

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

**Applicant's General Comments and Comments to Conditions of Certification
on the Preliminary Staff Assessment**

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GENERAL COMMENTS

Due to the length and number of topics in the Biological Resources section of the PSA, Applicant's General Comments have been organized by subject area. The Specific Comments contained in Volume 2 of the Applicant's PSA Comments refer to Applicant's General Comments where applicable to explain the reasons for the recommended text changes identified in that section.

General Comments on LORS Compliance Issues Related to the Federal Migratory Bird Treaty Act, California Fish and Game Code Sections 3503.5 and 3513, Impact Uncertainty, and Compensatory Mitigation for Unknown Impacts:

1. The PSA departs from prior CEC practice and applicable law by suggesting that, unlike all prior CEC assessments of solar reflective technology reviewed by Applicant (see summary below), the proposed project's impacts generate LORS compliance issues and significant unmitigable impacts to avian species. The CEC presents no new information to support this position. The PSA's statements regarding mirrored heliostat and solar flux risks appear to comprise the most substantial issues for CEC staff, but they conflict with empirically-validated research data from other operating facilities (General Comments 26 through 29). Applicant has provided staff with two recent avian impact studies from Torresol's GEMASolar Project in Southern Spain, and the initial interim avian impact study conducted by Bio-Logic and the Society for the Protection of Nature in Israel at BrightSource's SEDC facility, each of which documented no avian fatalities that could be attributed to any of the collision or solar flux impact risks identified in the PSA. The FSA should incorporate this information into its analysis. The PSA has not addressed empirical data developed from rigorous, scientifically-valid tests at the Israel facility, demonstrating that avian temperature responses to solar flux are orders of magnitude lower than the speculative projections in the PSA. The studies also demonstrated that any potential flux-related avian effects would be confined to an insignificant portion (less than 0.04%) of the facility airspace and located near the top of the central towers where operational noise, lack of habitat, and perch and nest proofing would substantially discourage any avian activity. Consistent with prior CEC assessments, the PSA acknowledges that the nature, extent, and magnitude of any avian impact risk that might be associated with new solar reflective technologies, cannot be estimated or calculated with certainty at this time. In marked contrast with these previous precedents, the PSA concludes that unknown potential impacts can be determined to be significant without substantial evidence.
2. The PSA further concludes that adaptive management measures implemented in all prior CEC assessments of solar reflective technology to evaluate and respond to substantially similar unknown, potential impacts will be uniquely ineffective for the proposed project. Additionally, it determines that no feasible methods can be identified to mitigate for unknown, potential impacts, but nevertheless includes new impact compensation requirements, including regional power pole retrofitting, to mitigate for these unknown, potential impacts. In every prior analysis of solar reflective and similar renewable energy technologies that are being developed

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in response to critically important state and federal low-carbon energy policies, the CEC has concluded that, notwithstanding avian impact uncertainties, the implementation of: (i) feasible avoidance and minimization measures; (ii) an avian mortality monitoring and protection plan; and (iii) an adaptive management program, will reduce potential avian impacts to less than significant levels and comply with all LORS. The PSA should be revised in a manner that is consistent with prior CEC certifications of similar technology.

3. The PSA concludes that the project, alone among all other solar reflective renewable energy facilities previously approved by the CEC, will not comply with several avian-related LORS. The PSA, however, explicitly concedes that: (a) "Due to the many factors contributing to bird collision risk, staff cannot quantify expected bird mortalities from collision with project facilities" and (b) "Due to the many factors contributing to bird collision risk [*sic*; correct reference should be to "radiant energy flux risk"], staff cannot quantify expected bird mortalities from radiant energy flux." (Cite new Section) The FSA should conclude that the project will comply with avian-related LORS with the implementation of the conditions of certification, as it did for previous projects.
4. The PSA characterizes impacts from flux and collisions as speculative and unquantifiable, and then concludes that the impacts cannot be mitigated "below a level of significance." PSA, pp. 4.2-87 through 4.2-88. As discussed more fully below, evaluating impacts on the basis of pure speculation is impermissible under CEQA, and the PSA should be revised to comply with CEQA.

The staff approach to the project is inconsistent with its previous decisions on similar projects as well as the U.S. Bureau of Land Management ("BLM") assessment of the Crescent Dunes Solar Energy Project, a solar tower facility with substantially similar potential avian impacts located near Tonopah, Nevada (approved in December 2010). In each case, the CEC and BLM concluded that: (a) potential avian impacts could occur but cannot be estimated or characterized with certainty due to the developing nature of the technology; (b) certain avoidance and minimization measures can be implemented to reduce these potential impacts; and (c) an adaptive management approach that includes potential impact monitoring, identification of the causes of any observed impacts, and the identification of methods to mitigate for any such observed impacts will reduce potential avian impacts to less than significant levels. There are no credible reasons for departing from this precedent, and the PSA should be revised to be consistent with the prior methodologies and assessment approaches utilized by the CEC. Examples of CEC and BLM approach to these issues include the following:

- a. The Rice Solar Energy Project ("RSEP") includes a solar tower facility that, for purposes of avian impact analysis, is substantially similar to the proposed project. RSEP was approved by the CEC in late 2010. The CEC staff assessment of the project identified and discussed each of the potential avian impact issues discussed in the PSA, including potential mirrored heliostat and solar flux impacts. Staff characterized avian impacts in a very similar manner to the Rio Mesa PSA. In marked contrast with the Rio Mesa PSA, and consistent with applicable law, the CEC staff acknowledged that, "[g]iven the limited research-based data on these impacts, staff cannot conclude that they are significant" (Rice Final Staff Assessment, pp. 6.2-122) and identified an adaptive management approach to mitigate impacts to less than significant levels and comply with all LORS.

Furthermore, Staff argued "[a]vailable data confirm that avian mortality has resulted from similar, much smaller solar facilities. Staff expects that bird mortality also will result from the proposed RSEP. Given the limited research-based data on these impacts, staff cannot conclude that they are significant. However, due to the potential for significant impacts,

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staff recommends monitoring so that if impacts do occur, they can be evaluated and addressed. In Condition of Certification **BIO-25** (Avian and Bat Protection Plan and Monitoring Operational Impacts of Solar Collection Facility on Birds and Bats), staff recommends that Applicant prepare and implement a formal long-term study to determine the effects of the proposed project on migratory and special status bird species." Rice Final Staff Assessment, p. 6.2-122.

"Environmental impacts for all issue areas would not be significant or would be mitigated to a less than significant level, including impacts to biological resources...." Rice Final Staff Assessment, p. 4-10.

"The conditions of certification described below satisfy the following State LORS and take the place of terms and conditions that, but for the Commission's exclusive authority, would have been included in the following State permits...." Rice Final Staff Assessment, pp. 6.2-151 to 6.2-152, including specific reference to the LORS identified in the PSA.

"With implementation of staff's proposed conditions of certification, construction and operation of the RSEP would comply with all federal, State, and local laws, ordinances, regulations, and standards relating to biological resources. Staff recommends adoption of the following conditions of certification to mitigate potential impacts to sensitive biological resources. As described above (C.2.5.2 Assessment of Impacts and Discussion of Mitigation) staff concludes that these measures would reduce the project's impacts to less than significant levels under CEQA." Rice Final Staff Assessment, p. 6.2-156.

These findings were incorporated into the Rice Final Decision (Final Decision, pp. 55-56) which also determined that the project would comply with all LORS, including specific reference to including specific reference to the LORS identified in the PSA (Final Decision, Appendix A). The potential avian impacts that could be associated with the solar reflective technology utilized in the proposed project are virtually identical with the potential avian impacts identified for the RSEP. There are no credible reasons for departing from CEC precedent for a similarly-situated project. The PSA should be revised to reflect the assessment approach in the RSEP certification process.

- b. In its review of the Abengoa Mojave Solar Project, the CEC stated that "there is no research-based data" supporting a finding that avian mortality due to collisions with mirrors would be significant despite a finding that a nearby lake bed "supports thousands of birds during the spring months." Abengoa Final Decision, p. 255. Avian collision impact risks potentially associated with solar reflective surfaces were characterized as "unknown" by the CEC staff. The staff analysis concluded that avoidance, minimization and adaptive management conditions of certification would result in impacts that were "likely less than significant." Abengoa Supp. Staff Assessment, Part B, p. 5.2-62.
- c. The CEC staff assessment of the Blythe Solar Power Project observed that "[s]olar facilities present a new and relatively unresearched risk for bird collisions and other injuries" and that avian responses "to glare from the proposed solar trough technology is not well understood." The assessment further stated that, "diurnal birds could also be at risk of injury and fatality from burns if they flew into the reflected sunlight between parabolic troughs or landed on the collector tubes of heat transfer fluid." Notwithstanding these potential risks, and the CEC staff's belief that "there is insufficient information available to conclude with certainty that the Blythe Project would not be an ongoing source of mortality to birds for the life of the Project," the assessment concluded that an adaptive management

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- COC “would provide the information needed to determine if operation of the Project posed a collision risk for birds, and would provide adaptive management measures to mitigate those impacts to less than significant levels.” Blythe Revised Staff Assessment, pp. C.2-79 through C.2-80. The Blythe Final Decision similarly found that “implementation of the [COCs] would reduce potential project-related direct and indirect impacts to migratory/special-status bird species to less than significant levels.” Blythe Final Decision, pp. 232-233 and 224.
- d. The Calico Solar Project Final Staff Assessment stated that “[s]olar facilities, including large scale complexes such as the 6,215 acre Calico Solar facility, present a new and relatively un-researched risk for bird collisions and other injuries.” CEC staff also stated that “SunCatchers at the Calico Solar Project plant site would pose a collision risk to birds,” and concluded that “it is probable that birds will collide with the structures.” The staff assessment identified approximately 12 to 15 new 220 kV transmission line structures approximately 90 to 110 feet tall as additional potential avian collision risks. Notwithstanding these observations, the CEC staff assessment conceded that, “[t]here is insufficient information available to conclude whether the Calico Solar Project would be a significant ongoing source of mortality to birds for the life of the project.” Consistent with all CEC assessments of solar reflective technology reviewed by Applicant, the staff recommended an adaptive management approach for reducing potential, but uncertain impacts to less than significant levels: “Given the lack of research-based data on the impacts of glare and collision threats to birds, staff’s proposed Condition of Certification BIO-22 (Avian Protection Plan / Monitoring Bird Impacts from Solar Technology), would provide the information needed to develop and implement adaptive management measures to mitigate bird collision impacts. If the SunCatchers pose a collision risk for birds, the applicant shall be required to implement measures such as construction of bird diverters, aerial markers, or other units to minimize potential collision risks for birds. Staff concludes that the Avian Protection Plan and bird impact monitoring as recommended in Condition of Certification BIO-22 would effectively determine rates of bird collisions with project facilities and would result in implementation of further feasible measures as needed to mitigate significant bird collisions, if they should occur, below a level of significance.” Calico Final Staff Assessment, pp. C.2-107 to 108.
- e. The Palen Solar Power Project (original configuration) review process included comments by the Center for Biological Diversity (“CBD”) asserting, among other concerns, that the CEC failed to adequately consider potential mirrored surface impacts to birds. The CEC staff responded by rejecting the notion that mirrored surface impact data from other sources was relevant, and that pre-construction avian surveys would characterize post-development avian occurrence and impact potential: “Staff does not agree with CBD’s assertion that bird collision data from power lines or other reflective surfaces (e.g., windows) could be extrapolated to solar troughs to provide a quantitative assessment of likely bird collisions. Pre-construction bird surveys would not provide useful data on post-construction bird use of the site, after it is graded and developed, or information as to how many birds might be attracted to netted evaporation ponds surrounded by solar arrays. This issue of bird collisions with solar arrays is, as staff has described in the RSA, a topic where there is little information and much uncertainty. Staff believes that Condition of Certification BIO-16 provides a conservative and protective approach to addressing the uncertainty associated with the potential threat of bird collisions with the Project’s solar arrays, and provides an adaptive management approach for addressing impacts if they occur.” Palen Staff Rebuttal Testimony, pp. 8-9. The CEC final decision concluded that, while “uncertainties exist due to

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- the lack of associated research-based data” regarding the impacts associated with new solar reflective technologies, “Condition of Certification BIO-16 has been identified to address these potential impacts. Specifically, this measure includes a requirement to determine if operation of the Project poses a collision risk for birds, and to provide adaptive management measures to mitigate those impacts to less-than significant levels if applicable.” Palen Final Decision, p. 33.
- f. The Imperial Valley Final Decision found that while extent of collision risks with SunCatchers was unknown, an avian protection plan and adaptive management approach would mitigate such impacts to less than significant levels. Imperial Valley Final Decision, p. 242.
- g. The BLM’s approval of the Crescent Dunes solar tower facility was also consistent with the CEC decisions discussed above and included an adaptive management approach to address potential, but unknown impacts that could be associated with new solar reflective renewable energy technology. The FEIS for the project addressed CBD comments asserting that the BLM analysis did not sufficiently consider impacts to migratory birds and golden eagles potentially caused by reflected light and heat, collisions or contact with the facility’s evaporative ponds. In response, the BLM stated that “[s]imilar facilities as the proposed project do not currently exist in the U.S.; therefore, no information exists on the impacts to golden eagles, migratory birds, insect, and bats The mitigation and monitoring plans do provide for progressive responses to any change in impacts to migratory birds or other wildlife as a result of increased temperature zones around the central receiver and heliostats, evaporation ponds, or other project-related operations. In addition, the Notice to Proceed for construction would be contingent upon BLM receiving concurrence from USFWS on the proposed Avian and Bat Protection Plan (ABPP). The proposed ABPP is an agreement between [the project] and the USFWS that addresses potential impacts, mitigation measures, and monitoring requirements.” Crescent Dunes FEIS, pp. 47-49.
5. Under CEQA, a lead agency must "provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment." Pub. Res. Code § 21061 (emphasis added). To assess the impact of a proposed project on the environment, the lead agency examines the changes to existing environmental conditions that would occur in the affected area if the proposed project were implemented. 14 Cal. Code Regs. § 15126.2(a); *San Joaquin Raptor Rescue Ctr. v. County of Merced* (2007) 149 Cal.App.4th 645, 676. CEQA specifically provides that the analysis must avoid speculation, and when no accepted methodology exists to assess an environmental impact, the lead agency may conclude that the impact is too speculative to reliably evaluate and is therefore unknown. In addition, analytical uncertainty does not mandate a conclusion that an impact is significant. *See, e.g., Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal.* (1993) 6 Cal.4th 1112, 1137. When the assessment of a project's effects would be speculative and require an analysis of hypothetical conditions, the effect need not and should not be evaluated in the EIR. *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th 1173, 1182; *Marin Mun. Water Dist. v. KG Land Cal. Corp.* (1991) 235 Cal.App.3d 1652, 1662. All prior CEC decisions concerning reflective solar projects reviewed¹ by Applicant have determined that because potential avian

¹ Projects reviewed include: Abengoa Mojave Solar Project (2010), Beacon Solar Energy Project (2009), Blythe Solar Power Project (2010), and the Palen Solar Power Project (2010) (solar trough/reflective concentrating mirror technology); the Calico Solar Project (2010) and Imperial Valley Solar Project (2010)(approved originally for

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impacts could not be identified with certainty, they cannot be quantified or precisely measured. Consistent with CEQA, all previous CEC decisions addressed this uncertainty by requiring that adaptive management measures be implemented to identify and reduce unknown (or in certain CEC staff assessments, “expected” avian impacts) to less than significant levels. The PSA should be revised to reflect this approach.

6. The PSA analysis of compliance with the federal Migratory Bird Treaty Act (“MBTA”) and Fish and Game Code Sections 3503.5 (birds of prey protection) and 3513 (California’s MBTA counterpart statute) departs from the prior CEC precedent and practice reviewed by Applicant and appears to take the position that no project can comply with these statutes if any possible future avian impact can be identified. In the prior decisions reviewed by Applicant, the CEC has never previously concluded that any risk of future avian mortality raises these LORS compliance issues, even when the CEC analysis concludes that avian impacts are “expected” to occur. This position is neither credible nor reasonable, as the PSA’s analysis could make unlawful any human activity that might impact birds in the state. In particular, since some degree of avian mortality cannot be completely avoided by many, if not all energy facilities, the PSA approach would appear to require that the Commission find that almost all California energy projects will not comply with LORS. The federal MBTA is the model for the avian protection statutes cited in the PSA (indeed, Section 3513 explicitly references the Act). The application of the MBTA has been extensively addressed by the federal courts, and by the U.S. Fish and Wildlife Service (“FWS”), which has exclusive jurisdiction to enforce the Act. , None of the applicable legal precedents and policies is consistent with the PSA interpretation of the Act.
 - a. As reflected in recent (2012) federal decisions, certain courts have found that MBTA liability does not extend to otherwise lawful, commercially valuable activities that do not intend to harm avian species (see, e.g., *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). Other courts have found that, on facts specific to each case, the MBTA can apply to activities that do not intend to harm avian species, such as an otherwise illegal failure to cover waste oil tanks that the operator knew was killing migratory birds. (see, e.g., *United States v. Citgo Petroleum Corporation, et al.*, No. 2:06-cr-00563 memorandum opinion (S.D. Tex. Sept. 5, 2012); see also *United States v. Moon Lake Electrical Ass’n* (D. Colo. 1999) 45 F.Supp. 2d 1070)(unreasonable refusal to install inexpensive avian protection measures for known hazards subject to MBTA enforcement). Even in these cases, many courts have also noted that the MBTA cannot be construed in a manner that would include any form of migratory bird take. For example, in *United States v. Citgo Petroleum*, the court dismissed claims that the statute could make any bird take illegal by noting that, “Certainly construction that would bring every killing within the statute, such as deaths caused by automobiles, airplanes, plate glass modern office buildings or picture windows in residential dwellings into which birds fly, would offend reason and common sense”(quoting *United States v. FMC Corp.*, 572 F.2d 902, 908 (2d Cir. 1978)).
 - b. Reflecting these concerns, the FWS has recognized that it must avoid overbroad enforcement of the Act, particularly in contexts where unreasonable enforcement would

reflective, concentrating stirling engine solar technology); and the Rice Solar Energy Project (2010) and Ivanpah Solar Energy Project (2010)(concentrating solar tower technology).

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- severely harm critical industries and technologies. In 2000, for example, the Department of the Interior clarified that the FWS has “used enforcement and prosecutorial discretion in the past regarding individuals or companies who have made good faith efforts to avoid the take of migratory birds” in the context of communications towers, which unavoidably cause substantial avian mortality. The intent of the 2000 memorandum was to provide assurance to the communications industry that, without conceding the limitations of the MBTA, tower operators that reasonably implement avian mortality avoidance measures would not be subject to FWS prosecution (Jamie Rappaport Clark, *Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers, Memorandum to Regional Directors, U.S. Department of the Interior* (September 14, 2000)). Similarly, in the context of energy pipeline projects that also unavoidably cause avian mortality, the FWS has stated that “[w]hile the FWS recognizes that it cannot absolve companies from liability under the MBTA, it also recognizes that overzealous prosecution would be counter-productive. Thus, in implementing the statute, the FWS has stated that it will focus its enforcement efforts on companies that have acted ‘with disregard for their actions and the law, especially when conservation measures have been developed but are not properly implemented.’” FWS, Pipeline Development Projects and Conservation of Migratory Birds: A New Tool (2009), cited in Shippen Howe, *The Intersection of the Migratory Bird Treaty Act and Energy Companies: An Uncertain Crossroad*, Trends: ABA Section of Environment, Energy, and Resources Newsletter, May 2010). The FWS policy of selective enforcement is also described in the Region 8 Interim Guidelines For The Development Of A Project-Specific Avian And Bat Protection Plan For Solar Energy Plants And Related Transmission Facilities adopted by the FWS in September 2010. The FWS again stated that while MBTA liability could not be completely “absolved,” “[T]he [FWS] Office of Law Enforcement focuses its resources on investigating and prosecuting individuals and companies that take migratory birds without identifying and implementing all reasonable, prudent and effective measures to avoid that take.”
- c. None of the precedents discussed above supports the LORS determination adopted in the PSA, as the PSA's position is neither credible nor reasonable. Consistent with CEC precedents and the FWS Solar Energy Guidelines, Applicant is committed to implementing an adaptive management program that will identify and implement all reasonable, prudent and effective measures to avoid avian take should such impacts occur. The PSA should be revised to conclude that these measures will comply with avian-related LORS.
 7. The PSA does not cite evidence suggesting that either Falconiformes or Strigiformes are at significant risk from collisions, solar flux or any other potential impact that may be related to solar reflective technology. The McCrary study identified a single raptor mortality (American kestrel) but did not provide any discussion or analysis related to the exact cause of death for this species and attributed the detection to a collision. No raptor impacts from solar flux were identified in the study. Applicant will implement standard nest avoidance measures, all powerline “bird-safe” and electrocution avoidance measures identified by the CEC and other CEQA lead agencies as sufficient to avoid collision and electrocution impacts to raptors and an adaptive management program that will identify and implement all reasonable, prudent and effective measures to avoid raptor take should such impacts occur. The PSA should be revised to conclude that these measures will comply with raptor-related LORS.
 8. The PSA indicates that a golden eagle mortality model specifically developed to address wind energy impacts to golden eagles is being used to quantify potential golden eagle and other avian take that could be associated with a solar facility. PSA pp. 4.2-84 to 4.2-85. As the PSA notes,

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the model has known predictive flaws even with respect to its intended use for wind energy. PSA, pp. 4.2-84 to 4.2-85. In addition, the potential sources of golden eagle or other avian impacts associated with reflective solar energy technologies, and avian responses to any of these potential impacts, are completely different than those that may occur in the wind energy context. Finally, the PSA repeatedly acknowledges that current information about collision and solar flux risks is not sufficient to quantify potential avian impacts using the wind energy or other models. Under these circumstances, the use of the wind energy golden eagle mortality model would be scientifically indefensible and highly likely to foster inaccurate, potentially misleading information related to solar energy technologies. Applicant requests that the wind energy golden eagle mortality model not be used to estimate solar reflective technology avian impacts in any manner.

