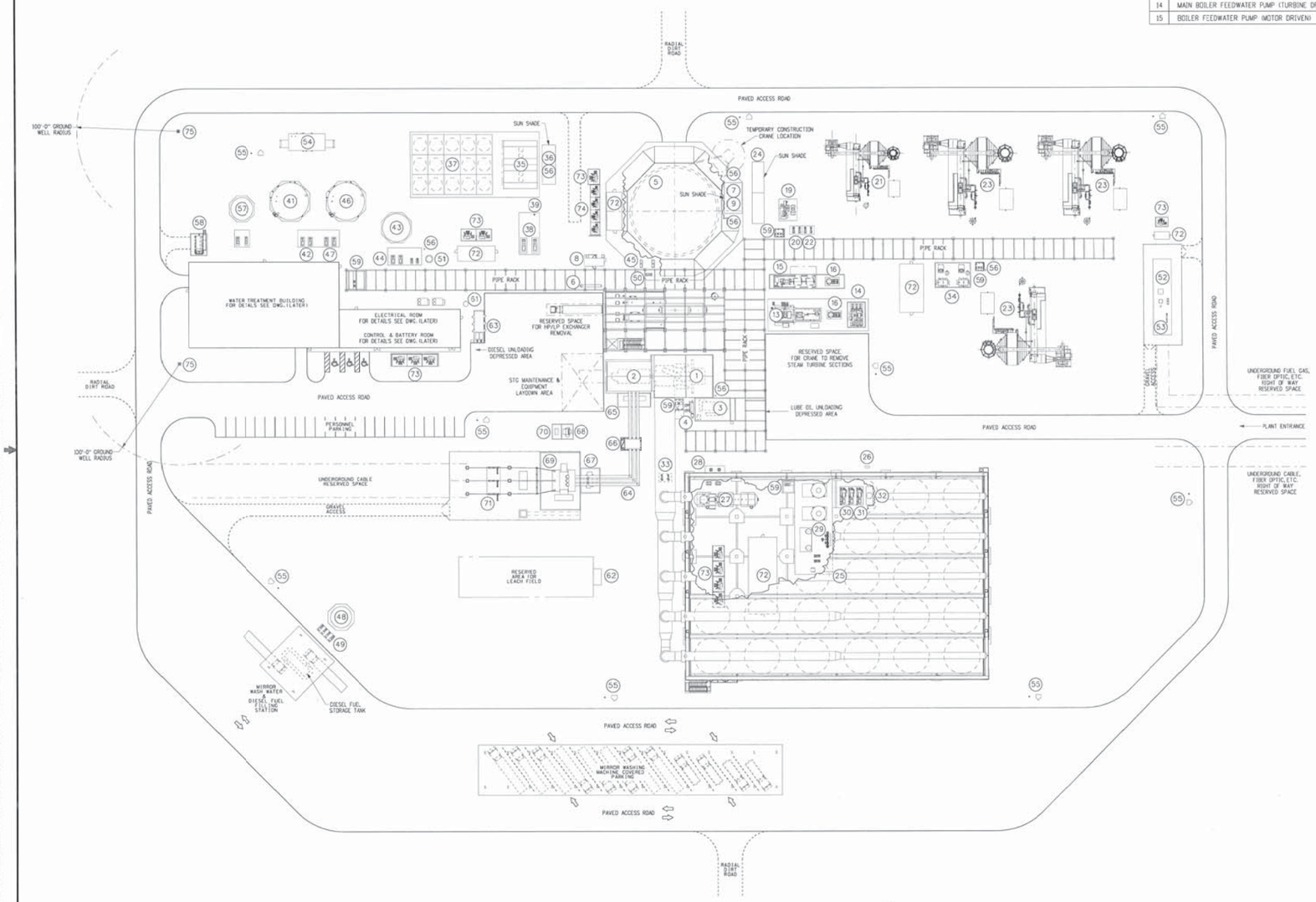

ITEM	DESCRIPTION
1	STEAM TURBINE
2	GENERATOR
3	LUBE OIL UNIT
4	GLAND STEAM CONDENSER
5	SOLAR RECEIVER STEAM GENERATOR (SRSG)
6	SRSG BLOWDOWN TANK DISCHARGE HEAT EXCHANGER
7	SRSG & BOILER CHEMICAL FEED
8	STEAM & WATER ANALYSIS SYSTEM SHELTER
9	NITROGEN STORAGE
10	DEAERATOR & DEAERATOR STORAGE TANK
11	HP FEEDWATER HEATERS (3)
12	LP FEEDWATER HEATERS (4)
13	MAIN BOILER FEEDWATER PUMP (TURBINE DRIVEN)
14	MAIN BOILER FEEDWATER PUMP (TURBINE DRIVEN) L.O. PACKAGE
15	BOILER FEEDWATER PUMP (MOTOR DRIVEN)
16	BOILER FEEDWATER BOOSTER PUMPS (2)
17	INTERNAL DRAIN TANK & PUMPS (2)
18	EXTERNAL DRAIN TANK & PUMPS (2)
19	NIGHT PRESERVATION BOILER
20	NIGHT PRESERVATION BOILER PUMPS (2)
21	START-UP BOILER
22	START-UP BOILER PUMPS (2)
23	AUXILIARY BOILER (3)
24	AUXILIARY BOILER CHEMICALS
25	AIR COOLED CONDENSER
26	AIR COOLED CONDENSER WASH WATER SKID
27	CONDENSATE COLLECTION TANK
28	CONDENSATE PUMPS & STRAINERS (2)
29	CONDENSATE POLISHER EQUIPMENT
30	CONDENSER VACUUM PUMPS (2)
31	NIGHT TIME VACUUM PUMP
32	NIGHT TIME VACUUM PUMP FIN FAN COOLER
33	STEAM DUCT DRAIN PUMPS (2)
34	PLANT AIR EQUIPMENT
35	WET SURFACE AIR COOLER (WSAC)
36	WSAC CHEMICAL INJECTION AREA
37	FIN-FAN DRY COOLERS
38	CLOSED COOLING WATER PUMPS (2)
39	CLOSED COOLING WATER CHEMICAL ADDITION TANK
40	CLOSED COOLING WATER HEAD TANK
41	SERVICE / FIRE WATER STORAGE TANK
42	SERVICE WATER TRANSFER PUMPS (2)
43	DEMINERALIZED WATER STORAGE TANK
44	DEMINERALIZED WATER TRANSFER PUMPS (2)
45	CLOSED COOLING WATER BOOSTER PUMPS (2)
46	TREATED WATER STORAGE TANK
47	TREATED WATER FORWARDING PUMPS (2)
48	MIRROR WASH WATER STORAGE TANK
49	MIRROR WASH TRANSFER PUMPS (4)
50	SERVICE WATER BOOSTER PUMP (1)
51	POTABLE WATER SURGE TANK & PUMPS (2)
52	FUEL GAS FILTRATION/HEATING AREA
53	FUEL GAS PIG RECEIVER (OWNER SUBCONTRACTOR)
54	FIRE PUMPS MODULE (ELECTRIC, DIESEL & JOCKEY)
55	FIRE HYDRANT & HOSE HOUSE (10)
56	EMERGENCY EYEWASH AND/OR SHOWER
57	WASTE WATER COLLECTION TANK & PUMPS (2)
58	OILY WATER SEPARATOR
59	SUMP PUMPS (10)
60	OIL & CHEMICAL STORAGE (INSIDE WATER TREATMENT BUILDING)
61	SANITARY LIFT STATION (UNDERGROUND)
62	SEPTIC TANK & LEACH FIELD
63	EMERGENCY DIESEL GENERATOR
64	ISOPHASE BUS DUCT
65	EXCITATION CONTAINER
66	GENERATOR CIRCUIT BREAKER
67	UNIT AUXILIARY TRANSFORMER
68	STATION SERVICE TRANSFORMER
69	GENERATOR STEP-UP TRANSFORMER
70	33kV BREAKER
71	230kV MOTOR OPERATED DISCONNECT
72	ELECTRICAL EQUIPMENT MODULE (5)
73	MCC OIL FILLED TRANSFORMER (11)
74	BOP UPS TRANSFORMERS (4)
75	WATER WELL/WATER SUPPLY (LOCATIONS TO BE SITE SPECIFIC) (2)

NO.	DATE	REVISIONS	BY	CHK	DES. SUPV.	ENGR	PROJ. ENGR	APPR.
A	07APR11	ISSUED FOR REVIEW	AKS	RPT	RPT	-	TWA	-
B	27 MAY 11	REVISED TO INCORPORATE OWNER COMMENTS MTG DATE 5MAY11	AKS	RPT	RPT	-	TWA	-
C	26 MAY 11	REVISED TO INCORPORATE OWNER COMMENTS 26MAY11	AKS	RPT	RPT	-	TWA	-
D	11 JUL 11	ISSUED FOR AFC	AKS	RPT	RPT	-	TWA	-

SCALE: AS SHOWN | DATE: 07APR11 | DESIGNED: AKS | DRAWN: AKS | CHKD: | ENGR: | PROJ. ENGR:

BrightSource

BECHTEL POWER CORP.
DEDICATED TO SAFETY EXCELLENCE - ZERO ACCIDENTS
FREDERICK, MARYLAND

RIO MESA
SOLAR ELECTRIC GENERATING FACILITY

POWER BLOCK
PLOT PLAN

BSII (Ltd.) | OWNER DRAWING NO.: TBD

JOB NO.	DRAWING NO.	REV.
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Project Description 1

BIOLOGICAL RESOURCES

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~~

~~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

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 3,8~~34~~05 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-~~3~~5** would require a series of measures to minimize or avoid

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 a~~n 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~~

~~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

~~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~~

~~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~~

~~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 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:

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 s~~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

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.*,

Applicable LORS	Description
	No. 4:11-po-005-DLH et al., 2012 U.S. Dist. LEXIS 5774 (D.N.D. Jan. 17, 2012); see also *Newton County Wildlife Association v. United States Forest Service* (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.
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.

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)	The California Fish and Game Code (Section 4000 et seq.) defines certain species, including the ~~F~~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.
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.~~ 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."
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)."~~ 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."
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.~~ 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."
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.

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:

Biological Resources Table 2

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

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

*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

the edges of sand sheets and dunes. Cryptogrammic 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 farinose*), 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, burrobush, 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~~

~~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

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 saltscale 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 allsacle in the shrub canopy (Sawyer et al. 2009). Total cover is often low with much bare ground between widely spaces 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

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
Brassica tournefortii Sahara mustard	CDFA: n/a Cal IPC: High Impacts/ Invasiveness/ Distribution: A/A/B Just in north	Widespread and abundant in Calif. deserts; common in interior valleys; especially invasive in open sands and in disturbed soils (including natural disturbance); on Project site, primarily along the northern transmission alignment.

Invasive Plant Species	Rankings[1]	Habitats, Range, and Control Notes
~~*Chenopodium murale*~~ ~~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.~~
Cynodon dactylon Bermuda grass	CDFA: C Cal IPC: Moderate Impacts/ Invasiveness/ Distribution: B/B/B Gravel pits, by fields, along BT	Widespread and abundant in much of Calif.; new introductions are probably chronic in region; in deserts, requires mesic soil conditions on Project site, primarily at western gravel excavations, along agricultural fields, and along Bradshaw Trail.
Dactylis glomerata Orchardgrass	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/B/B Ag/BT	Grasslands, broadleaved forest, woodlands. Common forage species. Impacts appear to be minor. On Project site, limited to along agricultural fields and Bradshaw Trail.
Erodium cicutarium Redstem filaree; crane's bill	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/C/A Ag	Ubiquitous and often abundant or dominant throughout region and throughout most of S Calif. On Project site, primarily limited to agricultural field margins.
~~*Kallstroemia grandiflora*~~ ~~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.~~
Lactuca serriola Prickly lettuce	CDFA: n/a Cal IPC: Evaluated but not listed Impacts/ Invasiveness/ Distribution: D/C/B Ag/BT	Primarily an agricultural and roadside weed. On project site, limited to margins of agricultural fields and Bradshaw Trail.
~~*Phalaris minor*~~ ~~Littleseed canarygrass~~	~~CDFA: n/a~~ ~~Cal IPC: n/a~~	~~Both dry and moist sites of disturbed sites, roadsides, irrigation canals, and fallow fields~~
~~*Polygonum arenastrum*~~ ~~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.~~
Salsola paulsenii Barbwire Russian thistle	CDFA: C Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/C/C Dunes, BT	Widespread and often abundant throughout much of Calif.; including deserts. On Project site, limited to the transmission alignment and edges of Bradshaw Trail.
Salsola tragus Russian thistle	CDFA: C Cal IPC: Limited Impacts/ Invasiveness/ Distribution: C/B/B Dunes, BT	Widespread and often abundant throughout much of Calif.; including deserts. On Project site, limited to the transmission alignment and edges of Bradshaw Trail.

Invasive Plant Species	Rankings[1]	Habitats, Range, and Control Notes
Schismus arabicus Mediterranean grass	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: B/C/A Entire project site	Widespread and often abundant throughout much of Calif.; including deserts. Observed in low density throughout the Project site.
Schismus barbatus Mediterranean grass	CDFA: n/a Cal IPC: Limited Impacts/ Invasiveness/ Distribution: B/C/A Entire project site	Widespread and often abundant throughout much of Calif.; including deserts. Observed in low density throughout the Project site.
~~*Setaria pumila*~~ ~~Yellow foxtail~~	~~CDFA: n/a~~ ~~Cal IPC: n/a~~	~~Roadsides, ditch banks, fields, pastures, cropland, orchards, vineyards, gardens, turf, and other disturbed sites.~~
~~*Sisymbrium altissimum*~~ ~~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~~
Sisymbrium irio London rocket	CDFA: n/a Cal IPC: Moderate Impacts/ Invasiveness/ Distribution: B/B/A Ag, BT	Widespread and often common throughout much of Calif.; less common in deserts, mainly in seasonally slightly mesic or shaded sites; on Project site, limited to edges of agricultural fields and Bradshaw Trail.
~~*Sonchus oleraceus*~~	~~CDFA: n/a~~ ~~Cal IPC: n/a~~	~~Primarily an agricultural and roadside weed.~~
Tamarix ramosissima Saltcedar, tamarisk	CDFA: B Cal IPC: High Impacts/ Invasiveness/ Distribution: A/A/A Gravel pits 5 trees	Widespread and strongly invasive in riparian habitats throughout California and southwestern desert regions; on Project site, primarily limited to 5 trees in western gravel excavation.
Tribulus terrestris Puncture vine	CDFA: C Cal IPC: n/a Ag/BT	Widespread, especially roadsides, disturbed sites, and agricultural lands; on Project site, limited to edge of agricultural fields and Bradshaw Trail.
~~*Vulpia bromoides*~~ ~~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.

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 type~~s~~ 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.~~The Act states that, "Unless and except as permitted by

Species Designation	Agency	Definition
		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.*, No. 4:11-po-005-DLH et al., 2012 U.S. Dist. LEXIS 5774 (D.N.D. Jan. 17, 2012); see also *Newton County Wildlife Association v. United States Forest Service* (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.
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

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~~ The Natural Communities Conservation Planning Act (2011).
Species of Special Concern (SSC)	CDFG	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: • 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. 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 any significant impacts to below the level of significance.
California Fish and Game Code 3503 and 3513	CDFG	~~All U.S. native bird species that occur in California.~~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."
Protected	CDFG	A species that is not federally or state listed, FP, or SSC, but is protected under the California Fish and Game Code under provisions generally related to hunting. 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

Species Designation	Agency	Definition
		provide that hunters and trappers may not take the species listed above ~~be~~ taken at any time.
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 fenceline 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 fenceline during spring 2012;
    - Lewis's Woodpecker (BCC) observed outside project fenceline during spring 2012
    - Long-billed Curlew (BCC, WL)observed outside project fenceline during spring 2012
    - Olive-sided Flycatcher (BCC, SCC)observed outside project fenceline during spring 2012
    - Purple Martin (SSC)observed inside project fenceline during spring 2012
    - White-faced Ibis (WL);observed outside project fenceline during spring 2012

    The following taxa were removed from Table 5 because CNDDB 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 CNDDB record 69 miles W)

- Astragalus tricarinatus (nearest CNDDB record site is 55 miles W)
- Ayenia compacta (nearest CNDDB record is 35 miles WNW)
- Bouteloua trifida (nearest CNDDB record is 50 miles NE)
- Chamaesyce arizonica (nearest CNDDB record is 90 miles to W)
- Horsfordia alata (nearest CCH record [no CNDDB records] is about 30 miles S)
- Matelea parvifolia (nearest CNDDB record is about 30 miles W)
- Nemacaulis denudata var. gracilis (nearest CNDDB occurrence is 31 miles N)
- Physalis lobata (nearest CNDDB record is 53 miles NW)
- Psorothamnus fremontii var. attenuatus (nearest CNDDB record is 52 miles N)
- Salvia greatae (nearest CNDDB record is 48 miles W)
- Senna covesii (nearest CNDDB record is 29 miles W)
- Teucrium glandulosum (nearest CNDDB 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			
Abronia villosa var. aurita	**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.
Acleisanthes longiflora	**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.
Androstephium breviflorum	Pink funnel-lily, Small-flowered androstephium	CRPR 2.2 S2S3	**Low**. Suitable habitat is present but site probably outside geographic range. Was not detected during 2011-2012 focused botanical surveys.
Astragalus insularis var. harwoodii	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.
Astragalus lentiginosus var. *borreganus*	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.
~~***Astragalus lentiginosus var. coachellae***~~	~~**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.~~
Astragalus sabulonum	**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.

Scientific Name	Common Name	Status	Potential For Occurrence
~~***Astragalus tricarinatus***~~	~~**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.~~
~~***Ayenia compacta***~~	~~**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.~~
~~*Bouteloua trifida*~~	~~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.~~
Calliandra eriophylla	**Pink fairy duster**	CRPR 2.3 S2S3	~~**High**~~ **Not Likely To Occur.** Suitable habitat on the site; records adjacent to the site. Was not detected during 2011-2012 focused botanical surveys.
Camissonia – see Chylismia			
Carnegiea gigantea	**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.
Cassia – see *Senna*			
Castela emoryi	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.
Chamaesyce abramsiana (Euphorbia abramsiana)	**Abram's spurge**	CRPR 2.2 S 1.2	~~**High**~~**Present.** Suitable habitat on the site; records adjacent to the site. 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.
~~***Chamaesyce arizonica (Euphorbia arizonica)***~~	~~**Arizona spurge**~~	~~CRPR 2.3~~ ~~S 1.3~~	~~**Low.** Limited potential in washes or sandy sites of transmission line corridor.~~
Chamaesyce platysperma (Euphorbia platysperma)	**Flat-seeded spurge**	CRPR 1B.2 BLM S S 1.2?	~~**High**~~ **Low.** Although nearest CNDDB record is 68 miles away, predicted suitable habitat (TJM2**) occurs in project area; ~~L~~limited to washes or sandy sites of transmission line corridor; Was not detected during 2011-2012 focused botanical surveys.
Chylismia arenaria	**Sand evening-primrose**	CRPR 2.2 S 2	~~**Moderate**~~ **Low.** Suitable habitat is present and historic records exist in the region. Was not detected during 2011-2012 focused botanical surveys.
Colubrina californica	**Las Animas colubrine**	CRPR 2.3 S2S3.3	~~**Low**~~ **Not Likely To Occur.** Conspicuous shrub, not located during field surveys.
Condalia globosa* var. *pubescens	**Spiny abrojo**	CRPR 4.2 S 3.2	~~**Low**~~ **Not Likely To Occur.** Conspicuous shrub, not located during field surveys.
Coryphantha alversonii (*Escobaria vivipara* var. *alversonii*)	Foxtail cactus	CRPR: 4.3 S 3.2	~~**High**~~ **Low.** Suitable habitat on site, recorded in adjacent areas. Was not detected during 2011-2012 focused botanical surveys.
Cryptantha costata	Ribbed cryptantha	CRPR: 4.3 S 3.3	**Present.** About ~~13,000~~ 10,225 plants reported in current Project area in 2011 in dunes in the northwestern portion of the existing transmission line ROW

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

Scientific Name	Common Name	Status	Potential For Occurrence
~~***Salvia greatae***~~	~~**Orocopia sage**~~	~~CRPR 1B.3~~ ~~BLM S~~ ~~S 2.2~~	~~**Low.** Desert shrublands on alluvial slopes; known occurrences well to west.~~
~~*Senna covesii* (*Cassia covesii*)~~	~~Coves' cassia~~	~~CRPR: 2.2~~ ~~S 2.2~~	~~**Low.** Suitable habitat is present; no local occurrences.~~
Teucrium cubense* ssp. *depressum	**Dwarf germander**	CRPR: 2.2 S 2	~~**High** **Low.**~~ Suitable habitat on site; recorded in areas adjacent to the project site; was not detected during 2011-2012 focused botanical surveys.
Teucrium glandulosum	Desert germander	CRPR: 2.3 S 1.3	**Low.** Marginal habitat, probably outside geographic range; was not detected during 2011-2012 focused botanical surveys..
Wislizenia refracta ssp. *refracta*	Jackass-clover	CRPR: 2.2 S 1.2?	~~**Moderate**~~ **Low.** Limited to gen-tie alignment; nearest CNDDB record is 71 miles W, but predicted suitable habitat (TJM2**) includes project area; Was not detected during 2011-2012 focused botanical surveys.
Wislizenia refracta ssp. palmeri	**Palmer's jackass clover**	CRPR: 2.2 S 1?	~~**Moderate**~~ **Low.** Limited to gen-tie alignment; nearest CNDDB record is 22 miles NW, but predicted suitable habitat (TJM2**) includes project area; Was not detected during 2011-2012 focused botanical surveys.
INVERTEBRATES			
Hedychridium argenteum	Riverside cuckoo wasp	S 1?	**Low.** Reported by CNDDB about 6 miles northwest of the northern terminus of the gen-tie line based on a 1971 record.
Melitta californica	California mellitid bee	S 2?	**Low.** Reported by CNDDB about 6 miles northwest of the northern terminus of the gen-tie line based on a 1974 record.
AMPHIBIANS			
Scaphiopus couchi	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.
Incilius alvarius (Bufo alvarius)	Sonoran desert toad	CSSC	**Not Likely to Occur.** Formerly present in region, now possibly extirpated from California; no suitable breeding habitat on site.
REPTILES			
Gopherus agassizii	**Desert tortoise**	**FT** **ST**	**Present.** 6 live tortoises and multiple sign (carcasses, active burrows, pallets, etc.) observed in BSA; 8 additional live tortoises and additional sign observed incidentally during other surveys.
Heloderma suspectum cinctum	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.
Lichanura trivirgata	Rosy boa	n/a (former BLM S)	**Moderate.** Marginal habitat on site, more likely in rocky areas in the surrounding mountains.
Phrynosoma mcallii	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).
Uma notata	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).

Scientific Name	Common Name	Status	Potential For Occurrence
Uma scoparia	**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			
Accipiter cooperii	**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.
Accipiter striatus	**Sharp-shinned hawk**	CDFG WL (nesting)	~~**Present**~~ **High.** Observed offsite during fall 2011; no breeding habitat and well outside breeding range; wide-ranging during winter and migratory seasons and likely to forage on site.
~~***Aimophyla ruficeps***~~	~~**Rufous-crowned sparrow**~~	~~CDFG WL~~	~~**Present.** Detected in BSA (apparently subspecies *scottii*, more common in Arizona and eastward).~~
Aquila chrysaetos	**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.
Asio otus	Long-eared owl	CSSC (nesting)	**High.** Suitable foraging habitat throughout project site, nearby agricultural fields and river floodplain.
Athene cunicularia	**Western burrowing owl**	BLM S FBCC CSSC	**Present.** Observed on site. Also occurs in adjacent agricultural lands.
Buteo regalis	**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).
Buteo swainsoni	**Swainson's hawk**	FBCC **ST**	**Present.** Migrant observed in BSA. Occasionally flies over during migration, not expected to breed onsite (well outside breeding range).
Chaetura vauxi	**Vaux's swift**	CSSC	**Present.** Observed in BSA during migration; well outside breeding range; no breeding habitat.
Charadrius montanus	Mountain plover	FPT FBCC BLM S CSSC	**Low** ~~**High**~~ **(winter only).** May winter in fallow agricultural lands east of the project site; uncommon transient and irregular winter resident; potential overflight during winter and migratory seasons.
Chlidonias niger	**Black tern**	CSSC (nesting colony)	**Low.** ~~**Present.** Detected in BSA in spring 2012.~~
Circus cyaneus	**Northern harrier**	CSSC (nesting)	**Present.** Detected in BSA; margin of breeding range but suitable habitat present along Colorado River; expected mainly in winter.
Coccyzus americanus	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.
Colaptes chrysoides	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.
Dendroica petechia	**Yellow warbler**	FBCC	**Present.** Detected in BSA in spring 2012.

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

Scientific Name	Common Name	Status	Potential For Occurrence
Parabuteo unicinctus	**Harris hawk**	CDFG WL (nesting)	~~**Present.**~~ **High.** Detected off site; northern margin of geographic range; expected uncommonly as flyover.
Pelecanus erythrorhynchos	**American white pelican**	CSSC (nesting colony)	**Present.** Observed over project site; no breeding habitat and outside breeding range; ~~expected as~~ potential for rare fly-over during winter and migratory seasons.
~~*Polioptila melanura*~~	~~Black-tailed gnatcatcher~~	~~n/a (former species of concern)~~	~~**High.** Suitable habitat in shrublands, especially around washes; populations apparently stable.~~
Pyrocephalus rubinus	Vermillion flycatcher	CSSC (nesting)	**Moderate.** No suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during migration.
Rallus longirostris yumanensis	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.
Riparia riparia	**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).
Spizella breweri	**Brewer's sparrow**	FBCC	**Present.** Detected in BSA.
Toxostoma crissale	**Crissal thrasher**	CSSC	**Present.** Detected in BSA.
Toxostoma lecontei	**LeConte's thrasher**	FBCC CSSC	**Present.** Detected in BSA.
Vireo bellii arizonae	Arizona Bell's vireo	FBCC **SE**	**Present**. A single individual was observed within the project site during fall 2012 surveys. No suitable breeding habitat; expected in riparian habitat at the Colorado River; potential overflight during migration.
Xanthocephalus xanthocephalus	**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			
Antrozous pallidus	**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.
Corynorhinus townsendii	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.
Euderma maculatum	Spotted bat	BLM S CSSC	**Low.** The site is southeast of range.
Eumops perotis californicus	**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.
Lasiurus blossevillii	**Western red bat**	CSSC	**Present.** Detected during acoustic monitoring.
Lasiurus xanthinaus (Nycteris ega xanthina)	**Western (southern) yellow bat**	CSSC	**Moderate.** Within geographic range and habitat but no local reports.

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

Scientific Name	Common Name	Status	Potential For Occurrence

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 were 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 were elevated flux is present. Additionally, Elf Owls fly during the night when there is no flux risk.

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 with in 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 an 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
Native Vegetation And Wildlife Habitat. **Direct Impacts:** Permanent and long-term loss of 3,873 acres desert shrubland, including 3,805 acres within the solar generation facility fence line, and approximately 68 acres within the gen-tie and roadway right of ways, including 450.6	**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.	**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.~~ **Contribution to cumulative impacts**

Impact	Conditions of Certification	Determination
acres of microphyll woodland habitat (also called desert dry wash woodland or blue palo verde – ironwood woodland) in these project locations. **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.~~ **Cumulative Impacts:** Does not Contributes to cumulatively significant loss of habitat, fragmentation, and indirect effects from past, present, and foreseeable future projects throughout the region.	**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. **BIO-4** would require worker training regarding sensitive biological resources and worker responsibilities for avoidance and reporting. **BIO-5** would require a series of impact avoidance and minimization measures to avoid or minimize impacts to biological resources. **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. **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. ~~**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.~~	**would not be considerable**. ~~however, if 3:1 compensation is not feasible, contribution to cumulatively significant impacts may remain **cumulatively considerable**.~~
Waters of the State. **Direct Impacts:** Permanent and long-term impacts to 489.5 acres of state-jurisdictional desert washes, ephemeral channels, and adjacent riparian habitat (i.e., microphyll woodland, which is the regional riparian vegetation), including 484.5 acres within the solar generation facility, and 5 acres within the gen-tie line and roadway right of ways. 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. Cumulative Impacts: Contributes to cumulatively significant loss of desert wash habitat function and values, fragmentation, erosion, sedimentation, altered surface drainage patterns, and	BIO-1 through ~~BIO-8~~ BIO-7 (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.	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~~

Impact	Conditions of Certification	Determination
the spread of invasive weeds into desert washes from past, present, and foreseeable future projects in region.		
Special-Status Plants. 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. 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. Cumulative Impacts: Does not contribute to cumulatively significant direct and indirect effects from past, present, and foreseeable future projects in Colorado Desert region.	BIO-1 through BIO-7 and 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.	Less than significant with staff's recommended conditions of certification. Contribution to cumulative impacts would not be considerable..
Common Wildlife and Nesting Birds. 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 SRSGs. 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. 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.	BIO-1 through BIO-5 (above); BIO-5 includes gen-tie line design and receiver tower lighting recommendations to minimize electrocution and collision hazards. 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.~~ 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.	~~Most i~~Impacts would be mitigated to **less than significant** with staff's recommended conditions of certification. 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~~

Impact	Conditions of Certification	Determination
		~~recommended conditions of certification~~. ~~for large raptors (see below).~~ 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**.
Desert Tortoise. Direct Impacts: Loss of 3,8~~34~~05 acres of mostly occupied desert tortoise habitat; potential mortality or disturbance during construction and operation, additional disturbance and risk from translocation, including mortality ~~and spread of disease~~. 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~~. Cumulative Impacts: Does not contribute~~s~~ to cumulatively significant loss and fragmentation of habitat, and indirect effects from past, present, and foreseeable future projects in the Colorado Desert Recovery Unit.	BIO-1 through ~~BIO-8~~ BIO-7 (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.	Less than significant with staff's recommended conditions of certification. Contribution to cumulative impacts would not be considerable.
Other Special-Status Amphibians and Reptiles. Direct Impacts: Gen-tie construction impacts to aeolian sand habitat or seasonal summer rain pools; also 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).	Less than significant with staff's recommended conditions of certification. Contribution to cumulative impacts would not be considerable.
Bald and Golden Eagle. Direct Impacts: Foraging habitat loss (year-around for golden eagle; winter and migration seasons for bald eagle); less than significant electrocution hazard on gen-tie line; collision and concentrated solar energy hazards at solar generator facility.	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. **BIO 12** ~~would require an Eagle Conservation Plan to evaluate risk to bald~~	Collision and concentrated solar energy hazards would be mitigated to **less than significant**. Consistent with previous CEC staff assessments, and considering nest and use surveys documenting that the project is located in region where

Impact	Conditions of Certification	Determination
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.	~~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.	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.~~
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.	**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.	Collision and concentrated solar energy hazards would be ~~mitigated to~~ less than significant.
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).	BIO-1 through BIO-5 (above). BIO-11 (above). BIO-12 (above).	**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**.~~
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~~.	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	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**

Impact	Conditions of Certification	Determination
Indirect Impacts: See "Common Wildlife and Nesting Birds" (above). Cumulative Impacts: See "Common Wildlife and Nesting Birds" (above).	number of territories on the site; compensation lands may be "nested" within lands required for other biological resources (BIO-3, above).	**would not be considerable** ~~with implementation of conditions of certification; however, contribution to collision and solar energy flux hazards would remain **cumulatively considerable**.~~
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).	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.	Foraging habitat impacts would be mitigated to **less than significant** with staff's recommended conditions of certification. ~~For large special-status raptors, c~~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**.~~
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).	BIO-1 through BIO-5 (above). BIO-11 (above). BIO 12 (above).	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.
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).	BIO-12 (above).	Staff concludes that collision and concentrated solar energy hazards would be As discussed above with reference to Common Wildlife and Nesting Birds, project and cumulative impacts would not be **significant and unavoidable** and contribution to cumulative impacts **would be not considerable.**
Large Mammals. Direct Impacts: See "Common Wildlife and Nesting Birds" (above). Indirect 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.

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.

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:

Biological Resources Table 7

Summary of Project Disturbance Acreage by Vegetation Type

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

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

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 ~~They~~ 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.

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 thay 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 imnpacts 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 Al

    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 polices direct specific ratios. ~~In a review of offset ratios in developed nations worldwide, McKenney and Kieseker (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~~

~~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~~2) 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.

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

	Native Vegetation and Wildlife Habitat (creosote bush scrub at 1:1; special-status vegetation/vegetated State Waters at 3:1)	Desert Tortoise and Golden Eagle Habitat Compensation (total impact area at 1:1)	Burrowing Owl Habitat Compensation (3 territories at 19.5 acres each)	Unvegetated State Waters Compensation (34.42 acres at 1:1)
Estimated number of parcels to be acquired, at 160 acres per parcel[2]	27	24	1	1
Land cost at $1,500/acre[3]	$6,397,950	$5,751,000	$87,750	$51,630
Level 1 Environmental Site Assessment at $3,000/parcel	$79,974	$71,888	$3,000	$3,000
Appraisal at no less than $5,000/parcel	$133,291	$119,813	$5,000	$5,000
Initial site clean-up, restoration or enhancement, at $250/acre[4]	$1,066,325	$958,500	$14,625	$8,605
Closing and Escrow Cost at $5,000/parcel[5]	$133,291	$119,813	$5,000	$5,000
Biological survey for determining mitigation value of land (habitat based with species specific augmentation) at $5,000/parcel	$133,291	$119,813	$5,000	$5,000
3rd Party Administrative Costs (Land Cost x 10%)[6]	$639,795	$575,100	$8,775	$5,163
Agency cost to accept land[7] [(Land Cost x 15%) x 1.17] (17% of the 15% for overhead)	$1,122,840	$1,009,301	$15,400	$9,061
Subtotal - Acquisition and Initial Site Work	$9,706,756	$8,725,226	$144,550	$92,459
Long-term Management and Maintenance Fund (LTMM) fee at $1,450/acre[8]	$6,184,685	$5,559,300	$84,825	$49,909
-	-	-	-	-
Financial Security Requirement Subtotal if the application-directed compensatory mitigation option	$15,891,441	$14,284,526	$229,375	$142,368
-	-	-	-	-

	Native Vegetation and Wildlife Habitat (creosote bush scrub at 1:1; special-status vegetation/vegetated State Waters at 3:1)	Desert Tortoise and Golden Eagle Habitat Compensation (total impact area at 1:1)	Burrowing Owl Habitat Compensation (3 territories at 19.5 acres each)	Unvegetated State Waters Compensation (34.42 acres at 1:1)
NFWF Fees	-	-	-	-
Establish Project Specific Account[9]	$12,000	-	-	-
Call for and Process Pre-Proposal Modified RFP or RPF[10]	$30,000	$30,000	$30,000	$30,000
NFWF Management fee For Acquisition and Enhancement Actions (Subtotal x 3%)	$291,203	$261,757	$4,337	$2,774
NWFW Management Fee for LTMM account (LTMM x 1%)	$61,847	$55,593	$848	$499
Subtotal of NFWF Fees if NFWF option selected	$395,050	$347,350	$35,185	$33,273
TOTAL Estimated cost for deposit in project specific REAT-NFWF Account[11]	$16,286,491	$14,631,875	$264,560	$175,641
Amount Expected to be Nested	$0	$14,631,875	$264,560	$0
TOTAL Reamaining	$16,286,491	$0	$0	$175,641

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 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 overlayed 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~~

~~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

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

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 SEGF. ~~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:

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)
Astragalus insularis* var. *harwoodii*	**Harwood's milk-vetch**	CRPR 2.2	**119**	**2**	**0**	**2**	**0**	**46**	**46**
Cryptantha costata*	**Ribbed cryptantha**	CRPR: 4.3	**Ca. 13,000**	**0**	**0**	**0**	**0**	**0**	**0**
Cynanchum utahense (= Funastrum u.)	**Utah vine milkweed, Utah cynanchum**	CRPR: 4.2	**98**	**47**	**0**	**47**	**2**	**0**	**0**
Eriastrum harwoodii*	**Harwood's eriastrum**	CRPR: 1B.2 BLM S	**160**	**0**	**0**	**0**	**0**	**4**	**4**
Proboscidea althaeifolia	**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.

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:

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.

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~~3) 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.

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,~~ Tterrestrial 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 ~~S~~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~~

~~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~~

~~of the proposed heliostat field from a distance. Both of these~~ This potential effect~~s~~ 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~~175~~ 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, number~~s~~ 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:

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 heliostat~~s 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

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

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~~ 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~~

~~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 usess~~tructures). 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

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~~

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

~~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, Electrocution:** 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

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. Electrocution 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. Electrocution 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/m2~~	~~20-30 seconds~~

~~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

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 SRSG 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/m^2. 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/m^2 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.~~

~~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 <u>glare that might result in</u> eye damage to birds. <u>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</u>

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/m^2, and MPE for continuous exposure (for a period greater than 0.25 second) is 1 kW/m^2. 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 SRSGs 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 undertermined 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/m^2 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/m^2 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/m^2. 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

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 undertermined 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~~

~~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;~~

~~• 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 ~~G~~golden ~~E~~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

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 undertermined impact risks, CEC precedent, and the inapplicability of compensatory mitigation for uncertain or undertermined 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

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. This~~ 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

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~~

~~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 ~~c~~would forage on the project site during breeding season~~. N~~ or 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~~

~~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. ~~taff 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, die to the status of both species as~~

~~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 undertermined 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-

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 undertermined 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

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 hawk~~s~~ 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

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:

~~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 ~~708.9~~450.7 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~~

~~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

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 mores o 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**, t**he 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:

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") s~~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~~

~~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 fenceline.

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 undertermined 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 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

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 the 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 Breat 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:

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 CEQ~~A. ~~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 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 wth 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:

…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~~

~~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,

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, s~~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~~

~~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, s~~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 3:1ratio 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.~~

~~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~~

~~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 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. S~~**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~~

~~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:

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

Applicable LORS	Description	Conclusions and Rationale for Compliance
	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.*, No. 4:11-po-005-DLH et al., 2012 U.S. Dist. LEXIS 5774 (D.N.D. Jan. 17, 2012); see also *Newton County Wildlife Association v. United States Forest Service* (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.	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 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. ~~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.~~ 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. ~~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~~.
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 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.	**Yes.** BLM or the applicant will consult with USACE and RWQCB to obtain necessary permits under Sections 404 and 401 of the CWA.
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. 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.	**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 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

Applicable LORS	Description	Conclusions and Rationale for Compliance
		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.~~
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.	**Yes. BIO-16** would require golden eagle nesting surveys during the construction phase; **BIO-12** 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.
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.	**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.
California Desert Conservation Area Plan 1980, as amended (reprinted in 1999)	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.	**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.
Northern and Eastern Colorado Desert Coordinated Management Plan (NECO)	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).	**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.
Executive Order 11312	Prevent and control invasive species.	**Yes. BIO-7** would require an Integrated

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-~~8~~7** 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-~~8~~7** 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 ~~F~~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.	**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~~

Applicable LORS	Description	Conclusions and Rationale for Compliance
		~~that the project has the potential to take~~ 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.
Nest or Eggs (Fish and Game Code section 3503)	~~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."	**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.
Birds of Prey (Fish and Game Code section 3503.5)	~~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."	~~**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 3503.5; **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. Consistent with prior CEC approvals of projects utilizing the

Applicable LORS	Description	Conclusions and Rationale for Compliance
		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.~~
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.~~ 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."	~~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 3513~~03.5~~; **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. 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

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

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, ~~T~~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.~~

AIR QUALITY

SPECIFIC COMMENTS

1. **Page 4.1-2, Fourth Paragraph, Second Sentence:** Lead is not analyzed in the Public Health Section. No lead emissions are expected from the natural gas-fired boilers and/or emergency engines. Applicant requests the following changes:

   Toxic ~~lead is not analyzed as a criteria pollutant, but lead and other toxic~~ air pollutant emissions impacts are analyzed in the Public Health section of the PSA.

2. **Page 4.1-3, Air Quality Table 1**: The EPA NSPS Subpart Dc is applicable to boilers with a heat input less than 100 MMBtu/hr rather than less than 30 MMBtu/hr. Applicant requests the following changes:

Air Quality Table 1
Laws, Ordinances, Regulations, and Standards

Applicable LORS	Description
Federal	
40 CFR Part 60	New Source Performance Standards (NSPS), Subpart Db Standards of Performance for Electricity Steam Generation Units. Establishes emission standards and monitoring/recordkeeping requirements for units with greater than 100 MMBtu/hr heat input. Subpart Dc Standards of Performance for Electricity Steam Generation Units. Establishes emission standards and monitoring/recordkeeping requirements for units with less than 100 MMBtu/hr ~~30 MMBtu/hr~~ heat input. Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compressions ignition internal combustion engines, including emergency fire water pump engines.

3. **Page 4.1-12, Second Paragraph, First Two Sentences:** Applicant requests the following changes for clarification purposes:

   In accordance with applicable EPA modeling protocols, the ~~The~~ pollutant modeling analysis includes ~~was limited to~~ the pollutants listed above in **Air Quality Table 5**. Staff believes there is no adequate model to account for the contribution of a single power plant to the secondary aerosol formation. Besides, the emissions of lead and visibility

reducing particulates or their precursors would be insignificant from a solar power plant using natural gas boilers.

4. **Page 4.1-16, First Paragraph:** Applicant requests the following changes to make this paragraph consistent with the Air Quality Proposed Conditions of Certification:

   These emission estimates appear reasonable in terms of the onsite equipment and offsite vehicle use and the offsite vehicle fugitive dust emissions. However, staff ~~the onsite fugitive dust emissions estimate may be underestimated given the amount of activity on the site and appropriate level of control for the applicant's proposed mitigation measures (specifically watering unpaved roads). Staff~~ recommends additional mitigation measures, specifically the use of CEC-approved soil binders on unpaved roads and other inactive disturbed surfaces during construction, to ensure ~~so that the applicant's~~ fugitive dust emissions ~~estimate~~ and associated impacts comply with the applicable standards ~~would be minimized for this project~~.