9. Throughout the PSA, there are statements that staff considers the acquisition of adequate compensation for blue palo verde – ironwood woodland habitat (microphyll woodlands) to potentially be infeasible. No reasons for this conclusion are provided, but there are statements in the Special Status Plant Communities section in the first paragraph on page 4.2-49 that describe microphyll woodlands as relatively uncommon and refer to McCreedy (2011). McCreedy (2011) uses the entire Sonoran Desert, which occurs primarily in Mexico with over two thirds of its area in Baja California and the state of Sonora (National Park Service 2012), to determine the amount of microphyll woodland habitat in the Colorado Desert. The Northern and Eastern Colorado Desert Resource Management (NECO) Plan provides 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. The NECO planning area includes 5,544,750 acres (over 79%) of the Colorado Desert Region, and the NECO Plan estimates that microphyll woodland habitat makes up 675,000 acres or 12.2% of the planning area (BLM 2002). A preliminary search for privately-owned microphyll woodland habitat using aerial photographs of the region was conducted and over 8,000 acres of what appears to be microphyll woodland habitat was located. This preliminary search covered only the eastern portion of the Colorado Desert, predominantly within the NECO planning area. The estimate in the NECO Plan and identifiable microphyll woodland habitat on aerial photos of the regional area should be considered when determining the feasibility of acquiring adequate compensation of microphyll woodland habitat. Additionally, resident and migratory wildlife species that utilize microphyll woodland habitat prefer mesic riparian habitat along the Colorado River as it provides higher-value foraging opportunities, cover, and breeding sites. Opportunities exist for acquiring high-value habitat along the Colorado River and near regional wildlife refuges that would greatly benefit all wildlife species in the vicinity, including those that utilize microphyll woodland habitat. Acquisition and/or restoration of these lands should be considered as an alternative to acquiring off site microphyll woodlands.

General Comments on Special Status Species and LORS Compliance Issues:

10. The PSA adopts overly broad assessment criteria for impacts to fully protected avian species (Fish and Game Code, Section 3511) and the same species that may also be protected by federal law (e.g., the Bald and Golden Eagle Protection Act ("BGEPA")). Applicant concurs with the PSA's conclusions to the effect that impacts to any of these species, and other listed birds, is unlikely to occur due to various construction and operational conditions that will eliminate habitat and prey thus further reducing the already low likelihood of occurrence within or near the proposed facilities. In the previous approvals reviewed by Applicant, the CEC has found that if the likelihood of impacts to such species is low, projects comply with applicable LORS. The golden eagle, for example, is a California fully protected species and also subject to federal regulation

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under BGEPA. Most, if not all of the previous solar projects approved by the Commission found evidence of golden eagle nests or foraging activity at least as high and often greater than for the Rio Mesa SEGS (where no confirmed active nests have been detected within 10 miles of the facilities). In all such instances, the Commission has found that (a) avoidance and minimization measures would preclude take and significant impacts for powerline and similar collision risks; and (b) an adaptive management program to address any observed mortality would mitigate any potential solar field, mirrored surface and similar impacts that could be associated with new, solar reflective technology and comply with all LORS. The final staff assessment of the Rice project stated that, "The generator tie-line could present a new collision or electrocution threat to golden eagles. Staff's recommended Condition of Certification BIO-8 requires that transmission lines, fiber optic lines, and all electrical components shall be designed, installed, and maintained in accordance with guidelines and practices as recommended by the Avian Power Line Interaction Committee's (APLIC) publications to reduce the likelihood of large bird electrocutions and collisions....The solar generator may present a collision or incineration hazard to golden eagles. Staff's recommended Condition of Certification BIO-25 (above) would evaluate that hazard and implement adaptive management measures as determined necessary. Staff concludes that project impacts of the solar generator site, generator tie-line, and interconnector substation to golden eagle would be less than significant with incorporation of recommended mitigation." The assessment also concluded that the project would comply with all LORS. Rice Final Staff Assessment, pp. 6.2-5 to 6.2-6. The PSA should be revised to reflect prior CEC criteria and approaches for assessing LORS compliance and impacts to fully protected species, including those protected under federal laws such as BGEPA.

General Comments on Collision Impacts and LORS Compliance Assessment:

11. The PSA is inconsistent with prior CEC determinations regarding solar reflective renewable energy technology, which determine that potential collision risks associated with mirrored surfaces are not well understood. Examples include the following:
 - a. In its review of the Abengoa project, CEC staff found that collision risks from mirrored solar reflective equipment is "not well understood" and that such risks could not be estimated or quantified at this time. Abengoa Final Decision, p. 255.
 - b. The assessment of the Blythe project concluded that, "[s]olar facilities present a new and relatively unresearched risk" and that "[v]ery little research has been conducted . . ." on such risks and declined to estimate or quantify them. Blythe Revised Staff Assessment, pp. C.2-79 to C.2-80.
 - c. In the Calico and Rice projects, CEC staff concluded that there is a "lack of research-based data on the impacts of glare and collision threats to birds" Calico Final Staff Assessment, pp. C.2-107 to 108; Rice Final Decision, p. 56.
 - d. The CEC staff acknowledged in the Imperial Valley project review process that reflective surface collision risks were not knowable due to the developing nature of reflective solar technology: "The extent of collision hazard for avian species with SunCatchers is currently unknown . . . the extent of this impact will not be known until there has been some operational experience with SunCatchers." Imperial Valley Final Decision, p. 242.
 - e. Similarly, the CEC acknowledged that existing information regarding mirrored surface interaction with avian species did not allow for a quantification or assessment of risk: "The missing piece of information, which is not supplied by the McCrary study or any others. . . is what the anticipated mortality from collisions might be for a solar trough project . . .

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there is little information and much uncertainty." Palen Staff Rebuttal Testimony at pp. 8-9.

The PSA includes no new information to substantiate its conclusion that, notwithstanding the project's use of the same or similar technology previously considered and approved by the PSA, "collisions with heliostats and injury or mortality from exposure to concentrated solar energy would be a significant and unavoidable adverse impact." PSA, p. 4.2-5. To the contrary, Applicant has provided staff with two recent avian impact studies from Torresol's GEMASolar Project in Southern Spain, and the initial interim avian impact study conducted by Bio-Logic and the Society for the Protection of Nature in Israel at BrightSource's SEDC facility. These studies evidence a nearly complete lack of observed avian mortality at two currently operational solar tower plants in Israel and Spain. In both cases, no collision-related avian mortality of any kind was documented notwithstanding the deployment of mirrored heliostats in areas known to support large avian populations (General Comment 27). Thus, the PSA's position is neither credible nor reasonable.

12. The CEC has also never concluded that an admittedly undetermined collision risk from mirrored surfaces is nevertheless significant and incapable of mitigation, as this position is neither credible nor reasonable. For instance, the Palen project analysis did not find that "bird collision data from powerlines or other reflective surfaces (e.g., windows) could be extrapolated to solar troughs to provide a quantitative assessment of likely bird collisions." As a result, CEC staff observed that "[p]re-construction bird surveys would not provide useful data on post-construction bird use of the site, after it is graded and developed, or information as to how many birds might be attracted to netted evaporation ponds surrounded by solar arrays. This issue of bird collisions with solar arrays is, as staff has described in the RSA, a topic where there is little information and much uncertainty." Notwithstanding uncertainty related to mirrored surface collision risks, which are substantially similar to risks that may be associated with the proposed project, the Palen analysis concluded that, "Condition of Certification BIO-16 provides a conservative and protective approach to addressing the uncertainty associated with the potential threat of bird collisions with the Project's solar arrays, and provides an adaptive management approach for addressing impacts if they occur." Palen Staff Rebuttal Testimony, pp. 8-9. The proposed project includes measures such as **BIO-12** that incorporate a functionally identical conservative and protective approach to addressing the uncertainty associated with the potential threat of bird collisions, and the PSA should be revised to be consistent with the Palen analysis.
13. The CEC staff has previously recognized that structural heights are a substantial factor affecting the likelihood of collisions, and that lower structures reduce such risks. The FSA should thus factor in the heliostat height into its analysis, as demonstrated below.
 - a. The Abengoa Final Decision concluded that collision risks associated with reflective solar troughs would likely be low because, "[t]he tallest proposed AMS facilities are the transmission poles, which would be an average of 80 feet tall and a maximum of 100 feet tall. The solar trough mirrors would be approximately 21 feet tall." Abengoa Final Decision p. 255. In contrast, the proposed project heliostats will be approximately 12-13 feet above ground level, or nearly half the height of the Abengoa mirrored facilities.
 - b. The Beacon Final Staff Assessment also determined that lower structures either reduced or potentially avoided collision risks: "Birds are known to collide with communications towers, transmission lines, and other elevated structures. The tallest structures at the plant site would be the steam turbine generator, which would be 55 feet tall. The power block,

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cooling tower, and other structures would be 50 feet or less in height. These structures at the BSEP site would be unlikely to pose a collision risk because they are shorter than those typically associated with bird collision events and because bird densities...would be even lower after the solar fields are built and no habitat is available to attract birds." Beacon Final Staff Assessment, pp. 4.2-42 through 4.2-43. The project heliostats would be nearly 80% lower than the heights cited as unlikely to pose a collision risk in the Beacon staff assessment.

14. The PSA should clarify that project night tower lighting will comply with current best practices for avoiding nighttime collisions. Such measures could include lighting atop the towers that use flashing strobe lights at the minimum rate required for aviation safety rather than steady burning lights that are known to attract birds, and shielding or extinguishing other project lighting when not needed. These measures will reduce tower and lighting-related collision risks to less than significant levels.
15. The PSA makes several conflicting statements with regards to bird and bat collisions with project structures. Initially, on page 4.2-75, the PSA states that "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)", and also in the Gen-tie line conductors and Towers section on p.4.2-76, "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)". However, the PSA then discusses bats as being at risk of collision in subsequent sections (e.g., p. 4.2-75. Final sentence of lighting section, lines 1, 6, and 10 of p. 4.2-76, etc.) The PSA provides no evidence to support the assumption that bats will collide with static project facilities. Bats should be considered independently and not included in discussions of bird collision risk, except to document that bats are not at risk of collision.

The PSA relies heavily on McCrary et al.'s evaluation of Solar One, and inappropriately extrapolates from the study's findings to draw conclusions or assumptions about potential impacts at RMS. This analysis incorporates a number of major errors and unsupportable assumptions, including the following:

- a. The PSA does not, but should, distinguish Solar One's 130+ acres of open water evaporation ponds (Solar One), an avian attractant, and Rio Mesa's 4 acres of evaporation ponds, all of which would be netted and inaccessible to birds. Moreover, the PSA should acknowledge that the open evaporation ponds at Solar One were an artificial water subsidy in an otherwise arid location with ephemeral natural water supplies. The large source of open water adjacent to the Solar One facility combined with the surrounding irrigated agricultural fields serves as a concentrating feature that draws birds to the site. In contrast, at Rio Mesa, the primary sources of water and food for the majority of birds migrating along the Colorado River portion of the Pacific Flyway are the Colorado River, the network of open irrigation canals, wetlands within Cibola NWR, and the irrigated farm lands located to the east of the project. A small netted evaporation pond does not constitute a draw to birds in this type of project setting.
- b. Several of the species observed at Solar One have not been observed at or in the vicinity of the Rio Mesa site, including several waterbirds that appear to have been attracted by the artificial water sources adjacent to the Solar One plant. It is not appropriate to extrapolate collision risks from the Solar One plant for other locations where a different range of species is known to occur.

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- c. The use of the McCrary study does not control for the relative abundance of birds on each site. The McCrary study indicates that the daily average count of birds over a 370 acre survey area was approximately 314, or 0.8 birds per acre. This is a very high bird density and is likely related to the unique proximity of artificial water sources near the plant.
- d. The PSA states that Rio Mesa will have 37 times more mirror surface area than Solar One, and provides a linear extrapolation of mortality (low estimate) simply based on mirror surface area. However, the PSA does not consider the possibility that a large solar field such as Rio Mesa could result in birds not having equal access to all mirrors. The middle of the solar fields at RMS will be far from the intact habitat in adjacent lands and washes. The PSA further extrapolates on a linear basis an estimate of collisions based on the acreage differences between Solar One and Rio Mesa, even though Staff concludes that acreage is not a valid factor in determining mortality.

The Applicant docketed two avian impact studies from Torresol's GEMASolar project in Spain and the interim spring avian impact study from BrightSource's SEDC facility on November 1, 2012. These studies reflect real world experience with respect to avian impacts from both collision and flux issues. Both studies did not identify any confirmed mortalities related to flux or collisions. Applicant requests that Staff consider the results of these studies in preparation of the FSA.

Applicant believes that it is best to consider the real world experience at the GEMASolar facility in Spain, and the SEDC facility in Israel to identify potential avian mortality risks at modern facilities such as the proposed project. Consistent with all prior CEC approvals of solar projects, Applicant is committed to implementing a robust monitoring and adaptive management program that would evaluate avian impacts from collisions should they occur, identify the causes of any such impacts, and implement responsive measures in consultations with state and federal resources agencies.

General Comments on Electrocutation Impact Assessment:

16. Applicant has committed to design above ground transmission lines according to guidelines in APLIC (2006) and Edison Electric institute (2004) to prevent avian electrocution and minimize electrocution hazard for raptors. The CEC has previously found that these measures will mitigate for impacts to raptors and other species. The PSA appears to suggest that such measures do not mitigate or avoid impacts to small raptors. To the extent this is the position advanced in the PSA, such an approach is not consistent with prior CEC determinations, including the following:
 - a. The Abengoa Final Decision focused on "large aerial perching birds" and concluded that the "proposed AMS 230-kV transmission lines are not likely to result in bird electrocutions" with implementation of APLIC design guidelines. Abengoa Final Decision, pp. 255-256.
 - b. The Beacon Final Decision found that "[l]arge raptors like golden eagles can be electrocuted by transmission lines when a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. To minimize risk of electrocution, BSEP will use a 'raptor-friendly' construction design for the transmission line with conductor wire spacing greater than the wingspans of large birds to help prevent electrocution. With the mitigation addressed in Condition of Certification BIO-8, we find that the transmission lines will not pose a significant threat to birds because the conductor wire spacing of the transmission line will be greater than the wingspans of large birds which will thus prevent electrocution." Beacon Final Decision, pp. 244-245.

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- c. The Calico Final Staff Assessment concluded that "[p]ower line electrocutions result in the losses of tens to hundreds of thousands of birds annually in the United States (Erickson et al. 2001). In the project area, golden eagles, red-tailed hawks, and other large aerial perching birds are susceptible to electrocution on power lines because of their large size, distribution, and proclivity to perch on tall structures that offer views of potential prey. Electrocution occurs when a perching bird simultaneously contacts two energized phase conductors or an energized conductor and grounded hardware. This happens most frequently when a bird attempts to perch on a transmission tower/pole with insufficient clearance between these elements." Calico Final Staff Assessment p. C.2-108. The Commission found that, by complying with APLIC avian design guidelines, the project would not result in significant impacts to avian species from electrocution. Calico Final Decision, pp. 61, 71.
- d. The Palen, Imperial Valley, and Blythe Final Decisions each analyzed raptor electrocution risks and concluded that with the implementation of the APLIC design guidelines, any such impacts would be less than significant. Palen Final Decision, p. 32; Imperial Valley Final Decision, pp. 241-242; Blythe Final Decision, pp. 256-257.

General Comments on Cumulative Impact Analysis:

17. In contrast to each of the previous CEC assessments of solar reflective technologies reviewed by Applicant, the PSA asserts without support that the project, even with mitigation, would contribute to cumulatively significant "bird mortality" due to (a) collision and solar energy flux hazards (with the exception of large raptors), and (b) the loss of golden eagle foraging habitat.
 - a. The CEC has analyzed substantially similar solar reflective renewable energy projects, including solar tower facilities, on several occasions. Applicant has not found any instance where the CEC staff concluded that any project could result in significant cumulative impacts to "bird mortality." In all other cases, the staff analysis has determined that the potential avian impacts for new, developing solar reflective technologies are too speculative to reasonably characterize or anticipate. In each case, the staff has recommended adaptive management programs to identify and respond to potential impacts should any occur, and the staff and the Commission have determined that avian impacts would be less than significant with the implementation of these measures. After conceding that there is no new basis for characterizing potential impacts in any systematic manner, the PSA, on the basis of "belief," concludes that the project's admittedly unknown impacts will be significant and cannot be feasibly be mitigated. As discussed in detail in the preceding general comments, there is no basis in fact or law to reach any such conclusions with respect to project impacts. As a result, the contention that the project's unknown impacts will also be cumulatively significant also lacks a sufficient factual and legal basis. The PSA's position is neither credible nor reasonable. The PSA should be revised in manner consistent with prior precedent regarding cumulative avian mortality impacts.
 - b. The PSA does not explain or provide any evidence in support of the assertion that the loss of potential golden eagle foraging habitat, which the CEC concedes will be "mitigated to less than significant with staff's recommended conditions of certification," (PSA, Table 6) will nonetheless be cumulatively significant. As discussed above, two years of golden eagle surveys performed in accordance with FWS guidelines have conclusively demonstrated that the project is located in a region that provides at most marginal golden eagle habitat and in which regionally significant golden eagle populations are not likely to occur over time. The CEC has considered potential golden eagle foraging habitat impacts associated with several

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solar reflective technology projects and, to the best knowledge of the Applicant, has never before found that any of these projects would generate a cumulatively significant loss of golden eagle foraging habitat. The golden eagle foraging habitat functions and values of the project site are likely substantially lower than, or at most, comparable with the corresponding functions and values of the other energy projects reviewed by the CEC. Based on these considerations, the PSA should be revised in a manner consistent with prior Commission precedent to state that, with full mitigation, and considering the relatively low value of the land subject to disturbance, the project would not cumulatively contribute to a significant loss of golden eagle foraging habitat. If generally adopted by the CEC, the position advanced in the PSA would effectively compel the Commission to find that any project in an area potentially traversed by a golden eagle would generate a cumulatively significant foraging habitat loss for the species.

General Comments on Wetlands, Waters, and Vegetation Impact Analysis:

18. The PSA requests that Applicant prepare and submit a Lake and Streambed Alteration Agreement (LSAA) Notification to the DFG, including a complete LSAA Notification with up-to-date state waters delineation, project impacts, proposed mitigation, and any other supporting documents. PSA, pp. 4.2-141 to 4.2-142. Applicant is preparing an LSAA for submission to CDFG, including the documentation requested by CEC staff, in November, 2012. On September 24-28, 2012 biologists from WRA Inc. (WRA) performed a focused evaluation of potential areas under DFG jurisdiction within the proposed project site and in the surrounding area (the "Biological Survey/Study Area" or "BSA"). The purpose of the evaluation was to more precisely map and field-verify resources subject to state and federal jurisdiction that had previously been estimated by using remote sensing techniques, such as aerial photographs. Consistent with applicable DFG guidance, the evaluation considered that all streams and areas extending laterally to the top of a bank ("TOB") were subject to DFG jurisdiction. If riparian vegetation was present within or at the TOB, DFG jurisdiction was mapped as extending to the outer dripline of such vegetation. Consistent with DFG practice, areas adjacent to a stream that demonstrate a dominance of hydrophytic vegetation, hydric soils and/or wetland hydrology were also evaluated as potentially subject to DFG jurisdiction. All wetlands associated with a stream or lake were also mapped and identified as subject to DFG jurisdiction. Two riparian plant communities, the Blue Palo Verde—Ironwood Woodland Alliance and the Mesquite Bosque Woodland Alliance were evaluated during the focused evaluation.