5. **Page 4.1-16, Sub-Bullet Items:** Applicant requests the following changes for clarification purposes:

   - One auxiliary boiler (249 MMBtu/hr) would provide steam prior to sunrise to expedite the process of bringing the solar plants online and power augmentation primarily in the late afternoon/early evening. During cloudy periods or in case of an emergency shutdown, this boiler would also assist in preheating the solar generating system to facilitate plant restart. Each auxiliary boiler would have a maximum of no more than 1,100 equivalent full-load hours and 865 startup hours of use per year;
   - One night preservation boiler (15 MMBtu/hr) would provide ~~superheated~~ steam to the steam turbine generator (STG) and steam turbine driven ~~the~~ boiler feedwater pump and other systems overnight and during other shutdown periods when steam is not available from the solar receiver steam generator (SRSG). Each nighttime preservation boiler would have maximum 4,780 equivalent full-load hours and 345 startup hours of use per year;

6. **Page 4.1-17, First Bullet Item under "B. Maximum Daily Emissions":** Please make the following change:

   - All auxiliary boilers operate 5 equivalent full-load hours and 2.5 hours in startup mode;

7. **Page 4.1-17, First Bullet Item under "C. Maximum Annual Emissions":** Please make the following change:

   - All auxiliary boilers operate 1,100 equivalent full-load hours and 865 hours in startup mode;

8. **Page 4.1-18, First Bullet Item:** Please make the following change:

   - All nighttime preservation boilers operate 4,780 equivalent full-load hours and 345 hours in startup mode;

9. **Page 4.1-18, Second Paragraph:** Applicant requests the following changes to make this paragraph consistent with the Air Quality Proposed Conditions of Certification:

   Similar to the construction emissions estimate ~~staff~~, staff ~~believes that the onsite fugitive dust emissions estimate may be underestimated given the amount of activity on the site and appropriate level of control for the applicant's proposed mitigation measures (specifically, watering unpaved roads). Therefore, staff~~ recommends additional mitigation measures (Condition of Certification **AQ-SC7**) requiring the use of CEC-approved soil binders on unpaved roads and other inactive disturbed surfaces during site operation, to ensure ~~so that the applicant's~~ fugitive dust emissions ~~estimate~~ and associated impacts comply with the applicable standards ~~analysis will be minimized for this project.~~

10. **Page 4.1-20, Second Full Paragraph, Second Sentence:** Please make the following change:

    First, all project emissions of nonattainment criteria pollutants and their precursors (PM10, NOx, VOC and SO_2) are considered significant cumulative impacts that must be mitigated.

11. **Page 4.1-23, First Paragraph:** Please make the following change:

    To mitigate the impacts due to construction of the facility, ~~the applicant has~~ Staff concurs ~~s to use~~ with the following Applicant-proposed mitigation measures:

12. **Page 4.1-23, Bullet List Items B, C, and I:** Applicant requests the following changes to make this paragraph consistent with the proposed Air Quality Conditions of Certification:

    B. Vehicle speeds will be limited to 10 miles per hour within the construction site on unpaved non-stabilized roads.
    C. All construction equipment vehicle tires will be washed or cleaned free of dirt prior to entering offsite paved roadways.
    I. All soil storage piles and disturbed areas that remain inactive for longer than 10 days will be covered or treated with water or appropriate dust suppressant compounds.

13. **Page 4.1-24, First Bullet List Item:** Applicant requests that the following requirement be revised because it is ambiguous and unenforceable as a practical matter:

    N. Construction equipment will be maintained in accordance with prudent industry practice. ~~top service shape.~~

14. **Page 4.1-24, First Paragraph, Last Sentence:** Because soil stabilizers must be approved by the CPM, Applicant requests the following change:

    Specific recommendations from staff include a more aggressive dust control requirement to use CPM-approved polymer based, or equivalent, soil stabilizers on the site's unpaved roads and inactive disturbed surfaces during construction.

15. **Page 4.1-25, Air Quality Table 10:** Applicant requests the following change to the 1-hour Federal NO_2 modeling result to make it consistent with the most recent modeling results submitted to the CEC as part of the July 23, 2012 supplemental data response. As noted in the July 23, 2012 supplemental data response, the 1-hour Federal NO2 modeling results were based on June 29, 2010 EPA guidance[1] which recommends a five-year average of the annual 1-hr NO_2 98th percentile (modeled impact plus background) modeling results rather than a 3-year rolling average. Applicant requests the following change to this table:

Air Quality Table 10
Project Operation with Mirror Washing Emissions Impacts

Pollutants	Avg. Period	Impacts ($\mu g/m^3$)	Background [a] ($\mu g/m^3$)	Total Impact [b] ($\mu g/m^3$)	Standard ($\mu g/m^3$)	Percent of Standard
NO_2	1-hr	165	92.4	257.4	339	76%
	1-hr federal [c]	-	-	~~185~~ 171	188	~~98~~ 91%
	Annual	0.2	17.1	17.3	57	30%
PM10	24-hr	**1.6**	**133**	**134.6**	**50**	**269%**
	Annual	**0.5**	**22**	**22.5**	**20**	**113%**
PM2.5	24-hr	0.7	17.8	18.5	35	53%
	Annual	0.05	7.0	7.05	12	59%
CO	1-hr	158	2,645	2,803	23,000	12%
	8-hr [d]	15.0	778	793	10,000	8%
SO_2	1-hr	2.4	136.6	139	196	71%
	24-hr [d]	1	18.4	19.4	105	18%
	Annual	0.01	0.0	0.01	80	0%

Source: supplemental information submitted in URS 2012e and BS 2012v,
Notes:
[a] Background values have been adjusted per staff recommended background concentrations shown in **Air Quality Table 5**.
[b] Total concentrations shown in this table are the sum of the maximum predicted impact and the maximum measured background concentration. Because the maximum impact will not occur at the same time as the maximum background concentration, the actual maximum combined impact will be lower.
[c] ~~Staff calculates the total impact for the federal 1-hour NO_2 standard based on maximum three-year rolling average of 98th percentile of annual distribution of daily maximum paired-sum of project impact and concurrent background for each year (2006-2008).~~ As allowed by a June 29, 2010 EPA guidance document, the Applicant used five-year (2006-2010) average ~~instead and the~~, resulting in a total impact of ~~would be lower (~~171 $\mu g/m^3$~~)~~.
[d] Maximum 8-hour CO and 24-hour SO_2 concentrations occur under fumigation conditions.

16. **Page 4.1-26, Third Full Paragraph, Second Sentence:** Please make the following change:

> However, due to the limited agricultural activity in the area the project site area would likely be characterized as ammonia poor, and the Rio Mesa SEGF project is not a notable source of ammonia emissions so the small amount of operating NOx and SOx emissions ~~that would be~~ generated by this project would have a low ~~reduced~~ potential to create secondary particulate.

17. **Page 4.1-27, Second Full Paragraph:** Because the actual level of flue gas recirculation that will be used by the boilers is not known at this time, Applicant requests the following changes to this paragraph:

> The applicant's proposed mitigation for the auxiliary/startup boilers includes Low-NOx burners and ~~20 percent~~ flue gas recirculation (for NOx), good combustion practices (for

CO), and to operate them exclusively on pipeline quality natural gas (for VOC, PM and SOx) to limit boiler emission levels. The AFC (BS 2011a), and PDOC ~~Authority to Construct (ATC)~~ conditions (MDAQMD 2012) provides the following emission limits, for each of the (249 MMBtu/hour HHV) boilers:

18. **Page 4.1-27, First Bullet List, Third Item:** Applicant requests the following change for clarification purposes:

    - VOC as CH_4: 12.6 ppmvd at 3% O_2, 1.32 lb/hour

19. **Page 4.1-27, Third Full Paragraph:** Because the actual level of flue gas recirculation that will be used by the boilers is not known at this time, Applicant requests the following changes to this paragraph:

    The applicant's proposed mitigation for each preservation boiler includes Low-NOx burners and ~~20 percent~~ flue gas recirculation (for NOx), good combustion practices (for CO), and to operate them exclusively on pipeline quality natural gas (for VOC, PM and SOx) to limit boiler emission levels. The supplemental analysis from the applicant (BS 2012v), and ~~final~~ PDOC conditions (MDAQMD 2012) ~~will be included in the Final Staff Assessment and these are expected to require the~~ provides the following emission limits, for each of the smaller (15 MMBtu/hour HHV) boilers:

20. **Page 4.1-27, Second Bullet List, Third Item:** Applicant requests the following change for clarification purposes:

    - VOC as CH_4: 12.6 ppmvd at 3% O_2, 0.08 lb/hour

21. **Page 4.1-28, First Bullet List:** Applicant requests that the term "break" be changed to "brake" in the following list:

    - NOx: 4.8 grams per ~~break~~ brake horsepower-hour (including non-methane hydrocarbons - NMHC/VOC)
    - CO: 2.6 grams per ~~break~~ brake horsepower-hour
    - VOC: 0.1669 grams per ~~break~~ brake horsepower-hour
    - PM10: 0.15 grams per ~~break~~ brake horsepower-hour
    - SO_2: 15 ppm sulfur content diesel fuel

22. **Page 4.1-28, Second Bullet List:** Please revise the term "break" to "brake" in the following list:

    - NOx: 3.0 grams per ~~break~~ brake horsepower-hour (including non-methane
    - hydrocarbons - NMHC/VOC)
    - CO: 2.6 grams per ~~break~~ brake horsepower-hour
    - VOC: 0.1669 grams per ~~break~~ brake horsepower-hour
    - PM10: 0.15 grams per ~~break~~ brake horsepower-hour
    - SO_2: 15 ppm sulfur content diesel fuel

23. **Page 4.1-28, Third Bullet List:** Applicant requests that the term "break" be changed to "brake" in the following list:

- NOx: 3.0 grams per ~~break~~ brake horsepower-hour (including NMHC/VOC)
- CO: 2.6 grams per ~~break~~ brake horsepower-hour
- VOC: (see NOx above)
- PM10: 0.15 grams per ~~break~~ brake horsepower-hour
- SO_2: 15 ppm sulfur content diesel fuel

24. **Page 4.1-28, Second to Last Paragraph:** Applicant requests this change to clarify that a combination of new on-road and certified off-road vehicles is proposed for mirror washing and maintenance activities:

    The applicant has ~~not~~ proposed to use new on-road or certified off-road vehicles and engines ~~any specific emission controls~~ for mirror washing and other maintenance activities to minimize emissions for this emission source.

25. **Page 4.1-28, Last Paragraph:** Applicant requests the following change to clarify that privately owned vehicles are not under the control of Applicant:

    The applicant has no control over privately owned vehicles and therefore has not proposed any specific emission controls for this emission source.

26. **Page 4.1-29, Bullet List Items 1, 2, and 3:** Applicant requests the following changes to make this list consistent with AQ-SC6 and AQ-SC7 as revised below:

    - ~~Require the use of new model year vehicles at the time of purchase for onsite maintenance, or equivalently low emitting vehicles as long as those vehicles can be demonstrated to have a similar or lower emission profile than new model year vehicles (**AQ-SC6**);~~
    - Limit vehicle speeds within the facility to no more than ten miles per hour on unpaved areas that have not undergone soil stabilization, and up to 25 miles per hour, or greater with CPM approval, on stabilized unpaved roads as long as no visible dust plumes are observed, to address fugitive PM emissions from the site (**AQ-SC7**);
    - Apply and maintain water or ~~a~~ non-toxic soil binder[1] to the onsite unpaved roads to create a durable, stabilized surface (**AQ-SC7**);

27. **Page 4.1-29, Second to Last Paragraph:** Applicant requests the following change to this paragraph to make it consistent with AQ-SC9 as revised below:

    Staff also proposes Condition of Certification **AQ-SC8** to ensure that the license is amended as necessary to incorporate changes to the air quality permits ~~and **AQ-SC9** to require use of engines that meet model year EPA/ARB Tier emission standards for the year purchased~~.

28. **Page 4.1-35, Air Quality Table 11:** As discussed above in Comment Number 16, Applicant requests the following change to the 1-hour Federal NO2 modeling result to make it consistent

[1] The soil stabilizer product used will require prior approval by the CPM ~~Energy Commission~~.

with the most recent modeling results submitted to the CEC as part of the July 23, 2012 supplemental data response. As noted in the July 23, 2012 supplemental data response, the 1-hour Federal NO_2 modeling results were based on June 29, 2010 EPA guidance which recommends a five-year average of the annual 1-hr NO_2 98th percentile (modeled impact plus background) modeling results rather than a 3-year rolling average. Applicant requests the following change to this table:

Air Quality Table 11
Ambient Air Quality Impacts from Cumulative Sources (µg/m3)

Pollutants	Avg. Period	Impacts ($\mu g/m^3$)	Background [a] ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Standard ($\mu g/m^3$)	Percent of Standard
NO_2	1-hr	165	92.4	257.4	339	76%
	1-hr federal [b]	-	-	~~185~~ 171	188	~~98~~91%

Source: supplemental information submitted on July 23, 2012 (BS 2012v)
Notes:
[a] Background values have been adjusted per staff recommended background concentrations shown in **Air Quality Table 5**.
[b] ~~Staff calculates the total impact for the federal 1-hour NO_2 standard based on maximum three-year rolling average of 98th percentile of annual distribution of daily maximum paired sum of project impact and concurrent background for each year (2006-2008).~~ As allowed by a June 29, 2010 EPA guidance document, the Applicant used a five-year (2006-2010) average ~~instead and the~~, resulting in a total impact ~~would be lower~~ of ~~(~~171 $\mu g/m^3$~~)~~.

29. **Page 4.1-36, Fifth Paragraph, Second Sentence:** Applicant requests the following changes to make it clear that the Project does not trigger MDAQMD Best Available Control Technology requirements:

    The emitting equipment will be well controlled; however, Best Available Control Technology ~~would be implemented~~ requirements are not triggered~~,~~ and emission reduction credits (ERCs) are not required ~~to offset the proposed project's emissions~~ by District rules and regulations based on the permitted stationary source emission levels for the proposed project.

30. **Page 4.1-38, Fourth Paragraph, Last Sentence:** Applicant requests the following change for clarification purposes:

    Compliance with this rule is assured with the required use of pipeline quality natural gas (annual average sulfur content equal to or less than 0.25 grains/100 dscf) and ultra-low sulfur diesel fuel for the emergency engines.

31. **Page 4.1-41, Last Bullet List Item:** Applicant requests the following change to this list to make consistent with Applicant's requested removal of AQ-SC9.

    - ~~Condition of Certification **AQ-SC9** is needed to ensure that the emergency engines meet applicable model year emission standards.~~

32. **Page 4.1-70, Second to Last Paragraph, Second Sentence:** Please make the following change:

    The primary sources that would cause GHG emissions would be from daily operation of each boiler (five hours per day of operation plus additional hours for startup of each ~~for~~ auxiliary boiler and twelve to sixteen hours per day of operation plus an hour for startup of each ~~for~~ nighttime boiler), power block maintenance activities, including mirror

cleaning and minimal undesired vegetation removal, weekly testing of the emergency generator and firewater pump, and employee commute trips.

33. **Page 4.1-71, First Paragraph, Last Two Sentences:** For purposes of determining whether the Project meets the U.S. EPA's Prevention of Significant Deterioration ("PSD") thresholds, mirror washing emissions are from a mobile source and thus are not considered part of the Project's operational emissions. However, for purposes of evaluating the project's emissions under CEQA, staff should clarify that they considered both the inclusion and exclusion of mirror washing emissions as part of operational emissions. Please make the following change to provide this clarification:

    ~~Staff was not able to determine the degree to which mirror washing should be included in the documentation of~~ ~~o~~ Operating emissions ~~so operating emissions~~ are shown both with and without mirror washing activities. GHG emissions from mobile equipment may not count towards operating emissions.

34. **Page 4.1-71, Greenhouse Gas Table 3:** Applicant requests the following change to the total annual electrical production to make it consistent with the information in the revised Project Description (Table 2.1-1) submitted as part of the July 23, 2012 supplemental data response submitted to the CEC:

Greenhouse Gas Table 3
Rio Mesa SEGF, Estimated Potential Greenhouse Gas (GHG) Emissions

	Maximum Emissions, metric tonnes/yr				
Emitting Source	**CO_2**	**CH_4**	**N_2O**	**SF_6**	**CO_2-equivalent (MTCO2E[a] per year)**
Auxiliary Boilers	31,900	0.60	0.06	--	
Nighttime Preservation Boilers	7,672	0.14	0.01	--	
Power Block Emergency Generators	704	0.03	0.01	--	
Common Area Emergency Generator	40	1.6E-03	3.3E-04	--	
Power Block Fire Pump Engines	48	2.0E-03	3.9E-04	--	
Common Area Fire Pump Engine	24	9.8E-04	2.0E-04	--	
WSACs	0	0	0	--	
Employee and Delivery Vehicles	4,824	0.2	3.9E-02	--	
Equipment Leakage (SF_6)	--	--	--	1.5E-03	
Total	45,212	0.98	1.2E-01	1.5E-03	
Global warming potential multiplier	1x	21x	310x	23,900x	
Total Project GHG Emissions – MTCO2E [b]	**45,212**	**20.48**	**37.32**	**36.52**	**45,307**
Mirror washing activities FFT[c] (on-road vehicles)	18,093	15	46	--	18,153
Mirror washing activities NT[d] (off-road vehicles)	1,292	1	3	--	1,297
MTCO2	**64,597**	**MTCO2E [b]**			**64,757**
Facility MWh per year [e]	~~1,374,000~~ 1,424,600				~~1,374,000~~ 1,424,600

Facility CO_2 EPS (MTCO2/MWh)	0.0457[f]	Facility GHG Performance (MTCO2E/MWh)	0.0457[f]

Sources: BS 2012v and email from Sierra Research
Notes:
[a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
[b] Annualized basis uses the project owner's assumed maximum permitted operating basis.
[c] Far from Tower (FFT)
[d] Near Tower (NT)
[e] Estimated Gross MWh
[f] Value includes mirror washing

35. **Page 4.1-72, First Paragraph, Last Two Sentences:** Applicant requests the following changes to this paragraph to make it consistent with the revised annual electrical production level shown above in Greenhouse Gas Table 3:

    The CO_2 emissions result from a project capacity factor of ~~31~~ 33 percent, well below the trigger for the SB1368 Emission Performance Standard of 60 percent capacity factor. Regardless, the new Rio Mesa SEGF facility would emit at 0.04~~7~~5 MTCO2/MWh (with mirror washing), which would easily meet the SB1368 Greenhouse Gas Emission Performance Standard of 0.5 MTCO2/MWh, if it applied.

36. **Page 4.1-74, Second to Last Paragraph:** Please make the following change:

    Finally, while the Rio Mesa SEGF combusts some natural gas in onsite boilers for the purposes of improving plant efficiency by facilitating the startup of the solar boiler system ~~freeze protection~~ and to initiate and sustain output during periods of low solar irradiance, the latter displaces higher-emission generation, and reduces the need for energy and ancillary services from natural gas-fired resources, potentially obviating the need for their construction/operation.

37. **Page 4.1-76, Third Paragraph, First Sentence:** Applicant requests the following changes to this paragraph to make it consistent with the revised greenhouse gas MTCO2E/MWh emission levels shown above in Greenhouse Gas Table 3:

    While the Rio Mesa SEGF would combust natural gas and thus emit GHGs as part of its operations, it would produce far less GHG emissions (emitting about ~~104~~ 100 lbs CO2/MWh) than the coal- and natural gas-fired resources it would displace.

38. **Page 4.1-78, First Paragraph:** Please make the following change:

    The Rio Mesa SEGF will produce GHG emissions during operations, combusting natural gas in order to provide assistance in starting the solar boiler ~~freeze protection~~ and increase or sustain energy output during periods of reduced solar irradiance (early morning and late afternoon hours, periods of high cloud cover).

39. **Page 4.1-78, Second Paragraph, First Sentence:** Please make the following change:

    The ability to produce energy for both station service and transmission to end-users slightly earlier and slightly later than would otherwise be the case without limited supplemental firing, as well as to smooth out fluctuations in output during periods when

solar irradiance is interrupted has not only economic value to the owner, but provides reliability to the electricity system.

CULTURAL RESOURCES

SPECIFIC COMMENTS

1. **Page 4.3-1, First Full Paragraph:** Applicant suggests revising as follows for consistency with CEQA:

   This environmental assessment identifies the potential impacts of the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF) project on cultural resources. The term "cultural resource" means any tangible or observable evidence of past human activity, regardless of significance, found in direct association with a geographic location, including tangible properties possessing intangible traditional cultural values. This environmental assessment analyzes which cultural resources qualify as h~~H~~istorical resources, which are defined under California state law as including~~, but not necessarily limited to,~~ "any object, building, structure, site, area, place, record, or manuscript ~~that is~~ which a lead agency determines to be historically ~~or archaeologically~~ significant, or ~~is~~ significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California…provided the lead agency's determination is supported by substantial evidence in light of the whole record". Classified by their origins, three kinds of cultural resources are considered in this assessment: prehistoric, ethnographic, and historic. Under ~~federal and~~ state historic preservation law, cultural resources generally must be at least 50 years old to have sufficient historical importance to merit consideration of eligibility for listing in the California Register of Historical Resources (CRHR). A resource less than 50 years of age must be of exceptional historical importance to be considered for listing.

2. **Page 4.3-1, Last Full Paragraph:** Applicant notes that ethnographic resources are not defined under state law and the definition is not supported by any state or federally approved citations. Please provide references to support this definition.

3. **Page 4.3-2, Third Full Paragraph:** Applicant suggests revising as follows for consistency with CEQA:

   If cultural resources are present, staff ~~identifies~~ recommends to the Commission which are ~~historically significant (defined as eligible for the CRHR or by other significance criteria)~~ historical resources, and whether the Rio Mesa SEGF would have a substantial adverse impact on those that are determined to be historically significant. Staff's primary concern is to ensure that all ~~potentially~~ historically significant cultural resources are identified, all potential project-related impacts to those resources are identified and assessed, and conditions are proposed that ensure that all significant impacts to historical resources ~~that cannot be avoided~~ are mitigated to a less-than-significant level, or to the extent feasible.

4. **Page 4.3-2, Summary of Conclusions, First Sentence:** Applicant disagrees with the conclusions of significant unmitigable impacts and disagrees that as many as 108 sites should be tested or presumed eligible pending testing. See Cultural Resources General Comment 2.

5. **Page 4.3-3, First Paragraph:** Applicant suggests revising to reflect that mitigation for the proposed PTNCL and PQAD (standard measures and **CUL -1** fee and **CUL -6** data recovery) will mitigate project impacts to a less than significant level, as was the determination for the Rice, Palen, Blythe and Genesis solar projects:

   …Staff therefore proposes conditions of certification to mitigate these impacts to ~~the extent feasible~~ a less than significant level.

6. **Page 4.3-3, Last Paragraph:** Applicant suggests revising to delete **CUL-8**, and reflect that mitigation for the proposed DTCCL (**CUL-2** -fee and **Cul-3** through **CUL-5** - standard monitoring measures) will mitigate impacts to a less than significant level on a project and cumulative basis, as was the determination for the Rice solar project:

   …Staff proposes conditions of certification to mitigate these impacts to ~~the extent feasible~~ a less-than-significant level.

7. **Page 4.3-4, Second Full Paragraph:** Applicant recommends deleting references to **CUL-14**, as there is no soil borrow and disposal site associated with the project.

8. **Page 4.3-4, Last Two Paragraphs:** Applicant suggests revising to reflect that neither the portion of the Bradshaw Trail on the project site nor the PVID are CHRH eligible.

9. **Page 4.3-5, Cultural Resources Table 1:** Applicant suggests revising the Proposed Mitigation and Impact Reduction column to reflect the measures that will reduce project impacts to a less than significant level, consistent with findings for prior CEC approval (e.g. Rice solar project), as follows:

Cultural Resources Table 1
Summary of Significant Rio Mesa SEGF Impacts to Historical Resources, Including Those Still Under Evaluation, and Proposed Mitigation

Resource Type	Resource Identifier	Rio Mesa SEGF Impact	Proposed Mitigation and Impact Reduction
Prehistoric Archaeological Resources			
	PTNCL/District (PTNCL)	Significant physical cumulative impacts; other impacts to be determined	**CUL-1**; impacts reduced to ~~extent feasible~~ less than significant
	PQAD (PQAD)	Impacts to be determined	**CUL-6** (under development; expectation for impacts to be reduced to ~~extent feasible~~ less than significant)

Resource Type	Resource Identifier	Rio Mesa SEGF Impact	Proposed Mitigation and Impact Reduction
	~~Up to 108~~ 107 individual archaeological sites, some of which may be contributors to the PTNCL and/or the PQAD	Impacts to be determined	**CUL-6** (under development) expectation for impacts to be reduced to ~~extent feasible~~ less than significant)
	Unknown number of buried prehistoric archaeological resources discovered during construction and determined by the Energy Commission to be eligible for the CRHR	Impacts~~ to be determined when discovered;~~ from unanticipated discoveries	**CUL-3**–**CUL-5**, **CUL-11**–**CUL-15**; impact less than significant with staff's proposed mitigation
Historical Archaeological Resources			
	Desert Training Center Cultural Landscape/District (DTCCL)	Significant physical cumulative impacts	**CUL-2**, **CUL-9**; expectation for impacts to be reduced to ~~extent feasible~~ less than significant
	Up to 32 DTC Maneuver sites, all of which are contributors to the DTCCL	Significant direct physical impacts	**CUL-5~~8~~**; impacts less than significant with staff's proposed mitigation
	More than 50 DTC Food-Related Sites, all of which are contributors to the DTCCL	Significant direct physical impacts	None; extant recordation sufficient mitigation

10. **Page 4.3-5, Cultural Resources Table 1:** Applicant disagrees that the proposed ethnographic resources are CRHR eligible or that the PSA analysis is consistent with CEQA, but at minimum, the proper CEQA determination would be "(under development); impacts less than significant with staff's proposed mitigation" and suggests revising the Proposed Mitigation and Impact Reduction column to reflect the measures that will reduce project impacts to a less than significant level, as follows:

Ethnographic Resources			
	Salt Song Trail Landscape	Significant direct physical impacts to contributing features; significant direct impacts to associative values; significant indirect impacts to Salt Song participants	~~Unmitigable~~ (under development); impacts less than significant with staff's proposed mitigation
	Keruk Trail/Xam Kwatcan/Earth Figures Landscape	Significant direct physical impacts to contributing features; significant direct impacts to associative values; significant indirect impacts to Dream Trail participants	~~Unmitigable~~ (under development); impacts less than significant with staff's proposed mitigation
	Palo Verde Mesa Ethnographic Landscape	Significant direct physical impacts to contributing features; significant indirect and disproportionate impact to Mesa Zone	**CUL-1, CUL-7** (under development); impacts less than significant with staff's proposed mitigation

11. **Page 4.3-7, Cultural Resources Table 2:** Applicant suggests revising Table 2 as follows for consistency with LORS:

Applicable LORS	**Description**
Federal	
Antiquities Act of 1906 16 United States Code (USC) 431 and~~–~~433	Establishes criminal penalties for unauthorized destruction or appropriation of "any historic or prehistoric ruin or monument, or any object of antiquity" on federal land; empowers the President to establish historical monuments and landmarks.
National Historic Preservation Act of 1966 (NHPA), as amended 16 USC 470 et seq.	The NHPA establishes national policy of acquisition, preservation; creates the framework within which cultural resources are managed; requires federal agencies to consider significant cultural resources prior to undertakings; establishes the process for consultation among interested parties, the lead agencies, Native American tribes and the State Historic Preservation Officer, and for government to government consultation between federal agencies and Native American Tribal government. Section 106 defines the process for identifying and evaluating cultural resources and determining whether a project will result in adverse effect son them and addresses the mitigation of adverse effects.

Use of Human Subjects 45 Code of Federal Regulations (CFR) 46 ~~101~~	Provides for non-disclosure of confidential information that may otherwise lead to harm of the human subject divulging confidential information.

U.S. Department of Transportation (DOT) Federal Highway Administration (FHWA) Intermodal Surface Transportation Efficiency Act of 1991 ~~162~~ 23 USC 162~~, Title 23~~	Established to help recognize, preserve and enhance selected roads throughout the United States. The policy sets forth the procedures for the designation by the U.S. Secretary of Transportation of certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. The Bureau of Land Management manages scenic byways as Back Country Byways.
California Public Records Act California Government Code § ~~6250.10~~ 6254.10	Provides for non-disclosure of records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency.
Riverside County Planning Department, Cultural Resources Review http://www.rctlma.org/planning/content/devproc/culture/arch_survey_standards_phase1_2_3_4.pdf	All professional-level archaeologists desiring to submit technical reports to the County of Riverside must be certified with the County. The County has published cultural resources (archaeological) investigations standard scopes of work.

12. **Page 4.3-10, Second Full Paragraph:** The Project vicinity description should note that the transmission corridor is on land managed by the BLM:

    The proposed site for the Rio Mesa SEGF project is partly on a broad landform referred to as Palo Verde Mesa near the southeastern corner of Riverside County, California (see **Cultural Resources Figure 1**). The facility site, approximately 13 miles southwest of the City of Blythe, is primarily on land leased from the Metropolitan Water District of Southern California, but in the near vicinity is public land administered by the Palm Springs-South Coast Field Office of the Bureau of Land Management (BLM), and the transmission lines cross BLM-managed lands. The project, as proposed, includes the facility site, the construction logistics area, the transmission line corridor, two access road corridors, and four drainage crossing updates. Overall, the proposed area of disturbance includes approximately 5,993 acres (URS 2012j:fig. 1).

13. **Page 4.3-14, Second Paragraph, Seventh Sentence:** The sentence as currently worded is slightly deceptive, as it suggests a younger antiquity for the Qpv than is currently understood. Applicant suggests revising as follows:

    The most recent alluvial fan deposits (e.g., Qa6) may in places overly the Palo Verde Mesa (Qpv), some older fan units (such as Qa3) may be of sufficient antiquity that they interfinger with Qpv at depth. ~~but ovSedimentary deposits from some of the more recent lobes of that system appear to interfinger with the sedimentary deposits of the alluvial terrace.~~

14. **Page 4.3-15, Last Paragraph:** Geoarchaeology is not a historical resource site type, Applicant recommends deleting from the list:

Below staff first explains its data-gathering and analytic processes. Staff then compiles and presents the Rio Mesa SEGF cultural resources inventory by resource type, with the types addressed in the following order:

~~Geoarchaeology~~
Prehistoric Archaeological Resources
Historical Archaeological Resources
Ethnographic Resources
Historic-Period Built-Environment Resources

15. **Page 4.3-19, Second Paragraph, Second sentence:** Applicant suggests revising as follows for consistency with CEQA:

    However, even if a cultural resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows a lead agency to make a determination that a resource is historically significant, and is therefore treated under CEQA as a "historical resource" 14 Cal. Code Regs. § 151064.5(a). ~~as to whether it is a historical resource and, therefore, historically significant (Pub. Resources Code, § 21084.1)~~.

16. **Page 4.3-21, Last Paragraph:** Applicant suggests revising for consistency with CEQA:

    Under CEQA, "a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment" (Pub. Res. Code, § 21084.1). Staff analyzes whether a proposed project would cause a substantial adverse change in the significance of any historical resource~~s identified in the Cultural Resources Inventory as CRHR- eligible, or as otherwise significant~~ (Cal. Code Regs., tit. 14 § 15064.5(a)).

17. **Page 4.3-22, Third Bullet:** Applicant suggests revising as follows for consistency with CEQA:

    - Consider how subject resources' historical significance are manifested physically ~~and perceptually~~, and assess the baseline integrity of those physical characteristics and contexts.

18. **Page 4.3-22, Fifth Bullet:** Applicant suggests revising as follows for consistency with CEQA:

    - Analyze whether potential project impacts would alter ~~any historical resources to the extent that any such resource would no longer be able to convey its historical significance~~ in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR. Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired (15064.5 (b)(1) & (2)).

19. **Page 4.3-26, CHRIS Data, First Paragraph:** Applicant suggests revising as follows to correct factual information which is provided in staff second sentence which states the third search was conducted for the current proposed access routes, as shown on all record search results maps provided to staff to date:

    A total of four CHRIS searches for the Rio Mesa SEGF were performed on behalf of the Applicant in preparation of the AFC. Overall, the search area included the area within the project site boundaries, as defined in the original AFC (7,529 acres), a 1.0-mile buffer around the project site, and a 0.25-mile buffer on either side of the centerline of the

proposed transmission line (Nixon et al. 2011:2-50–2-56). On December 22, 2010, prior to initiation of the field investigations, URS requested that the staff of the CHRIS EIC conduct a records search within Riverside County for the project site boundaries, a 1.0-mile buffer around the project site, and a 0.25-mile buffer on either side of the centerline of the proposed transmission line. Locations for the proposed Southern California Edison (SCE) Colorado River Substation expansion area and the alternative substation location had not yet been defined at the time of this initial record search, but on February 22, 2011, URS submitted a supplemental record search request to the EIC for additional acreage to cover these. Also in February, URS submitted a separate record search request to the South Coastal Information Center (SCIC), located at San Diego State University, including portions of the record search radius that are within Imperial County. In April, 2011, a third supplemental record search request ~~for the proposed access routes~~ was submitted to the EIC which covered the proposed access routes. ~~It is unclear what additional area this third search covered.~~

20. **Page 4.3-29, Table 3:** It is not clear what previous site searches in the "vicinity" includes. Therefore, Applicant suggests clarifying whether this site total presented in this table reflects the total number of previous studies conducted within the required record search radius of the current project site, or the prior record searches of the previously proposed project site, which was much larger. Further, while the "Total" row on the bottom is appropriate, it is not clear why there is a "Total" column on the far right. This "total" would appear to double count sites, as sites excluded from the PAA would still be found in the record search. The relevant information appears to be totals in the record search radius and the sites within the PAA. There is no need for the column "Excluded from the PAA."

21. **Page 4.3-33, First Full Paragraph, Last Sentence:** The PSA assumes that there are features on site associated with ceremonial activities - such hypotheses have not been proven. That sentence should be deleted:

    Previous investigations in the project vicinity, including the Applicant's pedestrian surveys of areas that have since been excluded from the prehistoric archaeological PAA, have provided a detailed picture of the prehistoric archaeological feature types present. In **Cultural Resources Table 4**, staff re-classified all of the features reviewed into the feature types identified above. Of all features identified by staff, 85 percent (n=1,083) are lithic reduction features clearly suggesting that the primary activity in the area was stone tool material quarrying. Hearths are 4 percent (n=55) of the features, demonstrating that resource extraction and processing was also an important activity in the project vicinity. The size and shape of the hearths suggests that something small was baked. Unfortunately it is not clear what sort of resource was being processed. Some likely possibilities are plant materials such as seeds, or lithic materials such as chert. ~~Features associated with ceremonial activities (pot drops, trails, cleared circles, rock rings, cairns) are also common, being 11 percent (n=136) of all identified features.~~

22. **Page 4.3-33, Table 4:** It is not clear from which sites these classifications were derived. Regardless, while the "Total" row on the bottom is appropriate, it is not clear why there is a "Total" column on the far right. This "total" would appear to double count sites, as sites excluded from the PAA would still be found in the record search. The relevant information appears to be totals in the record search radius and the sites within the PAA. There is no need for the column "Excluded from the PAA".

23. **Page 4.3-33, Second Full Paragraph, First Sentence:** Applicant provided a sound professional site taxonomy that used the Laylander and Schaefer site-types as appropriate. This information is present the October 2011 Technical (refer to Table 5-1, Section 5, Section 6, Confidential DPRs, and data responses). Applicant does not agree with the subjective placement of sites found with the PAA into the sub-type categories arbitrarily without additional data. For this reason Applicant did not use the following classification without further data to validate their placement into such categories. Additionally, the report and subsequent data request provided by Applicant is above and beyond what is standard professional practice. In comparison with recently approved projects by the Commission this report surpasses these other documents in level of detail, description, evaluation recommendations, research design, application of the design, all of which was prepared under the guidance and direction of CEC and BLM Staff (Sarah Allred and George Kline). Revise the sentence as follows:

    Staff placed archaeological sites ~~In contrast with standard professional practice, the applicant did not place each site~~ into a site-type category based on data provided in the Applicant's ~~their~~ cultural resources technical report (Nixon et al 2011:3-2–3-3), ~~despite~~ using categories identified by staff as appropriate (Laylander and Schaefer 2011a; 2011b).

24. **Page 4.3-35, Table 5:** It is not clear from which sites these classifications were derived, and as noted, Applicant does not agree that these classifications have been done accurately. Regardless, while the "Total" row on the bottom is appropriate, it is not clear why there is a "Total" column on the far right. This "total" would appear to double count sites, as sites excluded from the PAA would still be found in the record search. The relevant information appears to be totals in the record search radius and the sites within the PAA. There is no need for the column "Excluded from the PAA."

25. **Page 4.3-36, Second Paragraph, First Sentence:** The trinomial associated with the Halchidhoma Trail, referenced throughout the PSA as CA-RIV-0053T, is actually the Coco-Maricopa Trail trinomial according to the Eastern Information Center (EIC) housed at the University of California Riverside (UCR) (record accessed on October 22, 2012). It has been referred to interchangeably as the Halchidhoma, Gorgonio-Big Maria, and Coco-Maricopa Trail network (Laylander and Schaefer 2010), however it is important to clarify this in the PSA because nowhere in the archaeological site record for CA-RIV-0053T does it refer to this trail by the name of Halchidhoma. If the Halchidhoma Trail has another trinomial it should be included in the PSA; if not, than the other names of this resource should be provided in the PSA for clarification to the reader.

26. **Page 4.3-38, Table 6:** It is not clear what previous site searches in the "vicinity" includes. Therefore, Applicant suggests clarifying whether this site total presented in this table reflects the total number of previous studies conducted within the required record search radius of the current project site, or the prior record searches of the previously proposed project site, which was much larger. Further, while the "Total" row on the bottom is appropriate, it is not clear why there is a "Total" column on the far right. This "total" would appear to double count sites, as sites excluded from the PAA would still be found in the record search. The relevant information appears to be totals in the record search radius and the sites within the PAA. There is no need for the column "Excluded from the PAA."

27. **Page 4.3-38, Previously Known Ethnographic Resources Identified in the Ethnographic PAA, First Paragraph:** Applicant suggests revising as follows to correct factual information:

~~Applicant and Energy Commission staff inquiries to the NAHC resulted in no identifications of previously known ethnographic resources.~~ Staff requested that the NAHC perform a Sacred Lands file check. On January 25, 2012, the NAHC responded that the Sacred Lands File did not contain any information that pertained to the area. A list of Tribal contacts was also provided. The NAHC response to the Energy Commission request was different that the initial (March 4, 2011) ~~similar to two~~ NAHC responses to the Applicant's Sacred Lands file (SLF) search requests. NAHC responses were provided to the Applicant on March 4, 2011 and May 18, 2011. The Applicant's March 4, 2011 NAHC response indicated positive SLF for Section 15 and 16, which are within the PAA. The applicant's second request on March 4, 2011 indicated negative findings for the supplemental SLF search.

28. **Page 4.3-40, Methods, First Paragraph:** Applicant conducted a geoarchaeological assessment of the project and provided it to staff in the technical report as well as a separate response in DR-96C. Staff incorrectly makes claims that the field and reporting methods were unclear, however all of which is clearly indicated in these documents. Revise statement below to accurately summarize the information provided to staff in the geoarchaeological documents:

    …The applicant conducted a geoarchaeological assessment through field reconnaissance, research, analysis, and findings, all of which was provided to Staff in the October 2011 Cultural Report Technical Report as well as a separate Geoarchaeological Sensitivity Analysis Report in Data Response 96C. These reports included the results of the field reconnaissance, research, analysis and conclusions supported through text and photographs. ~~xtrapolates this information to the south across the proposed project vicinity and supports the extrapolation with what appears to have been a field reconnaissance.~~

29. **Page 4.3-41, First Paragraph, Fourth-Sixth Sentence:** Applicant is not in agreement with the geoarchaeological analysis conducted by Staff regarding the potential for buried deposits in association with paleosols. Please revise the text as shown below:

    Paleosols are evidence that a landform was exposed at the surface for a significant amount of time, thus increasing the likelihood that an archaeological site was deposited at that surface prior to burial. Therefore, in terms of identifying portions of the vertical PAA with increased sensitivity for buried archaeological deposits, a paleosol will be far more sensitive. However, paleosols in a high energy depositional environment are not as likely to be intact. A low energy depositional environment is more conducive to post-depositional site preservation than a high energy environment. ~~convenient stratigraphic markers of past land surfaces, but the quality of archaeological preservation is higher in relatively low-energy depositional environments that have high depositional rates, such as mid-to-distal fan reaches, than it is at or near the surface of paleosols where archaeological deposits are intrinsically subject to hundreds or thousands of years of mechanical weathering and biological disturbance.~~

30. **Page 4.3-42, First Carryover Paragraph:** Applicant suggests revising as follows to correct factual information:

    …The applicant submitted a draft research design for the second phase geoarchaeological study at the end of May 2012. At the end of June 2012, staff sent the Applicant a letter that, along with other issues, offered comment on the draft research design (CEC 2012ap). Staff found that the draft research design did not provide a

preliminary reconstruction of the historical geomorphology of the landscape that encompasses the prehistoric archaeological PAA, did not identify or justify the geographic scope of the proposed study, did not provide a cogent theoretical orientation or rationale for the subsurface geoarchaeological research, and did not provide a thorough explanation of nor an explicit rationale for the proposed field methodology in the draft design. The ~~applicant~~ Applicant's geoarchaeological consultant responded to staff comment on the draft research design in mid-July (URS 2012k) largely by referencing the parts of the draft research design that the applicant felt already answered the questions that were the result of staff review of that same document. Given the character of the Applicant's geoarchaeological consultant's response to staff comment on the draft research design, staff decided to attempt the resolution of the outstanding issues in the more open forum of a public workshop.

31. **Page 4.3-42, First Paragraph, Last Sentence and Second Paragraph:** Applicant recommends updating to reflect staff's approval of the geoarchaeology research design and that Applicant will conduct the work in November and deleting the second paragraph in its entirety.

32. **Page 4.3-43 to -44:** The discussion of the prehistoric archeological site totals is confusing and inconsistent. Page 4.3-43 states 248 cultural resources total were located in the PAA, then page 4.3-44 states that 266 archeological sites alone were located in the PAA. It is not clear how Tables 7 and 8 numbers were derived. Applicant's survey updates the prior surveys, and the totals for the prehistoric archeological sites with the PPA appear to be different than Applicant's records, which are included in the updated tables. The updated tables contain confidential cultural resources location information and has been supplied to the CEC on a CD under separate and confidential cover as Confidential Attachment A. Note also that the text on page 4.3-44 states that 21 previously identified resources were revisited and 8 could not be relocated. This is not accurate.

33. **Page 4.3-43, Table 7:** Applicant suggests revising the site counts presented in this table with the information provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to reflect the correct factual information.

34. **Page 4.3-44-45, Results Paragraphs and Table 8:** Applicant suggests using the information provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise counts to demonstrate the correct factual information.

35. **Page 4.3-46, First Paragraph and Table 9:** Applicant suggests using the information provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise counts to demonstrate the correct factual information.

36. **Page 4.3-47, Ethnographic Field Investigations: Energy Commission Ethnography Study, First Paragraph:** Applicant suggests revising as follows for consistency with CEQA:
This section should be revised to remove any suggestion that the CEC has authority to make significance determinations under the NHPA:

    Ethnography fulfills a supporting role for other anthropological disciplines as well as contributions on its own merits. Ethnography provides a supporting role to the discipline of archaeology by providing a cultural and historic context for understanding the people that are associated with the material remains of the past. By understanding the cultural milieu in which archaeological sites and artifacts were manufactured, utilized, or cherished, this additional information can provide greater understanding for identification efforts, making significance determinations ~~per the National Historic~~

~~Preservation Act (NHPA) or~~ under CEQA~~;~~ and eligibility determinations for ~~the NRHP or~~ the CRHR of qualified cultural resources~~; and for assessing if and how artifacts are subject to other cultural resources laws, such as the Native American Graves Protection and Repatriation Act~~.

37. **Page 4.3-47, Last Full Paragraph:** The PSA cites NPS 2007, but that reference is not provided in the reference section. Additionally, assuming this relates to federal guidance for management of national parks, it is not applicable to application of CEQA and should not be relied upon.

38. **Page 4.3-51, Last Bullet:** Staff states they were unable to complete their prehistoric trail assessment to due time and budget constraints. Since the assessment is still underway it is premature given the absence of a research design to state "enough trail information is available to inform the definition of two sacred trail landscapes." Due to the absence of a research design, rationale, or data to reinforce this claim, this sentence should be removed entirely until which time evidence to support this statement can be provided. Please make the following change:

    ~~However, enough trail information is available to inform the definition of two sacred trail landscapes~~

39. **Page 4.3-54, Second Full Paragraph:** There is no basis cited for the assumption that prehistoric village moved west to the project site during flooding periods, so the presumption should be deleted:

    During times of flooding groups moved to mesas or other nearby high ground (Bee 1963:208; Forbes 1963:57–61)~~, and it is probable that this village, and any other floodplain villages in the vicinity, would have moved west to the Palo Verde Mesa, close to or within the Rio Mesa SEGF project vicinity, during annual flooding periods~~.

40. **Page 4.3-54, Third Paragraph, Third through Eleventh Sentences**: Provide references for the information included in PSA shown below.

    Ahpe-hwelyeve, one of these places, is located just east of the present-day town of Palo Verde. It appears to be a place where a Mohave culture hero solidified an amity alliance by sharing tobacco with the men assembled in the main house. It is assumed that the people who dwelled in this village were Quechan. The village leader and people of *Ahpe-hwelyeve* reciprocated by providing a wife and a meal of beans and corn mush. This place is located on a rise in the floodplain of the Palo Verde Valley. The Palo Verde Mesa escarpment is approximately three miles to the west and a good quality spring (Clapp Spring) is located another five miles west across the Palo Verde Mesa and just underneath "The Thumb," a monumental outcrop of rock.

    While cultivated crops provided up to 40 percent of the diet for those dwelling in the Palo Verde Mesa, and while fish provided another 10 percent of the diet, the remaining 50 percent of the diet came from wild and semi-wild plant gathering and animal hunting. The plant and animal subsistence activities occurred in the floodplain, mesas, immediate mountains, such as the Mule and Palo Verde Mountains, and in the washes that incise the alluvial fans that surround the mountains. Despite the abundance of soil fertility of the lower Colorado River valleys and the ease of cultivation there, leading to abundant food supplies, there were times when the river did not flood, or repeatedly flooded and seasonal crops were not secured. In these times, upland mesas, alluvial fans, and nearby mountains became essential sources for food procurement.

41. **Page 4.3-65, Last Paragraph:** Provide references for the information included in PSA shown below:

    An example of Yuman culture-pattern dreaming is where various dreamers, independent of one another dream of the same series of events with the same deities engaged in helping the dreamer to gain some aspect of knowledge, insight or foresight, or other power. Characteristically, one of the most prevalent culture-patterned dreams involves the Creator *Mastamho* assisting the dreamer along the Xam Kwatcan/Dream Trail on a journey to Spirit Mountain, the place of Yuman creation. Yuman people wishing to reconnect with the fundamental principles of their culture can physically walk the Xam Kwatcan/Dream Trail as a form of reconnection back to the place or origin. Those that wish to make the journey often can dream the pilgrimage. Yuman dreamers currently travel the Xam Kwatcan/Dream Trail on a regular basis.

42. **Page 4.3-87, First Full Paragraph:** The threshold for ineligible resources should be revised and clarified. Please refer to Cultural Resources General Comment 1 in Volume 1 of Applicant's comments on the PSA.

43. **Page 4.3-87, Fourth Full Paragraph, First, Second, Third, and Fourth Sentences:** Staff states throughout the PSA that additional data is required to make evaluation and landscape/district contributor recommendations. It should be recognized that detailed summary site descriptions and DPRs, which include very descriptive detail of the resources, were provided by Applicant. In order to keep the text consistent with this approach and include accurate statements the number of potential contributors and sites requiring testing should be confirmed and the following passage should be revised:

    All 166 individual prehistoric resources are currently considered by staff to be potential contributors to two CEC and Riverside County ~~previously~~ proposed and assumed ~~identified and related~~ CRHR-eligible archaeological districts, the PTNCL/District and the PQAD (Bastian 2010). In all, 108 resources will require additional field and laboratory analysis to determine if buried components are present, and/or each resource has the potential to yield information important in prehistory. However, staff requests additional data from the Applicant to make final CRHR eligibility recommendations to the Commissioners for their determinations of eligibility. For this, staff requests ~~is lacking key information about these individual resources.~~ Phase II field and laboratory work ~~is required~~ to supplement the ~~very basic descriptive~~ information collected during the initial pedestrian surveys. ~~Without these additional studies, staff cannot adequately~~ Staff requires additional studies to identify potential impacts to resources or design project-specific mitigation measures, as advised by CEQA (Pub. Resources Code, § ~~21083.2~~ 21084.1; Cal. Code Regs., tit. 14, §§ 15064.5~~(f)~~(c) and 15126.4(b)).

44. **Page 4.3-88, First Paragraph:** The geoarchaeologist did not determine there were areas with a "high" likelihood for "well-preserved, buried cultural materials". There are certain areas where the assessment found areas to have a higher potential for having buried cultural material, however their likelihood of being well preserved is inaccurate and highly unlikely given erosional processes at work within the PAA. Revise to accurately reflect what the assessment determined for the overall PAA:

    The sediments on which the Rio Mesa SEGF project and linear facility alignments are proposed to be built are considered to have varying possibility (low to moderate ~~high~~) to contain well-preserved, buried cultural materials...~~Without these additional studies,~~

~~staff cannot adequately~~Staff requires additional studies to identify potential impacts to resources or design project-specific mitigation measures, as advised by CEQA (Pub. Resources Code, § ~~21083.2~~ 21084.1; Cal. Code Regs., tit. 14, §§ 15064.5~~(f)~~(c) and 15126.4(b)).

45. **Page 4.3-88, Second Full Paragraph, First Sentence:** Note that Applicant disagrees that Phase II testing is warranted on all the sites recommended by CEC. See Cultural Resources General Comment 5.

46. **Page 4.3-88-89, Table 12:** No rationale is provided for placement of sites into subjective categories such as 7 extractive camps, 6 resource extraction/processing, and 24 religious ceremonial locations. Applicant requests that Staff provide its rationale for placing these sites into these categories in Table 12, and site type totals in Table 12 be cross-referenced against the information provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise counts to demonstrate the correct factual information.

47. **Page 4.3-89, Table 12:** No rationale or explanation is given for which 16 sites were determined eligible or why.

48. **Page 4.3-89, Fifth Paragraph, First Sentence:** Applicant suggests using the information provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise counts to demonstrate the correct factual information and otherwise clarifying the sentence below:

    Pending additional data, staff assumes all ~~166~~ 166individual prehistoric resources are potential contributors to two CEC and Riverside County ~~previously~~ proposed and assumed ~~identified and related~~ CRHR-eligible archaeological districts (Bastian 2010), the PTNCL~~/District~~ and the PQAD.

49. **Page 4.3-90, First Partial Paragraph, Third sentence:** The landscape has not yet been nominated or determined eligible. The boundaries of this landscape have also changed since the Rio Mesa SEGF project started, in order to subsume this project within that landscape. Based on published guidelines found in the *National Register Bulletin, Guideline for Evaluating and Nominating Archaeological Properties*, it is inaccurate to define CRHR landscapes and/or district arbitrarily based on project boundaries or other modern day assumptions with regards to such boundaries, however staff has devised a new boundary based on their current analysis. Therefore this sentence should be revised to accurate reflect the current boundary definitions.

    The boundaries of this archaeological district have been tentatively ~~are~~ defined by staff as the length of the historically known route of the Halchidhoma Trail, from where it begins near Blythe at the Colorado River, continuing to the west through the Chuckwalla Valley towards modern Los Angeles, with a width of 10 m.

50. **Page 4.3-91, Impacts to the Prehistoric Trails Cultural Landscape/District, First and Second Paragraph:** Applicant suggests revising as follows for consistency with CEQA:

    Staff has ~~concluded~~ recommended that 41 sites are contributors to the proposed PTNCL, a previously identified, ~~assumed~~ not yet determined CRHR eligible, discontiguous archaeological and ethnographic district in the prehistoric archaeological PAA~~, and are therefore historical resources for the purposes of CEQA~~ (Cultural Resources Table 12, above). All sites that include trail segments, cleared circles, rock rings, cairns, and pot drops are in this list, including 11 trail segments, 9 isolated pot drops, 7 extractive

camps, 11 lithic quarry/workshops, 1 resource extraction/processing site, and 2 artifact scatters. Staff has identified 25 of these sites as requiring Phase II archaeological investigation in order to determine if buried resources are present or if these sites are also contributors to the PQAD, described below.

Construction activity on the Rio Mesa SEGF plant site and the proposed linear alignments may cause the destruction of these 41 ~~historical~~ resources. The destruction of these sites through the construction of the proposed project ~~would~~ may cause a substantial adverse change in the significance of these ~~historical~~ resources under CRHR Criterion 4 (likely to yield information important to prehistory) if they are determined to be contributors to a historical resource.

51. **Page 4.3-93, Last Paragraph:** Delete reference to **CUL-14**, as there is no soil burrow pit associated with the project.

52. **Page 4.3-97, Third Full Paragraph:** The following paragraph is repeated twice; one should be deleted:

    Another personal item found in the vicinity was a soldier's dog-tag that is of a type dating back to WWII, identifying an enlisted man named H. Harris, whose home address was Greensboro, North Carolina (PVM-SM-ISO-089). According to the 77th Division personnel list (77th Infantry Div. 1947:496) there were at least two enlisted men and one officer named Harris with the 307th Regiment whose names began with "H." So, he may have been a member of the 77th Division. However, he may also have been with another military unit, which may provide leads to additional units involved in training in the Rio Mesa SEGF vicinity.

    ~~Another personal item found in the vicinity was a soldier's dog-tag that is of a type dating back to WWII, identifying an enlisted man named H. Harris, whose home address was Greensboro, North Carolina (PVM-SM-ISO-089). According to the 77th Division personnel list (77th Infantry Div. 1947:496) there were at least two enlisted men and one officer named Harris with the 307th Regiment whose names began with "H." So, he may have been a member of the 77th Division. However, he may also have been with another military unit, which may provide leads to additional units involved in training in the Rio Mesa SEGF vicinity.~~

53. **Page 4.3-98, Fourth Full Paragraph**: The presence of pull tab aluminum cans has no bearing on the potential indication of Desert Strike activities. This area consists of widely dispersed historic and modern artifacts (as well as prehistoric) which have been subject to sheet wash, flash flooding, wind and other factors, therefore the simple presence of such artifacts is a very poor rationale at indicated a potential presence of Desert Strike activities without any additional military related paraphernalia. Revise sentence below:

    There is no evidence that ~~It is not clear whether~~ the Rio Mesa SEGF project site was part of this exercise, although it appears that some of the deposits of military food refuse were associated with pull-tab beverage cans, which were not developed until 1959. The area is also common for refuse disposal, recreation pot hunters looking for prehistoric and/or historic collectables, therefore these pull-tab cannot be attributed to Operation Desert Strike. No additional ~~Further~~ research is recommended for these types of resources. ~~may confirm or deny the association of some of the Rio Mesa SEGF historical archaeological sites with Desert Strike.~~

54. **Page 4.3-99, First Partial Paragraph, Fourth Sentence:** The 30 meter criteria is present in the PTNCL field manual and was approved by CEC (Sarah Allred and Michael McGuirt) in the work plan and in personal communication with BLM (George Kline), and it is also a standard method applied throughout Riverside County. It is incorrect to state it was a "mode" that Applicant selected for defining the site boundaries. Revise sentence below:

    …Such sites were identified by the continuous extent of artifactual finds (e.g., having no separation in excess of 100 meters between artifacts, the latter distance being part of the required defined method per BLM and CEC for ~~applicant's mode of~~ defining site boundaries). This protocol defied the splitting up of the mega-sites into smaller, individual sites.

55. **Page 4.3-99, Table 13:** Applicant suggests using the information provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise counts to demonstrate the correct factual information.

56. **Page 4.3-102, First Full Paragraph:** There is no evidence of habitations in the historic archeological PAA (direct area of impact), although Rannells may have existing in the broader built-environment PAA, revise as follows:

    The second type of historic-period refuse site would be associated with a long-term habitation; however, ~~few, if any~~ no such habitations were identified in the historical archaeological PAA. Habitations may have occurred in ~~The main such site would be that of~~ the defunct town of Rannells (discussed below under "Historic-Period Built-Environment Context"), which is located in the broader build-environment PAA but ~~of which~~ no evidence remains above ground.

57. **Page 4.3-103, Fourth Paragraph, Third Sentence:** Revise to clarify and include accurate CEQA terminology:

    For the DTC Food-Related sites, which are historical resources for the purposes of CEQA, staff concludes that the existing data recovery is adequate and that these contributing historic resources are considered to be mitigated to less than significant levels, and therefore ~~proposes~~ no additional mitigation for project impacts to the DTC Food-Related sites is required.

58. **Page 4.3-103 to 109:** The discussion of the 32 DTC Maneuver sites and related mitigation should be revised per Cultural Resources General Comment 23.

59. **Page 4.3-110, Table 14:** Applicant suggests using the information provided provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise counts to demonstrate the correct factual information. While the "Total" row on the bottom is relevant, the "Total" column on the far right is not meaningful. Additionally, where proposed mitigation is noted as "none", it should be explained that none means that completed documentation is sufficient.

60. **Page 4.3-117, Third Paragraph, Entire Paragraph:** As explained in Cultural Resources General Comments 12, 25, 31, 32, and 33 the rationale for the Palo Verde Mesa Ethnographic Landscape does not meet the very basic definition and provides only firsthand rationale based on the authors subjective opinion regarding this landscapes significance. The Palo Verde Mesa Ethnographic Landscape discussion should be stricken.

61. **Page 4.3-117, Last Two Full Paragraph, Entire:** As noted in Cultural Resources General Comments 12, 25, 26-30, there is no rational for stating that the Salt Song Trail Landscape is

eligible under Criteria 1 or Criteria 3. Strike out or revise this statement and provide a rationale as to why this landscape is eligible under Criteria 1 or 3 following published State and Federal guidelines.

62. **Page 4.3-117 to -118:** As noted in Cultural Resources General Comments 12, 25, and 26-30, there is no rational for stating that the Keruk Trail Landscape is eligible under Criteria 1 or Criteria 3. Strike out or revise this statement and provide a rationale as to why this landscape is eligible under Criteria 1 or 3 following published State and Federal guidelines.

63. **Page 4.3-118, Last Two Full Paragraphs:** As discussed in Cultural Resources General Comment 12, 25, and 31-33, the Palo Verde Mesa Ethnographic landscape lacks rationale as to why it is an ethnographic resource. No information regarding primary or secondary sources is included, nor are the reason for its significance. This entire proposed landscape should be removed as it largely depends on archaeological resources. Strike discussion of this landscape on this page.

64. **Page 4.3-120, Table 18:** As discussed in Cultural Resources General Comment 12, 25, and 31-33, the Palo Verde Mesa Ethnographic Landscape lacks rationale as to why it is an ethnographic resource, and Table 18 should be deleted.

65. **Page 4.3-121 to -122, Last Two Paragraphs:** With respect to the Palo Verde Mesa Ethnographic Landscape, delete the boundary discussion on page 4.3-121, the period of significance discussion on page 122 and Table 19 on page 4.3-122-123 should be deleted. The table of events is data that may be able to associate archaeological sites with significant events and should be integrated where feasible. But this proposed landscape does not provide valid information as to why it qualifies as an ethnographic landscape or resource, the list of historic events do not provide any additional data pertaining to ethnographic importance. For this reason, Applicant requests that this section be stricken.

66. **Page 4.3-125 to -126:** Delete the discussion of the Palo Verde Mesa Ethnographic Landscape for reason listed above. As discussed in Cultural Resources General Comments 31-33, the discussion of the changes to the landscape undermines the conclusions of integrity for the Palo Verde Mesa Landscape.

67. **Page 4.3-127, First Full Paragraph:** Please provide references for the statement that traditional cultural and religious practitioners believe the Rio Mesa SEGF heliostats would confuse the souls on their journey to the afterlife.

68. **Page 4.3-127, Third Full Paragraph:** Please provide citations for any evidence that Salt Song Trail tribes have had funeral ceremonies adjacent to the site.

69. **Page 4.3-127, Last Paragraph:** CEQA does not protect from generalized fears. Delete the discussion that the Chemehuevi could fear retaliation from the Paiute if they were to allow development to occur in this area.

70. **Page 4.3-128, Second Full Paragraph:** Applicant objects to negotiations over compensatory mitigation without showing a nexus for mitigation.

71. **Page 4.3-129 to -130, Last Paragraph:** It appears that the analysis for the Salt Song Trail was cut and pasted into the discussion of the Keruk Trail. Delete references to beliefs that the heliostats would diminish the power of the songs, as that does not apply to the Keruk Trail.

72. **Page 4.3-130, Second Paragraph, First Sentence:** It appears that the analysis for the Salt Song Trail was cut and pasted into the discussion of the Keruk Trail. Correct references (and analysis) to discuss the relevant resource. As noted in Cultural Resources General Comment 29, CEQA

does not provide protections for deceased souls or generalized fear regarding what might occur to deceased souls.

Construction would also have indirect impacts for the deceased who travel the ~~Salt Song Trail~~ Keruk Trail/Xam Kwat can/Earth figures landscape, to the traditional practitioners that guide the deceased along the trail, and to the surviving relatives.

73. **Page 4.3-132 to -133:** As discussed above, the Palo Verde Mesa Ethnographic landscape has no ethnographic component to it. There is no an account or traditional/religious Native American beliefs associated with this landscape. This landscape in more appropriately assessed for significance under the auspices of the archaeological districts/landscapes being proposed. For this reason the following discussion of impacts to and mitigation for the Palo Verde Mesa Ethnographic Landscape should be stricken entirely.

74. **Page-4.3-134-135, Entire Section From Second Paragraphs to End:** Delete summary impact discussion of the Palo Verde Mesa landscape for reason listed above.

75. **Page 4.3-140, Last Two Paragraphs:** The discussion of the Bradshaw Trail should include a discussion that acknowledges the changes to the trail in the project vicinity and the fact that it is not known to be the original location.

The portion of the property recorded consists of a paved and graded dirt road that extends west from the intersection of 30th Avenue and SR 78 in Ripley, CA to one-half mile past the northwest corner of the project area in the foothills of the Mule Mountains. The segment of the property in the project area is approximately five and one-half miles. The original Bradshaw Trail extended a length of approximately 101 miles from La Paz, Arizona to San Bernardino County, California. Non-historic period asphalt has been added to the eastern one and one-half miles of the portion of the Bradshaw Trail since the property was originally constructed. Additionally, non-historic period canal features and transmission lines approximately 30 feet tall have been added to the area immediately adjacent to the eastern segment of the property. The dirt portion of the road has been graded.

76. **Page 4.3-144, Second and Third Full Paragraphs:** The discussion of the Bradshaw Trail past eligibility determination was made on a different segment of the trail, which should be added to this section.

Bradshaw Trail was previously recorded by Brad Strum of LSA Associates in 1993. Although the resource was described in the site form as “a major link between coastal California and the gold mines of La Paz, Arizona,” and assigned a period of significance from 1862 to present, a full significance evaluation was not included. However, the 1993 report citation is entitled, "Southern California Gas Company Natural Gas Line 6902 Project - The Bradshaw Trail Recommendation for National Register Eligibility." In 1994, an Archeological Site Record was completed as part of a cultural resources inventory for the Western Area Power Administration Blythe-Knob 161-kV Transmission Project. The Site Record stated the Bradshaw Trail may represent a significant historical archeological site given its relationship with early transportation in the region; however, it concluded that the portion of the site within that project area “does not contribute to the qualities that make the site eligible for NRHP status” (WCRM Report No.94AZ004) and a detailed significance evaluation was not provided. According to the Eastern Information Center (the California Historical Resources Information Center for Riverside County), Bradshaw Trail, as a whole, was determined as eligible for listing on NRHP and

assigned Status Code 2S2 (individual property determined eligible for the National Register by consensus through the Section 106 process) in 1997. Additional updates for Bradshaw Trail completed in 2001 by Apple and Cleland and in 2004 by Apple and Lilburn. Neither of these recent updates included an evaluation of the property.

77. **Page 4.3-147, First Paragraph:** References to the NRHP eligibility should be deleted, as the PSA is analyzing CRHR eligibility. Further, the PSA does not provide substantial evidence to support its consideration of eligibility as discussed in Cultural Resources General Comment 1.

78. **Page 4.3-150, Third Paragraph:** There is no evidence to support an eligibility determination for the Bradshaw Trail Burrow Pit, the third paragraph should be revised to find it ineligible:

    Based on the available information about the borrow pit and its history, the Borrow Pit is not eligible~~no determination of eligibility or significance can be made at this time. It is unlikely that it is of sufficient age to require evaluation. Staff is continuing to research this issue and more information will be provided in the FSA~~.

79. **Page 4.3-153, Second Paragraph:** The PSA departs from prior areas of cumulative effects in that the local area is much larger than used by the CEC for the analysis of Genesis, Palen, or Blythe projects, which used a 192 square mile I-10 corridor, versus the 1,000 square miles used here. Please justify the larger area.

80. **Page 4.3-155, Table 22:** Applicant suggests using the information provided in in the provided in the tables on the attached CD located under separate and confidential cover as Confidential Attachment A to revise the number of known archaeological resources associated with the RMS Project to demonstrate the correct factual information.

81. **Page 4.3-174, Second Paragraph, Second Sentence:** Suggest revising for consistency with CEQA:

    ~~Without these~~ Staff requires additional field and laboratory studies~~, staff cannot adequately~~ to identify potential impacts to resources or design project-specific mitigation measures, as advised by CEQA (Pub. Resources Code, § ~~21083.2~~ 21084.1; Cal. Code Regs., tit. 14, §§ 15064.5~~(f)~~(c) and 15126.4(b)).

82. **Page 4.3-174, Third Paragraph, First Sentence:** Applicant disagrees with the conclusions of significant unmitigable impacts and disagrees that as many as 108 sites should be tested or presumed eligible pending testing. See Cultural Resources General Comment 3.

83. **Page 4.3-177, Cumulative Impacts, First Sentence:** Applicant disagrees with the conclusions of significant unmitigable impacts and disagrees that as many as 108 sites should be tested or presumed eligible pending testing. See Cultural Resources General Comment 3 .

HAZARDOUS MATERIALS

SPECIFIC COMMENTS

1. **Page 4.4-5, first bullet:** Please revise the text as follows:

   Step 1: Staff reviewed the chemicals and amounts proposed for on-site use, as listed in Tables 5.5-2, 5.5-3, and 5.5~~.~~-4 and 5.5-5 of the Application for Certification (AFC) (BS 2011a) and Tables 5.5-1 and 5.5-2 of Applicant's Environmental Enhancement Proposal (BS 2012), and determined the need and appropriateness of their use.

2. **Page 4.4-8, First Full Paragraph:** Please revise the description of the natural gas facilities as follows:

   Natural gas will be delivered to the project by installing a ~~one or more~~ tap~~s~~ and meter station~~(s)~~ on the existing ~~TCGT~~ North Baja Pipeline (NBPL), a subsidiary of TransCanada, which runs along the east side of the project. From the tap, natural gas will go through a master metering station where the total flow of natural gas will be measured. This metering station will require a minimum area of approximately 150 feet by 150 feet. Tap and metering station(s) will be permitted, built, owned and operated by ~~TCGT~~NBPL ~~or its subsidiary~~. Custody transfer of the natural gas will be downstream from the master metering station~~(s)~~. Natural gas will be delivered to each plant through an underground, high pressure gas lateral pipe that will run along project roads. Each plant will have its own meter to measure the amount of natural gas delivered to the power block (BS 2011a, Sect 4.3.1). The ~~tap and~~ meter station will be installed ~~adjacent~~ approximately 250' west of the tap point on the NBPL~~TCGT~~ pipeline. This will be the "master" meter and will measure and record gas volumes delivered to the entire project for custody transfer. Construction activities related to the metering station will include grading a pad and installing above- and below-ground gas piping, metering equipment, and possible pigging facilities. (BS 2011a, Sect 4.3.2).

3. **Page 4.4-10, First Paragraph, First and Second Sentences:** Please revise the text as follows**:**

   Staff proposes Condition of Certification **HAZ-1** to ensure that no hazardous material would be used at the facility except as listed in the AFC ~~and~~ as revised subsequently by the Applicant and reviewed for appropriateness, unless there is prior approval by the Energy Commission compliance project manager (CPM). Staff reviewed the chemicals and amounts proposed for on-site use, as listed in Tables 5.5-1, 5.5-2, 5.5-3 and 5.5-4 of the amended AFC (BS 2012v) and determined the need and appropriateness of their use.

4. **Page 4.4-10, Second Paragraph, Third Sentence:** Please revise the condition language as follows to reflect that a Safety Management Plan should only be required for hazardous materials that are delivered in large quantities, not for smaller containers of materials such as totes or paints.

   A Hazardous Materials Business Plan (HMBP) would also be prepared by the project owner that would incorporate state requirements for the handling of hazardous

materials (BS 2011a, section 5.5.2.2). Staff proposes Condition of Certification **HAZ-2** which ensures that the HMBP, which includes the Inventory and Site Map, Emergency Response Plan, owner/operator Identification, and Employee Training, would be provided to the Riverside County Fire Department (RCFD) so that RCFD can better prepare emergency response personnel for handling emergencies which could occur at the facility. In accordance with Condition of Certification **HAZ-3**, the project owner would also be responsible to develop and implement a Safety Management Plan for delivery of liquid hazardous materials by tanker truck. The plan would include procedures, protective equipment requirements, training and a checklist. It would also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials. This plan would be applicable during construction, commissioning, and operation of Rio Mesa SEGF.

5. **Pages 4.4-24 and 4.4-25, Appendix A**: Applicant revised the list of hazardous materials included in Appendix A in its Environmental Enhancement Proposal docketed with the CEC on July 23, 2012. Table 5.5-3 should be revised as follows, and new Table 5.5-4 added to reflect the information included in the EEP:

Hazardous Materials Management
Appendix A
Hazardous Materials Proposed for Use at the
RIO MESA SEGF

Table 5.5-3
Hazardous Materials Usage and Storage During Operation Based on Title 22 Hazard Characterization

Material	Hazard Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Nalco Elimin-OX (Oxygen scavenger)	Ignitability	Oxygen scavenger for boiler chemistry control	Power Block: Containers near power tower	1,600 gal	400 gallon totes
Aqueous Ammonia (19% concentration)	Reactivity, toxicity	pH control for boiler chemistry	Power Block: Containers near power tower	1,600 gal	400 gallon totes
Sulfuric Acid 93% (66° Baumé)	Corrosivity, reactivity, toxicity	pH control	Power Block and Common Area: Containers located in Water Treatment Building	2,400 gal	400 gallon totes
Sulfuric Acid (Batteries)	Corrosivity, reactivity, toxicity	Electrical power	Power Block: Contained within the main electrical room and the power tower Common Area: Contained within main electrical room	12,000 gal	Batteries

Table 5.5-3
Hazardous Materials Usage and Storage During Operation Based on Title 22 Hazard Characterization

Material	Hazard Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Sodium Hydroxide (50% concentration)	Corrosivity, reactivity, toxicity	pH control	Power Block and Common Area: Containers located in Water Treatment Building	2,400 gal	400 gallon totes
Diesel Fuel (No. 2)	Ignitability	Emergency generator	Power Block: Near fire pump, beneath emergency diesel generator, and adjacent to the mirror wash machines water filling station Common Area: beneath emergency diesel generator and near fire pump	40,000 gal	Aboveground storage tanks and in equipment
Paint, solvents, adhesives, cleaners, sealants, lubricants	Toxicity	Equipment Maintenance,	Power Block: Maintenance Shop	500 gal	1 gal and 5 gal containers
~~Hydraulic Oil~~	~~Mildly toxic~~	~~Miscellaneous equipment control oil~~	~~Power Block: Contained within equipment, drums during replacement~~ ~~Common Area; Contained within equipment, spare capacity stored in Warehouse~~	~~6,000 gal~~	~~Contained within equipment and misc. drums during replacement~~
~~Sodium Hypochlorite 12% (trade) solution~~	~~Irritant, Corrosivity, reactivity~~	~~Biocide~~	~~Power Block and Common Area: Containers located in Water Treatment Building~~	~~2,400 gal~~	~~400 gal totes~~

Source: BrightSource Engineers, 2011.
Notes:
1 Hazardous characteristics based on material properties and potential health hazards provided by those properties
2 All numbers are approximate. Typically assumes two totes could be required per chemical and location. Operational volumes are expected to vary but not to exceed maximum stored.
cf = cubic feet
gal = gallons (s)
WSAC = Wet-Surface Air Cooler
WWTS = Wastewater Treatment System

Table 5.5-4
Hazardous Materials Usage and Storage During Operation Based on Material Properties

Material	Hazard Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Cleaning Chemicals and Detergents	Toxicity, irritant	Periodic cleaning of steam turbine	Power Block: Maintenance shop	3,000 gal	Misc. Manufacturer's containers
Nalco 5200M (Anti-scalant	Irritant, mildly toxic	Wastewater treatment anti-scalant	Power Block: Containers near WWTS Common Area: Containers in Water Treatment Building	1,500 gal	300 gal totes
Nalco 3DT-187 (Corrosion Inhibitor)	Irritant, mildly toxic	Wet-Surface Air Cooler (WSAC) Corrosion inhibitor	Power Block: Containers near WSAC Common Area: Containers in Water Treatment Building (storage)	2,100 gal	300 gallon totes
Nalco 73801WR (Dispersant)	Irritant, mildly toxic	WSAC Dispersant	Power Block: Containers near WSAC Common Area: Containers in Water Treatment Building (storage)	2,100 gal	300 gallon tote
Nalco TRAC107 (Corrosion Inhibitor)	Irritant, mildly toxic	Closed cooling water Corrosion Inhibitor	Power Block: Contained within CCW system Common Area: Containers in water treatment building (storage)	500 gal	55 drums
Avista Vitec (Scale Inhibitor)	Irritant, mildly toxic	Reverse osmosis scale inhibitor	Common Area containers in Water Treatment Building	900 gal	300 gallon totes
Sodium Bisulfite	Irritant, mildly toxic	Dechlorination	Common Area containers in Water Treatment Building	900 gal	300 gallon totes

Table 5.5-4
Hazardous Materials Usage and Storage During Operation Based on Material Properties

Material	Hazard Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type
Nalco 7468 (Anti-foaming agent)	Irritant, mildly toxic	Wastewater treatment system anti-foaming agent	Power Block: Containers near WWTS Common Area: Containers in Water Treatment Building	1,500 gal	300 gallon totes
Lubricating Oil	Mildly toxic	Miscellaneous equipment lubrication	Power Block: Contained within equipment, drums during replacement Common Area: Contained within equipment, spare capacity stored in Maintenance shop	30,000 gal	Contained within equipment and misc. drums during replacement
Mineral Transformer Insulating Oil	Mildly toxic	Provides overheating and insulation protection for transformers	Power Block: Contained within transformers Common Area: Contained within transformers	112,000 gal	Transformers
Hydraulic Oil	Mildly toxic	Miscellaneous equipment control oil	Power Block: Contained within equipment, drums during replacement Common Area; Contained within equipment, spare capacity stored in Warehouse	6,000 gal	Contained within equipment and misc. drums during replacement
Sodium Hypochlorite 12% (trade) solution	Irritant, Corrosivity, reactivity	Biocide	Power Block: Containers in water treatment building Common Area: Potable water treatment area	2,400 gal	300 gal totes

Table 5.5-4
Hazardous Materials Usage and Storage During Operation Based on Material Properties

Material	Hazard Characteristics[1]	Purpose	Storage Location	Maximum Stored[2]	Storage Type

Source: BrightSource Engineers, 2011.

Notes:

1 Hazardous characteristics based on material properties and potential health hazards provided by those properties

2 All numbers are approximate

cf = cubic feet

gal = gallons (s)

WSAC = Wet-Surface Air Cooler

WWTS = Wastewater Treatment System

LAND USE

SPECIFIC COMMENTS

1. **Page 4.5-2, Land Use Table 1, Federal LORS rows:** The following LORS are addressed in Traffic and Transportation and Biology, respectively, but should be addressed and/or referred to in Land Use. Please add the following LORS to the Land Use Table 1:

Federal	
Federal Aviation Regulations, Title 14, Part 77: Objects Affecting Navigable Airspace	Requires notification of construction or alteration to regional Federal Aviation Administration office based on notification requirements.
Wild Horse and Burro Act of 1971, as amended	Herd Areas (HAs) are those geographic areas where wild horses and/or burros were found at the passage of the Wild Horse and Burro Act in 1971. Herd Management Areas are those areas within HAs where the decision has been made, through land use plans, to manage for populations of wild horses and/or burros.

In addition, Applicant requests that Staff please evaluate each LORS for compliance under "Proposed Project's Consistency with LORS" section beginning on Page 4.5-16. Please include the following analysis on Page 4.5-17 as "C" and "D" under "B."

C. Federal Aviation Regulations, Title 14, Part 77: Objects Affecting Navigable Airspace.

The purpose of the Federal Aviation Administration (FAA) regulations in 14 Code of Federal Regulations (CFR) Part 77 is to establish standards and notification requirements for objects affecting navigable airspace. This notification serves as the basis for evaluating the effects of construction or alteration on operating procedures; determining the potential hazardous effect of the proposed construction on air navigation; identifying mitigating measures to enhance safe air navigation; and charting of new objects. The project required notification because construction or alteration exceeds 200 feet above ground level.

Consistency Discussion
On February 22, 2012 Applicant received a determination of no hazard to air navigation from the FAA. This determination applied to RMS 1 and RMS 2 plants for a height of up to 820 feet above ground level. The project solar power towers will reach 760 feet above ground level; therefore, the proposed project will comply with FAA regulations for objects affecting navigable airspace.

D. Wild Horse and Burro Act of 1971

According to NECO Map 2-25, the project site is within the Chocolate-Mule Mountains Herd Area (HA). HAs are limited to areas of the public lands identified as being habitat used by wild horses and burros at the time of the passage of the Wild Horse and Burro Act in 1971.

According to NECO Map 2-25, the project site is located approximately 10 miles north of the Chocolate-Mule Mountains Herd Management Area (HMA). The HMA is established only in HAs, within which wild horses and/or burros can be managed for the long term. The BLM

manages the HMAs by establishing Appropriate Management Levels based on monitoring and evaluations.

Consistency Discussion
As the project site is located on private land approximately 10 miles north of the HMA, outside the BLM management area for wild horses and burros; therefore, the proposed project will comply with the Wild Horse and Burro Act.

2. **Page 4.5-2, Land Use Table 1, State LORS rows**: As stated in Applicant's Environmental Enhancement Proposal (BS 2012v), page 5.6-15, Applicant will cause the submittal of a one-lot parcel map to evidence the establishment of a single parcel under common ownership. The PSA should not focus only on a "Reversion to Acreage" as some parcels may not have been legally subdivided, rendering a "reversion" inapplicable. Please revise to reference the entire Subdivision Map Act, including its chapters 2 through 4. Please revise the section to include the entire Subdivision Map Act and revise the State LORS as follows:

State	
California Government Code Sections 66410 – 66499.~~29~~37 (State Subdivision Map Act) - ~~Chapter 6. Reversions and Exclusions~~	Regulation and control of the design and improvement of subdivisions are vested in the legislative bodies of local agencies. Each local agency shall by ordinance regulate and control the initial design and improvement of common interest developments as defined in Section 1351 of the Civil Code and subdivisions for which this division requires a tentative and final or parcel map.

3. **Page 4.5-2, Land Use Table 1, Local LORS rows:** The LORS table should reference the entire General Plan, not merely a few individual policies included therein. Accordingly, please delete the General Plan policies from the LORS table. These policies should be discussed to show compliance with the Riverside County General Plan, which is the applicable LORS for this project, under "Proposed Project's Consistency with LORS" section beginning on Page 4.5-16. Additionally, please revise Ordinance 460 ("Ordinance No. 460.~~147~~151") and 659 ("as amended through 659.~~8~~9") to include citation of the most recent ordinances as amended. Please revise the table as follows:

Local	
County of Riverside General Plan	The General Plan describes the future growth and development within the County over the long term. It acts as a constitution for both public and private development, and provides the foundation upon which county leaders will make growth and use related decisions.
~~General Plan - Chapter 3 Land Use Element - Fiscal Impacts~~	~~Land Use Policy 9.1. Requires that new development contributes its fair share to fund infrastructure and public facilities such as police and fire facilities.~~
~~General Plan - Chapter 3 Land Use Element - Solar Energy Resources~~	~~Land Use Policy15.15. Permits and encourages, in an environmentally and fiscally responsible manner, the development of renewable energy resources and related infrastructure, including but not limited to, the development of solar power plants in the County of Riverside.~~
County of Riverside Ordinance 348 Land Use Ordinance of Riverside County	The ordinance establishes zone classifications in the unincorporated areas of the county regulating the use of land, height of buildings, area of lots and building site.

County of Riverside Ordinance No. 460 Regulating The Division Of Land Of The County Of Riverside As Amended through Ordinance No. 460.~~147~~151, effective ~~February 1, 2007~~June 3, 2010	All land divisions in the unincorporated area of the county of Riverside are subject to the applicable provisions of the State Subdivision Map Act and this ordinance. All land divisions shall conform to the Riverside County General Plan, with all applicable specific plans, with the requirements of the Land Use Ordinance and other ordinances, and the requirements of this ordinance.
County of Riverside Ordinance No. 659 (as amended through 659.~~8~~9) An Ordinance of The County of Riverside, Amending Ordinance No. 659 ~~(as amended through 659.8)~~ Establishing A Development Impact Fee Program	The ordinance establishes and sets forth policies, regulations, and fees relating to the funding and installation of facilities and the acquisition of open space and habitat necessary to address the direct and cumulative environmental effects generated by new development projects described and defined in this ordinance. It establishes the authorized uses of the fees collected.

4. **Page 4.5-4, Second Full Paragraph, Third Sentence:** The emergency and construction electrical power supply line and access road will traverse both public and private lands. Please revise as follows:

   The proposed project's generation interconnection tie line, a portion of the emergency and construction electrical power supply line, and a portion of the vehicle access road are proposed to be located on a 1,300-acre right-of-way on public land administered by the BLM.

5. **Page 4.5-5, Sixth Paragraph, "Land Use and Planning" section, 4th Sentence:** Please revise as follows:

   The proposed project would not physically divide Palo Verde or any other community and, therefore, would not create a significant effect on the environment under this CEQA criterion.

6. **Page 4.5-5, Seventh Paragraph, "California Desert Conservation Area Plan" section, First Sentence:** The emergency and construction electrical power supply line and access road will traverse both public and private lands. Please revise as follows:

   The proposed project's generation interconnection tie line, a portion of the emergency and construction electrical power supply line, and a portion of the access road would be located on public land administered by the BLM (ESH 2012e, p. 2-1-3).

7. **Page 4.5-6, First Partial Paragraph, Third Sentence:** The 161 kV gen-tie line as the basis for a CDCA Plan Amendment seems misleading. A Plan Amendment will be required, but not because the gen-tie line is greater than 161 kV. The CDCA Plan refers to new transmission towers and cables over 161 kV as allowed within designated utility corridors and in conformance with the adopted corridor system. However, half of the 161 kV line is outside of a designated utility corridor, which would trigger a Plan Amendment. Additionally, all sites associated with power generation or transmission not identified in the CDCA Plan will be considered through the Plan Amendment process. Please revise the sentences as follows:

As part of this process, the BLM would need to amend the California Desert Conservation Area (CDCA) for a gen-tie line ~~greater than 161 kV~~ outside of an existing utility corridor. Additionally, all sites associated with power generation or transmission not identified in the Plan will be considered through the Plan Amendment process (USBLM 1980, p. 15 and 93).

8. **Page 4.5-6, Third Full Paragraph, Third and Seventh Sentences:** RMS will not be constructed on BLM land. This sentence is not relevant to project compliance with the CDCA Plan. The project will require a Plan Amendment for compliance. Please revise this sentence as follows:

   Within Class L ~~solar electric generation plants may be allowed~~ a generation interconnection tie line, emergency and construction electrical power supply line, and access road are allowable uses once NEPA requirements are met and the CDCA Plan is amended (USBLM 1980, p.~~13 and p.15~~93). … Within Class M ~~all types of electrical generation plants may be allowed in accordance with state, federal, and local laws~~ a generation interconnection tie line, emergency and construction electrical power supply line, and access road are allowable uses once NEPA requirements are met and the CDCA Plan is amended (Ibid).