On October 13-19, 2012 WRA subsequently conducted additional field verification and mapping of both riparian and upland vegetation within the BSA. A revised delineation of waters potentially subject to federal jurisdiction based on the results of the LSAA field verifications was submitted to the U.S. Army Corps of Engineers on October 8, 2012. The revised delineation was prepared following on-site surveys conducted from September 24-28, 2012 and using the guidance issued by the Corps of Engineers for determining the ordinary high water mark (OHWM) in the arid west region of the United States. The results of the field verifications are being used to prepare the LSAA notification; up-to-date delineation and other information requested by CEC staff have been incorporated into the specific comments provided by Applicant on the PSA.

19. The analysis conducted in support of the LSAA application requested by the CEC staff also determined that previously identified desert dunes habitat along the gen-tie line was in fact creosote bush scrubland under the relevant vegetation criteria. These areas have enough

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habitat components, however, to support the Mojave fringe-toed lizard as illustrated by the survey detections of this species identified in the PSA.

20. There is no evidence that the PSA has based its thresholds on existing laws or standards. Instead, the PSA presents thresholds “identified by Energy Commission staff”, without any clear discussion or rationale for the basis of the threshold. Given the vague description of standards and thresholds, it is imperative that the FSA identify with specificity exactly where the significance criteria applied were developed and why they are appropriate for use in analyzing the RMS project. Thresholds of significance should be based on existing environmental laws and regulations (e.g. endangered species laws or migratory bird protection laws).

The Governor’s Office of Planning and Research (“OPR”) provides important guidance to agencies regarding the establishment of thresholds of significance. In its *CEQA Technical Advice Series, Thresholds of Significance: Criteria for Defining Environmental Significance*, the OPR states that “Thresholds can and should be based on existing environmental laws and regulations whenever possible to reduce duplicative environmental reviews and take advantage of regulatory agency expertise.”² This policy consideration was recognized in *Protect the Historic Amador Waterways v. Amador Water Agency*, which stated that thresholds drawn from existing environmental standards help promote “consistency in significance determinations and integrating CEQA environmental review activities with other environmental program planning and regulation.”³

21. Applicant submitted a Technical Memorandum prepared by Worley Parsons (Tech Memo) to CEC Water Supply Staff that addressed Staff’s specific questions regarding error messages that were generated within Staff’s GMS version of the MODFLOW 2000 model. This Tech Memo is attached to Applicant’s comments on the Water Supply section of the PSA as Appendix Water Resources 1. The error messages had led Staff to question the reliability of Applicants groundwater assessment utilizing the MODFLOW 2000 model with Groundwater Vistas. On October 25, 2012, Applicant’s technical consultants met with CEC Water Supply Staff to review the content of the Tech Memo. The Tech Memo specifically addressed CEC’s concerns through the running and describing of sensitivities run to demonstrate to Staff that the model is indeed reliable. All versions of the RMS model including four different refinements of the model prepared in response to CEC comments have generated comparable results and calibration statistics. Each shows that the project’s groundwater impacts will be less than significant. The consistency of the results indicates that the RMS models provide a reliable, hydrogeologically realistic and valid method for assessing project impacts. After discussing the specifics of the model sensitivities, CEC Staff concluded that the MODFLOW 2000 Groundwater aquifer assessment model that was provided by Applicant was acceptable and was accurate for predicting impacts on the PVMGB from Rio Mesa project pumping.⁴ The Technical Memorandum is included with Applicant’s comments to the PSA within the Water Supply Section.

Consequently, since CEC Water Supply Staff has accepted that impacts to the PVMGB will be less than significant, the reason for imposing Condition of Certification BIO-8 is no longer valid and the proposed condition should be deleted, as discussed in Applicant’s Specific Comments below.

² *THRESHOLDS OF SIGNIFICANCE: Criteria for Defining Environmental Significance*, Office of Planning and Research, CEQA Technical Advice Series, 1994, p. 7 (emphasis added).

³ See, *Protect the Historic Amador Waterways v. Amador Water Agency*, 116 Cal. App. 4th 1099, 1107 (Cal. App. 3d Dist. 2004); citing to *Communities for a Better Environment v. California Resources Agency*, supra, 103 Cal.App.4th at p. 111

⁴ CEC Water Supply Staff, October 29, 2012 PSA Workshop

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22. The use of Horvath et al.'s 2009 paper as a definitive reference to support the concept that polarized light pollution can alter the ability of wildlife to seek out suitable habitat, elude or detect predators, and detect natural polarized light patterns (PLP) which can affect navigation and ultimately affect dispersal and reproduction misunderstands Horvath et al.'s work. Horvath et al. review the current understanding of the influence of PLP on the behavior of polarization-sensitive organisms and their interactions and communities. The review demonstrates that the majority of our understanding is limited to results of studies of aquatic insects. Horvath et al.'s review provides strong evidence that PLP causes aquatic insects to mistake anthropogenic features with strong horizontal polarization signatures (e.g., asphalt, gravestones, cars, oil spills, etc.) for water bodies. And, although the article does mention that obligate waterbirds are occasionally found dead or injured on large asphalt parking lots and roads, no factual basis is provided to directly link these events with PLP or polarization-sensitivity by the birds. Likewise, the authors discuss the association of PLP with changes in predator-prey dynamics and speculate on its potential influence of higher level animal navigation and orientation, but the review provides no empirical linkages to potential impacts caused by PLP. The role of polarization sensitivity in higher-level animals (e.g., birds in particular) is not specifically evaluated in Horvath's review, and it is actually presented by the authors as "a task of future research".

The importance of PLP and our understanding of polarization sensitivity in animals is very limited. Applicant is in strong disagreement with the Staff's extrapolation of insect research to reach broad conclusions regarding PLP impacts on wildlife habitat selection, predator avoidance, navigation, dispersal and reproduction. Research-based support for CEC staff's position is absent in the PSA.

23. No evidence is provided by Staff to support the assumption that bats will collide with static project facilities. The PSA states that "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)", and also states that "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)". The PSA then inconsistently discusses bats as being at risk of collision in subsequent sections (e.g., p. 4.2-75. Final sentence of lighting section, lines 1, 6, and 10 of p. 4.2-76, etc.) The inconsistency should be corrected to indicate no significant risks to bats throughout the document.
24. Equating "impact" with "significant impact", without analysis, is contrary to law. Just as neither CEQA nor applicable case law requires a "zero impact" determination to conclude that a project will have a less than significant impact on the environment, the fact that a project may have an impact does not compel the conclusion that such an impact is significant.⁵ Therefore, to the extent that the PSA finds that the project has a significant impact on the basis that the project will cause an impact, such findings are in error without a showing that the impact is a substantial, or potentially substantial, adverse change in the physical environment.

⁵ See, *National Parks & Conservation Assn. v. County of Riverside*, 71 Cal. App. 4th 1341, 1359 (Cal. App. 4th Dist. 1999); also see *Oakland Heritage Alliance v. City of Oakland* (2011) 195 Cal.App.4th 884 ("We do not accept the premise implicit in the Alliance's argument, that under CEQA, as a matter of law, seismic impacts are significant unless buildings could be repaired and ready for occupancy after a major earthquake. Nothing in CEQA, the cases interpreting it, or common sense compels such a conclusion. A less than significant impact does not necessarily mean no impact at all. (See *National Parks & Conservation Assn. v. County of Riverside* (1999) 71 Cal.App.4th 1341, 1359; Cal. Code Regs., tit. 14, § 15064, subd. (b).) (emphasis added).)

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25. In the Verification language where the submittal timing is specified, please add the words, “or such time as agreed upon by the project owner and the CPM.”

General Comments on Appendix BIO1:

Applicant’s initial comments on the Appendix BIO1 are separated into two specific subject areas. The first subject area will respond to Staff’s assertion in the PSA that the Solar Receiver Steam Generator (SRSG) will need replacement every four years, and the second subject area will address avian flux risk.

Avian Flux Risks

26. The PSA makes assertions and conclusions with respect to the risks to avian species from solar flux that are neither credible nor reasonable. The PSA analysis is based on an analytical approach to flux intensity and potential impacts that has never been disclosed in any prior CEC document. Applicant is continuing to analyze the PSA and will provide more detailed comments when this assessment is complete. It is important to note, however, that the PSA conclusions conflict with and are unsupported by the McCrary study that is extensively cited by CEC staff, and with academic assessments of avian mortality at the SEDC facility in Israel and the GEMASolar facility in Spain.
27. The PSA includes several speculative assertions regarding potential flux impacts, including unreasonable claims that even short exposures to radiant flux levels above 4 kW/m² may cause irreversible damage to feathers, or that birds exposed to levels above 25 kw/m² would suffer damage to feathers, eyes, or skin and cause subsequent offsite mortality. All available evidence from Solar One, SEDC and GEMASolar is inconsistent with such speculation. The McCrary study characterized flux-related impacts as follows:

“Thirteen (19% [of total mortality]) birds (7 species) died from burning in the standby points. Although we never observed a bird fly through one of the standby points, the heavily singed flight and contour feathers indicated that the birds burned to death (Fig. 2). Six (46%) of these fatalities involved aerial foragers (swifts and swallows) which are apparently more susceptible to this form of mortality because of their feeding behavior. Three of these aerial foragers died during a 2-wk period in May 1982, corresponding with the presence of the highest numbers of swifts and swallows observed (500 per day), and an extensive period of heliostat testing when the occurrence and intensity of standby points was probably greater than at other times.”

If the PSA risk analysis was accurate, the Solar One researchers should have detected a significantly higher rate of flux-related impacts based on the average daily abundance of birds identified in the McCrary report of approximately 314 (+203 SD) with a range of 148-1040 per day. In particular, the McCrary analysis was conducted during a time when the species that the researchers believed to be most at risk from flux impacts—swifts and swallows—were especially concentrated at the facility (500 per day) and at the same time that heliostat testing generated higher than typical levels of flux. Over this two-week period, the McCrary analysis indicates that approximately 7,000 swallows and swifts would have occurred at the facility. In contrast with the PSA’s speculative analysis that virtually any flux exposure over 4kW/m² would adversely affect birds, the study identified three (3) swift and swallow mortalities (0.042%) among the highest risk species during the period of most intense flux exposure. The McCrary research team surveyed an area of approximately 370 acres, or more than four times the size of the 80-acre solar facility. The level of swift and swallow mortality documented during the highest-flux testing period in the study does not support the speculative assessment in the PSA. The two-

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week period when most swift and swallows mortalities were observed at Solar One also apparently corresponded with the time when the heliostats were more frequently focused to single standby points. As a result, the data supports the conclusion that the Solar One facility standby point technology, which is no longer used by modern solar plants, likely caused much of the mortality that was observed from singeing and burning in the study.

28. To Applicant's best knowledge, there are no avian rehabilitation facility records identifying birds with burned feathers or damaged eyes during operation of Solar One. No such onsite or offsite avian impacts have been reported at the SEDC or GEMASolar facilities. The lead GEMASolar researcher has also stated that none of the nature preserves located adjacent to the facility have reported any avian mortalities or injured birds notwithstanding the substantial avian population in the area. There was no indication of a regional avian population decline during the operation of Solar One, and none have been detected at the SEDC, or GEMASolar facilities. These results are consistent for each of the three facilities and also fail to support the PSA analysis.
29. Applicant understands that the proposed RMS facilities are larger than the Solar One, SEDC and GEMASolar plants and is committed to implementing a robust and effective operational monitoring program to evaluate any unforeseen impacts to avian species, should they occur, and to identify and respond with appropriate measure as may be required. This program will allow for the accurate assessment of any avian impact issues, and focused and effective responses to any identified issues warranting action. As discussed above in Applicant's General Comments to the PSA, these issues have been considered in several CEC approvals of substantially similar technology, and in each case the Commission has found that a robust adaptive management approach will mitigate impacts to less than significant levels and comply with all LORS.

SRSG Lifespan

31. The PSA states, "In spite of careful design and material selection, and emergency defocusing protocols for the mirrors, the SRSG would need to be replaced about every 4 years." This statement is inaccurate. There is no basis for concluding that the SRSG will have anything other than the expected 25 or more year duty period.

The SRSG will be built according to the specifications and requirements of all applicable codes, including the American Society for Material Engineering (ASME) code Section I – Power Boilers. This is the same standard as utility steam boilers. The design service lifetime is 25 years, considering daily cyclic operation and startup and shutdown sequences.

32. The SRSG is being provided by one of the world's most experienced solar boiler manufacturers in the world, Alstom Power. Alstom in design, manufacture, procurement, construction and servicing, has been a leader in clean, efficient, flexible and integrated power generation solutions for over a century.
33. Fatigue and creep analysis for SRSG is being performed by the SRSG supplier, Alstom Power Inc., according to ASME FFS and EN12952-3. A power boiler is required to pass annual inspections subject to requirements of Factory Mutual and a power boiler with a four year life span would not be certifiable. The SEDC boiler in Israel has already operated for over four years in similar operating conditions. Further, the PSA statement is generally refuted by the experience at Solar 1 and Solar 2 which operated in similar operating conditions.

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34. Prior to obtaining financing, the power boiler design and construction specifications will be approved by the bank's independent engineer – as has already occurred for the Ivanpah equipment.
35. Staff did not raise concerns about the design standards of the SRSG during discovery or mention this issue in the Facility Design chapter of the PSA. The substantial evidence, provided by research and experience in the development of the ASME and international code organization design standards for power boilers, a leader in the field of manufacture of power boilers of all types is in direct contradiction to the Staff's statement in the PSA. .Therefore all statements pertaining to SRGS durability related to the CEC staff's flux analysis, and in the biology section of the PSA, should be deleted in their entirety.

FINDINGS OF FACT

No findings of fact listed in this section of the PSA.

PROPOSED CONDITIONS OF CERTIFICATION

1. **Pages 4.2-142 through 4.2-148, BIO-1:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits to Items C and D within the condition:

C. Biological Monitor. The project owner, Designated Biologist, and Authorized Desert Tortoise Biologist will appoint Biological Monitors as needed for the construction, operations, and closure phases of the project. The project owner shall submit the ~~resume, at least three references, and contact information~~ USFWS Desert Tortoise Authorized Biologist Request Forms of each proposed Biological Monitor to the CPM. The ~~resume-Forms~~ shall demonstrate, to the satisfaction of the CPM in consultation with BLM, CDFG, and USFWS, the appropriate education and experience to accomplish the assigned biological resource tasks. The Biological Monitor shall hold the responsibilities described by the USFWS designated Desert Tortoise Monitor (USFWS 2008b) and shall work only under direct supervision of the Authorized Desert Tortoise Biologist for any desert tortoise surveys, translocation activities, or related activities. In addition, the Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of site mobilization activities, construction-related ground disturbance, grading, boring, or trenching. Regardless of the biological Monitor's qualifications, the Designated Biologist and Authorized Desert Tortoise Biologist shall have final responsibility for duties listed in Parts A and B of this condition (above). The project owner and Designated Biologists shall ensure that a Biological Monitor, under the supervision of the Designated Biologist, is available for monitoring and reporting of any project activities that may affect biological resources during the life of the project.

D. Designated Biologist, Authorized Desert Tortoise Biologist, and Biological Monitor Authority. The project owner's construction, operation, or closure manager shall act on the advice of the Designated Biologist, Authorized Desert Tortoise Biologist, and Biological Monitor ("Biology Staff") to ensure conformance with the biological resources

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conditions of certification. The Designated Biologist, Authorized Desert Tortoise Biologist, and Biological Monitors shall have the authority to immediately stop any activity that is not in compliance with conditions of certification or to order any reasonable measure to comply with these conditions. The project owner's construction, operation, or closure manager shall halt any site mobilization, ground disturbance, grading, boring, trenching, and operation activities as specified by the Designated Biologist, Authorized Desert Tortoise Biologist, or Biological Monitor. The Designated Biologist and Authorized Desert Tortoise Biologist shall:

1. Require a halt to ~~any or all~~ activities that would cause an unauthorized adverse impact to biological resources if the activities continued;
 2. Require a halt to any or all activities that would cause take of a desert tortoise or other protected species or listed threatened or endangered species;
 3. Inform the project owner and the construction/operation manager when to resume activities;
 4. Notify the CPM if there is a halt of any activities at the direction of the Designated Biologist Pursuant to this Condition of Certification and advise them of any corrective actions that have been taken or would be instituted as a result of the work stoppage; and
 5. If the Designated Biologist and Authorized Desert Tortoise Biologist are unavailable for direct consultation, the Biological Monitor shall halt work as necessary on their behalf.
2. **Pages 4.2-148 through 4.2-151, BIO-2:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits:

BIO-2 The project owner in coordination with the Designated Biologist shall prepare a Draft Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP), to the CPM for review and approval in consultation with BLM, CDFG, and USFWS. Upon revision and approval, the project owner shall implement the final BRMIMP. The BRMIMP shall incorporate all avoidance and minimization measures described in conditions of certification and all related plans as required therein, including but not limited to: the Revegetation Plan; the Integrated Weed Management Plan; the Desert Dry Wash Woodland Monitoring Plan; the Long-Term Habitat Management Plan for Off-site Compensation Land; appropriate action plan(s) for plant salvage, horticultural propagation and re-introduction, or off-site habitat enhancement for special-status plants; the Protected Plant Salvage Plan; the Nesting Bird Management Plan; the Eagle Protection Plan; ~~the Bird and Bat Conservation Strategy~~ Avian and Bat Protection Plan; the Bird and Bat Monitoring Study; the Desert Tortoise Translocation Plan; the Raven Monitoring, Management, and Control Plan; the Golden Eagle Monitoring and Management Plan, the Burrowing Owl ~~Relocation and Mitigation Plan~~ Mitigation and Monitoring Plan; ~~the Desert Kit Fox and American Badger Management Plan~~; and the Closure, Revegetation, and Reclamation Plan.

The BRMIMP shall include accurate and up-to-date maps depicting the locations of sensitive biological resources that require temporary or permanent protection during construction and operation. The BRMIMP shall include complete and detailed descriptions of the following:

1. All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner and approved by the Commission;

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2. All biological resources conditions of certification adopted by the Energy Commission to avoid or mitigate impacts, and cross-reference to all measures as specified in compliance documents as required under those conditions;
3. All biological resource mitigation, monitoring, and compliance measures required in federal agency terms and conditions, ~~such as those provided in the USFWS Biological Opinion and any additional BLM or USFWS stipulations;~~
4. Procedures for collapsing inactive dens, monitoring active dens, and strategies for passive relocation for any badger and kit fox animals or dens identified during construction as a result of surveys conducted pursuant to BIO-18.
5. A list of all construction and operations activities requiring that the Designated Biologist, Authorized Desert Tortoise Biologist, or Biological Monitor must be on the site;
6. A list of all specific requirements and obligations of the project owner to inspect, monitor, mitigate or avoid impacts to biological resources, specifying the individual responsibilities for each item;
7. An inspection schedule detailing all measures that shall be taken to avoid or mitigate take of special-status species or damage to biological resources, and temporary or indirect disturbances from project activities;
- ~~8. Duration for each type of compliance monitoring and a description of monitoring methodologies and frequency;~~
- ~~9. Performance standards to evaluate whether required mitigation is or is not successful;~~
- ~~10. Remedial measures to be implemented if performance standards are not met;~~
- ~~11. All facility closure measures relating to biological resources, including a description of funding mechanism(s); and~~
8. A process for proposing plan modifications to the CPM and any other appropriate agencies for review and approval.

Verification: The project owner shall provide the CPM with written notice of intent to start ground disturbance at least 30 days prior to the start of these activities. Within 30 days of receipt, the CPM will notify the project owner of the BRMIMP's acceptability. The project owner shall submit the final BRMIMP, as reviewed and approved by the CPM in coordination with BLM, CDFG, and USFWS to the CPM at least 30 days prior to start of any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching. No construction-related ground disturbance, grading, boring, or trenching may occur prior to approval of the final BRMIMP by the CPM in consultation with the other agencies. The project owner shall have 14 days to address the CPM's comments and provide the CPM with two hard copies of the revised BRMIMP.

The BRMIMP shall be a comprehensive summary of all federal permit requirements and conditions of certification relating to biological resources. If any related federal permit or agreement is ~~revised or~~ finalized after the BRMIMP is approved, then a copy of the ~~revised or~~ finalized federal permit shall be submitted to the CPM within five days and the BRMIMP shall be revised or supplemented to reflect the federal permit conditions within 10 days of their receipt by the project owner. No ground disturbance shall proceed except as specified and in compliance with all permit requirements and conditions of certification.

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To verify that the extent of construction disturbance does not exceed that described in this analysis, the project owner shall submit aerial photographs, at an approved scale, taken before and after construction to the CPM. The first set of aerial photographs shall reflect site conditions prior to any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and shall be submitted at least 30 days prior to initiation of such activities. The second set of aerial photographs shall be taken subsequent to completion of construction, and shall be submitted to the CPM no later than 90 days after completion of construction. The project owner shall also provide a final accounting of the acreages of vegetation and land use types before and after construction and a depiction of the approved project boundaries superimposed on the post project aerial photograph. If final acreages or disturbance footprints exceed those previously approved, the CPM shall coordinate with project owner, in consultation with BLM, CDFG, and USFWS to determine appropriate mitigation for such impacts. Such mitigation may exceed the requirements as outlined in these conditions of certification (i.e., higher mitigation ratios may be imposed for unauthorized habitat impacts).

No changes to the ~~approved~~ BRMIMP (including the project footprint) may be made except as approved by the CPM in consultation with BLM, CDFG, and USFWS.

Implementation of all BRMIMP measures shall be reported in the MCR by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval in consultation with BLM, CDFG, and USFWS, a written construction termination report identifying which items of the BRMIMP have been completed, a list and description of any modifications to conditions of certification or permit conditions made during the project's preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, a list of all mitigation and monitoring requirements that are still outstanding, and a timeline for implementing outstanding items.

3. **Pages 4.2-151 through 4.2-160, BIO-3:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits:

BIO-3 The project owner shall provide compensatory mitigation acreage to offset the project's adverse impacts to native vegetation and wildlife. Compensation ratios shall be as follows:

- Creosote bush scrub: 1:1;
- Desert dry wash woodlands (blue palo verde – ironwood woodlands): 3:1
- ~~Other special-status plant communities: 3:1~~
- ~~Off site desert dry wash woodlands (see **Condition of Certification BIO-8**);~~
- **Condition of Certification BIO-9**
- Special-status plant habitat:
- Suitable and occupied desert tortoise habitat: 1:1 (see **Condition of Certification BIO-14**)
- Burrowing owl foraging habitat: ~~900 acres~~ 19.5 acres per territory as determined by preconstruction surveys (see **Condition of Certification BIO-17**)
- Golden eagle foraging habitat 1:1

The project owner will acquire and protect in perpetuity no fewer than ~~5,175.5~~ 4299.7 acres of habitat lands, to be adjusted to reflect the final project footprint, as specified in this condition. For purposes of this condition, the project footprint means all lands disturbed in

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the construction and operation of the project, including all linear project components, as well as undeveloped areas inside the project's security fence that will no longer provide viable long-term habitat for desert tortoise or other special-status wildlife. In addition, the project owner shall provide funding for initial improvement and long-term maintenance, enhancement, and management of the acquired lands for protection and enhancement of habitat values, and comply with other related requirements of this condition. Staff's estimated costs of the habitat compensation requirements are presented in **Biological Resources Table 8**.

The project owner shall provide financial assurances as described below in the amount of \$ ~~30,253,666~~16,033,810. In lieu of acquiring lands itself, the project owner may satisfy the requirements of this condition by depositing funds into a REAT Account established with the National Fish and Wildlife Foundation (NFWF), below. If the project owner elects to establish a REAT NFWF Account and have NFWF and the agencies complete the required habitat compensation, then the total estimated cost of complying with this condition shall be \$ ~~30,997,331~~16,462,132. The amount of security or NFWF deposit shall be adjusted up or down to reflect any revised cost estimates recommended by REAT.

The actual costs to comply with this condition will vary depending on the final footprint of the project, the costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a Property Analysis Report (PAR) or similar analysis (below). Compensation acreage and funding requirements shall be adjusted up or down if there are changes in the final footprint of the project or the costs of evaluation, acquisition, management, and other factors listed in **Biological Resources Table 8**. Regardless of actual cost, the project owner shall be responsible for funding all requirements of this condition.

Compensation Land Acquisition

1. Method of Acquisition. Compensation lands shall be acquired by either of the two options listed below. Regardless of the method of acquisition, the transaction shall be complete only upon completion of all terms and conditions described in this condition of certification.
 - a. The project owner shall transfer title and/or conservation easement of compensation lands to a state or federal land management agency (if agency policy is compatible with habitat conservation in perpetuity) or to a third-party land management organization, as approved by the CPM in consultation with BLM, CDFG, and USFWS; staff recommends transfer in fee title to the lands to CDFG under terms approved by CDFG. Alternately, a CDFG-approved non-profit organization qualified pursuant to California Government Code § 65965 may hold the fee title or a conservation easement over the lands. In the event an approved non-profit holds title, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG; in the event an approved non-profit holds a conservation easement over the lands, CDFG shall be named third party beneficiary; or
 - b. The Project owner shall deposit funds into a project-specific subaccount within the REAT Account established with the NFWF, in the amount as indicated in **Biological Resources Table 8** (adjusted to reflect final project footprint and any applicable REAT adjustments to costs).

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2. Selection Criteria for Compensation Lands. All compensation lands shall meet the following selection criteria. In addition, lands designated by the project owner as compliance for specific resource compensation according to recommended Conditions of Certification ~~BIO-8~~ through BIO-9, BIO-10, BIO-14, and BIO-17 shall also meet any additional selection criteria named in those conditions. In general, the compensation lands shall provide habitat conditions, quality, and function that are equal or better than those present on the habitat to be impacted. Compensation lands shall:
 - a. Contribute to wildlife habitat connectivity;
 - b. Be generally undisturbed or have disturbance levels comparable to the habitat on the project site prior to construction, and have capacity to regenerate naturally when existing or ongoing disturbances are removed;
 - c. Be near larger blocks of lands that are in public or private ownership providing protection for biological resources and habitat values, planned for resource protection by a public or private entity; or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;
 - d. Have no extensive damage to soils, vegetation, or other disturbance from recreational, mining, or other land uses that are greater than those present on the habitat to be impacted and which might cause future erosion or other habitat damage, and make habitat recovery and restoration infeasible;
 - f. Have non-native weeds or invasive species that are greater than those present on the habitat to be impacted and might jeopardize habitat recovery and restoration on the proposed compensation lands and adjacent to them at abundance less than or (at most) similar to their abundance on the project site prior to construction, either on or immediately adjacent to the parcels under consideration;
 - g. Not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and
 - h. Have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with BLM, CDFG, and USFWS, agrees in writing to the acceptability of land without these rights.
3. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands in relation to the criteria listed above and in Conditions of Certification ~~BIO-8~~ through BIO-9, BIO-10, BIO-14, and BIO-17. The CPM will review the proposal in consultation with BLM, CDFG, and the USFWS.
4. Compensation Lands Acquisition Conditions: The project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with BLM, CDFG, and USFWS, has approved the proposed compensation lands:

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- a. Preliminary Report: The Project owner or an approved third party shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for each proposed compensation parcel to the CPM for review and approval in consultation with BLM, CDFG, and USFWS. For conveyances to the state, approval may also be required from the California Department of General Services, the Fish and Game Commission, and the Wildlife Conservation Board.
 - b. Title/Conveyance: The project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both as required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, an approved non-profit organization qualified to hold title to and manage the compensation lands (pursuant to California Government Code § 65965), or to BLM or other public agency (if agency policy is compatible with conservation in perpetuity) approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an approved non-profit holds a conservation easement, CDFG shall be named a third party beneficiary. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The project owner shall obtain approval from the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.
 - c. Property Analysis Record. Upon identification of the compensation lands, the project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in perpetuity management of the compensation lands. The analysis must be approved by the CPM, in consultation with CDFG, before it will be used to establish funding levels or management activities for the compensation lands.
5. Compensation Lands Acquisition Costs: The project owner shall pay all other costs related to acquisition of compensation lands and conservation easements. In addition to actual land costs, these acquisition costs shall include but shall not be limited to the items listed below. Management costs including site cleanup measures are described separately, in the following section of this condition of certification.
- a. Level 1 Environmental Site Assessment;
 - b. Appraisal;
 - c. Title and document review costs;
 - d. Expenses incurred from other state, federal, or local agency reviews;
 - e. Closing and escrow costs;
 - f. Overhead costs related to providing compensation lands to CDFG or an approved third party;

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- g. Reasonable biological survey(s) to determine mitigation suitability and conformance to selection criteria; and
- h. Agency costs to accept the land (e.g., writing and recording of conservation easements; title transfer).

Compensation Land Habitat Improvement

1. Land Improvement Requirements: The project owner shall fund activities that the CPM, in consultation with BLM, CDFG, and USFWS, determines are required for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land, but may include surveys of boundaries and property lines, installation of signs, trash removal and other site cleanup measures, construction and repair of fences, invasive plant removal, closure and removal of roads, gate installation, or other measures to protect and improve habitat quality.
2. The per-acre costs of these activities are estimated in **Biological Resources Table 8** but will vary depending on specific measures that may be required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code § 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

Compensation Land Long-Term Habitat Management

1. Long-term Management Requirements: Long-term habitat management will be required to ensure that the compensation lands are managed and maintained to protect habitat values for the biological resources affected by the project. Management activities may include maintenance of signs, fences, weed removal, habitat or trespass/ land use monitoring, security and enforcement, and control or elimination of unauthorized use.
2. Long-term Habitat Management Plan. The project owner shall prepare and submit a Long-term Habitat Management Plan for the compensation lands for review and approval by the CPM in consultation with BLM, CDFG, and USFWS. The plan shall describe site-specific maintenance and management measures on each proposed compensation parcel.
3. Long-Term Maintenance and Management Funding. The project owner shall fund the long-term maintenance and management of the compensation lands. The amount of required funding is initially estimated as \$1,450 for every acre of compensation lands. The final cost of funding will be determined through an approved PAR or PAR-like analysis of the compensation lands. If compensation lands are not identified and the PAR or PAR-like analysis is not completed within the time period specified for this payment (see the "Verification" subsection at the end of this condition), the project owner shall provide initial payment of ~~\$10,297,260~~ \$10,297,260,234,594 calculated at \$1,450 an acre for ~~7,053.2~~ 7,053.2 acres (i.e., the sum of columns 1 and 4 in Biological Resources

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Table 8; see “Habitat Compensation,” above) into an account for long-term maintenance and management of the compensation lands. The amount of the required initial payment or security for long-term maintenance and management shall be adjusted for any change in the project footprint as described above. Regardless of the amount of an initial payment, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. Conversely, if the PAR or PAR-like analysis indicates that a smaller amount will be required for long-term maintenance and management, the difference will be returned to the project owner.

The project owner will propose an entity to receive and hold the long-term maintenance and management fund and to manage the compensation lands. The CPM will review the proposed entity in consultation with the project owner and CDFG. The CPM may approve the project owner’s proposed entity or may designate another qualified entity (e.g., a state agency or non-profit organization) to hold the funds and manage the lands.

If CDFG takes fee title to the compensation lands, CDFG shall determine whether it will hold the long-term management fee in a special deposit fund (ii., below), leave the money in the NFWF Account, or designate another entity to manage the long-term maintenance and management fee for CDFG and with CDFG supervision.

The project owner shall ensure that an agreement is in place with the long-term maintenance and management fee holder/manager to ensure the following conditions:

- i. Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the compensation lands, including reasonable administrative overhead, biological monitoring, habitat improvements, law enforcement measures, and any other action approved by CDFG to protect or improve the habitat values of the compensation lands.
- ii. Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fund manager to ensure the continued viability of biological resources on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.
- iii. Pooling Funds. A CPM approved non-profit organization qualified to hold long-term maintenance and management funds solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands. However, for reporting purposes, the Rio Mesa SEGF long-term maintenance and management fund must be tracked and reported individually to the CDFG and CPM.

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- iv. Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable expenses incurred during title, easement, and documentation review; expenses incurred from other state or state-approved federal agency reviews; and overhead related to providing compensation lands.

Compensation Land Security

1. Compensation Land Security: The project owner shall provide security sufficient for funding acquisition, improvement, and long-term management of all compensation lands. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security (“Security”). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM’s approval, in consultation with BLM, CDFG, and USFWS of the form of the Security.

The security amount shall be based on the habitat estimates provided in **Biological Resources Tables 6 and 9**. This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates as agreed upon by the REAT agencies.

The project owner shall provide verification that financial assurances have been established to the CPM with copies of the document(s) to BLM, CDFG and USFWS, to guarantee that adequate funding is available to fully implement all mitigation measures required by condition of certification and recommended **Conditions of Certification BIO-8, BIO-9, BIO-14, and BIO-17**.

In the event that the project owner defaults on the Security, the CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM’s use of the security to implement measures in this condition may not fully satisfy the project owner’s obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the project owner upon successful completion of the associated requirements in this condition.

Security for the requirements of this condition shall be provided in the amount as specified in **Biological Resources Table 8**. Regardless of the amount of the security or actual cost of implementation, the project owner shall be responsible for implementing all aspects of this condition.

2. The project owner may elect to comply with some or all of the requirements in this condition by providing funds to implement the requirements into the REAT Account established with NFWF. To use this option, the project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs of implementing the requirement (as set forth in the “Security” section of this condition, paragraph 1, above). If the actual cost of the acquisition, initial protection and habitat improvements, long-term funding or other cost is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, the long-term funding requirements as established in an approved PAR or PAR-like analysis, or the other actual costs that are estimated in the table. If those actual costs or PAR projections are less

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than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner. In addition, if the project owner elects to use the REAT NFWF account, the project owner also shall fund NFWF fees to establish a project-specific account; manage the sub-account for acquisition and initial site work; and manage the sub-account for long term management and maintenance as shown in **Biological Resources Table 8**.

3. The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with BLM, CDFG, and USFWS, prior to delegation of land acquisition responsibility. Agreements to delegate land acquisition to a third party, or to manage compensation lands, shall be executed and implemented within 18 months of the Energy Commission's certification of the project.
4. The project owner may request the CPM to provide it with all available information about any funds held by the Energy Commission, CDFG, or NFWF as project security, or funds held in a NFWF sub-account for this project, or other project-specific account held by a third party. The CPM shall also fully cooperate with any independent audit that the project owner may choose to perform on any of these funds.

Verification: The mitigation actions required under this condition shall be completed at least 30 days prior to the start of ground-disturbing activities. Or, if these actions are not completed at least 30 days prior to the start of ground-disturbing activities, the following verification schedule requirements shall apply:

1. No later than 30 days prior to beginning project ~~ground-disturbing construction~~ activities: The project owner shall provide verification to the CPM and CDFG that an approved Security has been established in accordance with this condition of certification. Financial assurance may be in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") only as approved the CPM and CDFG. Prior to submitting the Security verification, the project owner shall obtain the CPM's approval of the form of the Security, in consultation with BLM, CDFG, and USFWS.
2. No later than 12 months after the start of ~~ground-disturbing construction~~ project activities: The project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase or transfer, for CPM review and approval in consultation with BLM, CDFG, and USFWS. If NFWF or another approved third party is handling all or part of the acquisition, the project owner shall fully cooperate with the third party and ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline.
 - a. No later than 60 days after the CPM approves the proposed compensation lands: The project owner shall complete and submit to the CPM a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands.
 - i. No later than 30 days after the CPM approves the PAR or PAR-like analysis: The project owner shall provide written verification to the CPM, BLM, CDFG, and

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USFWS to confirm that the long-term maintenance and management costs have been fully funded, which funding may be paid from the security required by this condition of certification.

- b. No later than 60 days after the CPM determines the activities required for initial protection and habitat improvement on the compensation lands: The project owner shall make funding available for those activities and shall provide written verification to the CPM of the funds that are available and how the habitat improvement costs will be paid.
 - i. No later than six months after the CPM's determination of the required activities: Initial protection and habitat improvement activities shall be completed, and written verification shall be provided to the CPM.
3. No later than 18 months after the start of project ~~ground-disturbing~~ construction activities: The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM, BLM, CDFG, and USFWS.
 - a. No later than 180 days after the land or easement purchase, as determined by the date on the title: The project owner, or an approved third party shall provide the CPM, BLM, CDFG, and USFWS with a draft management plan for the compensation lands. The CPM, in consultation with the other agencies, shall review and approve the management plan upon incorporation of all needed revisions.
4. No later than 90 days after completion of all project related ground disturbance: The project owner shall provide to the CPM, BLM, CDFG, and USFWS a final accounting, based on aerial photography and Geographic Information System (GIS) analysis, of the amount of habitat disturbed during project construction. If this analysis shows that more lands were disturbed than were anticipated, the project owner shall provide the Energy Commission with additional compensation lands and funding commensurate with the added impacts and applicable mitigation ratios set forth in this condition. If the analysis shows that fewer acres were disturbed than were anticipated, then compensation requirements will ~~only be reduced if the deadlines established under this condition for transfer of compensation lands and funding have been met prior to completion of the analysis~~ on a pro rata basis.
4. **Pages 4.2-160 through 4.2-161, BIO-4:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits:

BIO-4 The project owner shall prepare and implement a project-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from the CPM in consultation with BLM, CDFG, and USFWS. The WEAP shall be administered to all on-site personnel and agency staff at the solar generator site, and gen-tie line alignment, including but not limited to all surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, and subcontractors. The WEAP shall be implemented throughout project preconstruction, construction, operation, and closure. The WEAP shall:

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1. Be developed by or in consultation with the Designated Biologist and Authorized Desert Tortoise Biologist and consist of a training presentation, printed training material, and electronic media, including photographs of protected species, and be distributed to all participants;
2. Discuss the locations and types of sensitive biological resources on the project site and adjacent areas; explain the reasons for protecting these resources; provide information to participants that no snakes, other reptiles, bats, or any other wildlife shall be intentionally harmed or harassed;
3. Place special emphasis on special-status plants, desert tortoise, burrowing owl, golden eagle, ~~nesting birds~~, desert kit fox, and American badger, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures; this information shall also be included in printed training material and electronic media (above);
4. Include a discussion of fire prevention measures to be observed by workers during all project activities; require that workers dispose of cigarettes and cigars in appropriately ~~containers~~ containers;
5. Describe the temporary and permanent habitat protection measures to be implemented at the project site;
6. Identify whom to contact if there are further comments and questions about the material discussed in the program;
7. Prominently display posters and descriptions in offices, conference rooms, employee break rooms, and other areas where employees may congregate, of desert tortoises, burrowing owls, golden eagles, nesting birds, desert kit fox, roosting bats, and American badger, with brief descriptions of behavior, ecology, sensitivity to human activities, legal protection, penalties for violations, reporting requirements, and protection measures;
9. Direct all WEAP trainees to report all observations of listed species or their sign to the Designated Biologist for inclusion in the MCR; and
10. Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines.

The program may be administered by the Designated Biologist or another person as approved by the Designated Biologist.

Verification: At least 30 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM, BLM, CDFG, and USFWS with ~~the~~ a final draft of the WEAP and all supporting written materials and electronic media, ~~as reviewed and approved by the CPM in coordination with the other agencies.~~ Any further modifications to the approved WEAP shall be made only in consultation with the CPM, BLM, CDFG, and USFWS. The project owner also shall submit a resume of each person administering the program.

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The project owner shall provide the names and number of people who have completed the training in each MCR.

Throughout the life of the project, the WEAP shall be repeated annually for permanent employees, and shall be routinely administered within one week of arrival to any new construction, maintenance, or operations personnel, foremen, contractors, subcontractors, and other personnel potentially working within the project area. Upon completion of the training, employees shall sign a form stating that they attended the program and understand all protection measures. These forms shall be maintained by the project owner and shall be made available to the CPM upon request. Workers shall receive and be required to visibly display a hardhat sticker or certificate that they have completed the training.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for at least 6 months after the start of commercial operation. During project operation, signed statements for operational personnel shall be kept on file for 6 months following the termination of an individual's employment.