9. **Page 4.5-8, First Full Paragraph, First Sentence:** Please revise Land Use Figure 6 to include N-A zoning in the legend and on the figure as represented as dark green.

10. **Page 4.5-8, Second Full Paragraph, First Sentence:** Please revise the sentence as follows:

    The project ~~appears to be~~ is consistent with the allowable uses identified above; therefore, the project would not create a significant effect on the environment under this CEQA criterion.

11. **Page 4.5-8 through 4.5-10:** Please refer to Applicant's General Comment #2.

12. **Page 4.5-9, Third Paragraph:** Please indent the entire paragraph. This reads as an introduction to the LESA model that Staff performed, not a quote associated with the 34th Avenue access road and agriculture.

13. **Page 4.5-14, Second Paragraph:** Please move this entire paragraph summarizing conflicts with the NECO Plan to page 4.5-13 above the heading titled "Riverside East Solar Energy Development Zone." This paragraph reads like a summary of compliance with the NECO Plan and has nothing to do with the Solar Energy Zone discussion. Please provide a paragraph in place of this paragraph to conclude the Solar Energy Zone discussion as follows:

    The project is located in a "Variance" area according to the Solar Energy Programmatic Environmental Impact Statement (Solar PEIS); however, in accordance with the Solar PEIS the project is considered an "existing" project (initial SF-299 filed prior to release of the Supplement to the Draft Solar PEIS in October of 2011), and is, therefore, not subject to the Solar PEIS. Because the project is not located within the Riverside East SEZ, and not subject to the Solar PEIS "Variance" process, it would not contribute cumulative impacts to the SEZ planning area or the Solar PEIS.

14. **Page 4.5-15, Second Paragraph, First Sentence:** Please revise the sentence to refer to soil types found within the project site as follows:

    The Soil Conservation Service, Soil Survey of Palo Verde Area, California, General Soil Map shows soils within the project site as primarily ~~to largely be~~ Rositas-Aco-Carrizo association and some Rositas-Gilman association.

15. **Page 4.5-16, Last Paragraph, First Sentence:** The emergency and construction electrical power supply line and access road will traverse both public and private lands. Please revise as follows:

    The proposed project's generation interconnection tie line, a portion of the emergency and construction electrical power supply line, and a portion of the access road are to be located on public land administered by the BLM and are subject to their approval.

16. **Page 4.5-17, Fourth Paragraph, Third Sentence:** The project site is located on private land. Please revise the sentence as follows:

    The proposed ~~3,805 acre project site is~~ generation interconnection tie line, a portion of the emergency and construction electrical power supply line, and a portion of the access road are located within both the CDCA Plan "Multiple-Use Class L" (Limited Use) and "Multiple-Use Class M" (Moderate Use).

17. **Page 4.5-17, Fifth Paragraph, First Sentence:** The emergency and construction electrical power supply line and access road will traverse both public and private lands. Please revise as follows:

    The proposed project's generation interconnection tie line, a portion of the emergency and construction electrical power supply line, and a portion of the access road will require use of public land administered by the BLM.

18. **Page 4.5-17, 5th Paragraph, Second Sentence:** The project will need a CDCA Plan Amendment in addition to the ROW Grant. Please revise the sentence as follows:

    The proposed project would be consistent with the CDCA Plan if the BLM approves a POD and Standard Form SF-299, and amends the CDCA Plan.

19. **Page 4.5-17, Subsection C:** Please update the Subdivision Map Act to include the entire Map Act. Please delete reference to Chapter 6, as Applicant will seek a one-lot parcel map to evidence the merger of all parcels, as shown below:

    C. California Government Code Sections 66410 – 66499.~~29~~ 37(State Subdivision Map Act)~~– Chapter 6. Reversions and Exclusions~~

20. **Page 4.5-18, Second Full Paragraph:** Applicant will cause the submittal of a one-lot parcel map to evidence the merger. Please revise the citation to Applicant's Environmental Enhancement Proposal which discusses the use of a one-lot parcel map. Please revise the paragraph as follows:

The applicant has indicated in the AFC and Environmental Enhancement Proposal that parcels within the project site will be merged into one parcel pursuant to Energy Commission siting regulations. A ~~Reversionary Map~~ one-lot parcel map in accordance with the State Subdivision Map Act will be prepared and submitted to Riverside County for review and ministerial approval (~~BS 2011a, p. 26~~BS 2012v, p. 5.6-15).

21. **Page 4.5-18, Third Full Paragraph:** Please revise to include the one-lot parcel map:

    Therefore, the proposed project would be consistent with the State Subdivision Map Act and the California Energy Commission's regulation with the filing of a ~~Reversionary Map~~ one-lot parcel map; see staff's proposed Condition of Certification **LAND-2**.

22. **Page 4.5-20, Second Paragraph:** In light of the great deference afforded local agencies with respect to the interpretation of their general plan, please revise this paragraph as follows:

    ~~Although the proposed project would conflict with LU 20.1, LU 20.2, and LU 20.4, t~~The proposed project is a use permitted within the "Agriculture" and "Open Space-Rural" land use designation as per Riverside County General Plan policy LU 15.15. LU 15.15 permits and encourages, in an environmentally and fiscally responsible manner, the development of renewable energy resources and related infrastructure, including but not limited to, the development of solar power plants in the County of Riverside. Although the proposed project would arguably conflict with some policies of the general plan if such policies are considered individually and in a vacuum (e.g., LU 20.1, LU.2 and LU 20.4), on balance the proposed project can be considered consistent with the General Plan overall. The "policies in the general plan reflect a range of competing interests" and local agencies "must be allowed to weigh and balance the plan's policies when applying them, and it has broad discretion to construe its policies in light of the plan's purpose." *Friends of Lagoon Valley v. City of Vacaville* (2007) 154 Cal.App.4th 807, 816.

23. **Page 4.5-21, Fifth Paragraph, below subsection b:** Please include the minimum setbacks for the W-2 Zone (these are not stated in Ordinance 348, but found at the Planning Department website under "Zoning Description and Requirements. Please add subsection "c" below "b":

    c. Minimum Setbacks: front 20 feet, side 5 feet, rear 10 feet.

24. **Page 4.5-21, Sixth Paragraph, First Sentence:** Omission, please revise sentence as follows:

    The proposed project is a large–scale solar thermal electric generating facility to be constructed on a lot greater than 10 acres.

25. **Page 4.5-24, Second Paragraph, Section F and Section 18.7:** Please update with the current Ordinance 460 amendment. The correct section is not 18.7. Applicant will seek to merge 29 contiguous parcels under common ownership. However, Section 18.7 provides guidance for merging four or fewer contiguous parcels under common ownership. Section 18.6 provides guidance for final map procedures, including guidance to file the one-lot parcel map. Please revise as follows:

F. Ordinance No. 460 Regulating The Division Of Land Of The County of Riverside As Amended through Ordinance No. 460.~~147~~151, effective ~~February 1, 2007~~June 3, 2010 ~~Section 18.7 – Merging of Contiguous Parcels~~ Section 18.6 – Final Map Procedures

26. **Page 4.5-24, Fifth Paragraph:** Provided that the County treats the issuance of the parcel map as a ministerial act and imposes no additional conditions or exactions on the issuance of the parcel map, Applicant will cause the submittal of a one-lot parcel map to evidence the merger. In the event that the County does not intend to treat the issuance of the parcel map as a ministerial act, the Applicant will request an override. Please include a citation to Applicant's Environmental Enhancement Proposal which discusses the use of a one-lot parcel map, and revise the paragraph as follows:

    The applicant has indicated in the AFC and Environmental Enhancement Proposal that parcels within the project site will be merged into one parcel pursuant to Energy Commission siting regulations. A ~~Reversionary Map~~ one-lot parcel map in accordance with the State Subdivision Map Act will be prepared and submitted to Riverside County for review and ministerial approval (~~BS 2011a, p. 26~~ BS 2012v, p. 5.6-15).

27. **Page 4.5-25, Second Paragraph, Section G:** Please update Ordinance 659 to include the most current amendment:

    G. Ordinance No. 659 An Ordinance of The County of Riverside, Amending Ordinance No. 659 (as amended through 659.~~8~~9) Establishing A Development Impact Fee Program (Year 2001 Development Impact Fee Ordinance)

28. **Page 4.5-25, Third Paragraph through Page 4.5-26 2nd Paragraph:** Please revise to reflect DIF based on acres upon which the development will be assessed DIF Fees and reflect the reasons for the DIF as it is set forth by the County to compensate for impacts to a specific list of issues associated with proposed developments within the County.

    Section 7 DEVELOPMENT IMPACT FEE (DIF)
    In order to assist in providing revenue to acquire or construct facilities, purchase regional parkland, and preserve habitat and open space, Development Impact Fees shall be paid for each residential unit, development project, or a portion thereof to be constructed. Four categories of fees are defined which are: Single Family Residential ("SFR"), Multi-Family Residential ("MFR"), Commercial, and Industrial. For each of these categories, the amount of the DIF will vary depending upon the location of the property upon which the development unit or a portion thereof will be constructed. Within each Area Plan, the following DIF amounts shall be paid for each Development Project within each Area Plan. The project site is within Area Plan 9 Desert Center/CV Desert~~14 - Palo Verde Valley~~.

    Consistency Discussion
    1. Ordinance No. 659 designates the N-A Zone and the W-2 Zone as an "~~commercial~~ industrial zone" for the purposes of the development impact fee (DIF) calculation (RCODIF 2010, p. 3). The Development Impact Fee provides revenue to acquire or construct facilities, purchase regional parkland, and preserve habitat and open space. The current ~~commercial~~ industrial zone fee for Area Plan 9 Desert Center/CV Desert ~~14 – Palo Verde Valley for a "Public Facilities" type use~~ is $12,769~~6,694~~ per acre. ~~Staff has~~

~~calculated the applicant's development impact fee for the proposed project to be $25,470, 670 ($6,694 x 3,805 acres = $25,470,670).~~ Riverside County defines the areas of impact from Utility Scale Solar projects such as Rio Mesa as including both "Occupied" and "Industrial" areas. They are defined as follows.

- "Occupied" area is everything within the fenceline.
- "Industrial" area includes paved roads, power blocks, inverters, substations, and O&M Buildings; It does not include solar arrays, roads through the arrays for access and cleaning, ponds, settling basins or the like.

Riverside County Planning Department determines the DIF under Ordinance NO. 659 for solar power plants based on the "Industrial" component as defined above. The DIF for Rio Mesa using the County's approved methodology would be based on approximately 87 acres. County is currently offering an incentive to businesses to locate within Riverside County through a reduction in the DIF of 50 percent.

Energy Commission staff has not identified a potential significant effect according to CEQA pertaining to public services and facilities created by the proposed project (see the **Socioeconomics** section in Part A of the PSA). Given this assessment by Staff, and understanding that the DIF specifically compensates County for an array of public services and conservation efforts the DIF paid by the applicant in compliance with Ordinance No. 659 will offset on a dollar for dollar basis the compensatory mitigation required under Conditions of Certification BIO-3 and WATER SUPPLY-6.

~~In addition, biology conditions of certification for the proposed project require the applicant to acquire compensation lands for impacts to habitat for the desert tortoise, golden eagle and burrowing owl, and for jurisdictional waters of the State of California. The acquiring of these compensation lands requires the posting of a financial security totaling approximately $30 million to guarantee completion of these acquisitions (refer to the **Biological Resources** section in this PSA for a detailed discussion including conditions of certification).~~

~~No development impact fee would be required because no new or expanded public facilities are necessary, and the proposed project will be required to offset its impacts to sensitive biological species and their habitat. The approximate $30 million mitigation cost would be substantially consistent with full payment of the approximate $25 million development impact fee.~~

35. **Page 4.5-28, Second Paragraph, Noteworthy Public Benefits:** The PSA mentions that development of the project is intended to address the requirements of federal and state mandates to develop renewable energy sources, but incorrectly notes that no noteworthy public benefits created by the project have been identified for this analysis (land use). The PSA land use section should recognize that the project will put under-utilized private property owned by Metropolitan Water District to productive use, will increase property and sales and use tax revenues for local government, will create jobs, and will advance state and federal renewable energy generation goals.

36. **Land Use Figure 2:** "Roads" and "Streams" appear over each other in the legend. Please revise.

37. **Land Use Figure 6:** Please add the N-A Zone to the legend and map. It appears on the map as the dark green color, but is absent from the legend and map.

38. **Land Use Figure 7:** Please describe where the photo is taken from and what direction the viewer is looking.

39. **Land Use Figure 9:** Please update "Palo Verde Mesa Solar" CA 051967 to the most current name for CA 051967, "Sonoran West SEGS."

NOISE AND VIBRATION

SPECIFIC COMMENTS

1. **Page 4.6-9, Compliance with LORS, 1st paragraph:** Due to the Applicant's usage to date of a wind-neutral sound propagation prediction scenario for modeling project operation noise, please change the paragraph as follows:

   The applicant performed noise modeling to determine the project's noise impacts on sensitive receptors (BS 2012v, § 5.7.5.2). The applicant has predicted the operational noise levels at the nearest sensitive receptors. Under wind-neutral conditions, ~~T~~the project's highest noise level would be 36 dBA L_{eq}, at ST2 (BS 2012v, Table 5.7-13).The County of Riverside General Plan, Chapter 7, p.N-11, requires that facility-related noise, as projected to any portion of any surrounding property containing a sensitive receiver, habitable dwelling, hospital, school, library or nursing home, must not exceed 45 dBA L_{eq} between the hours of 10 p.m. and 7 a.m. and 65 dBA L_{eq} between the hours of 7 a.m. and 10 p.m. (Riverside 1998). As seen above, a project level of 36 dBA would be well below these limits. Additionally, predicted operation noise levels can be influenced by factors such as wind speed and direction and thus be higher than the predicted 36 dBA L_{eq} at ST2 for limited periods of time. In such case, however, operation noise level is expected to remain below the limits set forth in the Riverside County General Plan. Therefore, the project would comply with the applicable noise LORS.

2. **Page 4.6-9, CEQA Impacts, 1st paragraph, Table 4, and 2nd paragraph:** Due to the higher predicted startup operation noise level for LT1a as presented in Table 5.7-14 on Page 5.7-13 of the Supplemental Response to DR Set 1A (#16 and #26), identified as "BS 2012v" in the PSA, and Applicant's usage to date of a wind-neutral sound propagation prediction scenario for modeling project operation noise, please change the 1st paragraph, Table 4, and the 2nd paragraph as follows:

   The Rio Mesa SEGF project would operate during the daylight hours (when the sun is shining) and during the conduct of startup activities in an early morning hour (4:30 a.m. to 5:30 a.m.) (BS 2012v, Page 5.7-10). Thus, staff compares the project's full solar operation and startup operation noise levels to the existing daytime and nighttime ambient noise levels at the project's noise-sensitive receptors. (Please see below for limited nighttime maintenance activities.) Typically, ~~daytime~~ ambient noise consists of both intermittent and constant noises. The noise that stands out during this time is therefore best represented by the average noise level, referred to as L_{eq}. Staff's evaluation of the above noise surveys shows that the ~~daytime~~ noise environment in the project area consists of both intermittent and constant noises. Thus, staff compares the project's noise levels to the daytime ambient L_{eq} level at the project's nearest noise-sensitive receptor, LT1a. The applicant has predicted the full solar operation and startup operational noise levels at LT1a; ~~it~~ the larger of which under wind-neutral conditions is shown here in **Noise Table 4**.

Noise Table 4: Predicted Operational Noise Level at the Nearest Identified Sensitive Residential Receptor

Receptor	Project Alone Operational Noise Level (dBA) [1]	Measured Existing Ambient, Quietest Daytime L_{eq} (dBA) [2]	Cumulative L_{eq} (dBA)	Increase in Existing Ambient (dBA)
LT1a	3~~3~~5	41	42	+1

Sources: [1] BS 2012v, Table 5.7-13
[2] NOISE Table 2, above

Combining the ambient noise level of 41 dBA L_{eq} (**Noise Table 4**, above) with the project noise level of 3~~3~~5 dBA at LT1a would result in 42 dBA L_{eq}, 1 dBA above the ambient. Were the project's predicted operation noise levels to be influenced by factors such as wind speed and direction and thus be higher than the predicted 35 dBA L_{eq} for limited periods of time, an operation noise level as high as 39 dBA L_{eq} at LT1a would—combined logarithmically with the existing ambient sound level of 41 dBA Leq—result in a cumulative L_{eq} of 43 dBA and only a 2 dBA increase above ambient. As described above (in **Method and Threshold for Determining Significance**), staff regards an increase of up to 5 dBA to be less than significant.

3. **Page 4.6-6, Second Paragraph Below Table 3:** The PSA states "No construction activities would be undertaken within 1/4-mile of an occupied residence or residences between the hours of 6:00 p.m. to 6:00 a.m. during the months of June through September and between the hours of 6:00 p.m. to 7:00 a.m. during the months of October through May. To ensure that these hours are, in fact, enforced, staff proposes Condition of Certification **NOISE-6**." As no project construction activity is expected within a ¼-mile of an occupied dwelling, and because the Applicant understands and will comply with Riverside County Ordinance 847 as summarized on Page 4.6-4, Applicant requests that NOISE-6 to be deleted in its entirety from the Conditions of Certification.

4. **Page 4.6-7, First Full Paragraph:** Please delete reference to NOISE-6 as Applicant has requested deletion of the condition as explained in Specific Comment #3.

5. **Page 4.6-8, Linear Facilities:** Please delete reference to NOISE-6 as Applicant has requested deletion of the condition as explained in Specific Comment #3.

PUBLIC HEALTH

SPECIFIC COMMENTS

1. **Page 4.7-3, Third Paragraph, Last Sentence:** Applicant requests the following change for clarification purposes:

   The nighttime preservation boiler would be used to provide overnight heat to systems <u>to protect turbine steam seals and improve plant efficiency by facilitating the startup of the solar boiler system and</u> provide freeze protection. (BS 2012v, section 2.0).

2. **Page 4.7-6, First Paragraph, First Sentence:** Applicant requests the following change for clarification purposes:

   Rio Mesa SEGF is proposed at a location where the fungus that causes valley fever[3] (*Coccidioidomycosis)* <u>*may occur*</u> ~~occurs~~ naturally.

3. **Page 4.7-14, First Paragraph, First and Second Sentences:** Applicant requests the following change for clarification purposes:

   The Rio Mesa SEGF is proposed in an area where the fungus that causes valley fever[8] (*Coccidioidomycosis)* <u>*may occur*</u> ~~occurs~~ naturally. Construction could disturb a certain percentage of approximately 3,805 acres[9] of top soil ~~which~~ <u>that</u> could harbor the *Coccidioides* spores possibly exposing humans to the risk of valley fever.

4. **Page 4.7-16, First Paragraph, Last Sentence:** Applicant requests the following change to clarify that the non-criteria pollutant emission factors used for Project emissions calculations were based on information provided by the Ventura County Air Pollution Control District:

   The emission factors for these pollutants were obtained from the ~~Environmental Protection Agency (EPA) AP-42 database of emission factors~~ <u>Ventura County Air Pollution Control District. These emission factors are typical default factors used by several Air Districts in California and have been used to analyze impacts for several CEC approved power plant projects.</u>

5. **Page 4.7-18, Last Paragraph, First and Second Sentences:** Applicant requests the following change to clarify the version of the HARP model used in the most recent HRA results included as part of the July 23, 2012 supplemental data response submitted to the CEC:

   The applicant's HRA was prepared using the ARB's HARP model, version ~~1.4d~~ 1.4f (ARB, ~~2009b~~<u>2011</u>), the ARB February 2011 health database (ARB, 2011), and the OEHHA Hot Spots Program Guidance Manual (OEHHA, 2003). Emissions of non-criteria pollutants from the project were analyzed using emission factors previously approved by ARB <u>and accepted by the Commission in other, similar proceedings</u>.

SOCIOECONOMICS

SPECIFIC COMMENTS

1. **Page 4.8-1, Socioeconomics Table 1, LORS:** No federal LORS are listed, and Applicant recommends including the following federal LORS:

Civil Rights Act of 1964	Prohibits discrimination on the basis of race, color, or national origin. Applies to all federal agencies and agencies receiving federal funds.
Executive Order 12898	Avoid disproportionate impacts to minority and low-income member of the community.

2. **Page 4.8-2, Setting, First Paragraph:** Please update the entire 1st paragraph to read as follows:

   The proposed project site is located in eastern Riverside County, in the Palo Verde Valley area 13 miles southwest of the city of Blythe, on lands leased from the Metropolitan Water District of Southern California. Portions of the project gen-tie line, upgraded Bradshaw Trail~~,~~ access road, and 33kv construction emergency back-up power supply line would be located on public lands administered by the U.S. Bureau of Land Management (BLM) (BS 2012v). The project site is ~~vacant~~ previously disturbed land ~~and undeveloped~~, with some agricultural lands to the east. The existing Western Area Power Administration transmission line and associated access road and existing TransCanada Gas Transmission Company North Baja Pipeline border the site on the east. Bradshaw Trail runs north of the project site.

3. **Page 4.8-4, Fourth Paragraph, First Sentence:** Please include reference to Ripley in the first sentence and revise as follows:

   The population identified in the six-mile buffer lives within unincorporated Riverside County and the ~~community~~ communities of Palo Verde and Ripley.

4. **Page 4.8-7, First Paragraph, First Sentence:** Revise to include all the counties listed in Table 4 as follows:

   Socioeconomics Table 4 shows the historical and projected populations for Riverside and San Bernardino counties in California and La Paz, Maricopa, and Yuma counties in Arizona.

5. **Pages 4.8-12 and 13, Public Services:**

   The discussion of Public Services notes that project-related construction traffic could affect circulation and access on roads near the project site, and could impact emergency response times. The PSA concludes that **TRANS-2** would ensure impacts to law enforcement services, including response times would be less than significant during project construction. Among other things, **TRANS-2** would require a park-and-ride program. As noted in Applicant's

comments on the Traffic and Transportation Section (Specific Comment on Page 4.11-14), Applicant believes no level of bussing would be appropriate. The impact which is proposed to be mitigated (and also reiterated in the Socioeconomic section is not significant). The impact is a very temporary increase in LOS at one intersection during peak workforce conditions, at a level less than the LOS standard set by the Riverside County Transportation Commission for that location. For the reasons detailed in Applicant's comments on the Traffic and Transportation Section, Applicant requests that Staff modify the third paragraph on Page 4.8-12 and the second paragraph as follows:

> The Riverside County Sheriff's Department also indicated that there is a moderate probability that project-related construction traffic could affect circulation and access on roads near the project site to the extent that emergency response times might be impacted (RCSD 2012a). However, as noted in the Traffic and Transportation Section, the impact is a temporary increase in LOS at one intersection during peak workforce conditions, at a level less than the LOS standard set by the Riverside County Transportation Commission for that location. In addition, the **Traffic and Transportation** section of this PSA proposes Condition of Certification **TRANS-2**, which would require the preparation of a Traffic Control, Heavy Haul and Parking/Staging Plan ~~that includes a park-and-ride program for construction workers to reduce congestion on local roads~~, and means of access for emergency vehicles to the project site. Implementation of proposed Condition of Certification **TRANS-2** would ensure that impacts to emergency response times for law enforcement services would be less than significant during project construction.

6. **Page 4.8-15, Fifth Paragraph, First Sentence:** Text and Socioeconomics Table 11 show 390,000 construction workers within the identified Metropolitan Statistic Areas (MSAs). However, the majority of the MSAs identified in Table 11 are not within 120 miles of the project site. Instead, these MSAs could be within 120 miles of the 69 project sites. Please revise the sentence and table heading to clarify that these MSAs and construction workforce are within commuting range of the 69 projects, as follows:

> **Socioeconomics Table 11** shows that in 2012 there were over 390,000 construction workers in the southwestern U.S. that could be available to work on the 69 projects ~~within 120 miles of the Rio Mesa SEGS~~.

Socioeconomics Table 11
Construction Workforce in Selected MSAs in California,
Arizona, Nevada~~—Within Two Hour Commute~~

7. **Page 4.8-18, First Paragraph, Second and Third Sentences:** The project will commence construction in the 4th Quarter of 2013, prior to the expiration date for property tax exclusions in Revenue and Taxation Code, Section 73 (i.e., January 1, 2017). Please revise the sentences as follows:

> The proposed Rio Mesa SEGF would generate property tax revenue to Riverside County. Because the Rio Mesa SEGF is a renewable energy power-generating facility, the ~~county~~ County has jurisdiction over the valuation. California Revenue and Taxation Code, Section 73 provides property tax exclusion for certain types of solar energy systems. ~~As~~

~~the legislation currently stands,~~ Rio Mesa SEGF qualifies for the exclusion of certain parts from valuation per the Revenue and Taxation Code, Section 73 if construction begins prior to the expiration date of January 1, 2017. The Applicant proposes that project construction would commence during the 4th Quarter of 2013. The Project will therefore qualify for this exclusion.

8. **Page 4.8-18, Table 13:** Please revise the total annual property tax as the original dollar figure was a carryover from the three unit project.

Socioeconomics Table 13
Rio Mesa SEGF Economic Benefits (2012) dollars
From Operations and Maintenance (O&M)

Riverside County	
Annual Local (O&M)	$589,600
Total Annual O&M Payroll	$12,300,000
Annual O&M Employment	100
Indirect Employment	0.8
Induced Employment	69
Indirect Income	$36,605
Induced Income	$2,778,257
Total Annual Sales Tax	$45,694
Total Annual Property Taxes	~~$7,000,000~~ $4, 300,000
Palo Verde Unified School District	
One-time School Impact Fee	$18,805

All values are approximate.
Source: BS 2012v, Adapted from Table 5.10-21, Pg. 5.10-17
PVUSD 2012

9. **Page 4.8-21, References list, 4th reference, BS 2012xx**: This reference is inconsistent with Page 4.8-1, 2nd Full Paragraph, Second Sentence, "(2012v). The citation should be revised as follows:

BS 2012~~xx~~v –Applicant's Environmental Enhancement Proposal….

WATER SUPPLY

SPECIFIC COMMENTS

1. **Page 4.9-1, First Bullet:** Additional groundwater modeling and supporting discussion and documentation to address the comments and concerns of CEC staff is presented in the attached Technical Memorandum (Exhibit Water Supply-1) and validates earlier conclusions that drawdown will be less than significant and largely limited to the immediate vicinity of the site. Modeling is considered a reliable means of analyzing groundwater impacts and is required for this purpose under CEC's Data Adequacy Requirements. The modeling results were consistent for several different modeling approaches, each of which met standard calibration and mass balance criteria. Thus, groundwater monitoring is required as additional validation, not because it may not be possible to predict drawdowns until actual pumping occurs. Therefore, Applicant requests the following modifications to this bullet:

    - Well Interference. Based on ~~staff's preliminary~~ modeling analysis of potential groundwater drawdown by the proposed project, groundwater wells on property adjacent to the proposed project are not expected to experience measurable drawdown. The maximum predicted drawdown at an offsite well is 0.1 foot at an inactive well located approximately 2 miles north of the site. As such, they will not be significantly impacted by the project pumping. ~~could be significantly impacted by the project pumping. Staff's analysis is based on a simple numerical model and does not take into account groundwater level stabilizing effects of recharge from drains, irrigation, and mountain front precipitation. A more refined analysis using the MODFLOW computer program, which can take into consideration the effects of these conditions, could be completed by the applicant. Even with these model estimates, quantification of well interference impacts may not be possible until actual long-term groundwater production occurs.~~ Because all models include underlying simplifying assumptions, some uncertainty is inherent in any modeling prediction. To ensure that well interference impacts are monitored and mitigated to a level of less than significant, staff recommends Conditions of Certification WATER SUPPLY-4 and -5. Condition of Certification WATER SUPPLY-4 would require a pre-construction baseline established for groundwater elevation and ongoing monitoring and reporting of groundwater elevation and pumping volumes to identify changes in baseline aquifer conditions. Condition of Certification WATER SUPPLY-5 would require mitigation for significant impacts to adjacent property wells~~.~~, if they were to occur.

2. **Page 4.9-1, Third Bullet:** The existing wells installed for the Sun Desert project were installed in compliance with California Well Standards and do not pose an inherent risk of groundwater contamination as long as the well heads are secured. The Project Owner may wish to use some of these wells for water supply, standby or monitoring purposes and may lawfully do so. Therefore, Applicant requests the following modifications:

- Well Abandonment. There are several monitoring wells and possibly production wells at the proposed project property that could provide a conduit for contaminants to enter the regional aquifer if their wellheads are not properly maintained. To protect the regional aquifer water quality, staff recommends Condition of Certification WATER SUPPLY-7, which would require proper abandonment of ~~all~~any of these wells that are not proposed for use by the Project Owner.

3. **Page 4.9-2, First Bullet:** Based on well-established hydrogeologic principles, the revised preliminary wetland delineation, and the results of groundwater modeling for the project, groundwater pumping related impacts to sensitive woodlands and wetlands located at and adjacent to the site will be less than significant. Therefore, Applicant requests the following modifications:

    - Woodlands and Wetlands. Lands to the east of the proposed project common area contain sensitive woodlands in the washes and sensitive mesquite and seep-weed habitat in the wetlands. ~~Based on staff's preliminary analysis of groundwater drawdown by the proposed project the sensitive habitat could be significantly impacted by the project pumping.~~ The depth to the production aquifer water table beneath the sensitive woodlands is in the range of 150 feet, which is too deep for phreatophytic trees to rely on this source of water. Any perched water table beneath this area will be hydraulically disconnected from the effect of pumping the deeper aquifer. It is therefore impossible for the sensitive woodlands to be affected by project pumping. The seepweed habitat lies in depressions that collect surface runoff from a large dry wash on the mesa to the west, and groundwater levels beneath the seepweed habitat are controlled by the PVID drain at the foot of the mesa. Furthermore, based on the proximity of the wetlands to the PVID drain at the foot of the mesa and the very small amount of drawdown predicted for the project, impacts to the wetlands and mesquite trees are anticipated to be less than significant. ~~Staff's analysis is based on a simple numerical model and does not take into account water level stabilizing effects of recharge from drains, irrigation, and mountain front precipitation. A more refined analysis using the MODFLOW computer program, which can take into consideration the effects of these conditions, could be completed by the applicant. Even with these model estimates, quantification of drawdown may not be possible until actual long-term groundwater production occurs. Condition of Certification WATER SUPPLY-4 would require installation of groundwater monitoring wells between the proposed project pumping wells and the sensitive vegetation. The comparison between baseline and ongoing conditions would allow quantification of potential impacts due to project groundwater pumping and mitigation of significant impacts, as described under Biological Resources and recommended in Condition of Certification BIO-8.~~

4. **Page 4.9-2, Third Bullet:** It is not possible for project pumping to have a direct effect on the Colorado River because a significant groundwater mound beneath the PVID irrigated lands between Palo Verde Mesa and the river prevents hydraulic communication. Project pumping is expected to have a small effect on flow of Colorado River water in the PVID drain located at the foot of the mesa that is not measurable and is far below the level of error in PVID's and USBR's

current accounting of Colorado River water use. The reference to WATER SUPPLY-6 is not consistent with that condition. Therefore, Applicant requests the following modifications:

- Colorado River. The project would use groundwater that is in hydraulic connection with ~~the Colorado River and~~ Palo Verde Irrigation District (PVID) drains at the foot of the mesa which transmit Colorado River water. Project pumping may capture groundwater that would otherwise contribute to the volume of water flow in the Colorado River. ~~Due to some issues with the computer model submitted by the applicant that raise questions about the reliability of the model, staff could not evaluate and quantify the~~ The potential effect that the project groundwater pumping would have on the volume of flow in the ~~Colorado River~~PVID drains is well below thresholds that would be measureable or observable under current accounting methodologies. ~~Staff, therefore, conservatively assumes that any withdrawal of groundwater by the proposed project would directly affect the volume of flow in the river and require mitigation.~~ Under current regulations, the project would be pumping tributary groundwater that is not considered Colorado River water and would not require a Colorado River entitlement. The Project Owner has agreed to voluntarily offset all of its water use under Condition of Certification WATER SUPPLY-6. The proposed method of ~~mitigation~~ conservation must be submitted to staff for review and analysis prior to groundwater pumping ~~publication for the Final Staff Analysis (FSA)~~. The submittal must demonstrate how the project owner will conserve water from the Colorado River Basin or PVMGB ~~water~~ in a volume equivalent to the volume of groundwater pumped by the project and discuss in detail how the elements required by proposed Condition of Certification WATER SUPPLY-6 would be satisfied.

5. **Page 4.9-2, Last Bullet:** Applicant requests the following modifications:

   - Groundwater Basin Balance. The volume of groundwater pumped over the life of the proposed project would be 0.08 percent of the volume of groundwater in the Palo Verde Mesa Groundwater Basin (PVMGB), which is not significant. Underflow from the Chuckwalla Valley Groundwater Basin (CVGB) is minimal and the Colorado River recharges the Palo Verde Valley Groundwater Basin (PVVGB) when water levels in that groundwater basin decline. In addition, any groundwater pumped by the proposed project would be ~~mitigated~~ offset under staff recommended Condition of Certification **WATER SUPPLY-6**.

6. **Page 4.9-3, Second Bullet:** Applicant requests the following modifications:

   - Cumulative Impacts. The proposed project ~~could significantly impact~~ would have no impact on the PVVGB, and a negligible effect on other groundwater wells the PVMGB ~~and PVVGB~~ balance, or the volume of flow in the Colorado River, cumulatively, when combined together with existing and reasonably foreseeable major projects. ~~However, staff recommends~~ In addition, Applicant has agreed to Condition of Certification WATER SUPPLY-6, which would require the Project Owner to conserve water from the Colorado River Basin or PVMGB water in a volume equivalent to all groundwater pumped by the Project ~~to be mitigated~~ and would, thereby, avoid ~~these~~ any potential ~~significant~~ cumulative impacts.

7. **Page 4.9-4, Water Supply Table 1 Laws, Ordinances, Regulations and Standards:** The proposed accounting surface rule has been withdrawn and is not a LORS. As such, reference to the accounting surface rule should be removed from this table.

~~The U.S. Bureau of Reclamation, Colorado River – Proposed Accounting Surface Rule, 73 Federal Register 40, 916 (July 16, 2008) (subsequently withdrawn)~~	~~The U.S. Bureau of Reclamation (USBR) proposed the accounting surface rule to eliminate the unlawful use of Colorado River on July 16, 2008 in the Federal Register (73 Federal Regulation 40,916). Under this rule, users within the lower Colorado River Basin can divert tributary flow before it reaches the Colorado River. However, once flow reaches the river, entitlements are required for diversions. The river aquifer is hydraulically connected to the Colorado River and it has been proposed that the "accounting surface" is defined as groundwater levels that would occur should the Colorado River be the only source of groundwater in the aquifer (USGS, 1987; USGS, 2000a). Water levels higher than the accounting surface indicate recharge from tributary water sources. Wells drawing water from the river aquifer (or water below the accounting surface) draw water from the Colorado River and, under the rule, would need to be accounted in the consumptive use of the river. In cases where water is drawn from the river aquifer, an entitlement is required from the USBR.~~

8. **Page 4.9-7, First Full Paragraph:** Applicant requests the following modifications:

> Native vegetation in the region primarily consists of three plant community types: creosote bush scrub associated with undeveloped desert areas; ~~riparian~~ plant communities associated with ephemeral alluvial washes and channel banks of the Colorado River and its various canals and drains located offsite; and agricultural areas in active cultivation, also located offsite. ~~Approximately 0.65 acres of potentially jurisdictional wetlands are within the project boundary along the central eastern part of the project (BS, 2012v). Additional wetlands are located adjacent to the project on the east near Hodges canal.~~ A revised Preliminary Jurisdictional Delineation (PJD) was submitted to the U.S. Army Corps of Engineers (COE) on October 2012, and the Project and the COE are continuing to refine and finalize the delineation of onsite waters, wetlands, and other jurisdictional features.

9. **Page 4.9-7, Last Paragraph:** The groundwater mound that exists between the PVMGB and the Colorado River prevents direct hydraulic communication. Tributary inflow into the Colorado River and related drain systems is not adjudicated under the Law of the River. The Law of the River was not adopted for the purpose of responding to groundwater overdraft conditions that affected river flows. Applicant is not aware of any documented instances of groundwater pumping along the Lower Colorado River that had an adverse impact on river flows. Therefore, Applicant requests the following changes:

> Groundwater from the PVMGB is the primary natural water supply for the Palo Verde Mesa area, providing water for domestic, industrial, and agricultural users. Surface water from the Colorado River is the primary source of water for agriculture in the area and is provided by ~~the Palo Verde Irrigation District (~~PVID~~)~~. Groundwater outflow is through evapotranspiration, agriculture runoff drains, and under flow to the PVVGB, and discharge to the PVID drains at the foot of the mesa. ~~Colorado River, whose flow is adjudicated (USBR, 2012). Historically, because of agricultural development,~~

~~groundwater consumption exceeded groundwater recharge, and adversely affected river flows and agreements surrounding water volume in the river. Resulting declines in groundwater levels and storage have caused water use in this area to be regulated now by a complex set of laws and rules known as the 'Law of the River' (USBR, 2012).~~

10. **Page 4.9-10:** Please add the following new text immediately below Water Supply Table 2:

    The PVMGB and the PVVGB located to the east of the PVMGB are characterized by surplus recharge from agricultural irrigation that has historically increased groundwater levels and has created a groundwater mound between the Colorado River and locations to the west (RMS AFC Appendix 15.5D, page 4). In response, PVID constructed a network of deep drains up to approximately 20 feet deep to convey surplus groundwater to the Colorado River (RMS AFC Appendix 15.5D, page 4). The groundwater budget, or in-flow and out-flow balance for the PVMGB and PVVGB, includes approximately 424,600 acre-feet per year. Of that amount, approximately 357,000 acre-feet per year, or 84.1%,

    consists of discharges of surplus groundwater to the Colorado River through the PVID drains (RMS AFC Appendix 15.5D, Table 2-1).

11. **Page 4.9-10, Last Paragraph:** As stated previously, the proposed Accounting Surface Rule is not a LORS. Furthermore, the discussion of the proposed Accounting Surface Rule contained in the PSA misinterprets the rule's proposed application. The proposed rule states that "[w]ells that have a static water-level elevation equal to or below the accounting surface are presumed to yield water that will be replaced by water from the river," and therefore would be subject to annual accounting requiring an entitlement to divert and use Colorado River water (USGS, 2008). Conversely, "[w]ells that have a static water-level elevation above the accounting surface are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys," and therefore is not subject to annual accounting. For the purposes of this method, the static water level "...is the level of the water in a well that is not being affected by ground-water withdrawal or the level to which water will rise in a tightly cased well under its full pressure head." Applicant requests the following corrections to this paragraph:

    According the proposed accounting surface definitions, wells with static (non-pumping) water levels below the accounting surface draw water that will be replaced by Colorado River water. ~~wells pumping rom the river aquifer (or water below the accounting surface) draw water from the Colorado River and, as such, need to be accounted in the consumptive use of the river.~~ If the proposed rule were to be adopted in the future, such pumping would need to be accounted in the consumptive use of the river. ~~In cases where groundwater is pumped from the river aquifer, an entitlement is required from the U.S. Bureau of Reclamation (USBR).~~ The USBR proposed the accounting surface rule to eliminate the unlawful use of Colorado River on July 16, 2008 in the Federal Register (73 Federal Regulation 40,916). As of the date of this analysis, a rule has not been adopted and the USBR has no accepted method for determining whether there is unauthorized consumptive use of the river. Accordingly, the proposed rule is not a LORS, groundwater beneath the site is not Colorado River water and the project does not require a Colorado River entitlement. At the proposed project site, current groundwater levels are approximately within two feet above the proposed USBR

Colorado River accounting surface (BS, 2011a; USBR, 2008).

12. **Page 4.9-11, Last Paragraph:** Three or more wells may be utilized to meet the project construction and operating water demand. The pumped aquifer has been characterized as confined, and is not part of the fluvial aquifer system. Applicant requests the following modifications:

    Groundwater would be pumped to supply all proposed project water uses at a maximum rate of 405 acre-feet per year (AF/y) during project construction and 173 AF/y during commercial operation (BS, 2012v). This groundwater supply would come from ~~two~~ three or more new production groundwater wells installed prior to any other project construction (BS, 2011a). ~~One well would be used as a groundwater production well and the other as a backup water supply (BS, 2011a).~~ The groundwater would be pumped from the ~~unconfined~~ alluvial ~~/fluvial~~ aquifer (BS, 2011a), and treated at the common area before distribution to each of the power blocks through underground pipelines (BS, 2011a).

13. **Page 4.9-12, Last Paragraph:** Applicant requests the following modifications:

    The applicant proposes to install ~~two~~ three or more new groundwater wells and pump groundwater from ~~one of~~ these wells for all construction and power plant operation water supply needs.

14. **Page 4.9-13, First Paragraph, Second Sentence:** This paragraph should be corrected as follows:

    Terms in the lease allow ~~BrightSource Energy Inc.~~ Project Owner to pump groundwater at a rate of up to 600 AF/y (BS, 2011a).

15. **Page 4.9-13, Table 3:** Applicant requests that Table 3 be modified as shown below:

Water Supply Table 3
Proposed Annual Water Supply Source and Use

	Water Demand	Water Supply Source	Estimated Maximum Annual Water Supply Requirement (acre-feet per year)
Construction	Soil Compaction, Dust Suppression, Hydrostatic Testing, and Other Construction Needs	On-site Groundwater Well (to be installed before any other project construction activity occurs)	400
	Drinking Water[1]	Commercial water supplier	5
	Total Construction Water Demand		**405**
Operation	Cooling Water Makeup, Mirror Wash Water, Maintenance and Landscaping, and Fire Protection[2, 3]	Newly Installed On-site Groundwater Well	169 (84.5 per power plant)
	Drinking and Sanitation		4.3
	Total Operational Water Demand		**173.3**

Source: BS, 2012v.