5. **Page 4.2-161-4.2-168, BIO-5:** Consistent with Applicant's specific comments and conditions of certification with prior projects – much of BIO-5 is redundant and can be deleted:

BIO-5 The project owner shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to biological resources. All measures shall be subject to review and approval by the CPM.

1. Limit Disturbance Areas and Perimeter Fencing. ~~The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) to clearly delineate the project footprint, boundaries~~ shall be delineated with stakes and flagging in consultation with the Designated Biologist prior to and ground disturbing activities within those areas. All ground disturbance, project vehicles, and equipment shall be confined to the flagged areas. Spoils and topsoil shall be stockpiled in areas already disturbed or to be disturbed by construction, so that stockpile sites do not add to total disturbance footprint. Parking areas, staging and disposal site locations shall similarly be located in areas already disturbed or to be disturbed by construction when possible ~~without native vegetation or special status species habitat~~. Any sensitive biological resource areas within or adjacent to any project work site shall be clearly marked and biology staff shall inspect these areas at appropriate intervals for compliance with regulatory terms and conditions.
2. Minimize Road Impacts. The limits of any new or improved access route shall be clearly marked as above prior to ground disturbance for the access route. All vehicles passing or turning around shall do so within the marked construction disturbance area.
3. Minimize Traffic Impacts. Vehicle and equipment traffic during project construction and operation shall be confined to existing designated routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 15 miles per hour within any part of the project area, maintenance roads for linear facilities, or unpaved access roads to the project site where desert tortoise clearance surveys and translocations have not been completed.

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- ~~4. Monitor During Construction. Due to the possibility that desert tortoises, especially juveniles, may persist on the site after desert tortoise clearance surveys and exclusion fencing are completed, the biology staff shall be present at the construction site during all clearing, grubbing, or initial grading activities. Biology monitors shall walk immediately ahead of equipment during brushing and grading activities. Any time over the life of the project that a desert tortoise is found within the exclusion fencing, the Designated Biologist or Authorized Desert Tortoise Biologist shall immediately contact the CPM, CDFG, and USFWS; monitor the tortoise's location and activities; and translocate the animal in accordance with the approved Desert Tortoise Translocation Plan, in consultation with the USFWS, CDFG, and CPM.~~
- ~~5. Minimize Impacts of Transmission/Pipeline Alignments, Roads, and Staging Areas. Staging and equipment laydown areas for construction on the solar generator site shall be within the desert tortoise exclusion fencing area. For transmission line construction or other activities outside of the solar generator site, all disturbance areas including access roads, pulling sites and staging, laydown or parking areas shall be designed, installed, and maintained to minimize impacts to native vegetation and wildlife habitat. Biology staff shall evaluate potential for special status biological resources at every potential disturbance site on these project components prior to any construction-related disturbance, including access improvements. Specifically, site selection of any area to be permanently or temporarily disturbed on the gen-tie line alignment or other linear components shall avoid any desert wash, desert microphyll woodland, or any aeolian sand habitat wherever feasible. Where these sites cannot feasibly be avoided, the Designated Biologist shall outline site-specific requirements to minimize impacts to habitat and wildlife. These requirements may include, but would not be limited to, pre-construction clearance surveys, exclusion fencing (e.g., for desert tortoise or Mojave fringe-toed lizard), on-site monitoring, and post-construction remediation.~~
6. Implement APLIC Guidelines. The gen-tie line, all distribution lines, and all other electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006) and *Mitigating Bird Collisions with Power Lines* (APLIC 1994) to reduce the likelihood of large bird electrocutions and collisions.
- ~~7. Avoid Toxic Substances on Road Surfaces. Soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.~~
8. Evaporation Ponds. Prior to any discharge into the evaporation ponds, the project owner shall cover the ponds with 2-cm (about ¾-inch) mesh netting to exclude birds and other wildlife from drinking or landing on the ponds; the netting shall be monitored regularly to verify that it remains intact, functions to exclude birds and other wildlife from the ponds, and does not pose an entanglement threat to birds and other wildlife; the ponds and netting shall be designed and maintained so that the netting does not contact the water.
- ~~9. Minimize Lighting Impacts. Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat.~~

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10. Minimize Bird Attraction to SRSB Towers. FAA lighting on SRSB towers shall 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. These shall be red strobe lights if consistent with FAA requirements and staff's recommended Condition of Certification ~~TRANS-8~~ TRANS-7 (Obstruction Marking and Lighting).
11. Minimize Noise Impacts. To minimize disturbance to wildlife nesting or breeding activities in surrounding habitat, loud construction activities (e.g., pile driving, steam blows) shall be avoided to the extent feasible from February 1 to August 31. Loud construction activities may be permitted from February 1 to August 31 only according to the provisions of the Nesting Bird Management Plan (recommended Condition of Certification ~~BIO-1411~~).
- ~~12. Avoid Vehicle Impacts to Desert Tortoise. Parking and equipment storage shall be within the area enclosed by desert tortoise exclusion fencing to the extent feasible. The project owner will coordinate with the Designated Biologist and CPM to locate employee and contractor vehicle parking at designated sites to minimize likelihood of impacts to desert tortoises and need for inspections. No vehicles or construction equipment parked outside the fenced area shall be moved prior to an inspection of the ground beneath the vehicle for the presence of desert tortoise. If a desert tortoise is observed, it shall be left to move on its own. If it does not move within 15 minutes, the Authorized Desert Tortoise Biologist may remove and relocate the animal to a safe location if temperatures are within the range described in the USFWS's (2009a) *Desert Tortoise Field Manual* (http://www.fws.gov/ventura/speciesinfo/protocols_guidelines). All access roads outside of the fenced project footprint shall be delineated with temporary desert tortoise exclusion fencing on either side of the access road, unless otherwise authorized by the CPM, in consultation with BLM, CDFG, and USFWS.~~
- ~~13. Avoid Wildlife Entrapment:~~
 - ~~a. Backfill Trenches. At the end of each work day, biology staff shall ensure that all potential wildlife pitfalls (trenches, bores, temporary detention basins, and other excavations) have been backfilled, covered, or sloped to allow wildlife egress. All potential pitfalls outside the permanent desert tortoise exclusion fencing shall be inspected no less than three times throughout the day and at the end of each workday. All potential pitfalls outside the exclusion fencing will be backfilled, sloped at a 3:1 ratio at the ends to provide wildlife escape ramps, covered completely to prevent wildlife access except as necessary for ongoing project activities. Should a desert tortoise or other wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and, if applicable, relocate it as described in the Desert Tortoise Translocation Plan. In addition, Biology Staff will periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way. Any wildlife encountered during the course of construction shall be allowed to leave the construction area unharmed.~~
 - ~~b. Avoid Entrapment of Desert Tortoise. Any construction pipe, culvert, or similar structure with a diameter greater than 3 inches, stored less than 8 inches aboveground for one or more nights, shall be inspected for tortoises before the~~

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material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks.

c. ~~Avoid entrapment of nesting or migratory birds. All pipes or other construction materials or supplies will be covered or capped in storage or laydown areas at the end of each work day. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently.~~

~~14. Minimize Standing Water. Standing water could attract desert tortoises, common ravens, and other wildlife to construction sites. Dust abatement on access routes or other areas of the project site shall use the minimal amount of water needed to meet safety and air quality standards to minimize pooling or puddles. Biology staff shall inspect road watering, water tanks, pump sites, and other facilities to ensure water does not pool and shall report standing water to the Designated Biologist for follow up with the project owner's Environmental Compliance Manager (ECM).~~

~~15. Dispose of Road-killed Animals. Road-killed animals or other carcasses detected on or near the project area shall be collected and delivered to the biology staff. The Designated Biologist shall retain the carcass in a freezer on-site and contact CDFG within 30 working days for guidance on disposal or storage. For any road-killed special status species, the Biological Monitor shall contact CDFG and USFWS (for golden eagle or federally listed species, including desert tortoise) within one working day of receipt of the carcass for guidance on disposal or storage of the carcass. The Designated Biologist shall report the special status species record to the CNDDDB.~~

~~16. Minimize Spills of Hazardous Materials. All vehicles and equipment shall be maintained in proper condition to minimize the potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately as directed in the project Hazardous Materials Plan. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly handled or disposed of at a licensed facility. Servicing of construction equipment shall take place only at a designated area as approved by the CPM. Service and maintenance vehicles shall carry a bucket and pads to absorb leaks or spills.~~

~~17. Worker Guidelines. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.~~

~~18. Erosion Control Measures. Erosion control measures and BMPs shall be taken to minimize erosion and off-site or downstream sediment run-off. All spoils or other materials shall be placed such that heavy rains will not cause materials to wash off-site or into waters of the state. All disturbed soils and roads within the project site shall be stabilized to reduce erosion potential, both during and following construction, except that soil stabilizers may not be used within or adjacent to special status species locations on or off the project site, or on road crossings of washes or stream channels, as consistent with applicable water quality requirements.~~

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- ~~19. Monitor Ground Disturbing Activities Prior to Pre-Construction Site Mobilization. If pre-construction site mobilization requires ground disturbing activities such as geotechnical borings or hazardous waste evaluations, biology staff shall be present to monitor any actions that could affect desert tortoise, or disturb soil, vegetation, or wildlife.~~
20. Remove Unused Material and Equipment. All unused material and equipment, including soil and rock piles, will be removed upon completion of any construction or maintenance activities outside the permanently fenced area.
- ~~21. Control and Regulate Fugitive Dust. To reduce the potential for the transmission of fugitive dust, the project owner shall implement dust control measures as described in staff's recommended Conditions of Certification **AQ-SC4**, **AQ-SC5**, and **AQ-SC7** in the **Air Quality** section of this Staff Assessment.~~

Verification: All mitigation measures listed above and the project owner's proposed methods for implementing them shall be included in the BRMIMP and shall be implemented. Throughout the life of the project, implementation of the measures shall be reported in the MCRs and ACRs by the Designated Biologist. ~~Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.~~

6. **Pages 4.2-168 through 4.2-170, BIO-6:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits:

BIO-6 The project owner shall prepare and implement a Revegetation Plan for all temporary (albeit long-term) project disturbance areas on public land, including work areas on the gen-tie alignment, and primary access road. ~~temporary construction disturbance areas to the east of the solar generator site, and all areas within the solar generator site where underground infrastructure construction, temporary access, temporary lay-down areas, construction equipment staging areas, or other project construction activities caused temporary disturbance to soils and vegetation.~~ Upon completion of construction, all temporarily disturbed areas on public land shall be restored to pre-project grade and topography, or recontoured as needed to prevent surface hydrology alterations from causing undue erosion to the extent reasonably feasible.

Revegetation objectives will be to prevent or minimize further site degradation; stabilize soils; maximize the likelihood of vegetation recovery over time; and minimize soil erosion, dust generation, and weed invasions. The nature of site reclamation, revegetation, or restoration will vary according to each site, its pre-disturbance condition, and the nature of the construction disturbance (e.g., drive and crush, vs. blading). The revegetation plan shall conform to the following requirements:

1. Plan Details. The revegetation plan shall include at minimum: (a) top soil storage and handling methods, if proposed; (b) seed collection guidelines; (c) planting or seeding schedule, to coincide with winter rain season (i.e., seeding prior to mid-December); (d) seeding or planting methods; ~~(e) a description of the irrigation system and irrigation scheduling, if used;~~ (f) measures to control invasive species (to be coordinated with the project's Integrated Weed Management Plan, below); (h) success criteria; and (i) a detailed monitoring program. ~~All Public land habitats dominated by non-native species prior to project disturbance shall be revegetated using appropriate native species to~~

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minimize re-infestation. This plan shall also contain contingency measures for failed revegetation efforts (those not meeting success criteria).

2. Seed and Nursery Stock. Only seed or potted nursery stock of locally occurring native species shall be used for revegetation. Seeds shall contain a mix of short-lived early pioneer species such as native annuals and perennials and subshrubs. Seeding and planting shall be conducted as described in Chapter 5 of *Rehabilitation of Disturbed Lands in California* (Newton and Claassen 2003). A list of plant species suitable for Colorado Desert region revegetation projects, including recommended seed treatments, are included in Appendix A-9 of the same report. The list of plants observed during the special-status plant surveys of the project area can also be used as a guide to site-specific plant selection for revegetation. In conformance with BLM policy, the project owner shall include salvaged or nursery stock yucca (all species), and cacti (excluding cholla species, genus *Cylindropuntia*), in revegetation plans and implementation affecting BLM lands.
3. Monitoring. Revegetation monitoring will be on an annual basis and shall continue for a period of no less than five (5) years or until the defined success criteria are achieved. If the survival and cover requirements have not been met, the project owner will be responsible for replacement seeding or planting to achieve these requirements or other remedial action as agreed to by the CPM in consultation with BLM, CDFG, and USFWS. Remediation sites shall be monitored with the same survival and growth requirements as required for original revegetation. Remediation activities (e.g., additional planting, removal of non-native invasive species, or erosion control) shall be undertaken during the monitoring as necessary to ensure success. If any revegetation site fails to meet the established performance criteria after the maintenance and monitoring period, monitoring and remedial activities shall extend until the criteria are met or unless otherwise specified by the CPM in consultation with BLM, CDFG, and USFWS.
4. ~~Replacement. If a fire occurs in a revegetation area within the monitoring period, the owner shall be responsible for a one-time replacement. If a second fire occurs, no replanting is required, unless the fire is caused by the owner's activity (e.g., as determined by BLM or other firefighting agency investigation).~~

Verification: At least 30 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM, ~~and BLM, CDFG, and USFWS~~ with the a final draft of the Revegetation Plan for public land, as reviewed and approved by the CPM in coordination with the other agencies. Any further modifications to the approved Revegetation Plan shall be made only in consultation with the CPM, ~~and BLM, CDFG, and USFWS~~. The project owner shall include all revegetation and monitoring activities in the ACRs submitted to the CPM. The report shall include: a summary of revegetation, monitoring, and remediation activities for the year; a discussion of whether revegetation performance standards for the year were met; and recommendations for remedial action, if warranted, planned for the upcoming year.

7. **Pages 4.2-168 through 4.2-170, BIO-7:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits to items 1 and 5 in the condition:

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1. An assessment of nonnative and invasive weeds occurring on the site and within a ~~one-mile~~250-foot adjacent buffer area prior to construction activities;
- ...
5. An action or mobilization plan to ensure timely and appropriate control or eradication of infestations before they go to seed, to prevent further expansion; treatment of weed infestations shall occur at least once annually; when no new seedlings or resprouts are observed at treated sites for three consecutive normal rainfall years, the infestation can be considered eradicated and weed control efforts may cease for that impact site; control methods shall meet the following criteria:
 - a. Manual. Well-timed removal of plants or seed heads with hand tools; seed heads and plants must be disposed of in accordance with ~~guidelines from the Riverside County Agricultural Commissioner~~ invasive weed guidance;
 - b. Chemical. Only state and BLM-approved herbicides will be used, and all herbicide applicators will possess a qualified herbicide applicator license from the state; all herbicide applications will be in accordance with federal, state, and local laws and regulations follow U.S. Environmental Protection Agency label instructions; herbicides having residual toxicity, such as preemergents and pelts, shall not be used in natural areas or within channels (engineered or not) where they could run off into downstream areas. Appropriate methods of chemical control will be specified in the weed management plan. Only the following application methods may be used: wick (wiping onto leaves); inner bark injection; cut stump; frill or hack & squirt (into cuts in the trunk); basal bark girdling; foliar spot spraying with backpack sprayers or pump sprayers at low pressure or with a shield attachment to control drift, and only on windless days, or with a squeeze bottle for small infestations;
8. **Pages 4.2-170 through 4.2-172, BIO-8:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please delete BIO-8 in its entirety:

~~DESERT DRY WASH WOODLAND MONITORING PLAN AND OFF-SITE IMPACT COMPENSATION~~

~~**BIO-8** — The project owner shall prepare and implement a Desert Dry Wash Woodland Monitoring Plan (DDWWMP) upon review and approval by the CPM, in consultation with BLM, CDFG, and USFWS. The project owner shall not commence project related groundwater pumping until the plan has been revised and approved by the CPM in consultation with the other agencies. The Plan shall outline the following information and actions:~~

- ~~1. Prior to project operations, the baseline health and vigor of groundwater dependent plant species (desert ironwood, blue palo verde, mesquite, and bush seepweed) shall be recorded within four zones: immediately off-site at the eastern project boundary, and at ¼-mile, ½-mile and 1-mile distances from proposed project groundwater supply well locations. At least one "control" site, at least 2 miles from the supply well locations, shall also be sampled. The number of plants for each of the target species to be~~

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- sampled at each site will be large enough to provide valid comparison of data among sites. The DDWWMP will provide maps and text description of each study site.
2. A qualified botanist or plant physiologist shall develop a sampling protocol to be carried out at each sampling zone (above) and the control site to monitor stress and mortality of target plants once operations begin. The protocol shall include a measure of pre-dawn water potential, as measured by standard plant physiology techniques.
 3. The DDWWMP shall identify thresholds constituting a significant difference in plant stress or mortality. If a significant difference in plant stress or mortality is shown at one or more sample locations in comparison to the control site, the project owner shall coordinate with the CPM, BLM, CDFG, and USFWS to interpret the results. The sample site and control site data shall be evaluated in terms of the project's groundwater usage, climate factors, and groundwater monitoring data collected for staff's recommended Condition of Certification **WATER SUPPLY 4**. If plant stress or mortality is determined to be related to project activities, then the project owner shall either refrain from pumping, reduce groundwater pumping to allow for recovery of the groundwater table, or provide additional habitat compensation as described below.

If results of the groundwater monitoring program under **WATER SUPPLY 4** indicate that the project pumping has resulted in groundwater level decline of 1 foot or more below the baseline trend, and vegetation monitoring for plant stress, mortality, and water potential have documented one or more of the sampling sites for the four groundwater-dependent plant species as reaching the threshold (above), the project owner will reduce groundwater pumping until water levels stabilize or recover, provide for temporary supplemental watering, or compensate for additional impacts to desert dry wash woodland (blue palo verde-ironwood woodland) at the ratio of 3:1, consistent with Condition of Certification **BIO 3**. Estimated acreage of additional dry wash woodland impacts will be submitted to the CPM for review in consultation with BLM, CDFG, and USFWS for approval. Upon approval, the project owner will initiate and complete further compensation according to the requirements and conditions described in **BIO 3**.

At the conclusion of the monitoring period (i.e., throughout construction phase and for an additional three (3) years) following completion of project construction), the project owner, CPM, BLM, CDFG, and USFWS shall jointly evaluate the effectiveness of the DDWWMP and determine if monitoring frequencies or procedures should be revised, extended to the operation and decommissioning periods, or eliminated. Should additional data be forthcoming to demonstrate that this potential impact is not verifiable or attributable to this specific project, it may be modified or eliminated.

Verification: At least 30 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM, BLM, CDFG, and USFWS with the a final draft of the DDWWMP, as reviewed and approved by the CPM in coordination with the other agencies. Any further modifications to the approved DDWWMP shall be made only in consultation with the CPM, BLM, CDFG, and USFWS. Results of desert dry wash woodland monitoring will be submitted to the CPM in MCRs and ACRs throughout the project's construction period and for no fewer than three (3) additional years following the completion of construction. The reports will include all monitoring data required as part of the monitoring program requirements under **WATER SUPPLY 4** and as required under this condition including evaluation and any changes in plant health and vigor, and changes in groundwater levels in the production and monitoring wells. If the project owner elects to

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mitigate potential future impacts through acquisition of compensation habitat, then all terms and measures of Condition of Certification **BIO-3**, including schedule requirements, submittal and acceptance of a formal acquisition proposal, completion of the required transactions, and verification of completion for each term or condition, shall apply to the verification of this condition, except that transaction and management schedule requirements will be adjusted to begin on the date of the CPM's approval of the acreage impacts.

9. **Page 4.2-172-4.2-177, BIO-9:** Please revise to conform with the pending LSAA and up-to-date delineation filed by Applicant. Further, Applicant has proposed revisions to correct double-counting of vegetation impacts. Please revise items 1 and 2 in the condition as follows:

BIO-9 The project owner shall implement the following measures to avoid, minimize and mitigate for direct and indirect impacts to waters of the state and to satisfy requirements of California Fish and Game Code sections 1600 and 1607.

1. Finalize Acreages of Impacts to State Waters: The applicant estimates that ~~817.37486.12~~ 817.37486.12 acres of state-jurisdictional waters would be directly or indirectly impacted by the project, and staff's recommended compensation is based on that estimate. Upon completion of final engineering, the project owner shall review and quantify the project's permanent and long-term impacts to state-jurisdictional waters. The calculated acreage of permanent and long-term impacts shall include all ephemeral drainages within or adjacent to the fenced boundary of the solar generator site; the adjacent temporary construction area; and all impacts to streambeds or adjacent riparian vegetation resulting on the gen-tie alignment, including construction or widening of the access road; transmission line tower access; logistics, staging, and lay-down areas; road turnouts; pull sites; and any other project-related disturbance to state jurisdictional waters.
2. Acquire Off-Site State Waters: Permanent and long-term impacts to unvegetated waters of the state shall be offset by compensation at a ~~3:1~~ 3:1 ratio and vegetated waters of the state will be mitigated at 3:1. The project owner shall acquire, in fee or in easement, a parcel or parcels of land that includes ~~2,452.14~~ 1387.52 acres of state jurisdictional waters, including ephemeral streambeds and adjacent riparian vegetation. The parcel or parcels comprising the off-site state waters shall include similar vegetation and habitat types as those found on the project site, including blue palo verde – ironwood woodland, ~~and~~ bush seepweed scrub, and mesquite bosque scrub. Total acreage of these vegetation types shall be at the 3:1 ratio as described for special status plant community compensation in staff's recommended Condition of Certification **BIO-3**. The terms and conditions of this acquisition or easement shall be as described in Condition of Certification **BIO-3**. Compensation lands for offset of impacts to state waters shall be located within the surrounding watersheds, as close to the project site as possible. State waters on other compensation lands, such as desert tortoise compensation lands (see Condition of Certification **BIO-11**) may fully or partially fulfill the requirements of this condition. Additional off-site state

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waters shall be acquired if those compensation lands do not include the necessary acreage of state waters as required for compliance with this condition of certification.

10. **Page 4.2-177-4.2-181, BIO-10:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits to items 1, 2 and 3 of the condition:

BIO-10 Through implementation of standard measures in the BRMIMP and Weed Management Plan, ~~the project owner shall~~ will implement the following measures to mitigate the project's direct and indirect impacts to special-status plants.

1. **Special Status Plant Impact Avoidance and Minimization.** To protect Harwood's milk-vetch or other CRPR 1 or 2 plants located within the project area or within 250 feet of its boundaries (including access roads, staging areas, laydown areas, parking and storage areas) from accidental and indirect impacts during construction, operation, and closure, the project owner shall avoid special-status plant locations to the extent feasible. Any CRPR 1 or 2 plant locations, excluding Abram's Spurge, and a surrounding 250-foot buffer area shall be designated as "environmentally sensitive areas" and avoided during all project activities to the extent feasible. Project design or grading plan modifications to avoid special-status plant locations shall be clearly depicted on the grading and construction plans, and on report-sized maps in the BRMIMP, with notations indicating avoidance requirements. These special-status plant locations shall be marked and monitored as environmentally sensitive areas as described in Condition of Certification **BIO-5.** Erosion and sediment control measures shall be taken to avoid adverse impacts to the sites.

"Avoidance" shall include protection of the ecosystem processes essential for maintenance of the protected plant occurrence. For all but one of the late blooming plant species with potential to occur, the plant species are annuals that depend on a viable seed bank to maintain population health and persistence. The primary goal of avoidance for these annual species will be protection of the soil integrity and the seed bank that is closely associated with undisturbed soils. Any impacts to the soil structure or surface features will be considered an impact, but measures like temporary mowing or brush removal that does not disturb the soil will not be considered impacts to the population.

2. **Seed Salvage.** For all direct impacts to CRPR 1 or 2, excluding Abram's Spurge, plants for which avoidance is not feasible, mitigation shall include seed collection from the affected special-status plants on-site prior to construction to conserve the germplasm and provide a seed source for potential future restoration efforts. Where construction schedules or seed availability prevents seed collection, seed must be collected from another portion of the project site or from public or applicant-owned lands off-site. Seed collection on public land must only be done under permit from the BLM; the project owner shall be responsible for obtaining and complying with applicable permit(s). The seed shall be collected under the supervision or guidance of a reputable seed storage facility such as the Rancho Santa Ana Botanical Garden (RSABG) Seed Conservation Program, San Diego Natural History Museum, or the Missouri Botanical Garden. The costs associated with the long-term storage of the seed shall be the responsibility of the project owner. Any efforts to propagate and reintroduce special-

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status plants from seeds in the wild shall be carried out under the direct supervision of specialists such as those listed above.

3. **Mitigation of Unavoidable Impacts to Special-status Plants.** The project owner shall mitigate impacts to any CRPR 1 or 2, excluding Abram's Spurge, ranked plants, including plants that may be discovered during summer 2012 field surveys, through one or a combination of the following strategies.

- a. Off-site compensation. The project owner may provide compensation lands consisting of occupied habitat of the affected CRPR 1 or 2, excluding Abram's Spurge, ranked plants, at a 1:1 ratio for any occupied habitat affected by the project. Compensation lands shall be secured according to all terms described in Condition of Certification **BIO-3**. Selection criteria and acreage for special-status plant compensation lands shall be as follows.

11. **Page 4.2-181 through 4.2-183, BIO-11:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits:

BIO-11 The project owner shall implement the measures described in this condition to avoid impacts to nesting birds throughout the construction, ~~operations, and closure~~ phases of the project.

1. The project owner shall prepare and implement a Nesting Bird Management Plan (NBMP), describing measures to detect native birds that may nest on the project site or facilities, and avoid impacts or take of those birds or their nests, ~~during all project phases~~. The NBMP shall describe avoidance measures, such as buffer distances from active nests, based on the specific nature of project activities, noise or other disturbance of those activities, the bird species and conservation status, and other pertinent factors including such measures as capping heliostat pipes and installation of anti-perching devices on heliostats. The NBMP may be incorporated into the Bird and Bat Conservation Strategy (Condition of Certification **BIO-12**) as a separate chapter. The plan shall include, at minimum, the following measures and components:
 - a. Define the start and end dates of the local bird nesting season (tentatively defined as ~~January~~ February 15 through August 31);
 - b. Specify nest survey timing and areas in relation to construction activity and survey area (tentatively no more than 7 days prior to construction and throughout all disturbance areas and surrounding ~~500~~100 foot buffer);
 - c. Specify ~~330~~100 feet as a general buffer distance, and ~~500~~200 feet for raptor species, to be adjusted according to bird species (or groups of species) that are relatively tolerant or intolerant of human activities and nature of construction activity or disturbance;
 - d. ~~List all project construction activities and rank them in terms of noise and other disturbance to nesting birds, and specify any modifications to buffer areas as appropriate to each activity; for example, vehicle travel along an access route would likely warrant reduced buffers whereas pile driving may necessitate increased distances;~~
 - e. ~~Specific project activities and bird species (or groups of species) that may warrant temporary buffer reductions or nest relocation with on-site nest monitoring by a qualified field ornithologist during any such activities;~~

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- f. Specific monitoring measures to track any active bird nest within or adjacent to the project site, bird nesting activity, ~~and project-related disturbance, and fate of each nest;~~
 - g. Specific data management and reporting procedures, to include annual evaluation of buffer distance efficacy and other plan components, and recommendations for revisions for the upcoming nesting season;
 - h. Specific measures to prevent or reduce bird nesting activity on project facilities, construction equipment, ~~or operation and maintenance equipment throughout the life of the project;~~ and
 - i. Specific actions to be taken if a bird nest is located on project facilities, construction equipment, ~~or operation and maintenance equipment throughout the life of the project.~~
2. Pre-construction nest surveys for all bird species ~~including other than~~ burrowing owls shall be conducted if ~~prior to any~~ construction activities will occur ~~scheduled~~ during the breeding period (from ~~January 15~~ February 1 through August 31). Burrowing owl surveys are addressed in **BIO-17**. Biology staff or contractors conducting the surveys shall be experienced field ornithologists and familiar with standard nest-locating techniques such as those described by Martin and Guepel (1993). Surveys shall be in accordance with the following guidelines. Nothing in this condition requires the project owner to conduct nesting bird surveys by entering non-federal lands adjacent to the project site when the project owner has made reasonable attempts to obtain permission to enter the property for survey work but was unable to obtain such permission. In this situation only, the project owner may substitute binocular surveys for protocol field surveys.
- a. Surveys shall cover all potential nesting habitat in the project site and within 500100 feet of the boundaries of the solar generator site, gen-tie alignment, and any other work sites, except as specified in the approved NBMP;
 - b. Except as specified in the approved NBMP, at least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval; the second survey shall be no more than 7 days prior to the start of clearing or construction activity; follow-up surveys shall be required if construction inactivity in any given area exceeds one week, an interval during which birds may build and occupy a nest;
 - c. If active nests are found during the survey, buffer zones and other measures as specified in the approved NBMP shall be implemented; and
 - d. Project biology staff shall monitor the nest until nestlings have fledged and dispersed or until nest failure is documented; monitoring and reporting shall be as specified in the NBMP.

Verification: At least 30 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM, BLM, CDFG, and USFWS with the a final draft of the NBMP, as reviewed and approved by the CPM in coordination with the other agencies. Any further modifications to the approved NBMP shall be made only in consultation with the CPM, BLM, CDFG, and USFWS. Results of nest monitoring will be submitted to the CPM in MCRs ~~and ACRs~~ throughout the project's construction, ~~operations,~~ and ~~closure~~. The Reports will include all monitoring data required as part of the monitoring program. Prior to the start of project-related ground disturbance activities at any work site or project phase, the project owner shall provide the CPM with written or verbal description of survey methods and results, including the time, date, and duration of the survey; identity and qualifications of the surveyor(s); and a list of species observed. If active nests are detected during the survey, the report shall include a map or aerial photo identifying the

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location of the nest(s) and shall depict the boundaries of the no-disturbance buffer zone around the nest(s).

12. **Pages 4.2-183 through 4.2-185, BIO-12:** Please revise to conform to specific comments. Please revise to delete reference to an Eagle Conservation Plan (ECP), which applies only to wind energy, and also presupposes impacts that are not expected to occur, and revise to incorporate the functionally same substantive requirements in the Bird Conservation Strategy:

BIO-12 The project owner shall implement the following measures to monitor, mitigate and adaptively manage operational impacts to birds and bats.

1. **Monitoring Study:** The project owner shall prepare and implement a monitoring study to monitor the death and injury of birds and bats caused by collisions with project facilities including heliostats and solar receiver tower, burning or other injury caused by flying through concentrated solar energy within the solar field, or other project-related causes including the gen-tie line and evaporation ponds. The study design shall be based on the USFWS's *Monitoring Migratory Bird Take at Solar Power Facilities: An Experimental Approach* (USFWS 2011d) or more current guidelines if available. It shall be subject to review and approval by the CPM in consultation with CDFG and USFWS, shall be incorporated into the project's BBCS and BRMIMP, and implemented by the Designated Biologist in coordination with the project owner, CPM, CDFG, and USFWS. The study shall be implemented, for a period of not less than 5 years (60 months) total, including the entire construction phase and not less than 2 years during the operational phase and shall continue until the CPM concludes, in consultation with the other agencies, that the cumulative monitoring data provide sufficient basis for estimating long-term bird mortality for the project.
2. **Bird and Bat Conservation Strategy (BBCS):** The project owner shall prepare and implement a Bird and Bat Conservation Strategy adopting **BIO-16**, and all applicable guidelines recommended by the USFWS (2010c) or more current guidelines that may be released. The BBCS 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 and shall incorporate an analysis of golden eagles that includes the following:
3. (a) all applicable golden eagle occurrence analysis guidelines recommended by the USFWS (2011b) or more current guidelines that may be released; ~~The ECP may be prepared as a stand-alone document or it may be included as a chapter within the BCS. The ECP shall describe~~ (b) all available baseline data on golden eagle occurrence, seasonality, activity, and behavior throughout the project area and vicinity; ~~The ECP shall outline~~ (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~~ (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 ~~(3) concentrated solar energy (radiant flux) over the solar field;~~ (e) The ECP shall specify the project owner's anticipated take of bald or golden eagles (if any). The ECP shall if required or necessary, provide an inventory of existing electrical distribution lines within a 20-mile radius of the

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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; and shall The inventory shall identify the owner or operator and estimate the number of non-conforming poles for each distribution line. The ECP shall specify that for each anticipated project related take of a bald eagle, golden eagle, Swainson's hawk, or other large special status raptor (including but not limited to osprey, ferruginous hawk, Harris' hawk, norther harrier, prairie falcon, and peregrine falcon, retrofit 11 utility poles per year will be retrofitted to APLIC standards for the life of the project; In addition, the ECP shall specify that 11 utility poles per year will be retrofitted to APLIC standards for the life of the project for each take of a bald eagle, golden eagle, Swainson's hawk, or any other large special status raptor that may exceed the estimated take (even if estimated take is zero). The ECP shall (f) include 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). ~~The ECP also shall identify any additional feasible adaptive management measures to minimize collisions and exposure to solar flux; and (h).~~ ~~The ECP shall provide~~ 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 ~~ECP-BBCS~~ shall be subject to review and approval by the CPM in consultation with CDFG and USFWS, and shall be incorporated into the project's BRMIMP, and implemented.

Verification: The draft Monitoring Study, BBCS ~~and ECP~~ shall be submitted to the CPM for review in consultation with CDFG, and USFWS, and shall be finalized by the project owner and submitted to the CPM and other agencies no less than 30 days prior to construction At least 30 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM, CDFG, and USFWS with the a final draft of all three documents, as reviewed and approved by the CPM in coordination with the other agencies. The project owner shall obtain the CPM's written approval of the Monitoring Study, and BBCS ~~and ECP~~ prior to the start of any project-related ground disturbance activities.

The project owner shall provide the CPM with copies of any written or electronic transmittal from the USFWS indicating the status of Monitoring Study, and BBCS ~~and ECP~~ review and any permit that may be required, and any follow-up actions required by the applicant, within 30 days of receiving such transmittal from USFWS.

Methods and results of the Monitoring Study shall be submitted to the CPM in MCRs and ACRs throughout the course of the study and until the CPM, in consultation with the other agencies, concludes that the cumulative monitoring data provide sufficient basis for estimating long-term bird mortality for the project. The Reports will include all monitoring data required as part of the monitoring program.

Each year throughout the minimum 5 year monitoring period, the Designated Biologist shall submit an Annual Report to the CPM, CDFG, and USFWS by January 31 of each calendar year, summarizing all available bird and bat mortality data (species, date and location collected, evidence of injury and cause of death) collected over the course of the year. The report shall provide any recommendations for future monitoring and adaptive management actions. The

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report also shall summarize any additional wildlife mortality or injury documented on the project site during the year, regardless of cause. The Annual Report shall be subject to review and approval by the CPM in consultation with CDFG and USFWS. The project owner shall submit revisions within 30 days of receiving written comments from the CPM. At the direction of the CPM, in consultation with the other agencies, the study period will be extended based on data quality and sufficiency for analysis or if needed to document efficacy of any adaptive management measures undertaken by the project owner. If a carcass of a golden eagle or any state or federally listed threatened or endangered species is found at any time, the project owner or Designated Biologist shall contact CDFG and USFWS within one working day of receipt of the carcass to report the mortality and for guidance on disposal or storage of the carcass.

13. **Page 4.2-185-4.2-189, BIO-13:** Consistent with Applicant's specific comments and conditions of certification with prior projects, please make the following edits:

BIO-13 The project owner shall avoid and minimize impacts to desert tortoises on the project site by (1) fencing the solar generator site to prevent tortoises from entering it during construction, operation, or decommissioning; (2) removing all tortoises from the site prior to initiating construction; and (3) translocating tortoises to an appropriate off-site location to be identified in a Translocation Plan. Methods for clearance surveys, fence specification and installation, tortoise handling, artificial burrow construction, egg handling, and other procedures shall be consistent with those described in the USFWS (2009a) *Desert Tortoise Field Manual* (http://www.fws.gov/ventura/species_information/protocols_guidelines) or more current guidance provided by CDFG and USFWS. The project owner shall also implement all terms and conditions described in the Biological Opinion for the project, to be prepared by USFWS. Applicable conditions and requirements include, but are not limited to, the following:

1. Desert Tortoise Translocation Plan. The project owner shall prepare and implement a Desert Tortoise Translocation Plan in conformance with standards and guidelines described in Translocation of Desert Tortoises (Mojave Population) From Project Sites: Plan Development Guidance (USFWS 2010d) or more current guidance or recommendations as available from CDFG or USFWS, and meets the approval of the CPM in consultation with BLM, CDFG, and USFWS. The goals of the plan shall be to safely exclude desert tortoises from within the project area, translocate them to appropriate locations off site, and minimize stress and potential for disease transmission. For tortoises that may be found along the gen-tie line, the plan's goal will be to avoid impacts through construction monitoring, allowing the tortoise to leave the work area, moving it out of harm's way if necessary, and avoiding disturbance to tortoise burrows through re-siting work sites and structures. The plan shall include all protocols for handling desert tortoises, evaluating tortoise health, translocation locations and procedures, monitoring methods for translocated tortoises, reporting, and contingency planning (e.g., handling an injured or diseased tortoise).
2. Handling of Desert Tortoises. Any desert tortoise located during any phase of the project shall be handled only by the Authorized Desert Tortoise Biologist in accordance with the USFWS (2009a) *Desert Tortoise Field Manual* and the project's Desert Tortoise Translocation Plan. Any time a tortoise is handled, the Authorized Desert Tortoise Biologist shall record and report pertinent data, in accordance with the final Desert

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Tortoise Translocation Plan. Monitoring of translocated desert tortoise shall be in accordance with the Desert Tortoise Translocation Plan and USFWS (2010d) guidance.

3. Desert Tortoise Exclusion Fence Installation. ~~Permanent~~ Desert tortoise exclusion fencing shall be installed around the project site. Temporary tortoise fencing may be installed or monitoring may be used prior to the installation of permanent fencing subject to the approval of the CPM. The alignments for all desert tortoise exclusion fencing shall be prominently flagged or staked and shall be surveyed for desert tortoise by project biology staff no more than 24 hours prior to the initiation of fence construction. The fence alignment surveys shall be conducted using techniques approved by the USFWS and CDFG and may be conducted in any season according to specification in the Desert Tortoise Translocation Plan. The fence alignment clearance surveys shall provide 100 percent coverage of all areas to be disturbed and an additional buffer approximately ~~60~~ 90 feet wide centered on the fence alignment (i.e., ~~45~~ 30 feet along each side of the fence line). Survey transects for fence installation shall be no greater than ~~15~~ 30 feet apart. All potential desert tortoise burrows shall be examined to assess occupancy by desert tortoises.
 - a. Timing of Fence Installation. The exclusion fencing shall be installed prior to the pre-construction clearance surveys. Fencing may be installed during any time of the year. No ground-disturbing activity will be permitted within the fenced area until completion of the pre-construction clearance surveys. If the project is constructed in phases, prior to the initiation of construction activities for each solar plant, the project owner shall enclose the boundary of the affected solar plant with permanent chain link fencing for security purposes and permanent desert tortoise exclusion fencing.
 - b. Fence Material and Installation. The exclusion fencing shall be constructed in accordance with the USFWS (2009a) *Desert Tortoise Field Manual* (Chapter 8 – Desert Tortoise Exclusion Fence).
 - c. Temporary Construction Activities: Temporary construction activities outside of the permanent fencing shall be temporarily fenced to fully encompass work area prior to ground disturbing activities to prevent desert tortoise entry during construction unless biological monitoring is more beneficial to desert tortoise or other wildlife. Temporary fencing must be capable of preventing desert tortoises from entering the work area, with supporting stakes sufficiently spaced to maintain fence integrity. The Designated Biologist or Biological Monitor shall be present to supervise all construction activities occurring within areas bounded by temporary fencing.
 - d. Security Gates. Security gates shall be designed with minimal ground clearance to prevent entry by tortoises. The gates ~~should~~ may be electronically activated to open and close immediately after the vehicle(s) have entered or exited to prevent the gates from being kept open for long periods of time. ~~Cattle-grating~~ Tortoise guards designed to safely exclude desert tortoise may be installed at the gated entries to discourage tortoises from gaining entry (to be determined by the CPM in consultation with BLM, CDFG and USFWS).
 - e. Fence Inspections. The exclusion fencing shall be regularly inspected daily during project construction. Any fencing, whether temporary or permanent, that is installed when tortoises are active, will be checked 2 to 3 times daily for 2 weeks to

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ensure that no tortoise is fence-walking to the point of exhaustion or overexposure. If midday temperatures are above thresholds at which tortoises must go underground to escape heat (approximately 42°C ground temperature), then one of the fence checks should occur prior to this threshold being reached. This same process should occur for the first 2 to 3 weeks of the activity season if the fence is installed in winter, when tortoises are underground. ~~If tortoises were moved out of harm's way during fence construction, fencing in that area shall be inspected at least twice daily for a minimum of 7 days after moving the animal to ensure that the recently moved tortoise is not walking the fenceline.~~ During operations, fencing shall be inspected monthly and within 24 hours following all major rains. Major rains are defined as a storm(s) for which surface flow is detectable within the fenced drainages. Any damage to the fencing shall be temporarily repaired immediately to keep tortoises from entering the site, and permanently repaired within 48 hours of observing damage. Monthly and post-rainfall inspections of permanent site fencing shall continue throughout the life of the project. Carcasses of animals entrapped in the fence shall be handled as described above in **BIO-5**.