1. Drinking water requirements were not identified in the AFC and, therefore, are conservatively estimated to be 2 gpd per person under peak workforce conditions.
2. Landscape water requirements were not identified in the AFC and, therefore, are assumed to be included in the total operational water demand.
3. Makeup water flow rates conservatively based on a 24 hour, 365 day per year operating schedule (BS, 2012v)

16. **Page 4.9-13, Last Paragraph, First Sentence:** Please revise the sentence as follows:

    The new wells would be installed at the project site prior to <u>any other</u> project construction (BS, 2011a).

17. **Page 4.9-14, Second Paragraph:** Treatment of potable water is a permitting and compliance requirement, not a mitigation measure. The paragraph should be revised as follows:

    One hundred full-time employees would be onsite at all times to operate the project (BS, 2011a; BS, 2012v). This number of full-time employees would cause the project domestic water system to be classified as a non-community, non-transient domestic water system and would require compliance with federal and state water quality standards applicable to non-community, non-transient domestic water systems. Based on the described water quality and regulatory considerations, staff recommends condition of certification **WATER SUPPLY-3** to ensure conformance with applicable water quality standards for the project domestic water system. ~~Implementation of this condition would reduce potential domestic water quality impacts to a level of less than~~

~~significant.~~

18. **Page 4.9-17, Second, Third and Fourth Paragraphs:** Staff's concerns have been addressed in the attached Technical Memorandum (Exhibit Water Supply-1). Applicant requests that the following revisions be made to this portion of the PSA:

~~In reviewing the BSPP model, staff found significant BSPP model construction parameters were changed by the applicant (CEC, 2012), and were only discovered when staff compared the BSPP model parameters to the applicant's model parameters. This comparison revealed that a significant source of generated model errors resulted from the applicant expanding the model by adding bedrock elevations along the edges of the model domain. While this addition more accurately represented actual conditions of the groundwater basins, it exceeded the capability of the groundwater modeling program, MODFLOW 2000 (USGS, 2000b), and resulted in the errors generated when Energy Commission staff tried to run the model, which raises questions about the reliability of the model and whether it can be used to accurately assess potential impacts.~~

~~The added bedrock elevations represent the core of bedrock mountains that quickly drop in elevation from above the valley floor, to the valley floor, and then to the base of the alluvial aquifer. Along this rapid change in bedrock elevation, the groundwater gradient in the alluvial/fluvial aquifer should change rapidly. Also, along this rapid change in bedrock elevation, the alluvial/fluvial aquifer thickness thins. However, in the model equations, the groundwater inflow along the boundaries is dictated by the constant value contributed by mountain front recharge. To do that with the large gradient due to the steep bedrock elevations, the flow cross sectional areas along the boundaries have to be very small. At the same time, the gradient inside the boundaries has to be much milder than along the boundaries because saturated thicknesses are much larger. It seems like there are some model limitations that do not allow for such a rapid change of gradient and thus the only heads that could avoid the model instability had to be below the bedrock elevations. This problem was not encountered with the BSPP model because the BSPP model did not use the high bedrock elevations along the boundaries, and therefore even though the heads there were comparable with the heads obtained by the applicant, no errors were generated that had to do with heads being below bedrock elevations.~~

~~Staff is concerned that those errors could affect model calibration and how the model resolves basin drawdown and recharge. Thus, staff believes that the errors generated during model runs make the results of the transient model runs unreliable for the purposes of groundwater pumping impact analysis.~~

<u>Subsequently, the applicant issued a Technical Memorandum that presents a systematic comparison of the BSPP and RMS models, a discussion regarding head elevations in the high elevation portions of the model and their significance, a discussion regarding prior model inconsistencies, and an updated groundwater impact model that addresses the inconsistencies and addresses the heads in the model margin areas by two different methods as a sensitivity analysis. The results of both modeling approaches met the model calibration criteria and mass balance requirements, and produced virtually</u>

identical predictions of project drawdown.

19. **Pages 4.9-18 through 4.9-20, Groundwater Drawdown:** As described earlier, it is technically inappropriate to use the results of the WTAQ modeling in lieu of the more reliable and technical robust analysis derived from the calibrated MODFLOW model discussed in the attached Technical Memorandum. The analysis presented in this section should be replaced as summarized below:

~~Because the computer model provided by the applicant was unreliable for the purposes of groundwater pumping impact analysis, staff evaluated potential groundwater drawdown using the USGS computer program WTAQ (USGS, 1999). WTAQ is a simple superposition numerical model that computes drawdown at a pumping well and at a specified number of observation wells based on user specified aquifer and well parameters. A summary of the aquifer and well parameters used in the model is presented below in **Water Supply Table 6**.~~

~~Water Supply Table 6~~
~~Summary of WTAQ Model Parameters~~

~~WTAQ Model Parameters~~				
~~**Aquifer**~~	~~**Unit**~~	~~**K_h at 35 ft/day**~~	~~**K_h at 70 ft/day**~~	~~**K_h at 140 ft/day**~~
~~Aquifer Type~~	~~—~~	~~Water Table~~	~~Water Table~~	~~Water Table~~
~~Saturated Thickness~~	~~ft~~	~~500~~	~~500~~	~~500~~
~~Horizontal Hydraulic Conductivity (K_h)~~	~~ft/day~~	~~35~~	~~70~~	~~140~~
~~Vertical Hydraulic Conductivity (K_v)~~	~~ft/day~~	~~3.5~~	~~7~~	~~14~~
~~Calculated Transmissivity~~	~~ft^2/day~~	~~17,500~~	~~35,000~~	~~70,000~~
~~Specific Storage~~	~~unitless~~	~~0.001~~	~~0.001~~	~~0.001~~
~~Specific Yield~~	~~unitless~~	~~0.004~~	~~0.004~~	~~0.004~~
~~Calculated Storativity~~	~~unitless~~	~~0.5~~	~~0.5~~	~~0.5~~
~~**Pumping Well**~~				
~~Well Type~~	~~—~~	~~Partially Penetrating~~	~~Partially Penetrating~~	~~Partially Penetrating~~
~~Screen Interval in Aquifer~~	~~ft~~	~~10 to 400~~	~~10 to 400~~	~~10 to 400~~
~~Pumping Rate (construction)~~	~~gpd~~	~~356,861~~	~~356,861~~	~~356,861~~
~~Pumping Rate (operations)~~	~~gpd~~	~~154,342~~	~~154,342~~	~~154,342~~
~~Total Pumping Time (construction)~~	~~yrs~~	~~3~~	~~3~~	~~3~~
~~Total Pumping Time (operations)~~	~~yrs~~	~~25~~	~~25~~	~~25~~
~~**Observation Wells**~~				
~~Well Type~~	~~—~~	~~Partially Penetrating~~	~~Partially Penetrating~~	~~Partially Penetrating~~
~~Screen Interval in Aquifer~~	~~ft~~	~~10 to 400~~	~~10 to 400~~	~~10 to 400~~

WTAQ Model Parameters				
Aquifer	Unit	K_h at 35 ft/day	K_h at 70 ft/day	K_h at 140 ft/day
Distances	ft	75 to 2,000	75 to 2,000	75 to 2,000

Note: 1. K_h is horizontal hydraulic conductivity.

The model was run simulating a 36 month construction period with pumping at the proposed project at a rate of 405 AF/y. Twenty-five years of pumping at the rate of 173 AF/y was added to the construction pumping to simulate groundwater withdrawal at the end of project operation. Observation wells were placed at 75, 150, 250, 500, 1,000, 1,500, and 2,000 feet away from the pumping to evaluate groundwater levels at these locations after 28 years of project pumping. The aquifer parameters used in the model were consistent with those used in the USGS 2008 and BSPP MODFLOW models.
To better understand the potential impact to groundwater related drawdown, the drawdown from the proposed project pumping was modeled using an estimated representative horizontal hydraulic conductivity of 70 feet per day (ft/day), as well as two extreme values to assess the sensitivity of the model output to errors in the estimation of the hydraulic conductivity parameter. The two extreme values represented one-half and twice the average value, which are commonly used for performing sensitivity analyses. The representative value was derived from an onsite aquifer test conducted for the proposed Desert Sun Nuclear project, which indicated that the horizontal hydraulic conductivity ranges from approximately 61 to 127 ft/day in the project area. The BSPP model indicated horizontal conductivity values of 10 to 100 ft/day at the proposed project site. A summary of the model drawdown impacts is presented below in **Water Supply Figure 1**.

[Delete Figure 1 in its entirety]
Water Supply Figure 1
Summary of WTAQ Model Drawdown Impact

The drawdown impact at the proposed project pumping well, under estimated representative conditions, could be as high as 29 feet; however, this impact would quickly decrease with distance from the pumping well. At 1,000 feet, the drawdown impact is no more than 7 feet under any of the modeled hydraulic conductivity scenarios.

The WTAQ model is limited in that it is a simple superposition model that does not take into account more complex elements of the environment in which the groundwater pumping occurs. For example, the WTAQ model does not take into account mountain front recharge or the effect of the Colorado River and irrigation drains and canals on the drawdown cone of depression, which could reduce or eliminate any potential drawdown impacts. As such, the WTAQ model drawdown impact is a rough and conservative estimate as it ignores the impact of the Colorado River and recharge from the mountain front and the irrigation return water. A more refined estimate of drawdown impacts could be completed using the MODFLOW model developed by the applicant if the model reliability were resolved.

A MODFLOW 2000 model for the RMS project was developed by the Applicant's consultant based on modifications and refinements to the model prepared by AECOM for the approved Blythe Solar Power Project. Staff carefully reviewed this model and provided several critiques and comments. Several adjustments and corrections were made to the model, and a sensitivity analysis was performed. Information regarding this work was included in the Technical Memorandum from Worley Parsons dated October 15, 2012. The information and sensitivity analysis provided demonstrated the model to be an adequate and reliable for predicting project impacts on groundwater resources.

Based on the MODFLOW modeling analysis, the maximum predicted drawdown will occur near the pumping wells for the project at the end of construction pumping, and is predicted to be approximately 7 feet. After construction pumping, operational pumping will decrease and groundwater levels near the pumping wells will recover while the overall drawdown cone continues to spread. The maximum lateral extent of predicted drawdown will occur at the end of project operation. At the end of project pumping, the drawdown near the pumping wells is predicted to be just over 4 feet and will decrease rapidly away from the pumping wells. Drawdown is predicted to be less than 1 foot at distances greater than 0.3 to 0.6 miles from the pumping wells at the end of project pumping. Measurable drawdown is not predicted to extend westward beyond the site boundaries. Drawdown beneath the undeveloped land immediately north of the site is predicted to be approximately 2 feet near the site boundary and decreasing rapidly northward to 0.3 feet or less at a distance of about 1 mile from the site.

20. **Page 4.9-20, Groundwater Well Interference:** Similar to the comment above, the well interference impact analysis section should be revised to reflect the following updated information. Please revise the following paragraphs as shown:

Staff used the USGS NWIS Mapper website to identify wells in the proposed project area that could be affected by project pumping (USGS, 2012). ~~The NWIS website shows wells at the proposed project site and wells to the east on adjacent properties in the Palo Verde Valley. The closest offsite wells appear to be about 1,000 feet away from the proposed project pumping well. Based on the WTAQ modeling with the horizontal hydraulic conductivity equal to 70 ft/day, wells within 1,000 feet of the proposed project pumping well could experience a drawdown impact of 7 feet and 5 feet for wells 2,000 feet away. While this could be a significant impact depending on the configuration of the impacted well, drawdown impact from the proposed project pumping would be moderated by percolation of irrigation and canal water in the Palo Verde Valley and by underflow from the Colorado River~~. In addition, an inventory of wells near the site was included in the AFC. Groundwater wells on property adjacent to the site are not expected to experience measurable drawdown. The maximum predicted drawdown at an offsite well is 0.1 foot at an inactive well located approximately 2 miles north of the site. This amount of drawdown is not distinguishable from natural seasonal and short term fluctuations. Because groundwater modeling entails inherent uncertainty, staff recommends Conditions of Certification WATER SUPPLY-4 and -5.

~~Staff's WTAQ modeling presented above is a simplified estimate of how drawdown from project groundwater pumping at the site would behave after 28 years of project~~

~~pumping. A more refined analysis using the MODFLOW computer program could be completed by the applicant if the reliability issues could be resolved. This would allow for an analysis, that takes into consideration site conditions such as recharge from drains, irrigation, and mountain front precipitation. Even with these model estimates, however, accurate quantification of well interference impacts may not be possible until actual long-term groundwater production occurs due to variations between assumed model parameters and actual site conditions. To ensure that well interference impacts are mitigated to a level of less than significant, staff recommends Conditions of Certification WATER SUPPLY-4 and -5.~~

21. **Page 4.9-21, Water Flow in the Colorado River:** The PVMGB is not in direct hydraulic communication with the Colorado River but, rather, with the PVID drains at the foot of the mesa. Groundwater discharge from PVMGB to the drains is currently regulated as tributary water and is not subject to USBR accounting requirements. The decrease in drain discharge would not be observable or measurable, and would be well below the margin of error of the current PVID accounting methodology for drain flows. Further, the information requested by staff prior to publication of the FSA will be included, in detail, as part of Applicant's submittal under WATER SUPPLY-6. Because this performance standard will be met, additional information is not required to analyze impacts in the FSA. Applicant requests that these be revised as follows:

    The proposed project would pump up to 5,506 AF of groundwater over the three-year construction period and 25-year life of the project. There is concern that since groundwater <u>pumped from the PVMGB</u> is in hydraulic connection with the <u>PVID drains at the foot of the mesa</u> ~~Colorado River~~, project pumping may capture groundwater that would otherwise contribute to the volume of water flow in the river. ~~The Colorado River is currently over-appropriated and any reduction in river flow would result in a significant impact. The applicant evaluated potential changes in river flow due to project pumping using the revised model discussed above. The applicant concluded that the project pumping would not result in significant changes to flow in the river.~~

    ~~Staff believes that due to the unreliability of the applicant's groundwater model, an accurate assessment of river impacts has not been provided.~~ <u>Groundwater modeling indicates that flow in the PVID drains is predicted to decrease by approximately 0.05% at the end of project pumping. The total volume of decreased drain flow for the life of the project is predicted to be about 2000 acre-feet or less. A change of this magnitude would not be measureable or observable under the existing PVID and USBR accounting scheme, and would not be accounted as Colorado River water use to the USBR under the current regulatory and accounting regime. Under current regulations, the project would be pumping tributary groundwater that is not considered Colorado River water and would not require a Colorado River entitlement. Nevertheless, the Project Owner has agreed to offset its water use under Condition of Certification WATER SUPPLY-6.</u> ~~Given the known hydrologic connection between the groundwater system and the river documented and discussed above, staff conservatively assumes that any and all withdrawal of groundwater by the proposed project would directly and significantly impact the volume of water flow in the river. This assessment is supported by the application of the accounting surface rule because the water table at the project site is at or slightly above the accounting surface elevation. This assessment is supported by~~

~~the application of the accounting surface rule because the water table at the project site is at or slightly above the accounting surface elevation. To mitigate this significant impact, staff requires the proposed method of mitigation to be submitted to staff for review and analysis prior to publication for the FSA. This submittal must demonstrate how the project owner will conserve Colorado River water in a volume equivalent to the volume of groundwater pumped by the project and discuss in detail how the elements required by proposed Condition of Certification **WATER SUPPLY-6** would be satisfied.~~

22. **Page 4.9-21, Fourth Paragraph, First Sentence:** Please revise this sentence as follows:

    The proposed water conservation must address the ~~Colorado River take~~ volume of replacement water and define the options for water conservation method, quantify the amounts of conservation, and analyze how the conservation projects mitigate the impact of the proposed project.

23. **Page 4.9-22, Second Full Paragraph (after bullets):** Staff's concerns have been addressed in the attached Technical Memorandum (Exhibit Water Supply-A). Applicant requests that the reference to the model unreliability issue be removed as follows:

    ~~Staff believes that, if model unreliability can be resolved, it is possible the amount of water required for water conservation in accordance with Condition of Certification WATER SUPPLY-6 could be reduced or eliminated.~~

24. **Page 4.9-22, Groundwater Basin Balance, Last Sentence (carryover onto Page 4.9-23):** The paragraph should be revised as follows:

    In addition, staff recommended Condition of Certification WATER SUPPLY-6~~, which provides mitigation for all pumped project groundwater and, thereby,~~ would avoid any potential impacts to the PVMGB basin balance.

25. **Page 4.9-23, Second, Third and Fourth Full Paragraphs:** Please revise the discussion of Biological Resources as follows:

    As discussed in the Biological Resources section, lands to the east of the proposed common area contain sensitive woodlands in the washes and sensitive mesquite and seep weed habitat in the wetlands. The woodlands are located in the washes that originate in the Palo Verde and Mule Mountains and are as close as approximately 375 feet from the proposed project water supply wells. The wetlands are located near the contact of the mesa and valley, approximately ~~760 feet~~ <u>one mile</u> from the proposed project water supply wells. ~~The degree of connectivity between the aquifer where project groundwater would be pumped and the source of water supporting the woodland and wetland vegetation is not well understood.~~ <u>Ironwood and palo verde (i.e., the microphyll woodland tree species) are dependent on surface water and shallow subsurface water as evidenced by their seasonal response to rains and the fact they are found near the washes regardless of depth to the water table. As presented in Water Supply Table 2, available groundwater elevation data show the depth from the ground surface to groundwater in the area of the mesa wash woodlands has ranged from about 140 to 163 feet over the past 35 years (1976 to 2011), which is too deep to be utilized</u>

by phreatophytic vegetation. The presence of woodland vegetation in the mesa washes could suggest there is a relatively shallow water table within the plant rooting depth, and groundwater evaluation from one well support this inference of the potential existence of perched groundwater as discussed above. Perched groundwater, if it exists, would not be in hydraulic connection with the underlying aquifer and would not be affected by project pumping. The wetland is supported by surface runoff from a dry wash on the mesa to the west. The groundwater table near the wetland is maintained at a shallow level by flow in the PVID drain and is beyond the predicted area of project drawdown. For further discussion of site conditions supporting these vegetation types see the Biological Resources section.

~~As presented in **Water Supply Table 2**, available groundwater elevation data show the depth from the ground surface to groundwater in the area of the mesa wash woodlands has ranged from about 140 to 163 feet over the past 35 years (1976 to 2011) and has ranged from 7 to 12 feet over the past 26 years (1980 to 2006) in the valley. Due to the relatively close proximity of these vegetation types to the proposed production wells, staff is concerned that pumping could cause drawdown that would impact these sensitive vegetation communities.~~

~~Using the WTAQ results discussed above, staff analyzed whether the proposed pumping would result in drawdown in the area of groundwater dependent sensitive woodlands and wetlands vegetation. Staff conservatively estimated drawdowns in the range of approximately 10 feet at the woodlands 375 feet from the project pumping well and 8 feet in the wetlands 760 feet from the pumping well after 28 years of project pumping. Based on analysis in the **Biological Resources** section, this could result in a significant impact to plant vigor and viability. Staff understands that the calculations and assumptions used to evaluate potential groundwater level impacts in the WTAQ model do not take into consideration site conditions such as recharge from drains, irrigation, and mountain front precipitation. These conditions could have a stabilizing effect on groundwater elevation and drawdown could be less than that estimated herein. The computer model developed by the applicant could be used to develop a more refined analysis, which would consider these affects. If the issues causing the model to be unreliable were resolved, then additional estimates may be useful in understanding potential impacts. Even with these model estimates, however, accurate quantification of drawdown may not be possible until actual long-term groundwater production occurs.~~

26. **Page 4.9-24, First Full Paragraph**: The following paragraph should be deleted, as noted in General Comment 6:

~~In the Biological Resources section, staff has recommended Condition of Certification BIO-8 which requires the applicant to monitor plant stress and mortality to determine if significant impacts are occurring and identifies measures the applicant must take to mitigate significant impacts. Consistent with BIO-8, Condition of Certification WATER SUPPLY-4 would require a pre-construction baseline be established for groundwater elevations in the areas of sensitive vegetation and development of a monitoring network of wells that can be used to evaluate whether drawdown from project pumping is occurring in the areas of sensitive vegetation.~~

27. **Page 4.9-25, Second Bullet:** Please revise the bullet as follows:

    - There is contamination, either by natural process or by human activity, that cannot be treated for domestic use using either Best Management Practices, ~~or~~ best available technology or economically achievable treatment practices, or

28. **Page 4.9-27, First Full Paragraph:** The paragraph should be revised as follows:

    There is a potential that significant groundwater quality impacts could occur by one or more of the monitoring wells and possibly production wells at the proposed project property providing a conduit for contaminants to enter the regional aquifer if the wellheads of these wells are not properly protected. To protect the regional aquifer water quality, staff recommends Condition of Certification WATER SUPPLY-7, which would require proper abandonment of ~~all~~ any of these wells that are not used and maintained by the project. Abandonment of these wells in accordance with state well standards is consistent with state law and Riverside County Code, Title 13, Chapter 13.20 and would ensure that groundwater quality is protected for the current and future beneficial uses.

29. **Page 4.9-27, Second Full Paragraph, Second Sentence:** During construction, potential contaminants or hazardous materials should be addressed in the Storm Water Pollution Prevention Plan (SWPPP) as required by the SWRCB NPDES Construction General Permit. The SWRCB NPDES Industrial General Permit also requires the development of a SWPPP and a monitoring plan for post-construction operations. Please revise the sentence as follows:

    During construction, p~~P~~otential impacts related to an unauthorized release of hazardous materials would be mitigated through implementation of a Storm Water Pollution Prevention Plan (SWPPP) prepared for this Project in compliance with the SWRCB National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. During plant operations, an industrial SWPPP prepared for this Facility in compliance with the SWRCB NPDES General Permit for Storm Water Discharges Associated with Industrial Activities. The Industrial SWPPP will include a Hazardous Material Business Plan (HMBP) ~~during construction and plant operation~~ for the mitigation of unauthorized release of hazardous materials (see Hazardous Materials Management).

30. **Page 4.9-27, Fourth Full Paragraph:** The paragraph should be revised as follows:

    The proposed project in combination with other projects ~~could~~ is not predicted to cause: (a) interference with the efficiency and yield of wells on other properties; (b) reductions in the water level in the Colorado River or PVID drains; ~~and~~or (c) significant reductions in the PVMGB ~~and PVVGB~~ groundwater level. However, ~~each of these~~ any potential cumulative effects ~~impacts~~ would be mitigated to a level of less than significant with the implementation of staff recommended conditions of certification.

31. **Page 4.9-30, Third Paragraph:** The paragraph should be revised as follows:

It is anticipated that extraction of groundwater from the PVMGB and PVVGB over the 25-year life of the proposed project would be approximately 5,506 AF. The project would not affect the Colorado River directly but would have a very small effect on flows in the PVID drain system. Cumulative groundwater use over this time period by existing and reasonably foreseeable projects is estimated to be 181,356 AF (including the proposed project). The storage capacity of the PVMGB and PVVGB is approximately 11,800,000 AF (DWR, 2003). The cumulative volume groundwater extraction is estimated to be 1.5 percent of the total groundwater in storage in the PVMGB and PVVGB. These projects, however, ~~will likely~~could induce subsurface inflow from the ~~Colorado River~~ PVID drains. As previously stated, the Colorado River is fully appropriated and any groundwater production in the PVMGB or PVVGB may increase subsurface flow from the PVID drains that transmit Colorado River water. Except in the case of wells completed in the floodplain of the river, groundwater is not considered Colorado River water and an entitlement is not required for pumping. Nevertheless, ~~T~~the subsurface inflow from the Colorado River could be ~~significant and would be~~ a significant impact if the proposed Accounting Surface Methodology or a similar rule were adopted and the USBR were to determine that the groundwater is Colorado River water. ~~However, staff recommended~~Although it is not a regulatory requirement, Project Owner has agreed to Condition of Certification WATER SUPPLY-6, which would require the Project Owner to offset all groundwater pumped by the proposed project ~~to be mitigated~~, and thereby, avoid any potential cumulative impacts to the Colorado River by the proposed project.

32. **Page 4.9-30, Last Paragraph, Second Sentence:** Please revise the sentence as follows:

    Implementation of the proposed SWPPPs and HMBP would reduce potential unauthorized release to a level of less than significant (see Hazardous Materials Management).

33. **Page 4.9-31, Fourth Full Paragraph, First Sentence:** The sentence should be revised as follows:

    As discussed above, the Accounting Surface Rule is not in effect and USBR has no accepted method for determining whether there is unauthorized consumptive use of the river. ~~if~~ If the proposed Accounting Surface Rule or a similar regulation were to be adopted~~in effect~~, ~~the~~ and static water levels fall below the proposed accounting surface, the water pumped by the project could be found to be consumptive use of the Colorado River.

34. **Page 4.9-31, Last Paragraph (carryover to Page 4.9-32):** The paragraph should be revised as follows:

    ~~The Energy Commission does not have in-lieu permit authority where the Law of the River applies and it is unclear what other government entity would have jurisdiction over the proposed project water use other than USBR. Staff is also unaware of any pending determination or if and when a determination would be made.~~ Recommended Condition of Certification WATER SUPPLY-6, which would require the Project Owner to conserve Colorado River Basin or PVMGB water in a volume equivalent to groundwater pumped by the project, would avoid any potential impacts to the Colorado River by the proposed project. ~~It would also fulfill any obligation Project Owner may have to MWD~~

~~to purchase replacement water under the terms of its lease with MWD, including an event where USBR were to adopt the proposed accounting surface rule or a similar regulation and find that the project was pumping Colorado River water.~~

35. **Page 4.9-34, Fifth Full Paragraph:** The paragraph should be revised as follows:

    Staff has not received any public or agency comments regarding ~~soil and~~ water supply ~~resources~~.

36. **Page 4.9-35, First Bullet:** The paragraph should be revised as follows:

    - Well Interference. Based on ~~staff's preliminary~~ modeling analysis of potential groundwater drawdown by the proposed project, groundwater wells on property adjacent to the proposed project are not expected to experience measurable drawdown. The maximum predicted drawdown at an offsite well is 0.1 foot at an inactive well located approximately 2 miles north of the site. This amount of drawdown is not distinguishable from natural seasonal and short term fluctuations. As such, they will not be significantly impacted by the project pumping. ~~could be significantly impacted by the project pumping. Staff's analysis is based on a simple numerical model and does not take into account groundwater level stabilizing effects of recharge from drains, irrigation, and mountain front precipitation. A more refined analysis using the MODFLOW computer program, which can take into consideration the effects of these conditions, could be completed by the applicant. Even with these model estimates, quantification of well interference impacts may not be possible until actual long-term groundwater production occurs.~~ Because all models include underlying simplifying assumptions, some uncertainty is inherent in any modeling prediction. To ensure that well interference impacts are monitored and mitigated to a level of less than significant, staff recommends Conditions of Certification WATER SUPPLY-4 and -5. Condition of Certification WATER SUPPLY-4 would require a pre-construction baseline established for groundwater elevation and ongoing monitoring and reporting of groundwater elevation and pumping volumes to identify changes in baseline aquifer conditions. Condition of Certification WATER SUPPLY-5 would require mitigation for significant impacts to adjacent property wells~~.~~, if they were to occur.

37. **Page 4.9-35, Third Bullet:** The paragraph should be revised as follows:

    - Well Abandonment. There are several monitoring wells and possibly production wells at the proposed project property that could provide a conduit for contaminants to enter the regional aquifer~~.~~ if their wellheads are not properly maintained. To protect the regional aquifer water quality, staff recommends Condition of Certification WATER SUPPLY-7, which would require proper abandonment of ~~all~~any of these wells that are not proposed for use by the Project Owner.

38. **Page 4.9-35, Last Bullet:** The paragraph should be revised as follows:

- Woodlands and Wetlands. Lands to the east of the proposed project common area contain sensitive woodlands in the washes and sensitive mesquite and seep weed habitat in the wetlands. ~~Based on staff's preliminary analysis of groundwater drawdown by the proposed project the sensitive habitat could be significantly impacted by the project pumping.~~ The depth to the production aquifer beneath the sensitive woodlands is in the range of 150 feet, which is too deep for phreatophytic trees to rely on this source of water. Any perched water table beneath this area will be hydraulically disconnected from the effect of pumping the deeper aquifer. It is therefore impossible for the sensitive woodlands to be affected by project pumping. The seepweed habitat lies in depressions that collect surface runoff from a large dry wash on the mesa to the west, and groundwater levels beneath the seepweed habitat are controlled by the PVID drain at the foot of the mesa. Furthermore, based on the proximity of the wetlands to the PVID drain at the foot of the mesa and the very small amount of drawdown predicted by modeling conducted for the project, there will be no direct impacts to wetlands and impacts to mesquite trees are anticipated to be less than significant. ~~Staff's analysis is based on a simple numerical model and does not take into account water level stabilizing effects of recharge from drains, irrigation, and mountain front precipitation. A more refined analysis using the MODFLOW computer program, which can take into consideration the effects of these conditions, could be completed by the applicant. Even with these model estimates, quantification of drawdown may not be possible until actual long-term groundwater production occurs. Condition of Certification WATER SUPPLY-4 would require installation of groundwater monitoring wells between the proposed project pumping wells and the sensitive vegetation. The comparison between baseline and ongoing conditions would allow quantification of potential impacts due to project groundwater pumping and mitigation of significant impacts, as described under Biological Resources and recommended in Condition of Certification BIO-8.~~

39. **Page 4.9-36, Second Bullet:** The paragraph should be revised as follows:

- Colorado River. The project would use groundwater from the PVMGB that is in hydraulic connection with ~~the Colorado River and~~ PVID drains at the foot of the mesa which transmits surplus PVMGB groundwater to the Colorado River. Project pumping may capture groundwater that would otherwise contribute to the volume of surplus water flow in the Colorado River. ~~Due to some issues with the computer model submitted by the applicant that raise questions about the reliability of the model, staff could not evaluate and quantify the~~ The potential effect that the project groundwater pumping would have on the volume of flow in the ~~Colorado River~~PVID drains is well below thresholds that would be measureable or observable under current accounting methodologies. Under current regulations, the project would be pumping groundwater that is not considered Colorado River water and would not require a Colorado River entitlement. Nevertheless, the project owner has agreed to offset its water use under Condition of Certification WATER SUPPLY-6. ~~Staff, therefore, conservatively assumes that any withdrawal of groundwater by the proposed project would directly affect the volume of flow in the river and require mitigation.~~ The proposed method of ~~mitigation~~ conservation must be submitted to staff for review and analysis prior to groundwater pumping ~~publication for the Final~~

~~Staff Analysis (FSA)~~. The submittal must demonstrate how the project owner will conserve Colorado River Basin or PVMGB water in a volume equivalent to groundwater pumped by the project and discuss in detail how the elements required by proposed Condition of Certification WATER SUPPLY-6 would be satisfied.

40. **Page 4.9-36, Third Bullet:** The paragraph should be revised as follows:

- Groundwater Basin Balance. The volume of groundwater pumped over the life of the proposed project would be 0.08 percent of the volume of groundwater in the PVMGB, which is not significant. Underflow from the CVGB is minimal and the Colorado River recharges the PVVGB when water levels in that groundwater basin decline. In addition, any decrease in flow in PVID drains induced by project pumping ~~groundwater pumped by the proposed project~~ would be mitigated under staff recommended Condition of Certification **WATER SUPPLY-6**.

41. **Page 4.9-36, Fifth Bullet:** The paragraph should be revised as follows:

- Cumulative Impacts. The proposed project ~~could significantly impact~~ would have no impact on the PVVGB balance, and a negligible effect on other groundwater wells, the PVMGB ~~and PVVGB~~ balance, or the volume of flow in the Colorado River, cumulatively, when combined together with existing and reasonably foreseeable major projects. ~~However staff recommends~~In addition, Applicant has agreed to Condition of Certification WATER SUPPLY-6, which would require Project Owner to offset all groundwater pumped by the project ~~to be mitigated~~ and would, thereby, avoid ~~these~~ any potential ~~significant~~ cumulative impacts.

42. **Page 4.9-37, First Paragraph:** For the reasons listed above, please delete the following section:

~~ADDITIONAL INFORMATION STAFF REQUIRES FROM THE APPLICANT IN ORDER TO COMPLETE THE FSA~~

~~The applicant is required to submit a detailed description of how the applicant would mitigate Colorado River take and define the water conservation method, quantify the conservation amounts, and analyze how the conservation projects mitigate the impacts of the proposed project.~~

SOIL AND SURFACE WATER

SPECIFIC COMMENTS

1. **Page 4.10-2, First Bullet:** Please revise the bullet as follows:

   - Surface Water: The project would use groundwater for project operation. As discussed in the Water Supply section of this PSA, analyzing the extent to which ~~The~~ groundwater in the vicinity of the project may be ~~is~~ hydraulically connected to the Colorado River presents several technical challenges. ~~Potential impacts to the Colorado River are analyzed in the Water Supply section of this Preliminary Staff Assessment (PSA)~~. Applicant and CEC staff have agreed to implement ~~Any impact from the use of the project on the Colorado River would be offset in accordance with staff's~~ proposed Condition of Certification WATER SUPPLY-~~5~~6, which would offset all project groundwater use over the life of the project within the Colorado River basin or PVMGB.

2. **Page 4.10-5, Second Full Paragraph:** Please revise this paragraph as follows:

   Groundwater from the PVMGB is the primary natural water supply for the valley region. Groundwater outflow is through evapotranspiration, agriculture runoff drains, and under flow to the Colorado River. Historically, because of agricultural development, groundwater consumption exceeded groundwater recharge and adversely affected Colorado River flows and agreements surrounding water volume flow in the river. Groundwater levels and storage declined, and now water use is regulated by a complex set of laws and rules known as 'Law of the River' (USBR, 2012). As discussed in the Water Supply section of this PSA, approximately 75%, or 357,000 acre-feet per year of the annual groundwater budget for the PVMGB and Palo Verde Valley Groundwater Basin (PVVGB) located to the east of the PVMGB is discharged to the river though a network of drains constructed by the Palo Verde Irrigation District to lower groundwater levels below the surface and crop root depths. Consequently, the basins experience a generally constant hydrostatic groundwater surface which has stabilized and will continue to stabilize groundwater levels use in the region. Depth to groundwater at the project site is ~~now~~ approximately 125 to 145 feet below ground surface (bgs) (BS 2011a).

3. **Page 4.10-10, First Paragraph, Last Sentence:** Please revise as follows:

   Excess surface flow drains to the east, and may encounter the Hodges Canal, a groundwater drainage facility constructed by the Palo Verde Irrigation District in the agricultural lands located to the east of the project ~~which ultimately discharges water to the Colorado River~~ (BS 2011a).

4. **Page 4.10-10, Second Paragraph:** This paragraph should be revised to delete the reference to 0.65 acres of potentially jurisdictional wetlands within the project. Applicant is continuing to work with USACOE to evaluate the extent of jurisdictional waters on the project site and does not believe this figure is accurate. Please revise the paragraph as follows:

   Native vegetation in the region primarily consists of three plant community types: creosote bush scrub associated with undeveloped desert areas; ~~riparian~~ plant communities associated with ephemeral alluvial washes and channel banks of the Colorado River and its various canals and drains located offsite; and agricultural areas in active cultivation, also located offsite. ~~Approximately 0.65 acres of potentially jurisdictional wetlands are within the project boundary along the central eastern part of the project (BS, 2012v). Additional wetlands are located adjacent to the project on the east near Hodges canal.~~ A revised Preliminary Jurisdictional Delineation (PJD) was submitted to the U.S. Army Corps of Engineers (COE) on October 2012, and the Project and the COE are continuing to refine and finalize the delineation of onsite waters, wetlands, and other jurisdictional features.

5. **Page 4.10-11, Surface Water Features, Third Paragraph:** Please revise as follows:

   A revised Preliminary Jurisdictional Delineation (PJD) was submitted to the U.S. Army Corps of Engineers (COE) on October 2012, and the Project and the COE are continuing to refine and finalize the delineation of onsite waters, wetlands, and other jurisdictional features. A copy is attached to these comments. ~~A total of 29 ephemeral washes were mapped in the project area by the applicant. Three of the ephemeral washes were determined to be "Waters of the U.S." by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act(BS 2011a, TN 63638 02-9-12, Preliminary Jurisdictional Determination Acceptance)., as shown on Soil and Surface Water Figure 2. For further discussion on the jurisdictional determination, please refer to the Biological Resources section of this PSA.~~

6. **Page 4.10-11, Final Full Paragraph:** Please delete Soil and Water Figure 2 as it refers to a flood map, not the PJD map, and please cite instead to the Biological Resources section of the PSA as noted in comment (4) above. Please also see Figure 6 of the Revised Rio Mesa SEGF PJD.

7. **Page 4.10-12, Final Full Paragraph:** Please revise as follows:

   ~~Two~~ Three new production wells would be installed prior to project construction to supply water for both project construction and operation. Two would be the primary operational and construction water supply wells, and one would function as a backup well facility.

8. **Page 4.10-17, Last Paragraph:** Please revise as follows:

   The Rio Mesa SEGF would be constructed on soils consisting of the Aco-Rositas-Carrizo group and the Gunsight-Rillito-Chuckawalla group. These soils consist of gravel, sand, and loam and are well to excessively well drained soils that have a high rate of water transmission. The Gen-Tie line would be built on Aco-Rositas-Carrizo group and Rositas-Carsitas-Dune Land group soils (BS 2011a: Appendices 5.11A and 5.11B). Wind and

water erosion is evident in these soils. Wind deflation areas are present at the Rio Mesa SEGF site. There is ample evidence pointing to the presence of storm water sheet flow. Major and minor washes dissect the Rio Mesa SEGF site. At other locations, old and new sand dunes are present. The storm water that does not evaporate, transpire, or percolate into the ground, tends to flow to the east and may enter the Hodges Canal, a groundwater drainage facility constructed and maintained by the PVID in the agricultural lands located to the east of the project site. ~~discharges to the Hodges Canal and, ultimately, to the Colorado River. Because storm water from the proposed project site can discharge to the Colorado River, storm water flow at the proposed project site is a U.S. Army Corps of Engineers (USACE) jurisdictional feature subject to regulation under the federal Clean Water Act (USACE 2010).Further analysis and mitigation of these potential impacts is discussed~~ Please refer to ~~in~~ the **Biological Resources** section of this PSA for more information regarding stormwater flows and potential impacts to jurisdictional waters.

9. **Page 4.10-19, Last Paragraph:** Please revise as follows:

   The applicant ~~has not~~ provided a DESCP/SWPPP for staff analysis in response to DR #80. The preliminary DESCP/SWPPP identified ~~The applicant has indicated that it would prepare a DESCP, in accordance with the Energy Commission standard conditions of certification, which would include~~ BMPs for wind and water erosion control during project construction[…].

10. **Page 4.10-20, First and Second Paragraph:** The PSA states that Applicant has not submitted a DESCP/SWPPP that would be adequate for the Rio Mesa SEGF. The PSA only references Applicant's submittal of the DESCP/SWPPP for the Ivanpah Solar Electric Generating System ("ISEGS"). Applicant originally included the ISEGS DESCP/SWPPP as part of the AFC. However, in response Data Set 1A, Data Request 80, Applicant submitted a detailed, draft DESCP/SWPPP that is specific to the Rio Mesa SEGF. Applicant's Data Response #80 was docketed on March 9, 2012. An updated DESCP/SWPPP has recently been prepared to reflect the two-unit facility described in Applicant's EEP. A slip sheet at the end of this comment section includes a CD that contains a copy of the updated documents.

11. **Page 4.10-22, Second Paragraph:** The Project does not constitute an "unusual circumstance" with respect to developing on active alluvial fans. The total project area is larger than some, but not all large-scale renewable energy projects approved by the Commission in recent years. In addition, unlike other technology types, Applicant's technology avoids the need for extensive grading in the heliostat fields, thereby minimizing the potential for erosion.

12. **Page 4.10-22, Third Paragraph:** The presence of heliostats will not tend to "promote the concentration of flows in their vicinity" and lead to localized erosion around the heliostats. For example, at ISEGS, the installation of heliostats did not cause or promote erosion to the extent modeled during the licensing proceeding. There have been several large storms and actual erosion has been far less than anticipated.

13. **Page 4.10-25, Last Paragraph:** Please revise as follows:

    To evaluate specific flood hazards at the project site, the applicant performed modeling that estimates that the 100-year, 24-hour storm flows are confined to the large washes

~~and in the wetlands area~~ located to the east of the Rio Mesa SEGF. Storm water would be allowed to flow through the project site using the naturally developed drainage system in all areas except at the power blocks and the common area. Storm water flow to these areas would be concentrated and diverted away from these areas and introduced downgradient as sheet flow (BS 2011a).

14. **Page 4.10-26, Last Paragraph and Carryover:** Final design drawings for the two evaporation ponds are the same as those submitted for the three unit project (see Applicant's Response to Staff Data Request #168, docketed June 2012).

15. **Page 4.10-29, Riverside County General Plan and Renewable Energy Ordinance:** Please update the language in this section to refer to Ordinance 745.2 and revise the second paragraph to recognize that Rio Mesa SEGF is a zero liquid wastewater discharge facility.

    The Riverside County ~~General Plan~~ Ordinance 745.2 lists Water Resources goals and policies, which include that new industrial developments must reduce polluted runoff from entering surface waters by complying with the Clean Water Act, must reduce direct-source pollution into surface waters, and must implement appropriate mechanisms to reduce wastewater discharge…~~Staff believes that~~ Rio Mesa SEGF ~~does not specifically~~ would reduce direct-source discharge through the implementation of BMPs.

16. **Page 4.10-32, Second Bullet Point:** Final design drawings for the two evaporation ponds are the same as those submitted for the three unit project (see Applicant's Response to Staff Data Request #168, docketed June 2012).

TRAFFIC AND TRANSPORTATION

SPECIFIC COMMENTS

1. **Page 4.11-1, Summary of Conclusions, Second Paragraph, Second Sentence:** This summary implies that the impacts are greater than they actually are. The alleged "significant impacts" appear to be temporary LOS D conditions during AM and PM peak at one intersection in the project area, and only occurring at peak workforce conditions. Moreover, this sentence implies that motorists and pilots will be significantly impacted by "distracting glint and glare." Applicant does not believe these conditions are significant adverse impacts as explained further in our comments.