- f. Temporary Exclusion Fencing. Any project activities during the life of the project within desert tortoise habitat but outside of the permanently fenced site, and have the potential to disturb native soils or vegetation, shall be subject to fencing and pre-construction clearing survey requirements, or shall take place only while project Biology Staff is on-site. Temporary tortoise exclusion fencing may be placed on access roads or other work sites, including gen-tie line construction sites, in accordance with direction from the CPM in consultation with BLM, CDFG, and USFWS. The fence installation shall be supervised by the Authorized Desert Tortoise Biologist and monitored by project biology staff to ensure the safety of any tortoise present. Temporary fencing shall be inspected weekly and, where drainages intersect the fencing, during and within 24 hours following major rains. All temporary fencing shall be repaired immediately upon discovery of damage, and project biology staff shall inspect the area to determine whether the damage may have permitted tortoise entry.
4. Desert Tortoise Clearance Surveys. Following construction of the tortoise exclusion fencing, the fenced area (~~including permanent and temporarily fenced areas~~) shall be cleared of tortoises by the Authorized Desert Tortoise Biologist and project biology staff. Clearance surveys shall be conducted in accordance with the USFWS 2009a *Desert Tortoise Field Manual* (Chapter 6 – Clearance Survey Protocol for the Desert Tortoise – Mojave Population) and shall consist of at least ~~two~~three surveys covering 100 percent of the enclosed area by walking transects no more than 15 feet apart on the initial clearance survey. Subsequent clearance surveys shall be conducted with transects at no more than 30 feet apart. Surveys shall be repeated until two consecutive 100 percent coverage surveys are completed without finding live tortoises. Any tortoise located during clearance surveys shall be relocated ~~and monitored~~ in accordance with the Desert Tortoise Translocation Plan.
5. Burrow Searches. During clearance surveys all desert tortoise burrows and burrows constructed by other species that might be used by desert tortoises, shall be examined by the Authorized Desert Tortoise Biologist to assess occupancy by desert tortoises and handled in accordance with the USFWS' 2009a *Desert Tortoise Field Manual*. ~~To prevent~~

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~~reentry by a tortoise or other wildlife, a~~ All confirmed non-active burrows shall be collapsed. ~~once absence has been determined.~~ Tortoises taken from burrows shall be translocated as described in the Desert Tortoise Translocation Plan.

6. Monitoring Following Clearing. Following the desert tortoise clearance surveys, the Authorized Desert Tortoise Biologist and project biology staff shall monitor initial clearing and grading activities to find and translocate any tortoises which may have been missed during the clearance survey. Should a tortoise be discovered, it shall be translocated as described in the Desert Tortoise Translocation Plan ~~to an area approved by the Authorized Desert Tortoise Biologist in consultation with the CPM and wildlife agencies.~~ Any time over the life of the project that a desert tortoise is found within the exclusion fencing, the Authorized Desert Tortoise Biologist shall immediately contact the CPM, BLM, CDFG, and USFWS; ~~monitor the tortoise's location and activities; and implement~~ translocation of the animal in accordance with and the approved Desert Tortoise Translocation Plan ~~and in consultation with the CPM and other agencies.~~
7. Relocation of Other Special-Status Species. Wherever feasible and safe, any special-status mammal or reptile incidentally encountered during desert tortoise clearance surveys or monitoring shall be actively or passively relocated outside the exclusion fencing.

The draft Desert Tortoise Translocation Plan shall be submitted to the CPM for review in consultation with BLM, CDFG, and USFWS, and shall be finalized by the project owner and submitted to the CPM and other agencies no less than 30 days prior to construction. At least 30 days prior to the start of any project-related ground disturbance activities, the project owner shall provide the CPM, BLM, CDFG, and USFWS with the a final draft of the plan, as reviewed and approved by the CPM in coordination with the other agencies. The project owner shall obtain the CPM's written approval of the plan prior to the start of any project-related ground disturbance activities. All measures and their implementation methods in the Desert Tortoise Translocation Plan shall be included in the BRMIMP and implemented by the project owner.

All implementation of the Desert Tortoise Translocation Plan shall be reported in the MCRs and ACRs submitted by the project owner to the CPM. Within 30 days after completion of desert tortoise clearance surveys and translocation, the Designated Biologist shall submit a Desert Tortoise Clearance Survey, Exclusion Fencing, and Translocation Report to the CPM, BLM, CDFG, and USFWS, describing methods and results of the fencing, clearance surveys, and translocation (if any). The report will also document any other animals relocated during the clearance surveys.

14. **Page 4.2-189-4.2-190, BIO-14:** Consistent with Applicant's specific comments and conditions of certification for prior projects, please make the following edits. Additionally, compensatory mitigation land should not be precluded from being the same quality of habitat impacted by the project. Please revise as follows:

BIO- 14 The project owner shall acquire and protect no fewer than 3,834 acres of suitable desert tortoise habitat in perpetuity. All terms and measures of Condition of Certification **BIO-3** shall apply to the transaction, management, security deposit and all other actions related to the acquisition and protection of these lands. Selection criteria for desert tortoise compensation lands shall be as listed below. In general, the

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compensation lands shall provide habitat conditions, quality and function that are equal to or better than those present on the habitat to be impacted. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for desert tortoise in relation to the criteria listed above and must be approved by the CPM in consultation with BLM, CDFG and USFWS.

Compensation lands shall:

- a. be within the Colorado Desert Recovery Unit, ~~with potential to contribute to wildlife habitat connectivity and build linkages between desert tortoise designated critical habitat, known populations of desert tortoise, and/or other preserve lands;~~
- b. provide habitat for desert tortoise with capacity to regenerate naturally when disturbances are removed;
- c. ~~be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long-term by a public resource agency or a non-governmental organization dedicated to habitat preservation;~~
- d. be contiguous and biologically connected to lands currently occupied by desert tortoise, ideally with populations that are stable, recovering, or likely to recover;
- e. ~~not have a history of intensive recreational use or other disturbance that might cause future erosional damage or other habitat damage, and make habitat recovery and restoration infeasible;~~
- f. ~~not be characterized by high densities of invasive species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration; and~~
- g. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and
- h. ~~have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of land without these rights.~~

Verification: All terms and measures of Condition of Certification **BIO-3**, including schedule requirements, submittal and acceptance of a formal acquisition proposal, completion of the required transactions, and verification of completion for each term or condition, shall apply to the verification of this condition.

15. **Page 4.2-190-4.2-191, BIO-15:** Applicant has no comments on BIO-15.

16. **Page 4.2-191-4.2-193, BIO-16:** Consistent with Applicant's specific comments, please make the following edits:

BIO-16 The Project owner shall implement the following measures to avoid or minimize project-related construction impacts to golden eagles.

1. Annual Construction Phase Golden Eagle Nesting Survey. Each year throughout the project construction period, the project owner will submit golden eagle nesting survey results for potential golden eagle nesting habitat within ten miles of the solar generator site and gen-tie alignment. Survey methods shall be as described in the

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Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Pagel et al. 2010) or more current guidance from the USFWS.

2. **Survey Data:** The report shall provide at least the following data for each historic or potential golden eagle nesting territory within the survey area: territory status (unknown, vacant, occupied, breeding successful, breeding unsuccessful); active and inactive nest locations, photographs, substrates, and elevations; any observed territorial or nesting activity; age class of any golden eagles observed; and chronology and number of eggs or young at any active nest.
3. **Territory Status:** A nesting territory or inventoried habitat shall be considered unoccupied by golden eagles only after completing at least two surveys in a single breeding season (Pagel et al. 2010). The observation periods shall be at least 30 days apart. Specific scheduling of the survey dates shall be based on golden eagle nesting season in the Colorado Desert region of California.
4. **Monitoring and Management Plan:** If an occupied nest (as defined by Pagel et al. 2010) is detected within 10 miles of the project area from which the project could be viewed, including the gen-tie line, the project owner shall prepare and implement a Golden Eagle Monitoring and Management Plan for the duration of the construction phase to ensure that construction activities do not cause disturbance to golden eagles. The monitoring methods shall be consistent with those described by Pagel et al. (2010) or more current guidance from the USFWS. The Plan shall be prepared in consultation with the USFWS. Triggers for adaptive management shall include any evidence of project-related disturbance to nesting golden eagles, including but not limited to: agitation behavior (displacement, avoidance, and defense); increased vigilance behavior at nest sites; changes in foraging and feeding behavior, or nest site abandonment. The plan shall include a description of adaptive management actions, which shall include, but not be limited to, cessation of construction activities that are deemed by the Designated Biologist to be the source of golden eagle disturbance.

Verification: No fewer than 10 days following completion of each annual golden eagle nesting survey, the project owner shall provide a written or verbal report of survey results to the CPM, BLM, CDFG, and USFWS. No later than 30 days following the survey, the project owner shall provide the CPM, BLM, USFWS, and CDFG with a complete survey report.

If an active or occupied golden eagle nest is detected within 10 miles of the project site from which the project could be viewed, then the project owner shall provide the CPM, BLM, CDFG, and USFWS with a draft Golden Eagle Monitoring and Management Plan within 14 days of observing the active nest, and shall implement the draft plan upon the CPM's verbal approval, based on consultation with BLM, CDFG, and USFWS. The project owner shall provide revisions within 30 days of receiving written comments from the CPM, based on consultation with BLM, CDFG, and USFWS. Once final, the plan shall be implemented in each subsequent year of project construction if an active golden eagle nest is located within the survey area. All modifications to the approved plan shall be made only with approval of the CPM in consultation with BLM, CDFG, and USFWS. The project owner shall include all descriptions of all activities related to plan implementation in MCRs and ACRs submitted to the CPM.

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17. **Page 4.2-193-4.2-195, BIO-17:** Consistent with Applicant's specific comments, please make the following edits:

BIO-17 The project owner shall implement the following measures to avoid and offset impacts to burrowing owls:

1. Pre-Construction Surveys. The project biology staff shall conduct pre-construction surveys for burrowing owls within the project site ~~and along all linear facilities~~ in accordance with CDFG guidelines (CDFG 2012c). ~~The surveys shall be no more than 30 days prior to initiation of ground disturbance or site mobilization activities.~~ The survey area shall include the project disturbance area (i.e., all lands disturbed in the construction and operation of the Rio Mesa SEGF Project) and surrounding 500-foot survey buffer where access is legally available. The surveys may be conducted concurrently with desert tortoise clearance surveys if field crews are suitably qualified and survey dates are compatible.
2. Implement Avoidance Measures. If an active burrowing owl burrow is located within 500 feet from the any project work area or disturbance are the following avoidance and minimization measures shall be implemented:
 - a. Designate Non-Disturbance Buffer. Fencing shall be installed at a 250-foot radius from the occupied burrow to create buffer area where no work activities may be conducted. The non-disturbance buffer and fence line may be reduced to 160 feet if all project-related activities that might disturb burrowing owls would be conducted during the non-breeding season (i.e., conducted September 1st through January 31st). Signs shall be posted in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer.
 - b. Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31st) the project biology staff shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance.
3. Prepare and Implement a Burrowing Owl Relocation and Mitigation Plan. The project owner shall prepare and implement a Burrowing Owl Relocation and Mitigation Plan, in addition to the avoidance measures described above. The final Burrowing Owl Relocation and Mitigation Plan shall be approved by the CPM, in consultation with BLM, CDFG, and USFWS and shall:
 - a. ~~Provide a quantitative evaluation of unoccupied suitable burrows available on surrounding lands within 1 mile of the project boundary (e.g., by inventorying burrow numbers in selected representative sample areas);~~
 - b. Ensure that a minimum of two suitable, unoccupied burrows are available off-site for every burrowing owl or pair of burrowing owls to be passively relocated, including a discussion of timing of burrow improvements, specific location of burrow installation, and burrow design; design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 2012c) and shall be approved by the CPM in consultation with CDFG and USFWS;

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- c. If artificial burrows will be constructed, identify and describe suitable burrow replacement sites within one (1) mile of the project site and describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or any burrowing owls already present in the relocation area; burrow replacement sites shall be in areas of suitable habitat for burrowing owl nesting, and be characterized by minimal human disturbance and access; relative cover of non-native plants within the proposed relocation sites shall not exceed the relative cover of non-native plants in the adjacent habitats;
 - d. Provide detailed methods and guidance for passive relocation of burrowing owls occurring during the non-breeding season within the project disturbance area; occupied burrows may not be disturbed during the nesting season (February 1 to August 31) to avoid take under the MBTA and Fish and Game codes;
 - e. Describe monitoring and management of the replacement burrow site(s), and provide a reporting plan; the objective shall be to manage the sites for the benefit of burrowing owls, with the specific goals of:
 - i. Maintaining the functionality of the burrows for a minimum of two years; and
 - ii. Minimizing weed cover.
4. Acquire Compensatory Mitigation Lands for Burrowing Owls. The project owner shall acquire, in fee or easement, ~~900 acres~~ 19.5 acres of land for each burrowing owl or nesting pair that is displaced by the project of compensatory mitigation lands, ~~based on staff's estimate that three territories are present on the project site and that each territory comprises 300 acres.~~ The number of burrowing owls will be determined by the number of ~~if more than three active~~ burrowing owl burrows that are located on the site during pre-construction surveys, ~~then the project owner shall compensate 300 additional habitat acres for each additional active burrow.~~ If burrowing owls are observed to occupy the compensation lands, then only 9.75 acres per single bird or pair is required.

The project owner shall provide funding for the enhancement and long-term management of these compensation lands, as described in Condition of Certification **BIO-3**. Compensatory mitigation lands for burrowing owl must satisfy the criteria below, and may be nested within habitat compensation lands acquired for desert tortoise or native vegetation (see Condition of Certification **BIO-3**), provided those lands also meet the criteria for burrowing owl mitigation lands.

5. Selection Criteria for Burrowing Owl Mitigation Lands. The terms and conditions of this acquisition or easement shall be as described in **BIO-3** [Compensatory Mitigation], with the addition of the following criteria: 1) the compensation land must provide suitable habitat for burrowing owls (as described in the CDFG guidelines for burrowing owl mitigation [CDFG 2012c or more current guidance], and 2) the compensation land must either support burrowing owls or be within dispersal distance from an active burrowing owl nesting territory (generally approximately 5 miles). The burrowing owl compensation lands may be included

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~~with the desert tortoise or native vegetation mitigation lands only if these two burrowing owl criteria are met.~~

Verification: If pre-construction surveys detect an active burrowing owls burrow within 500 feet of proposed construction activities, the Designated Biologist shall provide to the CPM, BLM, CDFG and USFWS documentation indicating that non-disturbance buffer fencing has been installed at least 10 days prior to the start of any construction-related ground disturbance activities. The project owner shall report monthly to the CPM, CDFG, and USFWS for the duration of construction on the implementation of burrowing owl avoidance and minimization measures. Within 30 days after completion of construction, the project owner shall provide to the CPM, BLM, CDFG, and USFWS a written construction termination report identifying how mitigation measures described in the plan have been completed.

If pre-construction surveys detect an active burrowing owls burrow within the project disturbance area, the project owner shall notify the CPM, CDFG, and USFWS within 10 days of completing the surveys that a relocation of owls is necessary. The project owner shall do all of the following if relocation of one or more burrowing owls is required:

1. Within 30 days of completion of the burrowing owl pre-construction surveys, submit to the CPM, BLM, CDFG, and USFWS a Burrowing Owl Relocation and Mitigation Plan.
2. By January 31st of each year following construction for a period of five years, the Designated Biologist shall provide in the ACR a report to the CPM, BLM, USFWS, and CDFG that describes the results of monitoring and management of the burrowing owl relocation area, if applicable. The annual report shall provide an assessment of the status of the relocation area with respect to burrow function and weed infestation, and shall include recommendations for actions the following year for maintaining the burrows as functional burrowing owl nesting sites and minimizing the occurrence of weeds.

All terms and measures of Condition of Certification BIO-3, including schedule requirements, submittal and acceptance of a formal acquisition proposal, completion of the required transactions, and verification of completion for each term or condition, shall apply to the verification of the portion of this condition requiring habitat compensation.

18. **Page 4.2-95 – 4.2-200, BIO-18:** Detailed management plans for American Badger and Desert Kit Fox are not appropriate as the species are not protected under CESA or ESA, and the project would be engaged in activities regulated under California’s mammal hunting regulations. This condition has also been revised to be consistent with Ivanpah SEG5:

DESERT KIT FOX AND AMERICAN BADGER MANAGEMENT ~~PLANS~~ SURVEYS

BIO-18 Concurrent with the desert tortoise and burrowing owl clearance surveys, the Designated Biologist or Biological Monitors shall perform a preconstruction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities. If badger and kit fox dens are found, each den shall be classified as inactive, potentially active, or definitely active. Inactive dens shall be excavated by hand and backfilled to prevent reuse by badgers. Potentially and definitely active dens shall be monitored by the Designated Biologist or Biological Monitor for three consecutive

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nights using a tracking medium (such as diatomaceous earth or fire clay) at the entrance. If no tracks are observed in the tracking medium after 3 nights, the den shall be excavated and backfilled by hand. If tracks are observed, the applicant shall develop and implement a trapping and relocation plan in consultation with the Designated Biologist and CDFG. BLM approval may be required prior to release of badgers on public lands.

The project owner shall prepare and implement a Desert Kit Fox and American Badger Management Plan (plan). The objective of the plan shall be to avoid direct impacts to the desert kit fox and American badger as a result of construction of the power plant and linear facilities, as well as during project operation and decommissioning. The draft plan submitted by the project owner shall provide the basis for the final plan, subject to review and comment by the Bureau of Land Management (BLM) and revision and approval by the Compliance Project Manager (CPM), in consultation with California Department of Fish and Game (CDFG).

Prior to ground disturbance at any work site, the project owner shall survey the area and passively exclude any desert kit foxes or American badgers according to the plan. These surveys may be conducted concurrently with the desert tortoise pre-construction surveys (Condition of Certification **BIO-13**, above).

The final plan shall include, but is not limited to, the following procedures and impact avoidance measures:

1. Describe pre-construction survey and clearance field protocol, to determine the number and locations of single or paired kit foxes or badgers on the project site that would need to be passively relocated and the number and locations of desert kit fox or badger burrows or burrow complexes that would need to be collapsed to prevent re-occupancy by the animals. Qualified biologists shall perform pre-construction surveys for badger and kit fox dens throughout the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. If dens are detected, each den shall be classified as inactive non-natal, inactive natal, potentially active, definitely active non-natal, or active natal den.
 - a. Inactive non-natal and inactive natal dens. Inactive non-natal and inactive natal dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse by badgers or kit fox.
 - b. Potentially active and definitely active non-natal dens. Potentially and definitely active non-natal dens that would be directly impacted by construction activities shall be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If no tracks are observed in the tracking medium or no photos of the target species are captured after three nights, the den shall be excavated and backfilled by hand. If tracks are observed, and especially if high or low ambient temperatures could potentially result in harm to kit fox or badger from burrow exclusion, various passive hazing methods may be used to discourage occupants from continued use. A detailed description of the types and methods of passive hazing to be used must be included in the plan; however, approval must be granted by the CPM, in consultation with CDFG prior to implementation. After verification that the den is unoccupied, it shall

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then be excavated by hand and backfilled to ensure that, no badgers or kit fox are trapped in the den.

- ~~c. Active natal dens. During denning season (American badger – March to August, and desert kit fox – February to June), any active natal dens that are detected in the preconstruction surveys shall have a buffer zone of 300 feet to 500 feet surrounding the den, pending approval from the CPM in consultation with CDFG, and monitoring measures shall be implemented. Discovery of an active natal den that could be impacted by the project shall be reported to the CPM and CDFG within 24 hours of the discovery. A detailed description outlining the types and methods of monitoring must be included in the plan. The den location shall be mapped and submitted along with a report stating the survey results to the CPM and CDFG. The Designated Biologist shall monitor the natal den until he or she determines that the pups have dispersed. No disturbance will be allowed for any animal associated with a natal den and any activities that might disturb denning activities shall be prohibited within the buffer zone. Once the pups have dispersed, various passive hazing methods may be used to discourage den reuse. A detailed description of the types of passive hazing to be used must be included in the plan; however, approval must be granted by the CPM, in consultation with CDFG prior to implementation. After verification that the den is unoccupied, it shall then be excavated by hand and backfilled to ensure that, no badgers or kit fox are trapped in the den.~~
- ~~d. Exception for American badger. In the even that passive relocation techniques fail for badgers, the project owner will contact the CPM and CDFG to explore other relocation options.~~
- ~~2. Qualitative discussion of availability of suitable habitat on off-site surrounding lands within 10 miles of the project boundary, and quantitative evaluation of unoccupied desert kit fox burrows available on surrounding lands within 1 mile of the project boundary (e.g., by inventorying burrow numbers in selected representative sample areas);~~
- ~~3. Estimates of the distances kit foxes would need to travel across the project site and across adjacent lands to safely access suitable habitat (including burrows) off-site;~~
- ~~4. Proposed scheduling of the passive relocation effort;~~
- ~~5. Methods to minimize likelihood that the animals will return to the project site;~~
- ~~6. Descriptions of any proposed or potential ground disturbing activities related to kit fox relocation, and locations of those activities (e.g., artificial burrow construction);~~
- ~~7. A monitoring and reporting plan to evaluate success of the relocation efforts and any subsequent re-occupation of the project site; and~~
- ~~8. A plan to subsequently relocate any animals that may return to the site (e.g., by digging beneath fences).~~
- ~~9. Notify the CPM and CDFG if injured, sick, or dead American badger and desert kit fox are found. If an injured, sick, or dead animal is detected on any area associated with the solar project site or associated linear facilities, the CPM and the Ontario CDFG Office shall be notified immediately by phone. Written follow up notification via FAX or electronic communication shall be submitted to the CPM and CDFG~~

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within 24 hours of the incident and shall include the following information as appropriate:

- a. ~~Injured animals.~~ If an American badger or desert kit fox is injured because of any project-related activities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM and CDFG personnel regarding the capture and transport of the animal to CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFG shall determine the final disposition of the injured animal, if it recovers. A written notification of the incident shall be sent to the CPM and CDFG containing, at a minimum, the date, time, location, and circumstances of the incident.
- b. ~~Sick animals.~~ If an American badger or desert kit fox is found sick and incapacitated on any area associated with the solar project site or associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately notify the CPM and CDFG personnel for immediate capture and transport of the animal to a CDFG-approved wildlife rehabilitation and/or veterinarian clinic. Following the phone notification, the CPM and CDFG shall determine the final disposition of the sick animal, if it recovers. If the animal dies, a necropsy shall be performed by a CDFG-approved facility to determine the cause of death. The project owner shall pay to have the animal transported and a necropsy performed. A written notification of the incident shall be sent to the CPM and CDFG and contain, at a minimum, the date, time, location, and circumstances of the incident.
- c. ~~Fatalities.~~ If an American badger or desert kit fox is killed because of any project-related activities during construction, operation, and decommissioning, or is found dead on the project site or along associated linear facilities, the Designated Biologist or approved Biological Monitor shall immediately refrigerate the carcass and notify the CPM and CDFG personnel within 24 hours of the discovery to receive further instructions on the handling of the animal. If the animal is suspected of dying of unknown causes, a necropsy shall be performed by a CDFG-approved facility to determine the cause of death. The project owner shall pay to have the animal transported and a necropsy performed.

10. Additional protection measures to be included in the plan and implemented:

- a. ~~All pipes within the project disturbance area must be capped and/or covered every evening or when not in use to prevent desert kit foxes or other animals from accessing the pipes.~~
- b. ~~All water sources shall be covered and secured when not in use to prevent drowning.~~
- c. ~~Project perimeter fencing shall be designed to exclude kit foxes from the solar field site during all project phases (construction, operation, decommissioning). The desert tortoise exclusion fencing shall be secured directly to the security fence to minimize the chance that kit foxes can dig under or climb over the fence. The project owner shall coordinate with CDFG to identify any additional~~

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fence design features to maximize the effectiveness of the fence to exclude kit foxes during each phase of the project.

- d. Incorporate and implement the CDFG Veterinarian's guidance regarding impact avoidance measures including measures to prevent disease spread among desert kit foxes. Measures to reduce traffic impacts to wildlife if the project owner anticipates night time construction. The plan must also include a discussion of what information will be provided to all night time workers, including truck drivers, to educate them about the threats to kit fox, what they need to do to avoid impacts to kit fox, and what to report if they see a live, injured, or dead kit fox.

Verification: Implementation of the measures shall be reported in the Monthly Compliance Reports by the Designated Biologist. No fewer than 30 days prior to the start of any construction-related ground disturbance activities associated with the new project related facilities, the project owner shall provide the CPM, BLM, and CDFG with a draft American Badger and Desert Kit Fox Mitigation and Monitoring Plan for review and comment.

No fewer than 10 days prior to start of any ground disturbance activities associated with the new project related facilities, the project owner shall provide an electronic copy of the CPM approved final plan to the CPM and CDFG and implement the plan.

The project owner shall submit a report to the CPM and CDFG within 30 days of completion of any badger and kit fox surveys. The report shall describe survey methods, results, impact avoidance and minimization measures implemented, and the results of those measures.

No later than 2 days following a phone notification of an injured, sick, or dead American badger or desert kit fox, the project owner shall provide to the CPM and CDFG, via FAX or electronic communication, a written report from the Designated Biologist describing the incident of sickness, injury, or death of an American badger or desert kit fox, when the incident occurred, and who else was notified.

Beginning with the first month after start of construction and continuing every month until construction is completed, the Designated Biologist shall include a summary of events regarding the American badger and desert kit fox in each MCR.

No later than 45 days after initiation of project operation, the Designated Biologist shall provide the CPM a final American Badger and Desert Kit Fox Mitigation and Monitoring Plan that includes: 1) a discussion of all mitigation measures that were and currently are being implemented; 2) all information about project-related kit fox and badger injuries and/or deaths; 3) all information regarding sick kit fox and badger found within the project site and along related linear facilities; and 4) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the American badger and desert kit fox.

19. **Page 4.2-200, Condition of Certification BIO-19:** BIO-19 provides Applicant the option to satisfy the compensatory mitigation obligations established in other BIO conditions, in particular BIO-3, by participating in the SB X8 34 "advance mitigation program."

As implemented by the California Department of Fish and Game ("CDFG") in the Interim Mitigation Strategy, SB X8 34 provides two mitigation options: (1) an advance mitigation option

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and (2) an “in-lieu” fee option.⁶ The Fish and Game code describes “advance mitigation” as “mitigation implemented before, and in anticipation of future impacts to natural resources,” and is included in the interim mitigation strategy.⁷ CDFG’s Interim Mitigation Strategy, describes the two mitigation options for eligible renewable projects under SB X8 34, as follows:

SB 34 Mitigation implementation options include:

- i. An “advance mitigation” option in which the CDFG, working with the other REAT Agencies, identifies and purchases mitigation lands that will be used as a land bank. Qualified projects can purchase credits in that land bank to meet all or a portion of their mitigation obligations. This can be implemented through use of the \$10 million dollar revolving fund established in the legislation, with expenditures to be reimbursed from the participating projects’ mitigation fees.
- ii. An “in-lieu” fee option, whereby the CDFG, working with the other REAT Agencies, would use mitigation fees to implement the individual permit specific project mitigation actions to assist the project proponent in completing mitigation obligations. This option would be implemented by the CDFG and the other REAT Agencies, with guidance from the IMS as required in SB 34.⁸

BIO-19 should be clarified to provide certainty that participation in either of the habitat mitigation options under SB X8 34 and administered by CDFG fully mitigate for habitat related impacts to all species, and not just the species cited in certain portions of the PSA. This is consistent with the Fish and Game Code, which states that CDFG, in consultation with the Energy Commission, may purchase land and conservation easements “that can be used to *fully mitigate* the impacts of the take of endangered species, threatened species, or candidate species” for purposes of the California Endangered Species Act and the Power Facility and Site Certification statutes of the Public Resources Code.⁹ Also, eligible mitigation actions under SB X8 34 must “[c]ontribute to the conservation of each candidate species, threatened species, or endangered species for which a permit is issued.”¹⁰

As written, BIO-19 may be read to place an undue risk on Applicant. “If the project owner chooses to satisfy its mitigation obligations through this program, the advance mitigation lands shall meet the criteria as stated in all applicable compensation conditions of certification in the Commission Decision.” However, if Applicant chooses to participate in the CDFG’s SB X8 34 program, the CDFG working with other Renewable Energy Action Team agencies, not Applicant, would identify and purchase the mitigation lands. As stated in the code, “With respect to the Energy Commission, in the case of an applicant seeking certification for a solar thermal or geothermal powerplant pursuant to Chapter 6 (commencing with Section 25500) of Division 15 of the Public Resources Code...*the sole effect of a mitigation action described in subdivision (c),*

⁶ See Implementing Senate Bill X8 34, presentation July 10, 2010 available at http://www.energy.ca.gov/33by2020/documents/2010-07-14_meeting/2010-07-15_Implementing_the_IMS_REPG_Kevin_Hunting_Victorville.pdf; see also CDF&G Interim Mitigation Strategy, September 2010, DRECP-1000-2010-006-F, p. 1-2, available at <http://www.energy.ca.gov/2010publications/DRECP-1000-2010-006/DRECP-1000-2010-006-F.PDF>.

⁷ §2069(c)(2)(iii)

⁸ See CDF&G Interim Mitigation Strategy, September 2010, DRECP-1000-2010-006-F, p. 1-2, available at <http://www.energy.ca.gov/2010publications/DRECP-1000-2010-006/DRECP-1000-2010-006-F.PDF>.

⁹ Fish & Game C. §2069(b).

¹⁰ §2069(c)(2)(A)(i).

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and paid for through the deposit of fees as described in Section 2099, is to relieve an applicant of the obligation to directly take actions that are taken instead by the department or its contractor or designee pursuant to subdivision (b) to meet the applicant's obligations with respect to mitigating the powerplant's impacts to species and habitat.¹¹ BIO-19 should be clarified so that there is no question that lands acquired by CDFG under SB X8 34 satisfy the requirements in the relevant BIO conditions for compensatory mitigation.

For these reasons, Applicant requests that Staff revise BIO-19 as follows:

BIO-19 The project owner may choose to satisfy its compensatory mitigation obligations identified in this section of the Commission Decision by participating in either the California Department of Fish and Game's advance mitigation program option or the "in-lieu fee" program option established under SB X8 34 instead of acquiring compensation lands. If the project owner chooses to satisfy its mitigation obligations through this either of these program options, then the project owner will be considered to have fully mitigated the impacts of the take of any and all endangered species, threatened species and candidate species. Participation in either SB X8 34 program option shall result in the project owner having met the advance mitigation lands shall meet the criteria as stated in all applicable compensation conditions of certification in the Commission Decision. In addition, the project owner shall provide proof of participation in the advance mitigation program to the CPM.

~~If electing to use this provision, the project owner shall provide proof to the CPM that the advance mitigation lands meet the criteria as stated in all applicable compensation conditions of certification in the Commission Decision. If the project owner elects to use this provision prior to posting security required by the conditions of certification, the project owner shall provide proof of participation to the CPM, to be verified by CDFG, prior to any ground disturbance. If the project owner elects to use this provision after posting such security, the project owner shall provide proof of participation in the advance mitigation program prior to the time required for habitat compensation lands to be surrendered in accordance with all applicable compensation conditions of certification in the Decision. No later than 18 months after the start of project ground-disturbing activities, the project owner shall demonstrate completion of the advanced mitigation process or the in-lieu fee option and that its compensatory mitigation obligations have been satisfied.~~

20. **Page 4.2-200, Condition of Certification BIO-19:** Consistent with Applicant's comments, please make the following edits:

BIO-20 The project owner shall prepare and implement a Project Closure, Revegetation, and Reclamation Plan (plan) and shall provide financial security in accordance with BLM requirements to ensure implementation of the plan for the portions of the project that must be removed from public land, primarily the generator intertie line. The plan shall describe activities and schedule for the closure, removal reclamation, and revegetation of the portion of project facilities that were installed on public land. ~~of the project site and other facilities including the gen-tie line~~ at the time that the facility is decommissioned, or otherwise ceases to be operational. The plan shall specify site-specific criteria for evaluating and monitoring compliance with the approved

¹¹ §2069(f)(2).

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reclamation plan. The plan will guide site and closure activities, including all methods proposed for revegetation or reclamation of disturbed areas of public land upon closure of the facility. ~~The plan must address all revegetation, reclamation, and other required facility closure activities.~~ In addition to specifying closure, revegetation, and reclamation activities upon planned closure, the plan also shall specify closure, revegetation, and reclamation activities and schedule in the event of unanticipated facility closure prior to the anticipated lifespan of the plant. The plan shall specify estimated cost for implementation and the project owner shall provide a financial security to ensure availability of funds to fully implement the plan. ~~The plan and amount of financial security for the public land portions of the project shall be reviewed and updated on five-year intervals throughout the life of the project.~~ The plan shall applies to publicly managed land and shall include, but not be limited to, the following elements:

1. Plan Purpose: The plan shall explicitly identify the objective of the revegetation plan to be control and minimization of weed invasion or spread, dust, and erosion.
2. Standards/Monitoring: Performance standards for success thresholds, weed cover, performance monitoring methods and schedule, and maintenance monitoring.
3. Baseline Surveys – Methods to perform baseline surveys for planning reclamation or revegetation efforts, with a level sufficient to collect data necessary to prepare the plan.
4. Seed Handling: Methods for seed collection, testing, and application.
5. Soil Preparation: If determined necessary by baseline surveys conducted pursuant to part 3 (above). Soil descriptions, compaction measurements, mulch application, soil storage, seed farming, mycorrhizal inoculation, biological crust collection, or other soil preparations may be included as part of the plan.
6. Weed Management. Discussion of scope, duration, success criteria, and monitoring of weed management activities shall be included in the plan, plan to be consistent with recommended Condition of Certification BIO-7.
7. Financial Security. The Plan shall estimate costs of closure, revegetation, and reclamation for the portions of the project on public land in accordance with Bureau of Land Management requirements and timing, to be based on current rates for personnel, equipment, and materials to implement each component of the plan, accounting for anticipated inflation over the life of the project. The project owner shall specify the source of its cost basis and submit the plan to the BLM for and inflation factors, for staff's review and approval.

Verification: ~~The revised draft Project Closure, Revegetation, and Reclamation Plan and proof of financial security shall be submitted to the BLM Authorized Officer (AO) CPM for review and approval no more than six months following initiation of ground-disturbing project activities. Proof of financial security shall be submitted to the AO in accordance with BLM requirements concerning closure, revegetation and reclamation on BLM land. The project owner shall periodically review the plan and financial security for the portions of the project on public (BLM) land in accordance with BLM requirements. every five years thereafter and shall submit proposed plan revisions and verification that the financial security is adequate, based on time, equipment, and materials costs at each five-year review interval to the AO CPM for review and approval. Modifications to the approved Closure,~~

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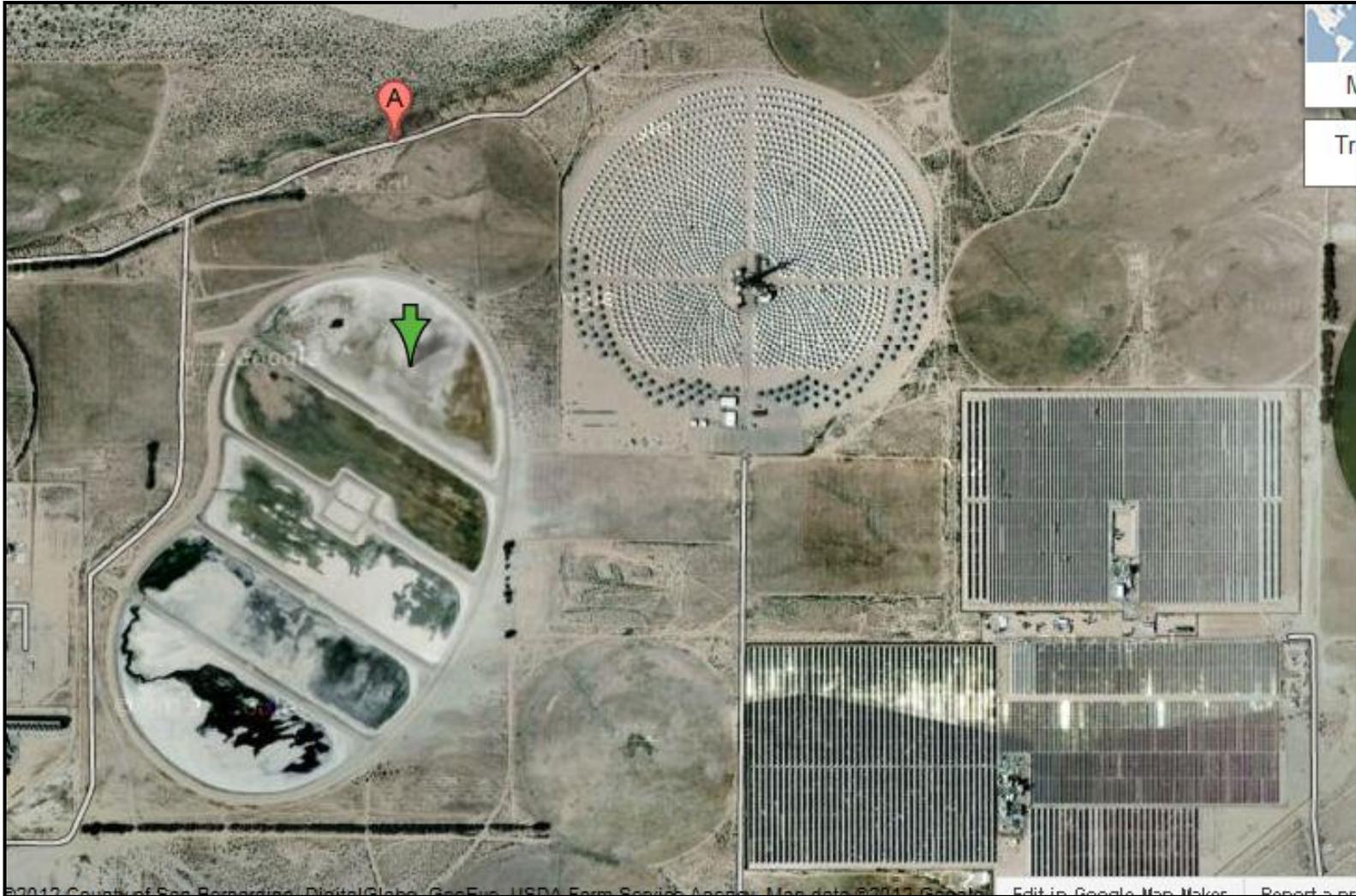
Revegetation, and Reclamation Plan shall be made only through consultation with and authorization of the CPM.

Financial assurance may be in the form acceptable to the BLM AO. ~~of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") only as approved the CPM and CDFG. Prior to submitting the Security verification, the project owner shall obtain the CPM's approval of the form of the Security, in consultation with BLM, CDFG, and USFWS.~~

REFERENCES

BLM. 2002. Northern and Eastern Colorado Desert Coordinated Management Plan and Final Environmental Impact Statement. July 2002.

National Park Service. 2012. The Sonoran Desert. Accessed online:
<http://www.nps.gov/cagr/forkids/the-sonoran-desert.htm>. October 24, 2012.



SOURCE: Google Earth		BIOLOGICAL RESOURCES 1 AERIAL PHOTOGRAPH OF SOLAR ONE FACILITY		
URS	NO SCALE	CREATED BY: NJ	DATE: 11-15-12	FIG. NO: BR-1
		PM: AL	PROJ. NO: 27652105.00513	