2. **Page 4.11-1, Third Full Paragraph:** The content of this paragraph implies that peak construction traffic impacts occur at two study intersections: SR-78 (Neighbours Boulevard)/28th Avenue (LOS D PM) and SR-78 (Rannels Boulevard) (LOS D AM). The PSA utilizes "the most restrictive applicable LOS standard in Riverside County[] …", i.e., LOS C or above along all county-maintained roads and Conventional state highways. (Page 4.11-15 Table 6, footnote 4). Applicant requests that the short term degradation to LOS D at the two aforementioned locations during certain time periods not be considered as severe impacts requiring the implementation of a park-and-ride plan for the following reasons:

   a) California Department of Transportation (Caltrans) has jurisdiction and maintains the right-of-way of State Route 78 (SR-78). Caltrans District 8 maintains SR-78 from I-10 to the Imperial County Line while the remainder of SR-78 within Imperial County and San Diego County is maintained by Caltrans District 11.
   b) Caltrans' significant threshold criteria, as stated in Caltrans' Guide for the Preparation of Traffic Impact Studies, has not been exceeded by project traffic.

   c) According to the SR-78 Route Concept Report (RCR) prepared by Caltrans, the RCR "is a **planning document** (emphasis shown in bold) that describes the Department's basic approach to development of a given route. Considering financial constraints, characteristics of the highway, and projected travel demand over an approximate 20-year planning period, the RCR defines the type of facility and LOS for each route. The objective of this effort is to provide a better basis for the development of the State Transportation Improvement Program (STIP) and to determine the appropriate concept for future highway projects." The RCR also describes the role of the Riverside County Transportation Commission (RCTC) which is responsible for programming 75% of the STIP per Section 188.8 of the Streets and Highway Code amended October 3, 1997. As discussed in **Page 4 <u>CONCEPT RATIONALE</u>** (emphasis shown in bold), "Under the mandate of State law, RCTC is responsible for preparing the County's CMP. The CMP includes all State highways as well as other roads. The CMP established LOS *E* as the minimum LOS Standard for intersections and segments along the CMP system of highways and roadways. Due to the transportation financing program established through *Measure A* in Riverside County, <u>there are no advantages to setting a higher minimum LOS standard than required by the CMP legislation which is LOS *E*</u>

unless the intersection or segment had a lower LOS or LOS *F* in 1991. The analysis done for this RCR shows the 2020 LOS will meet the CMP standard or LOS E."

d) Within Riverside County, SR-78 is a de facto component of the CMP roadway system. As mandated by State law, Riverside County Transportation Commission's (RCTC) Congestion Management Program (CMP) requires LOS E as the minimum standard.

3. **Page 4.11-8, Assessment of Traffic Impacts, Level of Service and Study Locations, Riverside County Transportation Commission, Second Sentence:** Given that the RCTC requires LOS E or above on SR 78, the PSA is incorrect when it finds that an LOS D condition during AM and PM peak periods at one intersection on SR 78 is a significant adverse impact.

4. **Page 4.11-8 - 4.11-9, Assessment of Traffic Impacts, Level of Service and Study Locations, Riverside County Transportation Commission, Last Sentence:** As noted above, if SR 78 is subject to a minimum LOS of E, a LOS D condition at one intersection is not a significant adverse impact.

5. **Page 4.11-9, Assessment of Traffic Impacts, Level of Service and Study Locations, State of California Department of Transportation (Caltrans), Second Bullet**: The PSA states that "Caltrans … recommends that the lead agency consult with Caltrans to determine the target LOS" for individual state highways being analyzed by such lead agency. Please clarify whether Staff has consulted with Caltrans to determine the target LOS for SR 78, especially at 28th Avenue, and include evidence of such recommendation.

6. **Page 4.11-10, First Paragraph:** The language set forth in the PSA describes a single shift work schedule. Please revise the description to reflect the potential to use both a single and double shift schedule. As shown in Appendix Traffic and Transportation 1 (provided at the end of this comment section), during those times when a double shift schedule is implemented, the LOS at modeled intersections will remain at LOS level C or better. Please revise the PSA text as follows:

   During a single shift construction schedule, ~~E~~each construction worker would generally work 10-hour shifts comprising a 40-or 50-hour work week, starting each day between 5 AM and 7 PM and departing between 4 PM and 6 PM. Some construction workers would work 8-hour shifts, arriving between 5 AM and 7 AM like the other workers, but departing earlier between 2 PM and 4 PM. Assuming an additional half hour for lunch, the shifts would be as follows:

   10-hour shift (with a~~n~~ half hour for lunch):
   5 AM – ~~4~~ 3:30 PM (Traveling during peak evening hours[1])
   6 AM – ~~5~~ 4:30 PM (Traveling during peak evening hours)
   7 AM – ~~6~~ 5:30 PM (Traveling during peak morning hours, but departing at end of peak evening hours)

   8-hour shift (with a~~n~~ half hour for lunch):
   5 AM – ~~2~~1:30 PM

[1] "Peak hours" are the hours of the day with the highest traffic volumes. For this project, peak morning hours are estimated to be 7 AM – 9 AM. Peak evening hours are estimated to be 4 PM to 6 PM.

6 AM – ~~3~~2:30 PM
7 AM – ~~4~~3:30 PM (Traveling during peak morning and evening hours)

During a double shift construction schedule, each construction worker would generally work 10-hour shifts comprising a 40-or 50-hour work week. It is anticipated that there will be two shifts, daytime and evening, comprised of 75 percent and 25 percent of the workforce, respectively. Assuming an additional half hour for lunch, the shifts would be as follows:

First Shift – Daytime: 10-hour shift (with a half hour for lunch):
5 AM – 3:30 PM (Traveling during peak evening hours[2])
6 AM – 4:30 PM (Traveling during peak evening hours)
7 AM – 5:30 PM (Traveling during peak morning hours, but departing at end of peak evening hours)

Second Shift – Evening: 10-hour shift (with a half hour for lunch):
4 PM – 2:30 AM (Arriving during peak evening hours)
5 PM – 3:30 AM (Arriving during peak evening hours)
6 PM – 4:30 AM (Arriving during peak evening hours)

7. **Page 4-11.14, Traffic and Transportation Table 6, First and Second Paragraph**: First paragraph are incorrect as worded and contradict the analysis presented earlier in the PSA section. On page 4.11-8, the PSA states that the standard for SR 78 is "E", not "C," as is written here. Please correct the reference on page 4-11.14 to be consistent with page 4.11-8 as shown below. As discussed above, The RCTC sets a minimum LOS E standard for SR 78; therefore LOS D is within the standard. For these reason, please revise the paragraphs as follows:

Prior to project construction, all intersections would operate at LOS A or B, better than the LOS standard of C. During peak construction, traffic delays would increase at almost all intersections, but even with these increased delays, ~~the majority~~ all of the study intersections would continue to operate at an acceptable LOS. ~~However,~~ At two intersections, SR-78 (Neighbours Blvd.)/28th Ave. (evening peak hour) and SR-78 (Rannells Blvd.)/28th Ave. (morning peak hour), ~~would exceed LOS thresholds identified by local jurisdictions. At these intersections,~~ LOS would change from LOS A pre-construction to LOS D during peak construction. (See Traffic and Transportation Table 6.) Because the RCTC sets a minimum LOS E standard for SR78, the intersection would continue to operate at an acceptable LOS and impacts from construction would be less than significant. To mitigate this impact, staff has proposed Condition of Certification TRANS-2, which would require the project owner to prepare and implement a ~~park-and-ride plan for busing construction employees to the project site~~ Traffic Control Plan. With implementation of TRANS-2, the identified intersections would continue to operate at an acceptable LOS during peak construction.

[2] "Peak hours" are the hours of the day with the highest traffic volumes. For this project, peak morning hours are estimated to be 7 AM – 9 AM. Peak evening hours are estimated to be 4 PM to 6 PM.

8. **Page 4-11.14, Direct/Indirect Traffic Impacts and Mitigation, Traffic and Transportation Table 6, First Paragraph, Eighth Sentence:** As currently proposed, TRANS-2 would require implementation of the park-and-ride plan during all phases of construction to mitigate peak construction impacts to traffic level of service (LOS) at two intersections. The PSA states that the Staff may "refine" the proposed condition. It is Applicant's position that no level of bussing would be appropriate because the purported impact is not significant because it complies with the established LOS standard identified on Page 4-11.8.

   Second, the proposed mitigation, even in a "refined" version, will require the expenditure of millions of dollars and is therefore grossly disproportionate to the alleged impact and violates nexus requirements. The bussing plan proposed by Staff will involve the leasing and construction of park and ride lots, operation of a bus fleet, and may require full salary and compensation to all of the workers from the moment they step onto the bus. Such extraordinary costs are not proportional to the temporary delays at a single intersection, during only portions of the day and for a temporary period of time. Applicant recommends that this requirement be deleted, as discussed below under Applicant's comments on the Proposed Conditions of Certification.

9. **Page 4-11.15, Third Full Paragraph, First Sentence:** The Commission has pre-emptive authority over all otherwise applicable local permits, including encroachment permits. Therefore, the CBO should exercise the same review and approval authority for encroachment permits as is done for building permits or other local permits. Applicant recommends that this requirement (further elaborated on in Proposed Condition of Certification TRANS-4) be deleted and the CBO exercise this approval.

10. **Page 4.11-57, Conclusions, First Sentence:** The conclusion is too vague to be meaningful. The terms "clearly visible and prominent" are not defined. The paper does not explain the relevance of these terms to LORS or CEQA and does not define the distances at which the SRSG's are deemed to be "clearly visible" or "prominent". Additionally, no context is provided to define or characterize these vague terms.

11. **Page 4.11-57, Conclusions, Second Sentence:** The paper describes a "relatively high level of brightness", but does not explain what the brightness is related to. The term "distinct visual distraction" is not defined and does not appear to have any scientific context. The assertion of discomfort/disruption at viewing distances up to 8.5 miles is a matter of speculation, without scientific foundation.

TRANSMISSION LINE SAFETY & NUISANCE

SPECIFIC COMMENTS

No specific comments.

VISUAL RESOURCES

SPECIFIC COMMENTS

1. **Page 4.13-10, Third Full Paragraph, Second Sentence:** The "Cibola NWR estimates typical average visitation to be approximately 45,000/year, virtually all of whom are attracted at least in part by the outstanding scenic qualities of the river and refuge." Applicant suggests revising this sentence as follows:

   Cibola NWR estimates typical average visitation to be approximately 45,000/year. Based on the type of user, amount of use, and assumed level of public interest in Cibola NWR, the visual sensitivity of a viewer within the river and refuge portions of the NWR is considered high. While the Project is visible from the actively farmed areas within the Cibola NWR, it is not visible from the river and large portions of the wildlands areas of the refuge. ~~, virtually all of whom are attracted at least in party by the outstanding scenic qualities of the river and refuge. Visual sensitivity of the NER is thus considered to be high.~~

2. **Page 4.13-11, A. Scenic Vistas, Third Paragraph, First Sentence:** LTVA is not a designated scenic vista. Please delete from section.

3. **Page 4.13-11, A. Scenic Vistas, Fourth Paragraph, Third Sentence:** This criteria involves designated scenic vistas, not "scenic values." Scenic value is not a recognized or defined term under CEQA.

4. **Page 4.13-12, Visual Character or Quality Subsection**: The following is a summary of the visual character issues discussed in Applicant's Visual Resources Appendix 2.

   In each of the findings for viewer sensitivity, we suggest adding a description to the impact determination to acknowledge the relative limited amount of exposure (as a factor of population) that the Project would receive. Then compare this figure to other population centers both within Riverside County specifically, and then as a measure of the combined population of Riverside and Imperial Counties. This speaks to the flaw in the analytical method which fails to clearly establish the applicable threshold to measure at what level of exposure (as a measure of population) an impact becomes significant (See Appendix *Visual Resources 2*). The PSA does not disclose the scale used to characterize the number of viewers as low, medium or high. It is important to view the context of the population that surrounds the Project within the Palo Verde Valley and greater Riverside and Imperial Counties as this demonstrates the comparatively low level of population that exists within 10 and 20 miles of the project as compared to more densely populated regions of those counties. As such, the information below is presented for context and should be incorporated into the FSA in order to set a proper context for Staff's impact analysis.

Table 1

Population	Distance to Project Power Towers
328	8 miles
21,217	20 miles
Source: US Census, 2010. URS, 2012.	

Table 2

Municipal or County Population Center	Population Total (US Census, 2010)	Represented as Percent of Population (328 people) within 8 miles of the Project
Blythe	20,817	1.57%
Coachella	40,704	0.80%
Palm Desert	48,445	0.67%
Palm Springs	44,552	0.73%
Riverside	308,511	0.10%
Riverside County	2,189,641	0.014%
Imperial County	174,528	0.18%
Riverside and Imperial Combined	2,364,169	0.013%
Source: US Census, 2010. URS, 2012.		

Figure 1 – Several Major Population Centers in Relation to Project Power Towers



The PSA identifies sensitive viewers within the Palo Verde Valley as residents in around Palo Verde and Ripley and motorists on SR-78.

5. **Page 4.13-12, C. Visual Character or Quality, Second Paragraph, Second Sentence:** Applicant will provide specific comments within its assessment of Appendix TT1 to the PSA.
6. **Page 4.13-12, C. Visual Character or Quality, Third Paragraph:** It is difficult to discern which specific KOPs would be substantially degraded by the Project because the analysis that follows never states "This KOP would be substantially degraded by the project," nor does it explain why the impact represents "substantial degradation." A significant adverse visual impact must be more than a change in visual character or quality, it must also cause "substantial degradation" to rise to the level of a significant impact.
7. **Page 4.13-14, C. Visual Character or Quality, Operational Impacts and Mitigation, Second Paragraph, First Sentence:** The PSA phrase "most *vulnerable* viewing group" (emphasis added) is subjective value-laden terminology. The sentence should instead demonstrate that the KOP is representative of views from the nearest residences.
8. **Page 4.13-15, C. Visual Character or Quality, Visual Sensitivity, First Paragraph, Fourth Sentence**: The KOP was intended to be a near foreground view, and is typical of the near foreground. For the PSA to characterize the KOP as "not typical" reflects a misunderstanding of the purpose of selecting KOPS at different viewing distances and thus skews the PSA's analysis.
9. **Page 4.13-15, C. Visual Character or Quality, Visual Sensitivity, First Paragraph, Last Sentence:** KOP 4 is typical of views from middle foreground.
10. **Page 4.13-15, C. Visual Character or Quality, Visual Quality, First Sentence:** There is no definition of which views or which KOP is affected. Analysis does not adhere to an assessment of individual KOPs.
11. **Page 4.13-15, C. Visual Character or Quality, Viewer Concern, First Sentence:** The views from most residences are obscured. Please characterize the concern from viewers of those residences as low.
12. **Page 4.13-15, C. Visual Character or Quality, Viewer Concern, Second Sentence:** Please define the PSA phrase "substantial number", and describe which of these recreationists are represented by each KOP.
13. **Page 4.13-15, C. Visual Character or Quality, Viewer Exposure, First Paragraph, First Sentence:** Rather than stating viewer numbers for each KOP, as is typical CEQA practice, the PSA instead combines the viewer numbers of a larger undefined area, thus inflating the viewer numbers for any single KOP. Even aggregated, however, 20-30 residents (many of whom do not have views of the project) do not constitute a "moderate" number of viewers according to CEC precedent, contrary to what is stated in the PSA and inconsistent with the conclusion on Table 1 page 4.13-30 of the PSA. Compare, for example, the Staff's conclusion in the Russell City Energy Center PSA that at KOP 6, with 34 two story homes, "The number of residences that would potentially have views of the project would be low." (RCEC FSA, p. 4.11-10)
14. **Page 4.13-15, C. Visual Character or Quality, Viewer Exposure, First Paragraph, Second Sentence:** The PSA should indicate that residential exposure would be zero because views of the site are blocked for most residences.

15. **Page 4.13-15, C. Visual Character or Quality, Viewer Exposure, First Paragraph, Third Sentence:** There is not reasonable basis for the PSA's conclusion that 2250 ADT is "customarily considered by staff to represent moderate viewer *exposure*" (emphasis added) when 40 percent of the motorists are over-the-road truckers. Exposure is a function of the number of viewers, type of viewers, and duration of view and visibility. The PSA does not address duration of view or the visibility of the project, which is 10 miles away from the motorists.
16. **Page 4.13-16, C. Visual Character or Quality, Viewer Exposure, Last Sentence:** The PSA should address the visual sensitivity of each KOP individually, not collectively. Moreover, the term "portion of the viewshed" is a subjective characterization and should be replaced by individual KOP assessments.
17. **Page 4.13-16, Visual Change, Third Sentence:** This sentence appears to reject the typical KOP approach and instead substitutes subjective impressions of views from undisclosed viewpoints. Whether other features would be visible at these other viewpoints is speculation absent objective analysis and documentation.
18. **Page 4.13-16, Staff Note on Visual Simulations:** All simulations prepared for the AFC were prepared per CEC guidelines. Visual simulations were re-verified once the PSA came out. All simulations and models can be provided to the CEC directly for verification, if requested.
19. **Page 4.13-16, Visual Contrast, First Sentence:** Please clarify which KOP is being discussed here.
20. **Page 4.13-16, Visual Contrast, Second Sentence:** Please define the PSA term **"**massive." Such definition should take into account the fact that the towers occupy a very small percentage of the field of view.
21. **Page 4.13-16, Visual Contrast, Third Sentence:** Mass is a function of height, width and depth. Only height is addressed in this context. While the towers will be tall, they are also quite thin when viewed from middleground and background distances.
22. **Page 4.13-17, Second Paragraph, First Sentence:** Please provide the specific distance and which KOP is being described.
23. **Page 4.13-17, Visual Dominance, First Sentence:** This section of the PSA is describing three different KOPs with different distances, perspectives and different visual elements. Therefore it is inaccurate and misleading to lump all three KOPs together in a broad generalization. When the PSA discusses the immediate field of view, please define the KOP.
24. **Page 4.13-17, View Blockage, Second Paragraph, First Sentence:** Please define which viewpoints.
25. **Page 4.13-17, View Blockage, Second Paragraph, Second Sentence:** The PSA has combined several KOP's, and therefore the analysis is invalid.
26. **Page 4.13-17, View Blockage, Second Paragraph, Third Sentence:** Please define which KOP has a visual sensitivity of "moderately high", and where visual change is "high". Please define which specific KOPs, if any, would be substantially degraded and by what criteria.
27. **Page 4.13-18, Mitigation, Second Paragraph, First and Second Sentence:** Please define the PSA phrase "other sensitive view location".

28. **Page 4.13-19, Viewer Concern, Second Paragraph, Second Sentence:** Define the number of residences.

29. **Page 4.13-19, 5th Paragraph, Second Sentence:** Visitation estimates at Jack E. Marlowe Park in Ripley seem unreasonably high at over 100/day since Ripley has a population of approximately 330 people. On what basis does the PSA conclude that nearly one third of Ripley's population visits the park every day? Please provide documentation or source for this information.

30. **Page 4.13-20, First Sentence:** Please define how many residences, if any, will have any view at all from indoor or outdoor living spaces.

31. **Page 4.13-21, I-10 KOPs Subsection:** The PSA identifies three categories of sensitive viewers from I-10: residents of Mesa Verde; viewers at Blythe Airport; and travelers on I-10. The Visual Sensitivity and Visual Change analysis then describes the level of visual resource change from residences of Mesa Verde interchangeably with views from motorists on I-10. The PSA should, but does not, recognize there are different viewer sensitivities for different groups of viewers within the analysis.

32. **Page 4.13-21, View Blockage, Second Paragraph:** The PSA does not present the visual simulation of the KOP from which the impact is alleged to be significant. Please provide.

33. **Page 4.13-22, Fifth Paragraph, Third Sentence:** The statement that the view from I-10 would represent a long period of exposure for motorists is subjective. The Traffic and Transportation section of the PSA, **Page 4.11-6, 4rd Paragraph,** Second Sentence states, "In the project area, I-10 has two lanes in each direction and a speed limit of 70 miles per hour. Trucks comprise approximately 39 percent of the traffic in the project area." If the total ADT heading eastbound on I-10 is 39% truck traffic, this means that approximately 9,282 of those viewers will be from non-truck traffic. This is a proportionally small percentage exposure when the true nature of the primary user is explored. If the total ADT heading westbound on I-10 is 39% truck traffic, then approximately 8,775 of these viewers will be non-truck traffic. This is a proportionally small percentage of the total exposure and should be recognized as such in the PSA.

    Additionally, the basis of the PSA conclusion that the length of time exposed to the Project can be considered a "long period of exposure" is unclear and should be explained. Moreover, please explain the metric used to determine whether this period is long, moderate, or short-term. I-10 travels roughly 1,200 miles through the Basin and Range Physiographic Province. If the Project were visible for 30 miles along I-10, this would represent 2.5% of the total area of I-10 within that Province. Using measures of exposure from the PSA, if the Project were visible for 15 miles, this would represent 1.2% of the total area of I-10 located within the Basin and Range Physiographic Province.

    Finally, the PSA fails to describe the period of time the project will be in the drivers' field of vision and the fact that the drivers' primary focus will be on the roadway while driving amidst truck traffic at high rates of speed. The reader cannot accurately assess the true significance of project impacts without consideration of this information.

34. **Page 4.13-25, Third Paragraph, Fifth Sentence:** Please provide a citation for the PSA estimate of 8,800 annual visitor days for use of the Bradshaw Trail in the vicinity of the Project, and the PSA conclusion that this annual number represents an average of 24 visitors per day. Elsewhere in

the PSA an ADT of 2,200 vehicles is described as "moderate." How then, can 24 visitors per day also be considered "moderate to moderately high," as stated in the PSA?

35. **Page 4.13-28, Last Paragraph: Please correct this sentence as follows:** KOP5 is taken from a point near the northern boundary of the Cibola National Wildlife Refuge (Cibola NWR). The correct distances are 5.6 miles to the south of the project boundary, and 6.6 miles to the northeast solar tower.

36. **Page 4.13-34, D. Light and Glare, Facility Surfaces, Third Paragraph, Last Sentence:** If every residence within 8.5 miles can request trees be planted, which locations and sensitive receptors would not be reduced. In addition, Visual Staff needs to coordinate with Biology and Water Supply Staff to discuss and define appropriate trees that would not result in unintended adverse impacts.

WASTE MANAGEMENT

SPECIFIC COMMENTS

1. **Page 4.14-5:, Table 1 LORS, Title 8, CCR § 1529 and § 5208:** Applicant recommends that this LORS be deleted, as this applies to existing facilities that need to be demolished and have asbestos containing materials. It should not apply to the Rio Mesa SEGF because there are no existing structures at the site that need to be demolished.

2. **Page 4.14-10:, First Paragraph, Fourth Sentence:** Please revise this sentence as follows:

   The non-hazardous waste that cannot by recycled from the Rio Mesa SEGF would be disposed in a California Class III Landfill licensed to accept such waste.

3. **Page 4.14-11:, Sixth Paragraph, Second Sentence:** Please revise this sentence as follows:

   All non-hazardous wastes would be recycled, to the maximum extent possible, and non-recyclable wastes would be regularly transported off site to a California Class III landfill licensed to accept such waste.

4. **Page 4.14-14:, Third Paragraph, Second Sentence:** Please revise this sentence as follows:

   The applicant, pursuant to recommended Condition of Certification **WASTE-6,** would also be required to submit to the CPM for approval, and to Riverside County for review, an Operation Waste Management Plan, discussing how the project would divert to the maximum extent feasible the recyclable materials that would be generated during ~~construction and~~ operation of the facility.

WORKER SAFETY AND FIRE PROTECTION

SPECIFIC COMMENTS

1. **Page 4.15-1, SUMMARY OF CONCLUSIONS, First and Fourth Paragraphs**: The reference to Riverside Board Policy B-29 is inappropriate[1]. B-29 refers to recovery of County property taxes from which solar projects are exempt, either in part or in whole. B-29 seeks to accomplish this through implementation of a fee Policy described to "…ensure the County is compensated in an amount it deems appropriate for the use of its real property, and to give solar power plant owners certainty as to the County's requirements." B-29 makes no claim that any of the funds will be designated to fire facilities or services as the entirety of the B-29 fee goes into the County's General Fund. County Ordinance No. 659 is specifically in place to compensate the Fire Department for impacts to its services. See Riverside County Ordinance No. 659, Page 11. So whether or not Board Policy B-29 is overturned, the County already has a defined Ordinance in place to specifically cover fire facility and service impacts. Please revise the text of the PSA as follows:

   Energy Commission staff (staff) has reviewed the Rio Mesa Solar Energy Generating Facility (Rio Mesa SEGF) in accordance with the requirements of the California Environmental Quality Act (CEQA). With respect to CEQA, staff concludes that if the applicant for the proposed Rio Mesa SEGF project provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program, as required by Conditions of Certification **WORKER SAFETY-1** and **-2** and fulfills the requirements of Conditions of Certification **WORKER SAFETY-3** through **-8**~~**10**~~ the project would incorporate sufficient measures to ensure adequate levels of industrial safety and comply with applicable laws, ordinances, regulations, and standards (LORS).

   In response to data requests, the applicant provided a Fire and Emergency Services Risk and Needs Analyses (FESNA). The analyses suggest that by complying with LORS, the project would not create significant impacts on the local RCFD or local emergency response resources because of the projected infrequency and small scale of any responses needed for fire, medical, or technical rescue needs. ~~In the event that Riverside County Solar Policy B-29 is overturned, staff proposes Conditions of Certification **Worker Safety-9**, and **-10**, to provide an alternative mechanism for determining and implementing mitigation for impacts to the fire department.~~

2. **Page 4.15 2, LORS Table 1:** The Local LORS description should be revised as follows to add Riverside County Development Fee Program Ordinance No. 659 and delete reference to Board Policy No. B-29:

Local	
Riverside County Fire Code,	Adopts the California Fire Code, 2010 Edition, with

[1] Riverside County representative Tiffany North confirmed BSE's position at the October 29, 2012 CEC PSA Workshop.

Riverside County Code Chapter 8.32: Ordinance No. 787	some of its appendices, into Riverside County regulations.
Riverside County Subdivision Regulations, Ordinance No. 460	Establishes requirements for layout including fire protection and access requirements for developed land parcels.
Riverside County Development Fee Program Ordinance No. 659	Establishes specific impact fees for Developers based on class (residential, industrial, etc.) and location for various County services including but not limited to: Public and Fire Facilities, Roads, Bridges, Traffic Signals, Conservation and Land Bank, Parks, Trails, Flood Control Libraries, and Administrative fees.
~~Riverside County Board of Supervisors Policy No. B-29~~	~~Establishes requirements for utility scale solar power plants to make annual payments to the County based on acreage used in the power production process.~~

3. **Page 4.15-4, PROPOSED PROJECT, SETTING AND EXISTING CONDITIONS, Fourth Paragraph:** Please revise as follows:

   Management, engineering, administrative staff, skilled workers, and operators would serve both plants. Rio Mesa SEGF is expected to employ up to 100 full-time employees with up to 80 at the site over a 24 hour period: 20~~30~~ with Rio Mesa I (the southern plant), 20~~30~~ with Rio Mesa II (the northern plant), as well as 40 for the common area. The facility would be operated 7 days a week, typically up to 16 hours per day. The additional employees from 80 to 100 account for relief shift personnel for the two plants together in order to achieve 24/7/365 coverage.

4. **Page 4.15-10, Additional Safety Issues, Second through Fourth Full Paragraphs:** Applicant currently implements a Construction Personal Protective Equipment Program at ISEGS that requires workers in the solar field receiver area receive and wear appropriate protective sunglasses. This same provision will be implemented as part of the ISEGS Operations Protective Equipment Program. Applicant intends to implement these same requirements at the RMSEGF project during construction and operation. Therefore, Applicant recommends that the specific reference to IEC-62471 be deleted, and that the discussion regarding proposed Conditions of Certification Worker Safety-1 and -2 be modified as follows:

   ~~The potential photochemical retinal hazards are calculated according to IEC 62471 standard (same as CIE S 009: 2002), titled: "Photobiological Safety of Lamps and Lamp Systems", where the spectral values were taken from "ASTM G173-03 Reference Spectra Derived from SMARTS v. 2.9.2 (AM1.5)" and are the same as the "ISO 9845-1-1992."~~

   ~~Therefore, staff recommends that the applicant include in their~~ The personal protective equipment (PPE) plans that will be elements of the Project Construction Safety and Health Program required by proposed Condition of Certification **Worker Safety-1** and the Project Operations and Maintenance Safety and Health Program required by proposed Condition of Certification **Worker Safety-2~~,~~** ~~An Eyesight Protection from Retinal Damage Plan that is designed to insure that workers in the solar field receive and~~

~~wear the appropriate protective sunglasses. This Eyesight Protection from Retinal Damage Plan would:~~ will ensure that workers in the solar field receive and wear appropriate protective sunglasses. The Personal Protective Equipment Program will establish the requirements and procedures for the use of protective eye protection equipment and will provide training and, monitoring of worker use of the PPE and compliance with worker safety procedures to avoid photochemical retinal damage.

~~(1) identify and acquire the appropriate eye protection (EP) equipment based on the IEC 62471 standards in sufficient numbers to provide safety glasses for the workers engaged in solar field work, and tower work where the potential exists for heliostat solar reflective exposure or SRSG exposure during operations,~~

~~(2) establish the requirements and procedures for the donning and doffing of the EP by workers and provide training and,~~

(3) ~~monitor worker use of the PPE and compliance with the EP procedures~~.

~~Refer to the **Traffic and Transportation** section or **Appendix TT1- Glint and Glare Safety Impact Assessment** of this PSA for a more complete and detailed discussion of this topic.~~

5. **Page 4.15-16, Last Paragraph:** Staff has proposed that Condition of Certification Worker Safety-7 is necessary to supplement the dust control measures already required by proposed Conditions of Certification AQ-SC3 and AQ-SCR. Applicant does not believe that a specific new condition within the Worker Safety section of the PSA is required. The use of dust masks will be addressed in the Personal Protective Equipment Programs as identified in the Construction Safety and Health Program and the Operations and Maintenance Health and Safety Program required in proposed Conditions of Certification Worker Safety-1 and Worker Safety-2. The Personal Protective Equipment Programs will ensure that workers receive and wear appropriate dust masks. The Personal Protective Equipment Program will establish the requirements and procedures for the use of dust masks and will provide training and, monitoring of worker use of the PPE and compliance with worker safety procedures. Applicant requests that the PSA text be revised as follows:

   Given the available scientific and medical literature on VF, it is difficult for staff to assess the potential for VF to impact workers during construction and operation of the proposed Rio Mesa SEGF with a reasonable degree of certainty. To minimize potential exposure of workers and also the public to Coccidioidomycosis during soil excavation and grading, extensive wetting of the soil prior to and during construction activities should be employed and dust masks should be worn at certain times during these activities. The dust (PM10) control measures found in the **Air Quality** section of this PSA should be strictly adhered to in order to adequately reduce the risk of contracting VF to a less than significant level. The use of dust masks will be addressed in the Personal Protective Equipment Programs as identified in the Construction Safety and Health Program and the Operations and Maintenance Health and Safety Program. The Personal Protective Equipment Programs will ensure that workers receive and wear appropriate dust masks during earthmoving activities. The Personal Protective Equipment Program will establish the requirements and procedures for the use of dust masks and will provide training and, monitoring of worker use of the PPE and compliance with worker

safety procedures. ~~Towards that end, staff proposes Condition of Certification **WORKER SAFETY-7** which would require that the dust control measures found in proposed Conditions of Certification **AQ-SC3** and **AQ-SC4** be supplemented with additional requirements including implementing methods equivalent to the requirements of Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004).~~

6. **Page 4.15-22, RCFD Impacts, Third paragraph, 1st-3rd sentence:** Refer to Specific Comment #1 regarding Riverside Board Policy B-29 and County Ordinance No. 659. Please revise as follows:

   A letter from Captain Jason Neuman of RCFD (RCFD 2012a), states that although increased demands on the RCFD would be expected to result from the construction and operation of the project, the project's participation in Riverside County's Development Impact Fee Program included in Ordinance No. 659. ~~and the Solar Policy B-29 as adopted by the Riverside County Board of Supervisors~~ would mitigate the impacts. ~~More detailed information pertaining to Policy B-29 can be found in the **Land Use** section of this PSA. In the event that Riverside County Solar Policy B-29 is overturned, staff proposes Conditions of Certification **Worker Safety-9**, and **-10**, to provide an alternative mechanism for determining and implementing mitigation for impacts to the fire department.~~

7. **Page 4.15-23, RCFD Impacts, First and Fourth Paragraph:** Applicant requests that wording be added to clarify that the solar thermal facilities discussed in these paragraphs utilize the parabolic trough technology. This will allow the reader to better understand the ultimate conclusions regarding the relative risks of the Rio Mesa SEGF as discussed on Page 4.15-25.

   Staff has considered the position of the RCFD and all relevant information as well as past experience at existing solar power plants that are similar to, but smaller than, the proposed project. Staff reviewed the records of emergency responses of the San Bernardino County Fire Department (SBCFD), the primary emergency responding agency to the only three operating thermal solar power plants in the state. All three of these solar thermal power plants utilize the parabolic trough technology. These are the Solar Electric Generating Station (SEGS) 1 & 2 in Daggett (operating since 1984), SEGS 3-7 at Kramer Junction (1989), and SEGS 8 & 9 at Harper Dry Lake (1989). Staff also reviewed what records were immediately available at the three solar plants. All sources stated that their records were incomplete and not comprehensive. Staff wishes to caution that since the number of thermal solar power plants is so few and their operating history so short, any conclusion as to accident incident rates is meaningless from a statistical perspective. Simply put, the data set is not robust enough to draw any conclusions about their safety records. Nevertheless, this information is provided for illustrative purposes.

   . . .

   Regarding emergency response including fire, rescue, medical and hazardous materials incidents, approximately 30 incidents occurred since 1998 that required the SBCFD (and other fire stations through mutual aid agreements) to respond to the three solar power plant sites. These include fires, fire alarm activations, injuries, medical emergencies, hazardous materials spills, complaints/calls from the public, and false alarms. However, the available records did not include documentation of a major fire at the SEGS 8 facility in January of 1990 that required a large part of the regional resources from four

different fire districts including the San Bernardino County, Edwards Air Force Base, California Department of Forestry and Fire Protection (CDF), and the Kern County Fire Departments. This fire is the largest incident that has occurred at a solar thermal plant in California and demonstrates the magnitude of fire department resources that can be required to respond to a fire at a large thermal solar facility that utilizes the parabolic trough technology.

8. **Page 4.15-25, First Paragraph:** Please revise as follows:

   Staff has considered the position of the RCFD and all relevant information as well as past experience at existing solar power plants all of which have higher risk than the proposed Rio Mesa SEGF. The proposed facility would be located in an area that is currently served by the RCFD and is within the Category IV Outlying response criteria.

9. **Page 4.15-25, Proposed Mitigation, Heading and First Paragraph:** The PSA states "The fire, hazmat, and EMS needs at the proposed plant are real and would pose significant added demands on local fire protection and emergency medical services." The PSA goes on to provide "Proposed Mitigation" to address these added demands. While the impacts on RCFD may be real, it is not clear why they are deemed substantial or significant and would therefore require mitigation. The added demands of the Project on public services, if any, are not "environmental impacts" subject to CEQA. For example, in *City of Hayward v. Board of Trustees of the California State University,* a California appeals court rejected the City of Hayward's claim that the risk of injury from "dangerously long" response times is an environmental impact subject to CEQA. (*City of Hayward v Board of Trustees of the California State University*, A131412, A13424 (First District Court of Appeal, May 30, 2012)). Similarly, the impacts of the Rio Mesa SEGF on emergency and medical services is an economic effect, not an environmental impact that must be mitigated. The PSA's use of the heading "Proposed Mitigation" is therefore confusing and inconsistent with the requirements of CEQA. While the Project has no legal duty to mitigate the added demands, if any, on emergency and medical services, the Applicant will comply with Riverside County Ordinance 659, which requires a development fee to address added demands on County facilities. For these reasons, Applicant requests that staff remove the following language from the PSA:

   ~~**Proposed Mitigation**~~

   ~~Certain tax exemptions for solar power plants reduce the tax revenues going to counties and local agencies that would normally be used to provide the resulting expansion in fire and emergency medical services needed to cover them. Thus, the potential exists with such solar power plants to cause impacts on public safety as a result of usage and drawdown of local agency resources that provide needed services, such as fire and EMS response to protect the public during emergencies, especially in rural districts where resources are limited.~~

10. **Page 4.15-27, CONCLUSIONS, First Paragraph and Third Paragraphs:** Refer to Specific Comment #1 regarding Riverside Board Policy B-29 and County Ordinance No. 659 and revise the Conclusions section as follows:

    Energy Commission staff (staff) has reviewed the Rio Mesa SEGF in accordance with the requirements of the California Environmental Quality Act (CEQA). With respect to CEQA,

staff concludes that if the applicant for the proposed Rio Mesa SEGF project provides a Project Construction Safety and Health Program and a Project Operations and Maintenance Safety and Health Program, as required by Conditions of Certification **WORKER SAFETY-1** and **-2** and fulfills the requirements of Conditions of Certification **WORKER SAFETY-3** through 8~~-**10**~~ the project would incorporate sufficient measures to ensure adequate levels of industrial safety and comply with applicable laws, ordinances, regulations, and standards.

…

Staff has considered the position of the Riverside County Fire Department (RCFD) and all relevant information as well as past experience at other solar power plants in California. ~~The RCFD has indicated Impacts~~ upon emergency services resulting from increased demands resulting from construction and operation of the proposed project would be mitigated by the project's participation in Riverside County's Development Impact Fee Program included in Ordinance No. 659. ~~applicant's participation in the Riverside County Board of Supervisors Policy Number B-29 which pertains to solar power plants. Because Solar Policy B-29 is under court challenge, staff has not exclusively relied upon it for mitigation of impacts. Staff has proposed a backup plan in the form of Conditions of Certification **Worker Safety-9** and **-10**.~~ Staff has determined that the likely emergency response requirements of the Rio Mesa SEGF would not create a significant public impact. ~~with the adoption of staff's proposed conditions of certification.~~

FACILITY DESIGN

SPECIFIC COMMENTS

No specific comments.

GEOLOGY & PALEONTOLOGY

SPECIFIC COMMENTS

1. **Page 5.2-1, Fourth Paragraph:** Please revise this paragraph as follows:

   The paleosol is exposed at the ground surface over large areas of the project site. It is found on both sides of the road that parallels the southern border of the project, both sides of the road that parallels the Western Area Power Administration power line along the eastern part of the project, and along both sides of the proposed transmission line. It also underlies the entire "common area" (BS 2011a). It is undetermined where the paleosol is buried on the project site, how thick the unit is and the density of fossils contained within the deposit. The Chemehuevi formation equivalents and Late Pleistocene silts, sands and gravels have also been mapped at the surface of the site. Staff has informed the applicant that they have not adequately studied and delineated the limits of the fossiliferous sediments on the site and provided sufficient information for staff to complete an appropriate analysis of potential impacts. Staff has approved ~~T~~the applicant's ~~is currently in the process of finalizing a~~ plan that will provide us with the information needed to complete the Final Staff Assessment. Applicant is endeavoring to provide the fieldwork results by December 3, 2012, per staff's request. ~~Staff notified the applicant that a Supplemental Paleontological Resources Delineation Report must be submitted no later than December 3, 2012, if the schedule for publication of the Final Staff Assessment is to be maintained (CEC 2012ar CEC 2012at).~~

   Notwithstanding the additional information that the paleosol delineation will provide, it is possible to approximate the extent of the sensitive paleontological soils by considering the extent of the quaternary surface soils in which these resources occur. Confidential Figure 2 shows the solar arrays mapped on the Project geology. The fossiliferous red paleosol seems to be developed on the sediments mapped as "Qpv" (= Quaternary sediments of the Colorado River on the Palo Verde Mesa). Of the 170,000 pylons necessary to support the heliostats, 35,700 (21%) would be located within an approximately 799 acre portion of the Qpv sediment. Thus, 79 % of the solar arrays will completely avoid the Qpv sediment and the fossiliferous paleosol. Assuming the diametrical disturbance for each pylon is 16 inches, the 35,700 pylons would have a total footprint within the areal extent of Qpv strata of 1.1 acre, or approximately 0.14% of the 799-acre Qpv area. It is possible that some pylons in areas mapped as Qpv sediment will not intrude into the paleosol, and the total volume of the pylons that may contact paleosol materials would comprise an even more minute fraction of the total paleosol volume in the Qpv portions of the project site and in the fossiliferous paleosol as a whole. It is unlikely that impacts to macrofossils will occur from the pylons within the Qpv sediment area due to the avoidance of substantially all (at least 99.8%) of the paleosol within the project area and the virtually 100% avoidance of the entire fossiliferous paleosol geologic strata that occurs in the vicinity of the project. Any such impacts would also be insignificant due to the recovery of a substantial number of macrofossils from earlier surveys and that will occur during construction monitoring,

which will allow for the appropriate characterization and inventory of macrofossils within the project site.

It is likely that the applicant's delineation will further refine the areal and volumetric extent of sensitive paleontological resources on the site, and that the actual ratio of potential heliostat pylon impacts will be lower than estimated above. Avoidance of over 99% of the sensitive paleontological resources within the site by the heliostat pylons, and the mitigation measures that are recommended in this PSA, will reduce any impacts to less than significant levels.

2. **Page 5.2-1, Last Paragraph, First Sentence:** Applicant suggests revising as follows:

In general, project-related ground disturbance could have adverse impacts on ~~significant~~ paleontological resources.

3. Page 5.2-2, First Paragraph (Carryover): Applicant suggests revising as follows:

Staff believes additional field study of the fossiliferous sediments should be completed to delineate the limits and concentrations of fossils on the site ~~so a determination of significance can be made~~.

4. **Page 5.2-2, First Full Paragraph:** Applicant suggests revising as follows:

Depending on heliostat pylon ~~pedestal foundation~~ design and installation method, staff believes that there is the potential for ~~significant adverse cumulative~~ impacts to paleontological resources ~~could be low to high. The applicant's proposed heliostat foundation construction methodology (~~ due to predrilling and vibratory pylon ~~pedestal~~ insertion~~) would destroy all fossils encountered where installation takes place in the high sensitivity fossil bearing sediments.~~ Predrilling involves rotating and boring a solid steel drill auger into the ground to a specified depth into the subsurface. This construction method ~~w~~could crush or break ~~any~~ fossils that might be present within the soil column throughout the penetration depth interval. The subsequent vibratory insertion of the pylon ~~pedestal would~~ might not allow for ~~any~~ recovery of remaining fragments of fossils. ~~This foundation construction method would preclude an opportunity for identification, recovery or scientific interpretation of these significant paleontological resources (SVP 1995, CCR 2008).~~ Due to the lack of physical definition of the highly fossiliferous deposit, staff is unable to ~~adequately~~ precisely assess the potential impacts from project construction on this ~~valuable~~ resource. Nevertheless, as discussed above, using highly conservation assumptions, approximately 99.8% of all sub-surface paleontological impacts associated with pylon insertion will be avoided. This avoidance, in combination with existing survey fossil recoveries, allow for a representative sample of onsite resources to be characterized. Under applicable CEQA standards, since virtually all of the resource will be avoided by the heliostat poles and the significant majority of disturbance will be subject to the mitigation identified in this PSA, impacts to sensitive paleontological resources are anticipated to be less than significant.

5. **Page 5.2-2, Second Full Paragraph:** Applicant suggests revising as follows:

~~For those areas where the applicant is proposing to limit subsurface construction to standard conventional excavation techniques such as at the power blocks, roadways, and appurtenant facilities,~~ For the reasons summarized above and as discussed in more detail below, notwithstanding potential impacts associated with heliostat pylons that may preclude recovery to a certain extent, potential impacts to paleontological resources due to construction activities would be mitigated through worker training and monitoring by qualified paleontologists, as required by proposed Conditions of Certification **PAL-1** through **PAL-7**.

6. **Page 5.2-2, Fourth Full Paragraph:** Applicant suggests revising as follows:

Energy Commission staff believes that the potential for ~~significant~~ adverse cumulative impacts to project facilities from geologic hazards during the project's design life, if any, is ~~low~~ less than significant. Similarly, staff believes the potential for ~~significant~~ adverse cumulative impacts to potential geological and mineralogical resources from the construction, operation, and closure of the proposed project, if any, is ~~low~~ less than significant.

7. Page 5.2-2, Last Paragraph: Applicant suggests revising as follows:

In this section, California Energy Commission (Energy Commission) staff discusses the potential impacts of geologic hazards on the proposed Rio Mesa SEGF as well as the Rio Mesa SEGF's potential impact on geologic, mineralogic, and paleontologic resources. Staff's objective is to identify resources that could be ~~negatively~~ adversely affected, evaluate the potential of the project construction and operation to impact the resources and provide mitigation measures as necessary to ensure that there would be no significant ~~consequential~~ adverse impacts to ~~significant~~ geological and paleontological resources during the project construction, operation, and closure and to ensure that operation of the plant would not expose occupants to high-probability geologic hazards. A brief geological and paleontological overview is provided. The section concludes with staff's proposed Conditions of Certification - i.e., monitoring and mitigation measures that, if implemented, would reduce any project-related impacts from ~~for~~ geologic hazards and to geologic, mineralogic, and paleontologic resources to less than significant ~~with the proposed conditions of certification~~.

8. **Page 5.2-3, Table 1, Federal, Second Row:** Applicant suggests revising as follows:

Provides for protection of objects of antiquity on federal lands.~~Protects and permits collection of paleontological resources on federal lands; requires inventory, assessment of effects, and mitigation if appropriate.~~

9. **Page 5.2-3, Table 1, Federal, Third Row:** Applicant suggests revising as follows:

Directs the Secretaries of the Interior and Agriculture to manage paleontological resources ~~and~~ on BLM and USFS land using scientific principles and expertise, and to inventory paleontological resources on those lands. ~~Causes the management and~~

~~protection of paleontological resources on Federal land using scientific principles and expertise. Requires appropriate plans for inventory, monitoring, and the scientific and educational use of paleontological resources, in accordance with applicable agency laws, regulations, and policies.~~

10. **Page 5.2-3, Table 1, Last Row under State and First Row under Standards:** Applicant requests that the CEQA summary be revised as shown below to accurately reflect legal requirements and that reference to the SVP guidelines be deleted as they may be used by a CEQA lead agency to evaluate impacts but are not a law, ordinance, regulation or standard.

CEQA, ~~Appendix G~~	Requires that impacts on paleontological resources be assessed and <u>feasibly</u> mitigated on all discretionary projects, public and private.
~~Society for Vertebrate Paleontology (SVP), 1995~~	~~The "Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontological Resources: Standard Procedures" is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists.~~

11. **Page 5.2-11, Third Full Paragraph**: Applicant suggests revising as follows:

To assess potential impacts on paleontological resources, staff reviewed existing paleontologic information and reviewed the information obtained from the applicant's requested records searches from the San Bernardino County Museum for the surrounding area. The University of California (at Berkeley) Museum of Paleontology's website, which gives generalized information for locality records of their collection, was consulted as well (UCMP 2008). Site-specific information generated by the applicant for the proposed Rio Mesa SEGF was also reviewed. All research was conducted in accordance with accepted assessment protocol (<u>BLM 2008 and</u> SVP 1995) to determine whether any known paleontologic resources exist in the general area. If <u>unique paleontological resources are found to be</u> present or likely to be present, <u>PAL-1 through PAL-7,</u> which outline required procedures to mitigate adverse ~~a~~effects to potential resources<u>, will be implemented to reduce potential impacts to less than significant levels</u> ~~conditions of certification are proposed~~ as part of the project's approval.

12. **Page 5.2-13, First Paragraph (Carryover):** Applicant suggests revising as follows:

Based on the information above, it is staff's opinion that the <u>Project would not have any</u> ~~potential for~~ significant adverse direct or indirect impacts ~~from the project~~ to ~~potential~~ geologic and mineralogic resources ~~would be low~~.

13. **Page 5.2-13, Paleontological Resources, First Paragraph**: Applicant suggests revising as follows:

~~It is the position of t~~<u>T</u>he Society of Vertebrate Paleontologists <u>considers</u> ~~that~~ an identifiable vertebrate fossil ~~is~~ <u>to be</u> ~~considered~~ <u>"</u>scientifically important<u>"</u> unless otherwise demonstrated (SVP 1995). This position is based on the relative rarity of vertebrate fossils. Vertebrate fossils are so uncommon that, in many cases, each recovered specimen will provide additional important information about the

morphological variation or the geographic distribution of its species. The SVP's guidelines ~~recommendations~~ also mention that certain invertebrate or botanical fossils are considered significant paleontological resources. The SVP recommendations provide helpful information for reviewing potential impacts to paleontological resources but must be interpreted in the context of CEQA , which requires that a lead agency identify legally defensible thresholds of significance and applicable mitigation measures. Under CEQA, the SVP recommendations suggest that impacts to "scientifically important" fossils should be avoided or mitigated under CEQA to the extent feasible and do not mean that all impacts must be avoided or that all impacted fossils must be recovered to have less than a significant impact to the applicable resource.

This approach is consistent with numerous applications of CEQA and the federal National Environmental Policy Act (NEPA) to paleontological resource, including the following:

(a) The June 2012, Draft Environmental Impact Report/Environmental Impact Statement for the I-710 Corridor (Long Beach Freeway) Project in Los Angeles County (http://www.dot.ca.gov/dist07/resources/envdocs/docs/710corridor/) which concluded that "[e]arthmoving operations could result in the destruction of fossils and fossiliferous rock units within the construction disturbance limits. It is often not possible to completely eliminate impacts to fossil resources. It is understood that earthmoving activity could, unavoidably, destroy some fossils. These types of impacts can be mitigated by collecting and preserving a representative sample of the entire fossil assemblage and associated geological information in the areas disturbed by project construction" (I-710 Draft EIR/EIS at p. 3.11-6).

(b) The Bureau of Land Management (BLM) Manual H-8720-1, *General Procedural Guidance For Paleontological Resource Management* which acknowledges that mitigation is required for impacts to vertebrate or other important fossils, but expressly provides that, even in the case of scientifically important fossil impacts, mitigation "may be accomplished…by obtaining representative samples of the fossils" rather than full avoidance or recovery and does not require full monitoring of excavations and earth moving in fossil-bearing strata designated under the BLM's classification approach up to the level of "Class 4" soils, the most sensitive level identified within and adjacent to the project site.

(c) BLM *Guidelines for Assessment and Mitigation of Potential Impacts to Paleontological Resources* (IM 2009-11) state that "factors such as locality or specimen significance, economics, safety, and project urgency will be considered when developing mitigation measures" and that a mitigation planner has discretion to recommend whether "total or partial recovery or sampling" is appropriate for a specific site (BLM IM 2009-11, 1-10 through 1-11).

(d) San Diego County *Guidelines for Determining Significance of Paleontological Resources,* (adopted in 2007 and amended in 2009) do not require paleontological-specific monitoring even in areas considered to have the highest potential for paleontological resources when the volume of soil disturbed is 2,500 cubic yards or less. The guidelines also consider fossil finds of less than 12

inches to be consistent with a negative result (San Diego County Guidelines, pages 15-17).

(e). The San Bernardino County Development Code (Code), one of the most comprehensive paleontological protection requirements enacted by any local jurisdiction in California, which requires fossil monitoring and recovery when development occurs in high-potential or ~~highly~~ sensitive rock strata in a manner consistent with the SVP recommendations. It, however, limits such mitigation to specific levels of expense that vary with by type and size of the applicable project (Code § 82.20.030(f)).

(f). Five solar energy projects approved by the CEC, all of which involve boring or augering to fix support structures into strata that were determined to have high paleontological sensitivity. In each case, the final CEC certification decision concluded that project impacts to paleontological resources were less than significant with the incorporation of mitigation measures that were substantially similar to the proposed measures in this PSA (see, e.g., Rice Solar Energy (certification approved in 2010), Beacon Solar Energy (certification approved in 2009), Genesis Solar (certification approved in June 2010), Palen Solar (certification approved in 2010), and Abengoa Mojave Solar (certification approved in 2010).

(g). Renewable energy projects reviewed by other lead agencies in which potential impacts to formations with high paleontological sensitivity due to the insertion of supporting posts or piles were determined to be mitigated to less than significant levels through monitoring programs consistent with the SVP and PSA recommendations, included Kern County (see, e.g., Antelope Valley Solar DEIR (2011), Catalina Renewable Energy Project DEIR (2011), and Beacon Photovoltaic Project (2012)), and Imperial County (Campo Verde Solar Project DEIR (2012)).

14. **Page 5.2-18, Literature and Records Review:** Applicant suggests revising as follows:

An archival database search was executed by staff of the San Bernardino County Museum (SBCM) to determine whether any of the stratigraphic units found within the project vicinity had previously yielded significant paleontological resources and whether any known localities lie within or near the project site. A records search obtained from SBCM (contained within Appendix 5.8B of the AFC) indicated that no vertebrate paleontology localities were known within several miles of the Project footprint. SBCM concluded that excavation in conjunction with project development will have high potential to adversely impact significant nonrenewable paleontologic resources present within the boundaries of the proposed power plant property.

15. **Pages 5.2-21 and 5.2-22, Last and Carryover Paragraphs**: Applicant suggests revising as follows:

While the AFC discussed the discovery of a previously unrecognized paleontological resource and provided proposed mitigation measures related to the discovery of fossils during construction excavations, there was no discussion regarding the potential

significant impact to existing paleontological resources caused by heliostat ~~pedestal~~ pylon installation. The Palo Verde Mesa paleosol and Chemehuevi equivalents are classified as ~~highly~~ sensitive units. Current field survey results indicate there is potential for a significant number of fossils to be encountered on the site in these units. The applicant has not ~~sufficiently~~ completed the delineation of~~ed~~ the extent of these units on the site. Where predrilled and vibratory inserted heliostat ~~pedestals~~ pylons are proposed, recovery of fossils ~~would~~ might not occur~~ and fossils encountered with this construction technique would be destroyed without obtaining any scientifically valuable information. Predrilling involves rotating and boring a solid steel drill auger into the ground a specified depth into the subsurface. This construction method would crush or break any fossils that might be present throughout the penetrated depths. The subsequent vibratory insertion of the pedestal would not allow for any recovery of remaining fragments of fossils~~. Without adequate delineation (horizontal extent and thickness) of these fossil bearing units, staff is unable to precisely evaluate ~~whether~~ the extent to which insertion of heliostat ~~pedestals~~ pylons using vibratory techniques c~~w~~ould ~~have a significant~~ impact sensitive units. Notwithstanding this limitation, and as detailed above, the heliostat pylons will likely affect only 0.2% of the paleontological resources anticipated to occur within the Project boundary. Under these circumstances, impacts that could be associated with the heliostats are less than significant and would be further mitigated by the recovery of an adequate and representative sample of fossils within the project area. This recovery process, in fact, will contribute to the scientific understanding of the eras represented by the fossils that would otherwise not be achieved without the implementation of the project.

16. **Page 5.2-22, First Full Paragraph**: Applicant suggests revising as follows:

Staff approved ~~has emphasized this position with the applicant on numerous occasions and requested that~~ the applicant's ~~provide a~~ plan to adequately delineate the resource ~~(CEC 2012ar and CEC 2012at)~~. Once delineated, staff could more precisely analyze the impacts to the resource caused by heliostat ~~pedestal~~ pylon insertion. ~~Staff provided the applicant with some guidance on the type of elements that should be addressed in an excavation plan (CEC 2012ar CEC 2012at).~~ To date, the delineation of the paleontological resource in the project area is incomplete, though staff approved the applicant's ~~is finalizing a~~ plan to obtain the information needed by staff.~~ The lack of definition of the paleontological resource that would be adversely impacted by heliostat pedestal insertion precludes staff's ability to adequately assess the potential effects that the proposed project would have on the paleontological resources or to recommend a construction monitoring plan appropriate to the project. Staff notified the applicant that a Supplemental Paleontological Resources Delineation Report must be submitted no later than December 3, 2012, if the schedule for publication of the Final Staff Assessment is to be maintained (CEC 2012ar CEC 2012at).~~ As detailed above, the heliostat pylons will likely affect only 0.2% of the paleontological resources anticipated to occur within the Project boundary. Based on these estimates, potential heliostat impacts to the resource will be less than significant.

17. **Page 5.2-22 and 5.2-23, Last and Carryover Paragraphs**: Applicant suggests revising as follows:

The applicant proposes that where fossils are encountered in excavations associated with all project construction, earthwork would be halted and the Paleontological Resource Specialist (PRS) notified of the find. Steps to avoid significant adverse impacts to discovered fossils are clearly described in Conditions of Certification **PAL-1** through **PAL-7**. When properly implemented, the conditions of certification would yield a net gain to the science of paleontology since fossils that would not otherwise have been discovered can be collected, identified, studied, and properly curated. A PRS would be retained for the proposed project by the applicant to produce a monitoring and mitigation plan, conduct the worker training, and provide the on-site monitoring. During the monitoring, the PRS can make changes to the monitoring protocol with notification to ~~could petition~~ the CPM ~~Energy Commission for a change in the monitoring protocol. Most commonly, this would be a request for lesser monitoring after sufficient monitoring has been performed to ascertain that there is little chance of finding significant fossils. In other cases, the PRS can propose increased monitoring due to unexpected fossil discoveries or in response to repeated out-of-compliance incidents by the earthwork contractor.~~ As noted above, Staff believes these conditions would be appropriate to mitigate impacts to paleontologic resources to less than significant levels notwithstanding the results of the pending additional delineation of the sensitive paleontologic resources on the site that might be affected by heliostat pylon insertion.

18. **Page 5.2-23, Carryover Paragraph:** Applicant disagrees with CEC's characterization that "additional information" is needed to define impacts associated with the heliostat installation. Applicant suggests revising as follows:

    ~~Staff needs additional information however, to analyze the impacts to the resource caused by heliostat pedestal predrilling and vibratory insertion, and determine whether the proposed mitigation is adequate to address impacts.~~ Impacts associated with heliostat installation represent approximately 15 percent of the overall sediments disturbed by the project. Furthermore, only 21% of this amount is underlain by Qpv sediment. Since several hundred fossil specimens representing the project area are in the process of being curated, and with mitigation measures PAL-1 through PAL-7 in place, impacts to paleontological resources caused by heliostat pylon installation are considered less than significant.

19. **Page 5.2-26, Subsidence, Second Paragraph, Third Sentence:** Applicant is not aware of earth fissure areas at the proposed Rio Mesa SEGF. Applicant suggests revising as follows:

    ~~Precipitation runoff control should be utilized to prevent infiltration of surface water into exiting or suspected earth fissure areas.~~ Analysis of and mitigation for precipitation runoff is presented in the Soil and Surface Water section of this document.

20. **Page 5.2-27, First Full Paragraph, Second Sentence:** Applicant suggests revising the language as follows to clarify the extent of expansive soils as described in the project's geotechnical report.

    Mitigation would normally be accomplished by over-excavation and replacement of the expansive soils as addressed in a project specific geotechnical report.

21. **Page 5.2-29, First Full Paragraph:** Applicant disagrees with CEC's characterization that heliostat installation techniques designed to minimize overall impacts will cause an "unmitigable adverse impact" to paleontological resources. Applicant suggests revising as follows:

> The site contains ~~valuable~~ ~~(high sensitivity~~ sensitive~~)~~ paleontological resources. As discussed in the direct impacts section, if heliostats~~-~~ pylons are inserted into the subsurface using vibratory techniques in areas underlain by sediments containing ~~high sensitivity~~ sensitive paleontological resources, ~~any~~ paleontological resources contained within these areas ~~w~~could be impacted~~, precluding an opportunity to identify, recover, or interpret those resources causing an unmitigable adverse impact.~~ However, construction of the project provides opportunities for observation and recovery of uncovered paleontological resources that would otherwise go undiscovered. Therefore, the potential for additional discovery, along with the hundreds of fossils recovered to date on-site, would mitigate any potential impacts to paleontological resources. Therefore, project-specific impacts will be less than significant to sensitive paleontological resources.

22. **Page 5.2-29**, **Third Paragraph**: Applicant suggests revising as follows:

> Staff believes the LORS and conditions of certification discussed above would ensure adequate protection of paleontological resources. This conclusion is based on the fact that typical grading and excavation activities that are conducted with heavy equipment create open excavations and spread excavated materials thereby providing adequate opportunities for observation and recovery of uncovered paleontological resources and therefore would mitigate any potential cumulative impacts to paleontological resources to less than significant levels. Projects that include pile or pole insertion would also mitigate impacts to less than significant levels provided that the impacts associated with such activities comprised a minute potential proportion of the sensitive resources and a representative sample of such resources could be obtained from monitoring recovery associated with typical grading and excavation activities.

23. **Page 5.2-30, Conclusions, Third Paragraph**: Applicant suggests revising as follows:

> Significant paleontologic resources have been identified on the site. Proposed Conditions of Certification PAL-1 through PAL-7 would mitigate potential impacts to paleontologic resources to less than significant levels ~~where conventional grading and excavation construction is conducted.~~ Moreover, construction of the project provides opportunities for observation and recovery of uncovered paleontological resources that would otherwise go undiscovered.

24. **Page 5.2-30, Conclusions, Fourth Paragraph**: Applicant suggests revising as follows:

> ~~Where predrilled and vibratory inserted heliostat pedestals are constructed, any opportunity for identification, recovery or scientific interpretation of these significant paleontological resources would be precluded. Due to the lack of physical definition of the paleontologic resources, s~~Staff is unable to ~~adequately~~ precisely assess ~~the~~ potential impacts from heliostat ~~pedestal~~ pylon construction pending completion of further surveys that will delineate significant resources onsite. ~~Staff has met with the applicant~~

~~repeatedly to discuss further delineation of this resource. To date, the delineation of the paleontological resource in the project area is incomplete, though~~ Staff has approved the applicant's ~~is finalizing a~~ plan to obtain thi~~s~~e information~~ needed by staff. S~~ taff notified the applicant that a Supplemental Paleontological Resources Delineation Report must be submitted no later than December 3, 2012, if the schedule for publication of the Final Staff Assessment is to be maintained (CEC 2012ar CEC 2012at).~~ Applicant is endeavoring to provide the fieldwork results by December 3, 2012, per staff's request. Nevertheless, as discussed above, using highly conservation assumptions, approximately 99.8% of all sub-surface paleontological impacts associated with pylon insertion will be avoided. This avoidance, in combination with existing survey fossil recoveries, allow for a representative sample of onsite resources to be characterized. Under applicable CEQA standards, since virtually all of the resource will be avoided by the heliostat poles and the significant majority of disturbance will be subject to the mitigation identified in this PSA, impacts to sensitive paleontological resources are anticipated to be less than significant.

POWER PLANT EFFICIENCY

SPECIFIC COMMENTS

No specific comments.

POWER PLANT RELIABILITY

SPECIFIC COMMENTS

No specific comments.

TRANSMISSION SYSTEM ENGINEERING

SPECIFIC COMMENTS

1. **Page 5.5-1, First Paragraph:** Please revise this paragraph to note that the Phase II Interconnection Study is not required for staff to determine the need for downstream transmission facilities.

   The California Independent System Operator (California ISO) Queue Cluster 3/Queue Cluster 4 Phase II Interconnection Study (QC3/QC4 Phase II Study) is not available for staff to review at this time. The Phase II Study ~~is required for~~ would allow staff to ~~determine the~~ refine its analysis of the potential need for downstream transmission facilities. However, if ~~Without~~ the Phase II Study is not available when the FSA is to be published, staff will make a conservative assumption about the need for downstream transmission facilities based on the Phase I Interconnection Study, which is available. Staff will ~~staff cannot~~ determine if the proposed interconnection facilities including the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF) 230 kilovolt[1] (kV) switchyard, a single 230 kV overhead generator tie-line, and the termination at the proposed Southern California Edison (SCE) Colorado River Substation are adequate and in accordance with industry standards and good utility practices. Staff will also ~~cannot~~ determine if the Rio Mesa SEGF is acceptable according to engineering laws, ordinances, regulations, and standards (LORS).

2. **Page 5.5-4, Last Paragraph:** Please make the following change: The high side of each transformer would be connected through a 230 kV 1,200-ampere disconnect switch via a ~~795 kcmil~~ XLPE insulated underground cable with 1 conductor per phase to the Rio Mesa SEGF common area switchyard which is in a ring bus arrangement. The three circuit breakers and ~~two~~ nine disconnect switches in the project switchyard are each rated at 2,000-ampere.

3. **Page 5.5-6, Fifth Paragraph:** Please revise this paragraph to note that the Phase II Interconnection Study will allow for a less conservative evaluation of the need for downstream transmission facilities, compared to solely using the Phase I Interconnection Study.

   CEQA requires the analysis of reasonably foreseeable consequences of proposed projects based on the best available information. The California ISO is the reliability authority for generator interconnections and its Phase I Study for the Rio Mesa SEGF provides the best available information on the reliability impacts of the proposed project. However, the significant reduction in the number of generators studied in the QC3 and the reduction of Rio Mesa SEGF generation reduce the study results to speculation. The Phase II Interconnection Study will allow staff to make a less conservative evaluation of the need for downstream transmission upgrades ~~It is not possible to determine the impacts of the proposed project or even the cluster of~~

[1] The Rio Mesa SEGF Application for Certification uses both 220 kV and 230 kV interchangeably.

~~generators~~ because the size of the cluster has decreased ~~so dramatically~~. The revised QC3/QC4 projects including the 500 MW Rio Mesa SEGF will be analyzed in the Phase II Interconnection Study and will provide a less conservative but more precise ~~much better~~ forecast of the reliability impacts of the Rio Mesa SEGF and its associated cluster of generators (URS 2012a).

4. **Page 5.5-7, Compliance With LORS, First Paragraph:** Please revise this paragraph to note that the Phase II Interconnection Study is not required for staff to determine the need for staff to evaluate the Project's compliance with applicable LORS.

   The proposed interconnecting facilities include the Rio Mesa SEFG 230 kV switchyard, a single 230 kV overhead generator tie-line, and the termination at the proposed SCE Colorado River Substation. ~~Since the QC3/QC4Phase II Interconnection Study is not available, staff cannot determine whether the proposed interconnecting facilities are~~ Based on the Phase I Interconnection Study, the proposed interconnecting facilities are adequate and in accordance with industry standards and good utility practices, and are acceptable to staff according to engineering LORS. ~~Once the~~ If the Phase II Interconnection Study is available before the Final Staff Assessment is published ~~received~~, staff will incorporate the updated information into our analysis and provide the updated analysis and conclusions in the Final Staff Assessment.

5. **Page 5.5-8, Conclusions and Recommendations:** Please revise this paragraph to note that the Phase II Interconnection Study is not required for staff to determine the need for downstream transmission facilities. In addition, please delete the paragraph titled "Additional Information Staff Requires From The Applicant In Order To Complete The FSA." Deletion of this paragraph is necessary to reflect the fact that completion of the Phase II Interconnection Study is outside Applicant's control.

   CONCLUSIONS AND RECOMMENDATIONS

   The California ISO QC3/QC4 Phase II Interconnection Study will not be available for staff to review until November 2012 at the earliest. The Phase II Study will allow staff to provide a less conservative but more precise analysis of the ~~is required for staff to determine the potential need for~~ cumulative impacts associated with downstream transmission facility upgrades. However, based on the Phase I Interconnection Study, Staff is able to conservatively determine that, based on the Phase I Interconnection Study, the proposed interconnecting facilities are adequate and in accordance with industry standards and good utility practices, and are acceptable to staff according to engineering LORS.

   ~~Without the Phase II Interconnection Study, staff cannot determine if the proposed interconnection facilities including the Rio Mesa SEGF 230 kV switchyard, a single 230 kV overhead generator tie-line, and the termination at the proposed SCE Colorado River Substation are adequate and in accordance with industry standards and good utility practices, and are acceptable to staff according to engineering LORS.~~

   ~~Also, if the study shows the project would cause any transmission line overloads that might require transmission line reconductoring or other significant downstream upgrades, the potential environmental impact of these upgrades would need to be analyzed pursuant to CEQA. Until this information is in hand, however, it is unclear how long the additional analysis would take to perform.~~

~~**ADDITIONAL INFORMATION STAFF REQUIRES FROM THE APPLICANT IN ORDER TO COMPLETE THE FSA**~~

~~To complete the FSA, the applicant is required to submit a copy of the QC3/QC 4 Phase II Study for staff to determine the potential need for downstream transmission facility upgrades.~~

PROJECT ALTERNATIVES

SPECIFIC COMMENTS

1. **Page 6.1-18, Second Paragraph:** The PSA's review of the "No Project Alternative" should be substantially revised to reflect "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (14 CCR 15126.6[e][2]). The CEQA guidelines state that "If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, this 'no project' consequence should be discussed" (14 CCR 15126.6[e][3][B]). In particular, "[W]here failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment" (*Id*).

   The PSA states that "It is unknown whether MWD would issue a new competitive request for proposal process for a new solar project. Based on the available information, the no project alternative consists of retaining Rio Mesa SEGF site in its current condition." Applicant disagrees with this assertion since the landowner issued a RFP for renewable energy development and attracted multiple bidders. Moreover, the state's renewable energy and greenhouse gas objectives would remain in effect in the no project alternative, and in-state generation of renewable electricity will continue to be an important and growing industry sector for California. A fundamental purpose of the RFP is for MWD to significantly increase their revenue attributable to the MWD owned land on the project site. Thus, to suggest that MWD would not continue to pursue revenue opportunities for the property is very unlikely. Consequently, it is reasonably foreseeable that MWD would reissue a competitive solicitation and the MWD property would continue to be developed for solar energy production.[1] The PSA should account for this scenario and revise its analysis of the No-Project Alternative accordingly.

   Finally, the existing land use designations in Riverside County contemplate the development of the project site as a solar energy project. Ordinance No. 348.4734 allows for solar energy systems as an accessory use in all zones. Land Use Policy LU 15.15 provides that the County will permit and encourage the development of renewable energy resources and related infrastructure. Most notably, Ordinance 348.4705 authorizes solar power plants on the existing land use zones for the project site (W-2 and N-A). These land use policies should be considered in the No-Project alternative, and the PSA should not presume that the project site would remain in an undeveloped state.

2. **Page 6.1-21, Second Paragraph:** The PSA incorrectly estimates the linears for the Sonoran West off site alternatives to be shorter than the proposed project. While this is true for the gen-tie line, it is not true for the natural gas interconnection pipeline. Applicant requests that Staff revise the PSA as follows:

[1] Applicant makes no statements regarding what would be developed under the no project alternative. However, under all of the renewable energy scenarios that could be considered under the no project alternative, the proposed project would be the least impactful from an environmental perspective.

The linear corridors for the transmission line for the Sonoran West Off-site Alternative would be shorter than those for the proposed project for the generator intertie line, but would be longer for the natural gas interconnection pipeline. The project applicant identified a possible alignment for a generation intertie line (gen-tie) to the proposed Colorado River Substation which is located adjacent to the Sonoran West Off-site Alternative. The natural gas pipeline to connect to the Southern California Gas Company pipeline for the Sonoran West Off-site Alternative would be ~~less than one mile~~ approximately two miles long from an existing interconnect point. The natural gas interconnect pipeline for the Rio Mesa SEGF is only 250 - 400 feet from the TransCanada Gas Transmissions North Baja Pipeline to the project fence-line. ~~similar in length to the natural gas pipeline to connect the proposed Rio Mesa SEGF project to the TransCanada Gas Transmission Company North Baja pipeline.~~

3. **Page 6.1-22, Table 1:** The PSA incorrectly estimates the Air Quality Construction related emissions as slightly less than RMS. The emissions would be similar on site, less for the gen-tie, and more for the natural gas interconnect. Other issues with respect to differences between Sonoran West and RMS have been similarly updated. Applicant requests that Staff revise the PSA as follows:

Alternatives Table 1
Summary Comparison of the Proposed Project's Impacts
to the Sonoran West Off-site Alternative

	Proposed Project	Sonoran West Off-site Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Air Quality			
Construction-related emissions	SM	SM	Similar ~~Slightly less~~
Project operations emissions	SM	SM	Similar
Greenhouse Gases	LS	LS	Similar
Biological Resources			
Impacts to vegetation and special status plants – sand dune habitat and transport	SM	SM	Greater
Impacts to vegetation and special status plants – all other species	SM	SM	Similar
Impacts to waters of the US	SM	LS	~~Much~~ less
Impacts to waters of the state including microphyll woodland habitat	~~PSU~~ PSM	~~PSU~~ PSM	Similar
Impacts on desert tortoise	SM	SM	Slightly greater
Impacts on special-status terrestrial wildlife species (other than desert tortoise) – Mojave fringe-toed lizard	SM	SM	Greater
Impacts on special-status terrestrial wildlife species (other than desert tortoise) – all other species	SM	SM	Similar
Impacts on avian species, including raptors	~~SU~~ PSM	~~SU~~ PSM	Similar ~~or slightly less~~
Cultural Resources			

Alternatives Table 1
Summary Comparison of the Proposed Project's Impacts
to the Sonoran West Off-site Alternative

	Proposed Project	Sonoran West Off-site Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Potential to disturb, destroy, or visually degrade significant prehistoric and historical archaeological sites or ethnographic resources, or impact built environments on or beyond the site	~~UNK at this time~~ PSM	UNK at this time	UNK at this time
Geology and Paleontology			
Potential impacts from strong seismic shaking	SM	SM	Similar
Potential impacts from soil failure caused by hydro-collapse and/or dynamic compaction	SM	SM	Similar
Potential impacts on paleontological resources	~~SU~~ LS	~~SM~~ LS	Similar ~~Much less~~
Hazardous Materials			
Risk of fire or explosion during commissioning or operations	SM	SM	Similar
Risk of hazardous material spill off-site during hazardous materials transportation	SM	SM	Similar
Risk of hazardous material spill off-site resulting from hazardous materials storage and use on-site	SM	SM	Similar
Risk of drawdown of emergency response services causing impact off-site	SM	SM	Similar
Land Use			
Compatibility with land use plan, policy, or regulation	LS	LS	Similar
Noise and Vibration			
Potential for noise to impact noise-sensitive receptors	SM	SM	Slightly less
Public Health			
Potential for project operations to cause air toxics-related impacts that could affect public health	LS	LS	Similar
Socioeconomic Resources			
Adversely impact acceptable levels of service for police protection (law enforcement), schools, parks, and recreation	~~SM~~ LS	~~SM~~ LS	Similar
Displace substantial numbers of people and/or existing housing	LS	LS	Similar
Induce substantial population growth in the area	SM	SM	Similar
Traffic and Transportation			
Damage to Roads and Bridges	SM	SM	Less
Glint Impacts to Motorists and Pilots – heliostats	SM	SM	Slightly greater
Level of Service on Roads and Highways – Construction	SM	SM	Slightly less
Level of Service on Roads and Highways – Operation	LS	LS	Similar

Alternatives Table 1
Summary Comparison of the Proposed Project's Impacts
to the Sonoran West Off-site Alternative

	Proposed Project	Sonoran West Off-site Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Glare Impacts to Motorists and Pilots – solar receiver steam generator	LS	LS	Slightly greater
Transmission Line Safety and Nuisance			
Potential for impacts related to aviation safety, hazardous shocks, nuisance shocks, and electric and magnetic field exposure	SM	SM	Slightly less
Visual Resources			
Visual change/contrast of project facilities, excluding glare effect	~~SU~~ LS	~~SU~~ LS	Slightly greater
Potential to create a new source of glare from solar receivers	~~SU~~ LS	~~SU~~ LS	Slightly greater
Waste Management			
Material/waste generated during the construction and operation would be managed in an environmentally safe manner, i.e. recycling or disposal	SM	SM	Similar
Potential for disposal or diversion of project materials to cause impacts on existing waste disposal or diversion facilities	SM	SM	Similar
Potential for impacts on human health and the environment related to past or present soil or water contamination	SM	SM	Slightly greater
Soil and Surface Water			
Soil erosion by wind and water during project construction or operations	SM	SM	Similar
Potential contamination of groundwater resources from infiltration	SM	SM	Similar
Environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly	SM	SM	Similar
Water Supply			
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level	LS	LS	Similar

Alternatives Table 1
Summary Comparison of the Proposed Project's Impacts
to the Sonoran West Off-site Alternative

	Proposed Project	Sonoran West Off-site Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**

Notes: — = no impact
UNK = significance of impact is unknown
B = beneficial impact
LS = less-than-significant impact, no mitigation required
SM or PSM = significant or potentially significant impact that can be mitigated to less than significant
SU or PSU = significant and unavoidable or potentially significant and unavoidable impact that cannot be mitigated to less than significant

4. **Page 6.1-39, Sixth Paragraph; Page 6.1-51, Second Paragraph, Page 6.1-63, Second Paragraph:** CEQA requires a lead agency to determine whether an alternative would satisfy most of the project objectives. The PSA concludes that development of the 410-MW solar power tower project with energy storage alternative, 250 MW reduced acreage alternative, and the "several hundred" MW PV alternative "*would partially*" meet the objective of constructing and operating a 500 MW solar generating facility. Partially meeting a project objective is a misleading review standard.

   The Applicant's original objective is to build a 750 MW solar generating facility using the BrightSource proprietary solar power tower technology. This objective was reduced to a 500 MW solar generating facility using Applicant's proprietary technology through the Applicant's Environmental Enhancement Proposal. Further reduction in the output of the project will not "partially" meet the Project objective, rather they *won't* meet the Project objective. The PSA should be revised to state that the various alternatives with substantially less capacity than the preferred alternative would *not* meet the project objective of constructing a 500 MW solar generating facility. Moreover, as noted above, the PSA's analysis should be revised to reflect that Applicant's objective is to utilize the BrightSource proprietary solar power tower technology.

5. **Page 6.1-41, First Paragraph:** The PSA fails to acknowledge Southern California Edison's role in the PPA amendment process. Applicant suggests revising the PSA as follows:

   > The applicant states that it has targeted the last quarter of 2015 for commercial operation of the proposed project. For the Hidden Hills Solar Electric Generating System (Hidden Hills SEGS) Staff Assessment, the Energy Commission staff contacted the CPUC to inquire about the overall process involving CPUC's approval of PPAs for renewable energy projects. CPUC staff stated that filing of amended advice letters requesting amendments to PPAs is not an uncommon occurrence during the development process for renewable energy projects (Energy Commission 2012az). Once a PPA is approved, submittal of an amended advice letter to CPUC requesting an amended PPA is required unless the change to the project was accounted for in the original PPA for the project (e.g., a PPA that allows a project location or technology change). CPUC's review of requests for amended PPAs considers resultant changes to the pricing structure of the PPA, project viability, and value compared to cost. For example, in considering a hypothetical amendment to a PPA to add energy storage to a solar thermal project, <u>and assuming SCE would agree to amend the PPAs in a way that allows the project to continue to be feasible,</u> CPUC would assess the net economic benefit of the added

storage. ~~Given the complexity of permitting and construction for these large solar power projects, staff believes it is likely that BrightSource Energy's strategic planning processes acknowledge the potential for project changes to affect project scheduling and financing and the potential need to amend a PPA.~~

6. **Page 6.1-44, Second Full Paragraph:** The PSA states that the SPT with Energy Storage Alternative would not require overnight boilers or auxiliary boilers. The current design of BrightSource Energy's energy storage system continues to make use of auxiliary firing of natural gas. Please revise the paragraph as indicated:

   ~~Under the SPT with Energy Storage Alternative at the Rio Mesa site~~ Staff may view the Solar Reserve RSEP as a possible Thermal Energy Storage ("TES") technology, however the RSEP technology is proprietary to Solar Reserve and not available to the Applicant. In addition, this technology has not yet been deployed at commercial scale and is not compatible with the BrightSource technology. Applicant acknowledges that the RSEP may be able to operate without auxiliary gas firing, except power plant commissioning would require small boilers for the initial melting, heating, and conditioning of the salt thermal storage medium. The salt melting process during commissioning of the project would result in higher emissions than the initial commissioning phase of the proposed project. ~~The RSEP technology requires no other natural gas use for plant operations.~~

   BrightSource is developing its own TES solution that is designed to work with its existing Direct Steam SPT configuration. The BrightSource developed SPT with Energy Storage Alternative would ~~not~~ continue to use ~~auxiliary boilers~~ the Night Preservation and Auxiliary Boilers. An additional Gas fired "Independent Superheater" will be added to each unit to provide superheat to the steam produced by the molten salt TES system. This design focuses on improvements to the Plant's capacity and dispatchability (MW-hrs per year), while maintaining roughly the same levels of air emissions as the proposed non-storage project. ~~would reduce project operations emissions during regular plant operations.~~

   ~~Net air quality emissions impacts would be less than Rio Mesa SEGF for this alternative technology. No a~~Auxiliary boilers ~~would be required for project operations of this alternative because the molten salt would provide this service, and much less fuel would be used during the commissioning phase to liquefy the salt compared to the fuel use that would be required to operate the auxiliary boilers for the proposed project over its life. The salt melting process during commissioning of the project may result in higher emissions than the initial commissioning phase of the proposed project. During operations the emissions would **be less than that of Rio Mesa SEGF**~~.

7. **Page 6.1-51, Fourth Full Paragraph:** The PSA asserts that a 250 MW solar power tower project with or without energy storage "is feasible in a slightly longer timeframe than that of the proposed site." The timeframe needed to redesign the project site *and* incorporate storage technology would require *much more* than a "slightly longer timeframe". This sentence should be revised to remove the word "slightly".

8. **Page 6.1-54, First Paragraph:** The PSA's assertion that construction emissions, including fugitive dust and exhaust from equipment and worker vehicles would be reduced by half is incorrect. The proposed project includes many shared facilities such as the gen tie line, the construction laydown area, switchyard, gas metering yard, and common areas. These shared facilities will still be required regardless of whether one unit or two units are installed. Emissions for building one unit would be greater than half, but the electrical output would be half of the proposed

project. Based on a lb of emissions/MW comparison, the construction emissions from this Alternate are greater than those of the proposed project. Therefore, the air quality impact from construction of the Reduced Acreage SPT with or without Energy Storage Alternative would **be *slightly* less than Rio Mesa SEGF.**

9. **Page 6.1-55, First Paragraph**: The PSA minimizes the effect a reduced project would have on GHG emissions. This alternative would reduce the contribution to the RPS goals by half and would continue reliance on new and existing fossil-fired electricity. The proposed project would displace twice as much fossil fired generation as the 250 MW alternative. The Applicant requests changing the significance impact for GHG from **slightly greater** to **greater than Rio Mesa SEGF.**

10. **Page 6.1-55, Last Paragraph**: The PSA asserts the operational impacts to bird and bat species would be reduced by one third to one half. Impacts due to potential collisions are not proportional to total project acreage. The biological impact on avian species, including raptors of the Reduced Acreage SPT with or without Energy Storage Alternative would **be ~~much~~ less than Rio Mesa SEGF.**

11. **Pages 6.1-60 through -63, Solar Photovoltaic (PV) Overview Subsection:** The PSA neglects to discuss and analyze the massive grading requirements for solar PV projects identified in the PSA. The PSA states on page 6.1-74, first full paragraph, 5th sentence "Installation of the supports for PV panels would likely require significant site grading." Alternatives Table 4 provides summary descriptions of seven approved utility-scale solar PV projects in California; *all* of which, with defined technology will require near 100% levels of grading, including laser-level grading. Impacts from large-scale grading are completely ignored in the alternatives analysis and would be substantially greater than the Applicant's proposed development methodology for the heliostat field. The extensive grading required by typical PV projects would significantly increase impacts to many resource areas, specifically air quality, biological resources, cultural resources, paleontological resources, and soil and surface water resources (please see attached Figure *Alternatives 1*). The PSA should be revised to consider the significant impacts that would result from the large-scale grading required by a solar PV alternative, which are avoided under the proposed project.

    In addition, the PSA focuses on an acre/MW comparison of PV and the proposed project. Applicant believes that to fully evaluate the difference in land requirements between PV and the proposed project, the PSA should primarily consider the capacity factors for PV and the proposed project. The PSA includes an estimate that a PV facility would utilize 7.4 acres per megawatt, whereas the BrightSource LPT technology uses 7.0 acres per megawatt. Under these assumptions, utilization of PV at Rio Mesa would result in a 5.5% reduction in megawatt plant capacity. In addition, the capacity factor at Rio Mesa is 32.7%. By comparison, the nearest PV resource (i.e., one with a comparable solar resource) has a capacity factor 20.8%.[2] Consequently, the actual annual output of the proposed project would be 1.4 gwh/year, or 40% greater than the Desert Sunlight Solar Farm project, which has a 550MW nameplate capacity and would utilize the same footprint at the Project site. Put another way, to produce the same quantity of power to the grid using single-axis or fixed-tilt PV would require 4,950 acres of land, or *51% more* land than using Applicant's technology. The environmental analysis of the PV Alternative should be updated to reflect the additional land needed to produce the same quantity of energy, rather than simply evaluate the land required for a plant of a similar nameplate capacity.

[2] This estimated capacity factor is based on Table 4 at P. 6.1-62 of the PSA, Row 2 (Desert Sunlight Solar Farm Project, which is in close proximity to the proposed project).

12. **Page 6.1-64, Fifth Paragraph:** The PSA should not quote the proposed decision of the CPUC. While the Applicant agrees that the PPA is an integral consideration in evaluating the feasibility of a particular alternative, it is not appropriate for the Commission or Staff to opine on the value or reasonableness of the PPA. Determinations of whether costs of PPAs are reasonable are within the purview of the CPUC and there is no reason that CPUC's discussion from a proposed decision should be referenced in this document.[3] For these reasons, Applicant requests that Staff revise the PSA as follows:

    If the project technology at the Rio Mesa SEGF site were changed to a PV technology, an amended advice letter would have to be filed with CPUC requesting amendments to the PPAs. The work required to redesign the project to use PV technology would delay the project schedule. It is not known whether CPUC would approve amendments to the PPAs allowing the technology change. It is also not known at what point a project schedule delay would affect project viability. For example, the PPA includes forecasted initial operation dates of ~~September 2015 and~~ December 2015. As noted in Applicant's response to Data Request 170 and 171, even a few months delay could jeopardize project viability. ~~The CPUC is currently considering the Rio Mesa PPA. The Draft Resolution would deny cost recovery for the Rio Mesa 1 and Rio Mesa 2 PPAs because they compare poorly on price and value relative to other solar thermal projects offered to SCE (CPUC 2012a). An alternate Draft Resolution has been proposed that would deny cost recovery for Rio Mesa 1 PPA and approve cost recovery for the Rio Mesa 2 PPA (CPUC 2012b). The Resolutions are on the Public Agenda for the Commission Meeting scheduled for October 11, 2012.~~

13. **Page 6.1-65 through 6.1-67, Alternatives Table 5:** The Applicant has proposed revisions to conclusions and analysis presented within the PSA for several resource area analyses for the proposed Project, which should be incorporated in the Table 5 as noted below.

[3] With respect to the Project's PPA's and the PD referenced in the PSA, it is important to note that the Decision is now final, approves the PPAs and thus the language in this paragraph is no longer germane to the discussion of the PPA.

Alternatives Table 5
Summary Comparison of the Proposed Project's Impacts
to the Solar PV Alternative[4]

	Proposed Project	Solar PV Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Air Quality			
Construction-related emissions	SM	SM	~~Similar~~ Much Greater
Project operations emissions	SM	SM	Less
Greenhouse Gas	LS	LS	~~Slightly Less~~ Greater (due to less displacement of fossil resources)
Biological Resources			
Impacts to vegetation and special status plants	SM	~~SM~~ PSU	~~Similar~~ Much Greater
Impacts to waters of the US	SM	~~SM~~ PSU	~~Similar~~ Much Greater
Impacts to waters of the state including microphyll woodland habitat	~~PSU~~ PSM	PSU	~~Similar~~ Much Greater
Impacts on desert tortoise	SM	SM	Similar
Impacts on special-status terrestrial wildlife species (other than desert tortoise)	SM	SM	~~Similar~~ Slightly Greater
Impacts on avian species, including raptors	~~SU~~PSM	SM	~~Much Greater~~ Similar
Cultural Resources			
Potential to disturb, destroy, or visually degrade significant prehistoric and historical archaeological sites or ethnographic resources, or impact built environments on or beyond the site	~~UNK at this time~~ PSM	~~UNK at this time~~ PSU	~~UNK at this time~~ Much Greater (due to the need for extensive grading)
Geology and Paleontology			
Potential impacts from strong seismic shaking	SM	SM	~~Less~~ Similar (either alternative *must* be constructed to code)
Potential impacts from soil failure caused by hydro-collapse and/or dynamic compaction	SM	SM	~~Less~~ Similar
Potential impacts on paleontological resources	~~SU~~LS	SU	Much Greater ~~Less~~ (due to extensive grading)
Hazardous Materials			
Risk of fire or explosion during commissioning or operations	SM	SM	Less
Risk of hazardous material spill off-site during	SM	SM	Similar

[4] Applicant requests that this table be substantially revised due to the need for massive grading required for the PV Alternative.

Alternatives Table 5
Summary Comparison of the Proposed Project's Impacts to the Solar PV Alternative[4]

	Proposed Project	Solar PV Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
hazardous materials transportation			
Risk of hazardous material spill off-site resulting from hazardous materials storage and use on-site	SM	SM	Similar
Risk of drawdown of emergency response services causing impact off-site	SM	SM	Similar
Land Use			
Compatibility with land use plan, policy, or regulation	LS	LS	Similar
Noise and Vibration			
Potential for noise to impact noise-sensitive receptors	SM	SM	Less
Public Health			
Potential for project operations to cause air toxics-related impacts that could affect public health	LS	LS	~~Less~~ Similar
Socioeconomic Resources			
Adversely impact acceptable levels of service for police protection (law enforcement), schools, parks, and recreation	~~SM~~LS	~~SM~~LS	Similar
Displace substantial numbers of people and/or existing housing	LS	LS	Similar
Induce substantial population growth in the area	SM	SM	Similar
Traffic and Transportation			
Damage to Roads and Bridges	SM	SM	Slightly less
Glint Impacts to Motorists and Pilots – heliostats	SM	SM	~~Much~~ less (offsite project glint and glare from heliostats is limited to less than defined MPE at the legal flight encroachment)
Level of Service on Roads and Highways – Construction	SM	SM	~~Much~~ Slightly less
Level of Service on Roads and Highways – Operation	LS	LS	Similar
Glare Impacts to Motorists and Pilots – solar receiver steam generator	LS	LS	Much Less
Transmission Line Safety and Nuisance			
Potential for impacts related to aviation safety, hazardous shocks, nuisance shocks, and electric and magnetic field exposure	SM	SM	Similar
Visual Resources			

Alternatives Table 5
Summary Comparison of the Proposed Project's Impacts
to the Solar PV Alternative[4]

	Proposed Project	Solar PV Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Visual change/contrast of project facilities, excluding glare effect	~~LS~~ ~~SU~~	~~LS~~ ~~SU~~	~~NA~~ ~~Less~~
Potential to create a new source of glare from solar receivers	~~LS~~[5] ~~SU~~	LS	~~NA~~ ~~Much less~~
Waste Management			
Material/waste generated during the construction and operation would be managed in an environmentally safe manner, i.e. recycling or disposal	SM	SM	Similar
Potential for disposal or diversion of project materials to cause impacts on existing waste disposal or diversion facilities	SM	SM	Similar
Potential for impacts on human health and the environment related to past or present soil or water contamination	SM	SM	Similar or slightly greater
Soil and Surface Water			
Soil erosion by wind and water during project construction or operations	SM	SM	~~Much~~ Greater
Potential contamination of groundwater resources from infiltration	SM	SM	Similar
Environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly	SM	SM	~~Less~~ Greater (Substantial stormwater diversion is required for the PV Alternative)
Water Supply			
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level	LS	LS	~~NA~~ ~~Less~~

Notes: — = no impact
UNK = significance of impact is unknown
B = beneficial impact
LS = less-than-significant impact, no mitigation required
SM or PSM = significant or potentially significant impact that can be mitigated to less than significant
SU or PSU = significant and unavoidable or potentially significant and unavoidable impact that cannot be mitigated to less than significant

[5] Applicant acknowledges that glare from the towers will be noticeable but the PSA provides does not provide evidence indicating that the impact of the glare will be potentially significant.

14. **Page 6.1-67, First Paragraph, Third Sentence:** As described in the General Comments for Alternatives, the PSA does not address the greater levels of fugitive dust emissions that would result during construction of a solar PV alternative. The PV facilities cited in the PSA would require massive grading of the project site (AV Solar Ranch One Project, for example). Applicant suggests revising as follows:

    Construction-related emissions and impacts would be **much greater than Rio Mesa SEGF** for this alternative.

15. **Page 6.1-68, First Full Paragraph:** The PSA does no, but should, consider the greater impacts to biological resources resulting from the extensive grading required by solar PV projects. Applicant suggests revising the PSA as follows:

    Solar PV technology employs either fixed-tilt or tracking solar panels to collect incident radiation. Depending on the design of the solar collectors, a solar PV project will require extensive grading of the site. ~~Each of these two options would have similar potential impacts to biological resources, and this discussion applies to both types of PV solar collectors.~~ Assuming a project footprint with similar boundaries as the proposed Rio Mesa SEGF project, impacts to all terrestrial special-status species and habitats, including waters of the state and waters of the U.S., would be ~~**similar to**~~ **much greater than the proposed Rio Mesa SEGF**. A generic PV project would require substantial additional grading and leveling of the site compared with the Rio Mesa SEGF. ~~However, the proposed project~~ The substantial loss of vegetation and substrate in graded areas would result in a ~~**similar**~~ **much greater loss of habitat** throughout the entire project footprint compared with the Rio Mesa SEGF.

16. **Page 6.1-68, Third Full Paragraph:** Applicant strongly disagrees that collision risk to birds and bats would be less from PV panels than from heliostats. Most PV panels are a deep blue color, are installed contiguously on a project site, and the panels are placed in a very dense arrangement with little space between the panels. The proposed project's heliostats would cover approximately 10 - 15% of the total project site, which allows a much greater space between the heliostats. The proposed Project will present a much more fragmented image. By comparison, PV panels would cover approximately 40% of the project site.[6] As a result, a PV project would produce an appearance similar to a body of water. (See Figure *Alternatives 2*). Since many avian species are attracted to large bodies of water, the PV alternative would pose a greater risk of collision than the Applicant's proposed project. Applicant suggests revising the PSA as follows:

    Operational impacts to birds ~~and perhaps bats~~ from ~~collision with heliostats or~~ flying through the zones of concentrated solar energy above the heliostat fields would be **much less for the Solar PV Alternative than for the proposed Rio Mesa SEGF**. PV technology does not employ mirrors (heliostats) focused on central collector towers. PV technology would not create a zone of concentrated solar energy above the project area and there would be no singeing or burning impacts to birds. Birds would be at risk of collision with the solar PV panels, ~~although~~ and staff ~~believes~~ has no evidence that the collision risk would be ~~less than~~ any different to the risk of collisions with heliostats for the proposed project ~~due to the low reflectivity of PV panels~~. Habitat loss for birds and bats would be dependent on the project footprint, but ~~be~~ would likely be similar to habitat loss for other species (above) and ~~**similar to**~~ **greater than the proposed Rio**

[6] This estimate is based on information received from Thomas Starrs, Managing Director, SunPower, Nov. 2012.

Mesa SEGF since a comparable sized PV facility (from an annual energy production basis) would require 51% more land than the proposed project.

17. **Page 6.1-69, Second Full Paragraph:** The PSA states that the Solar PV Alternative would not require the deep or otherwise specialized foundations that would be required for the collector towers and the numerous heliostat foundations of the proposed project. This is inaccurate for several reasons. The pylons for the Rio Mesa solar fields will not be installed in any kind of foundation, but rather will be inserted into the ground via vibration. Moreover, many PV technologies require foundations to support solar PV arrays (such as those recommended for several of the Projects in Alternatives Table 4). Finally, the number of pylons that will be installed in each solar field of the Project may roughly equate to the number of posts required to install a solar PV panel array, or depending on the technology installed, may even be less than a PV Project,. For these reasons, the PSA should consider impacts to paleontological resources from the proposed Project to be similar to the Solar PV Alternative. Finally, since a PV alternative would require extensive grading, impacts to paleontological resources would be significantly greater under the PV alternative. Applicant suggests revising as follows:

    Construction and operation of the Solar PV Alternative at the proposed project site could have ~~**less**~~ **similar impacts compared to the proposed Rio Mesa SEGF**. While t~~T~~he Solar PV Alternative would not require the deep or otherwise specialized foundations required for the Rio Mesa SEGF, all of that excavation at Rio Mesa will be monitored by a paleontological monitor. In addition, impacts to paleontological resources from insertion of the heliostat pylons, is estimated to impact only 0.2% of the underlying paleosol resource. This minute amount of unrecoverable impact to paleontological resources is less than significant. ~~that would be required for the collector towers and the numerous heliostat foundations of the proposed project. The~~ Solar PV would eliminate~~ion~~ most of the deep foundations and would decrease the potential for encountering fossil bearing strata and, due to elimination of tall tower structures, the project as a whole would have a decrease in seismic susceptibility. However, the massive grading required for the installation of the solar PV panel systems and transformers would require monitoring by a paleontological monitor as mitigation to assure that discovered resources are properly accounted. Therefore, while the site excavation activities are quite different between the Rio Mesa SEGF and the~~The~~ Solar PV Alternative, both alternatives would ~~not worsen current conditions, and would not~~ result in impacts that are similar and not cumulatively significant under CEQA ~~significant~~. ~~Potential impacts on geological and paleontological resources under this alternative would be **less than the Rio Mesa SEGF**~~.

18. **Pages 6.1-74, First Full Paragraph:** The PSA assumes that the PV panels would require cleaning at a lesser frequency than the Project's heliostats without providing any supporting evidence. Additionally, Staff assumes that because more area will be graded and additional dirt roads created for ease of access to maintain the PV panels, less fugitive dust will be emitted during operation. Finally, Staff concludes that impacts related to soil erosion during project operations would be less than the proposed Project. These assumptions and conclusions are made without supporting evidence and are seemingly counterintuitive in nature. Applicant asserts that the large-scale grading that would accompany many Solar PV technologies (as stated in the 5th sentence of this paragraph) would result in far greater impacts from soil erosion than the limited ground disturbance proposed for the Rio Mesa SEGF.

19. **Page 6.1-77 through 6.1-79, Alternatives Table 6:** The Applicant has proposed revisions to several resource area analyses which should be incorporated in the Table 6 as noted below.

Alternatives Table 6
Summary Comparison of the Proposed Project's Impacts
to the Parabolic Trough Alternative

	Proposed Project	Parabolic Trough Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Air Quality			
Construction-related emissions	SM	SM	~~Similar~~ Much Greater (due to extensive grading)
Project operations emissions	SM	SM	Slightly greater
Greenhouse Gases	LS	LS	Similar
Biological Resources			
Impacts to vegetation and special status plants	SM	SM	Much ~~Slightly~~ greater
Impacts to waters of the US	SM	~~SM~~ PSU	Much ~~Slightly~~ greater
Impacts to waters of the state including microphyll woodland habitat	~~PSU~~PSM	~~PSU~~PSM	Much Greater ~~Similar~~
Impacts on desert tortoise	SM	SM	Slightly greater
Impacts on special-status terrestrial wildlife species (other than desert tortoise)	SM	SM	Slightly greater
Impacts on avian species, including raptors	~~SU~~PSM	SM	~~Much less~~ Similar
Cultural Resources			
Potential to disturb, destroy, or visually degrade significant prehistoric and historical archaeological sites or ethnographic resources, or impact built environments on or beyond the site	~~UNK at this time~~ PSM	~~UNK at this time~~ PSU	~~UNK at this time~~ Much Greater (due to the need for extensive grading)
Geology and Paleontology			
Potential impacts from strong seismic shaking	SM	SM	Greater ~~Less~~ (Due to miles of HTF Piping)
Potential impacts from soil failure caused by hydro-collapse and/or dynamic compaction	SM	SM	Similar ~~Less~~
Potential impacts on paleontological resources	~~SU~~LS	~~SU~~PSM	~~Similar to~~ Greater than
Hazardous Materials			
Risk of fire or explosion during commissioning or operations	SM	SM	Much ~~Slightly~~ greater (Due do miles of HTF Piping)
Risk of hazardous material spill off-site during hazardous materials transportation	SM	SM	Slightly greater
Risk of hazardous material spill off-site resulting from hazardous materials storage and use on-site	SM	SM	~~Similar~~ Slightly Greater
Risk of drawdown of emergency response services causing impact off-site	SM	SM	Slightly greater

Alternatives Table 6
Summary Comparison of the Proposed Project's Impacts
to the Parabolic Trough Alternative

	Proposed Project	Parabolic Trough Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Land Use			
Compatibility with land use plan, policy, or regulation	LS	LS	Similar
Noise and Vibration			
Potential for noise to impact noise-sensitive receptors	SM	SM	Similar
Public Health			
Potential for project operations to cause air toxics-related impacts that could affect public health	LS	LS	Similar
Socioeconomic Resources			
Adversely impact acceptable levels of service for police protection (law enforcement), schools, parks, and recreation	~~SM~~LS	~~SM~~LS	Similar
Displace substantial numbers of people and/or existing housing	LS	LS	Similar
Induce substantial population growth in the area	SM	SM	Similar
Traffic and Transportation			
Damage to Roads and Bridges	SM	SM	~~Slightly less~~ Similar
Glint Impacts to Motorists and Pilots – heliostats	SM	SM	~~Much less~~ Similar
Level of Service on Roads and Highways – Construction	SM	SM	~~Much less~~ Similar
Level of Service on Roads and Highways – Operation	LS	LS	Slightly greater
Glare Impacts to Motorists and Pilots – solar receiver steam generator	LS	LS	Much less
Transmission Line Safety and Nuisance			
Potential for impacts related to aviation safety, hazardous shocks, nuisance shocks, and electric and magnetic field exposure	SM	SM	Similar
Visual Resources			
Visual change/contrast of project facilities, excluding glare effect	~~SU~~ LS	~~SU~~ LS	Less
Potential to create a new source of glare from solar receivers	~~SU~~ LS	LS	~~Much~~ less
Waste Management			
Material/waste generated during the construction and operation would be managed in an environmentally safe manner, i.e. recycling or disposal	SM	SM	~~Similar~~ Slighlty Greater
Potential for disposal or diversion of project materials to cause impacts on existing waste disposal or diversion facilities	SM	SM	~~Similar~~ Slighlty Greater
Potential for impacts on human health and the environment related to past or present soil or water contamination	SM	SM	~~Similar~~ Much Greater (due to extensive grading and miles of HTF Piping)

Alternatives Table 6
Summary Comparison of the Proposed Project's Impacts
to the Parabolic Trough Alternative

	Proposed Project	Parabolic Trough Alternative	
Environmental Effect	**Impact Significance**	**Impact Significance**	**Comparison to Proposed Project**
Soil and Surface Water			
Soil erosion by wind and water during project construction or operations	SM	SM	~~Greater~~ Much Greater (due to extensive grading
Potential contamination of groundwater resources from infiltration	SM	SM	~~Similar~~ Greater (due to potential HTF leaks)
Environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly	SM	SM	~~Similar~~ Greater (due to massive storm water diversion)
Water Supply			
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level	LS	LS	Similar

Notes: — = no impact
UNK = significance of impact is unknown
B = beneficial impact
LS = less-than-significant impact, no mitigation required
SM or PSM = significant or potentially significant impact that can be mitigated to less than significant
SU or PSU = significant and unavoidable or potentially significant and unavoidable impact that cannot be mitigated to less than significant

20. **Page 6.1-80, First Sentence:** The PSA does not address the greater levels of fugitive dust emissions that would result from grading during construction of a solar trough alternative. Applicant suggests revising the PSA as follows:

    Construction-related emissions and impacts would be **greater than the** ~~**similar to**~~ **Rio Mesa SEGF** for this alternative.

21. **Page 6.1-80, First Full Paragraph:** The PSA does not consider the greater impacts to biological resources resulting from the extensive grading required by solar trough projects. Applicant suggests revising as follows:

    Assuming a project footprint with similar boundaries as the proposed Rio Mesa SEGF project, impacts from the Parabolic Trough Alternative to all terrestrial special-status species and habitats, including waters of the state and waters of the U.S., would be ~~**similar to**~~ **much greater than the proposed project**. A generic solar parabolic trough project would require substantial additional grading and leveling of the site compared with the Rio Mesa SEGF. ~~However, the proposed project~~ The extensive loss of vegetation and substrate in graded areas would result in a ~~**similar**~~ **much greater loss of habitat** throughout the entire project footprint compared with the Rio Mesa SEGF.

22. **Page 6.1-80, Third Full Paragraph:** The PSA asserts that risk of collision from the Solar Parabolic Trough Alternative would be much less than for the proposed project due the shape and reduced accessibility of the mirror surfaces to birds (due to the presence of the HTF tube in front of the mirrors and the concavity of the mirrors themselves). Applicant disagrees. Further,

the PSA for the Carrizo Energy Solar Farm states that the 56-foot tall receiver structures would require guy wires for stabilization, resulting in a network of guy wires throughout the solar field, which would pose a collision threat to avian and bat species which would not exist at the proposed Project. The receivers may also attract avian species as a potential perching location. In addition, the PSA provides no evidence for the assertion that birds have similar sensitivities to light as humans. This statement is unfounded and should be deleted from the PSA. Applicant suggests revising the PSA as follows:

> Parabolic trough technology can cause significant glint and glare impacts to wildlife, including golden eagles and other raptors, and other special status species. The glint and glare impacts of solar trough technology can cause light intensity unsafe for humans at a distance of approximately 60 feet from the solar field perimeter fencing (Energy Commission 2010c). ~~Assuming that birds' tolerance to light intensity is similar to human tolerance, this impact to birds could be significant.~~ In addition, birds would be at risk of colliding with parabolic mirrors, and the guy wires and the receivers. The receivers for the parabolic trough technology can also attract avian species as a potential perching location.~~, though staff believes that risk of collision would be much less than for the proposed project due to shape and reduced accessibility of the mirror surfaces to birds (due to the presence of the HTF tube in front of the mirrors and the concavity of the mirrors themselves). Finally, the risk to birds of burning or other damage from concentrated solar energy would be much less than for the proposed project.~~ In sum, the risk of Parabolic Trough Alternative to birds including golden eagle, other raptors, and other special-status species would be ~~**much less**~~ **similar for the Parabolic Trough Alternative than for the proposed Rio Mesa SEGF**. Habitat loss for birds and bats would be dependent on project footprint, but would be would be similar to habitat loss for other species (above) and ~~**similar to**~~ **much greater than the proposed Rio Mesa SEGF**.

23. **Page 6.1-87-88: Solar PV Alternative:** The Engineering Assessment for the PV Alternative measures the efficiency of PV panels by evaluating the solar irradiance that will be measured on a PV panel. Based on the estimated irradiance, the PSA provides estimates of expected efficiency rates per square meter for fixed tilt and dual axis PV systems. The Applicant is concerned that this analysis is incomplete and potentially misleading. Irradiance does not allow for an accurate comparison of PV as an alternative to SPT from an engineering perspective because the amount of solar radiance on a PV panel is not a primary predictor of generic PV (or SPT) performance. PV performance is a function of multiple factors, including solar-to-electric conversion efficiency of the panels at different illumination levels and environmental conditions, DC-to-AC conversion efficiency of the inverters, and overall balance-of-plant efficiency (solar field distribution losses, transformers, etc.). In addition, high temperature performance degradation and long-term performance degradation, affect the ultimate reliability of PV systems. Thus, simply calculating the amount of irradiance does not allow for an accurate comparison of the efficiency of PV panels to the SPT technology. Accordingly, the Applicant suggests revising the PSA to remove the analysis of irradiation and instead provide a quantitative comparison of the operational attributes of Solar PV and the proposed project as indicated in the text edits shown below:

> A dual-axis PV tracker faces the sun, while an SPT heliostat faces halfway between the sun and the receiver. PV uses global radiation to convert sunlight to energy. PV converts light energy to direct-current electricity at low voltage, while SPT converts light energy to thermal energy in steam which is used to generate high-voltage AC electricity like any

other thermal generator on the grid. Consequently, the respective conversion efficiency of PV is not comparable to the SPT technology.

In addition, Solar PV has a lower on-peak availability factor than the SPT technology. According to the CPUC's "RPS Calculator", PV systems have on peak availability factors between 51-65%, whereas solar thermal systems have on-peak availability factors of 71-87%. In other words, the proposed project would operate more during peak conditions or the "coincident peak".

Finally, there are a range of other attributes provided by solar thermal that are known to be desirable from an operational perspective, and cannot be provided by PV. The proposed project would utilize synchronous generators, providing similar reliability and operational benefits to the system as conventional power plants at no additional costs. When the SPT plants are on-line, these benefits include reactive power support, dynamic voltage support, voltage control, some degree of inertia response, primary frequency control, frequency and voltage ride-through, small signal stability damping, and the ability to mitigate Sub-Synchronous Resonance ("SSR"). In addition, according to the California Independent System Operator (CAISO), "the system capacity will be lowered if Solar Thermal projects in the Eastern Bulk System are not dispatched". Thus, the technology of the proposed project would provide attributes that bring system benefits, which solar PV cannot provide.

~~PV cells convert solar radiation directly into electrical current. Photons of light excite electrons to a higher energy state, providing the potential to induce current. Direct current (DC) from the PV cells pass through an inverter, which converts DC to alternating current suitable for transmission to the electrical power grid.~~

~~Using average annual daily radiation as a benchmark, **Alternatives Table 7** shows the effectiveness of different types of solar collectors for the alternative renewable technologies evaluated in this staff assessment. The table lists the total daily values for the weather station nearest the project site, represented by monthly and average annual conditions and sorted by collector type. Data are shown for a double-axis flat-plate collector typical of a power tower heliostat; the daily insolation value is 9.4 kWh/m^2 day (Category 1.3). From **Alternatives Table 7**, the incident radiation for a flat-plate fixed-tilt PV panel is 6.6 kWh/m^2 day (Category 1.1) and 9.1 for a single-axis flat-plate collector typical of a tracking PV system (Category 1.2). Using comparative ratios, the flat-plate double-axis collectors associated with the SPT project perform 42 percent better than the fixed-tilt PV panels [(9.4-6.6)/6.6 = 0.42]. The performance factor between the single-axis tracking PV panels and the representative SPT heliostats is 3 percent [(9.4-9.1)/9.1 = 0.03]. To conclude, the SPT project heliostats function 42 percent better than the fixed-tilt PV panels, but the performance differential between the SPT heliostats and the single-axis tracking PV panels is insignificant[7].~~

[7] ~~Since 3 percent is less than the plus or minus 9 percent uncertainty in the historical measurements, the collection effectiveness of the Rio Mesa SEGF heliostats and a project using single-axis tracking flat plate PV collectors is similar.~~

Alternatives Table 7
Average Daily Solar Radiation at Daggett, California
(kilowatt hours per square meter [kWh/m^2])

Tilt	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Category 1.1: Flat-Plate Collectors with Fixed-Tilt PV Modules													
34.9°	5.3	6.0	6.8	7.4	7.4	7.4	7.2	7.3	7.3	6.8	5.2	6.6	6.6
Category 1.2: Flat-Plate Collectors with Single-Axis Tracking, North-South Axis, Tracking PV Modules													
34.9°	6.5	7.5	9.0	10.3	10.9	11.2	10.7	10.6	10.1	8.8	7.2	6.3	9.1
Category 1.3: Flat-Plate Collectors with Double-Axis Tracking, SPT Heliostats													
34.9°	6.9	7.7	9.0	10.4	11.3	12.0	11.4	10.8	10.1	9.0	7.5	6.8	9.4
Category 1.4: Single-Axis Direct Beam Concentrating Collectors, Parabolic Trough													
34.9°	5.1	5.8	6.9	8.0	8.4	8.9	8.4	8.4	8.2	7.2	5.7	5.0	7.2

Source: Weather Bureau Army Navy (WBAN), excerpts from WBAN No. 23161 for Daggett, California, which is the closest measuring station to the proposed Rio Mesa SEGF site

24. **Page 6.1-90, Last Paragraph**: The PSA concludes that, excluding the no project alternative, the environmentally superior alternative appears to be the Solar Photovoltaic Alternative. As discussed above in General Comment 4, the PV Alternative should be dismissed from detailed analysis because it is potentially infeasible due to the fact that the Commission and the Applicant are unable to pursue this alternative. Even if staff considers the PV Alternative in detail, the PV alternative should still be rejected because it is not an economically viable alternative and would not reduce significant impacts posed by the preferred alternative.

    As discussed above in the Applicant's specific comments, the PSA's conclusion that the PV alternative is the environmentally preferred alternative is based on an incomplete analysis. The PSA does not fully consider the extensive grading required for the PV technologies presented in the PSA. The PSA's analysis of the risk to avian species is also unsupported. Based on the Summary comparison table presented in Alternatives Appendix-2, which has been updated within these comments to reflect the Applicants response to the PSA, the environmentally superior Alternative (excluding the no project alternative) would be the reduced acreage alternative. However, as shown above, the reduced environmental impact of the reduced acreage alternative should be dismissed as infeasible because it is not economically viable at this particular site. Moreover, the environmental benefits of a reduced acreage alternative do not outweigh the loss of 250MW of stable renewable energy generation, as well as the greater number of jobs associated with a two unit project. For these reasons, the Commission should conclude that the preferred alternative is the proposed project.

    Accordingly, the PSA should be revised as follows:

    > Based on the alternatives analysis, the environmentally superior alternative is the no project alternative. Among the action alternatives ~~(excluding the no project alternative)~~, the reduced acreage alternative is the environmentally superior alternative. However, the reduced acreage site would not be feasible because it is not considered economically viable at this project site. Since the reduced acreage alternative is not

feasible, the proposed project is the preferred alternative. ~~the Solar Photovoltaic Alternative is preferred for biological resources and visual resources. For paleontological resources, the Sonoran West Off-Site Alternative would be preferred. At this time, the Sonoran West Off-Site Alternative appears to be preferred to the proposed site for cultural resources; however, additional analysis will be completed for publication in the FSA that may provide additional information regarding the cultural resources comparison between the two sites. Given the information available at this time, the environmentally superior alternative appears to be the Solar Photovoltaic Alternative.~~

25. **Alternatives Appendix**-2: Please modify this appendix to incorporate the suggested changes in this response.

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
Air Quality							
Construction-related emissions	SM	—	~~Slightly less than~~ Similar to Rio MESA SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	~~Similar to~~ Much Greater than Rio Mesa SEGF (SM)	Much Greater than~~Similar to~~ Rio Mesa SEGF (SM)
Project operations emissions	SM	—	Similar to Rio Mesa SEGF (SM)	UNK ~~Less than Rio Mesa SEGF (SM~~)	Less than Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	Slightly greater than Rio Mesa SEGF (SM)
Greenhouse Gases	LS	—	Similar to Rio Mesa SEGF (LS)	UNK ~~Less than Rio Mesa SEGF (LM)~~	~~Slightly~~ Much greater than Rio Mesa SEGF (LS)	Greater ~~Slightly less~~ than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)
Biological Resources							
Impacts to vegetation and associated wildlife	SM	Much less than RMSEGS (LS)	Similar to Rio Mesa SEGF, greater than Rio Mesa SEGF for sand dune habitat (SM)	Similar to Rio Mesa SEGF (SM)	~~Much~~ less than Rio Mesa SEGF (SM)	~~Similar to~~ Much greater than Rio Mesa SEGF (SM)	Much ~~Slightly~~ greater than Rio Mesa SEGF (SM)

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
Impacts on waters of the U.S.	SM	Much less than RMSEGS (LS)	~~Much~~ less than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (SM)	~~Much~~ less than Rio Mesa SEGF (SM)	~~Similar to~~ Much greater than Rio Mesa SEGF (SM)	~~Slightly~~ much greater than Rio Mesa SEGF (SM)
Impacts to Waters of the State including desert microphyll vegetation and associated wildlife habitat	~~PSU~~ PSM	Much less than RMSEGS (LS)	Similar to Rio Mesa (~~PSU~~PSM)	Similar to Rio Mesa (~~PSU~~PSM)	~~Much~~ less than Rio Mesa (Expected SM)	~~Similar to~~ Much greater than Rio Mesa SEGF (SM)	Much greater than ~~Similar to~~ Rio Mesa (UNK)
Impacts on desert tortoise	SM	Much less than RMSEGS (LS)	Slightly greater than Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	~~Much~~ less than Rio Mesa SEGF (SM)	Similar to ~~Much Greater than~~ Rio Mesa SEGF (SM)	Slightly greater than Rio Mesa SEGF (SM)
Impacts on special-status terrestrial wildlife species (other than desert tortoise)	SM	Much less than RMSEGS (LS)	Greater than Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	~~Much~~ less than Rio Mesa SEGF (SM)	~~Similar to Much~~ Slightly greater than Rio Mesa SEGF (SM)	Slightly greater than Rio Mesa SEGF (SM)
Impacts on avian species, including raptors	~~SU~~PSM	Much less than RMSEGS (LS)	Similar to ~~or slightly less than~~ Rio Mesa SEGF (SUPSM)	Similar to Rio Mesa SEGF (~~SU~~PSM)	Less than Rio Mesa SEGF (~~SU~~PSM)	~~Much less than~~ Similar to Rio Mesa SEGF (SM)	~~Much less than~~ Similar to Rio Mesa SEGF (SM)
Cultural Resources							

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
Potential to disturb, destroy, or visually degrade significant prehistoric and historical archaeological sites or ethnographic resources, or impact built environments on or beyond the site	PSM~~UNK at this time~~	UNK at this time	UNK at this time	Similar to Rio Mesa SEGF (PSM)~~UNK at this time~~	Slightly less to Rio Mesa SEGF (PSM) ~~UNK at this time~~	Much greater (due to the need for extensive grading)~~UNK at this time~~	Much greater (due to the need for extensive grading)~~UNK at this time~~
Geology and Paleontology							
Potential impacts from strong seismic shaking	SM	Much less than RMSEGS (LS)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (~~LS~~ SM)	Less than to Rio Mesa SEGF (PSM)	Similar to ~~Less than~~ Rio Mesa SEGF (SM)	Greater ~~Less~~ than Rio Mesa SEGF (PSM)
Potential impacts from soil failure caused by hydro-collapse and/or dynamic compaction	SM	Much less than RMSEGS (LS)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (~~LS~~ SM)	Less than Rio Mesa SEGF (PSM)	Similar to ~~Less than~~ Rio Mesa SEGF (SM)	Similar to ~~Less than~~ Rio Mesa SEGF (PSM)
Potential impacts on paleontological resources	~~SU~~LS	Much less than RMSEGS (LS)	~~Much less than~~ Similar to Rio Mesa SEGF (~~SM~~LS)	Similar to Rio Mesa SEGF (~~SU~~LS)	Less than Rio Mesa SEGF (~~SU~~LS)	Much Greater ~~Less~~ than Rio Mesa SEGF (PSM)	~~Much~~ Greater than ~~Similar to~~ Rio Mesa SEGF (PSM)
Hazardous Materials							
Risk of fire or explosion during commissioning or operations	SM	__	Similar to Rio Mesa SEGF (SM)	Slightly Greater ~~Similar~~ to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (LS)	Much ~~Slightly~~ greater than Rio Mesa SEGF (SM)

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
Risk of hazardous material spill off-site during hazardous materials transportation	SM	—	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Slightly greater than Rio Mesa SEGF (SM)
Risk of hazardous material spill off-site resulting from hazardous materials storage and use on-site	SM	—	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Slightly greater than~~Similar to~~ Rio Mesa SEGF (SM)
Risk of drawdown of emergency response services causing impact off-site	SM	—	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Slightly greater than Rio Mesa SEGF (SM)
Land Use							
Compatibility with land use plan, policy, or regulation	LS	—	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)
Noise and Vibration							
Potential for noise to impact noise-sensitive receptors	SM	—	~~Slightly less than~~ Similar to Rio Mesa SEGF (~~SM~~LS)	Slightly Greater than Rio Mesa SEGF (SM)	Slightly less than Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)
Public Health							
Potential for project operations to cause air toxics-related impacts that	LS	—	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Less than Rio Mesa SEGF (LS)	Similar to ~~Less than~~ Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
could affect public health							
Socioeconomic Resources							
Adversely impact acceptable levels of service for police protection (law enforcement), schools, parks, and recreation	~~SM~~LS	—	Similar to Rio Mesa SEGF (~~SM~~LS)	Similar to Rio Mesa SEGF (~~SM~~LS)	Slightly less than Rio Mesa SEGF (~~SM~~LS)	Similar to than Rio Mesa SEGF (~~SM~~LS)	Similar to Rio Mesa SEGF (~~SM~~LS)
Displace substantial numbers of people and/or existing housing	LS	—	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)
Induce substantial population growth in the area	SM	—	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)
Traffic and Transportation							
Damage to Roads and Bridges	SM ~~PSM~~	—	Less than Rio Mesa SEGF (PSM)	Similar to or slightly greater than Rio Mesa SEGF (PSM)	Less than Rio Mesa SEGF (SM)	Slightly less than Rio Mesa SEGF (SM)	Similar to ~~Slightly less than~~ Rio Mesa SEGF (SM)
Glint Impacts to Motorists and Pilots – heliostats	SM ~~PSM~~	—	Slightly greater than Rio Mesa SEGF (PSM)	Similar to Rio Mesa SEGF (PSM)	Similar to Rio Mesa SEGF (PSM)	~~Much~~ less than Rio Mesa SEGF (SM)	Similar to ~~Much less~~ than Rio Mesa SEGF (SM)

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
Level of Service on Roads and Highways – Construction	SM ~~LS~~	—	Slightly less to Rio Mesa SEGF (SM)	Similar to or slightly greater than Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	~~Much~~ Slightly less than Rio Mesa SEGF (SM)	Similar to ~~Much less than~~ Rio Mesa SEGF (SM)
Level of Service on Roads and Highways – Operation	LS	—	Similar to Rio Mesa SEGF (LS)	Similar to ~~or slightly greater than~~ Rio Mesa SEGF (LS)	Less than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Slightly greater ~~More~~ than Rio Mesa SEGF (LS)
Glare Impacts to Motorists and Pilots – solar receiver steam generator	LS	—	Slightly greater than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (LS)	Much less than Rio Mesa SEGF (LS)	Much less than Rio Mesa SEGF (LS)
Transmission Line Safety and Nuisance							
Potential for impacts related to aviation safety, hazardous shocks, nuisance shocks, and electric and magnetic field exposure	SM	—	Slightly less than Rio Mesa SEGF (SM)	Similar to RMSEGS (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)
Visual Resources							
Visual change/contrast of project facilities, excluding glare effect	~~SU~~ LS	Much less than Rio Mesa SEGF (LS)	Slightly greater than Rio Mesa SEGF (LS)	Similar to RMSEGS (~~SU~~ LS)	Similar to Rio Mesa SEGF (LS)	NA~~Less than Rio Mesa SEGF (LS)~~	Less than Rio Mesa SEGF (LS)
Potential to create a new source of glare from solar	~~SU~~LS	Much less than Rio Mesa SEGF (LS)	Slightly greater than Rio Mesa SEGF	Similar to RMSEGS (~~SU~~ LS)	Similar to Rio Mesa SEGF (~~SU~~ LS)	NA~~Much less than Rio Mesa SEGF (SU)~~	~~Much~~ less than Rio Mesa SEGF (SU)

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
receivers			(~~SU~~LS)				
Waste Management							
Material/waste generated during the construction and operation would be managed in an environmentally safe manner, i.e. recycling or disposal	SM	—	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Slightly greater than ~~Similar to~~ Rio Mesa SEGF (SM)
Potential for disposal or diversion of project materials to cause impacts on existing waste disposal or diversion facilities	SM	—	Similar to Rio Mesa SEGF (PSM)	Similar to Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (PSM)	Slightly greater than ~~Similar to~~ Rio Mesa SEGF (PSM)
Potential for impacts on human health and the environment related to past or present soil or water contamination	SM	—	Slightly greater than Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Similar to or slightly greater than Rio Mesa SEGF (SM)	Much greater than ~~Similar to~~ Rio Mesa SEGF (SM)
Soil and Surface Water							
Soil erosion by wind and water during project construction or	SM	Much less than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	Much Greater than Rio Mesa SEGF (SM)	Much Greater than Rio Mesa SEGF (SM)

Alternatives Appendix-2
Summary Comparison of the Proposed Project's Impacts to the Project Alternatives and the No-Project Alternative

Environmental Effect	Proposed RMSEGS Project	No-Project Alternative	Sonoran West Off-site Alternative	Solar Power Tower with Energy Storage Alternative	Reduced Solar Power Tower Alternative with or without Energy Storage	Solar Photo-voltaic Alternative	Parabolic Trough Alternative
operations							
Potential contamination of groundwater resources from infiltration	SM	Much less than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Greater than ~~Similar to~~ Rio Mesa SEGF (SM)
Environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly	SM	Much less than Rio Mesa SEGF (LS)	Similar to Rio Mesa SEGF (SM)	Similar to Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	Greater ~~Less~~ than Rio Mesa SEGF (SM)	Greater than ~~Similar to~~ Rio Mesa SEGF (SM)
Water Supply							
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level	LS	—	UNK ~~Similar to~~ Rio Mesa SEGF (~~SM~~ LS)	Slightly Greater than Rio Mesa SEGF (SM)	Less than Rio Mesa SEGF (SM)	NA ~~Less than Rio Mesa SEGF (SM)~~	Similar to Rio Mesa SEGF (SM)

Notes: — = no impact
UNK = significance of impact is unknown
B = beneficial impact
LS = less-than-significant impact, no mitigation required
SM or PSM = significant or potentially significant impact that can be mitigated to less than significant
SU or PSU = significant and unavoidable or potentially significant and unavoidable impact that cannot be mitigated to less than significant

GENERAL CONDITIONS
INCLUDING COMPLIANCE MONITORING AND CLOSURE PLAN

SPECIFIC COMMENTS

1. **Page 7-2, Grading, Boring, and Trenching:** Please revise the text of the PSA as follows:

   Construction-related grading, boring, and trenching refers to activities that result in subsurface soil work at the site and for access roads and linear facilities, e.g., alteration of the topographical features such as leveling, removal of hills or high spots, moving of soil from one area to another, and removal of soil.

   Notwithstanding the definitions of ground disturbance, grading, boring, and trenching above, construction does not include the following:

   1. the installation of environmental monitoring equipment;
   2. a soil or geological investigation;
   3. a topographical survey;
   4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
   5. any work to provide access to the site for any of the purposes specified in "Construction" 1, 2, 3, or 4 above, <u>including, but not limited to, implementation of the UXO Identification, Training and Reporting Plan and installation and use of groundwater wells for dust suppression</u>.

2. **Page 7-19, Compliance Table 1:** Please add a description of new COMPLIANCE-16 condition as discussed below under Proposed Conditions of Certification.