

COMMENTS
of the
CALIFORNIA UNIONS FOR RELIABLE ENERGY
on

Preliminary Staff Assessment
Beacon Solar Energy Project
Application for Certification (08-AFC-2)

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On behalf of California Unions for Reliable Energy (“CURE”), this letter provides comments on the preliminary Staff assessment (“PSA”) for the Beacon Solar Energy Project (“Project”). In light of the Applicant’s failure to provide an enormous amount of information necessary for Staff’s analysis of the Project, Staff has clearly made tremendous efforts to identify and mitigate several significant environmental impacts posed by the Project. We agree with the majority of Staff’s analyses and conclusions. In particular, we commend Staff on its analysis regarding the Project’s proposed use of potable water for power plant cooling. However, as explained more fully below, because the Applicant neglected to provide Staff with sufficient information, the PSA does not satisfy the requirements of the California Environmental Quality Act (“CEQA”)¹ or the Warren-Alquist Act.² Accordingly, an adequate, revised PSA must be prepared and circulated for public review and comment.

I. THE PSA PROVIDES AN EXCELLENT ANALYSIS OF THE IMPACTS POSED BY THE PROJECT’S PROPOSED USE OF POTABLE WATER FOR POWER PLANT COOLING

The Applicant’s proposal to use potable water for power plant cooling poses a significant impact to biological resources and water resources under CEQA and is inconsistent with applicable laws, ordinances, regulations, and standards (“LORS”).³ As proposed, the Project’s use of wet cooling requires evaporation ponds that pose significant threats to migratory birds and desert tortoise.⁴ In addition, the Project’s proposed use of onsite groundwater poses a significant impact to the water levels and storage volumes of the potable water supply, and could significantly impact nearby potable water wells.⁵ Thus, the Project’s proposed use of wet cooling results in numerous significant impacts under CEQA.

The proposed use of potable water for power plant cooling also conflicts with State Water Resources Control Board and Energy Commission policies. The Applicant’s proposal is inconsistent with SWRCB Policy 75-58 as LORS in the area of soil and water resources. This policy prohibits the use of potable water for power plant cooling unless other sources or other methods of cooling are environmentally undesirable or economically unsound. Compliance with SWRCB Policy 75-58 is wholly consistent with the Commission’s practices in past siting proceedings and decisions in which the Commission has identified and relied upon Policy 75-58 as LORS.⁶

¹ Pub. Resources Code, § 21000 et seq.

² Pub. Resources Code, § 25500 et seq.

³ PSA, pp. 4.2-37, 4.9-49.

⁴ PSA, p. 4.2-38.

⁵ PSA, p. 4.9-50.

⁶ See, e.g., Commission Siting Decision for the Delta Energy Center (98-AFC-3), Appx. A: LORS, at p. 30; Commission Decision for the Pittsburg District Energy Facility (98-AFC-1), Appx. A: LORS, at p. 44; Commission Decision for the Luz Engineering Corporation SEGS (87-AFC-1), Condition 8.

The Applicant's proposed use of potable water for power plant cooling is also inconsistent with Energy Commission policy. The Commission has an established policy regarding the use of fresh water for power plant cooling. The Energy Commission's 2003 Integrated Energy Policy Report states that the Commission will approve the use of fresh water for power plant cooling "only where alternative water supply sources and alternative cooling technologies are shown to be 'environmentally undesirable' or 'economically unsound.'"⁷ The Commission defines "economically undesirable" as "having a significant adverse environmental impact," and "economically unsound" as "economically or otherwise infeasible."⁸

The impacts posed by the Project's proposed use of potable water for power plant cooling must be mitigated. Mitigation measures must be designed to minimize, reduce, or avoid an identified environmental impact or to rectify or compensate for that impact.⁹ We propose that the CEC adopt dry cooling as mitigation for these impacts. Dry cooling completely eliminates the need for evaporation ponds, avoiding significant impacts to migratory birds and desert tortoise from the ponds. In addition, dry cooling avoids the Project's impact to groundwater and local wells. Finally, dry cooling avoids the Project's conflicts with LORS.

The Commission may not, consistent with LORS, approve the Project unless and until it makes an affirmative finding that "other sources or other methods of cooling would be environmentally undesirable or economically unsound."¹⁰ This finding must be based on substantial evidence in the record of the proceeding. It may not be based on speculation or unsupported assertions.¹¹ The Applicant has not provided complete evidentiary support for its assertion that dry cooling will be economically infeasible. Such evidentiary omissions are unacceptable in any siting proceeding, but they are particularly improper in this case in light of the fact that other energy facilities will utilize dry-cooling while remaining economically viable and competitive.

The PSA provides an excellent analysis of the significant impacts and inconsistencies with LORS posed by the Applicant's proposed use of potable water for power plant cooling. We applaud Staff in its efforts and offer the following comments.

⁷ 2003 Integrated Energy Policy Report, California Energy Commission, December 2003, Docket No. 02-IEP-1, Pub. No. 100-03-019.

⁸ *Id.*

⁹ CEQA Guidelines, § 15370.

¹⁰ SWRCB Policy 75-58.

¹¹ 20 Cal.Code.Reg. § 1748 ("the applicant shall have the burden of presenting sufficient substantial evidence to support the findings and conclusions required for certification of the site and related facility").

A. The PSA’s Conclusion that the Project can be Economically Feasible with Dry Cooling is Supported by the AFC

The PSA concluded that the Project can be economically feasible using dry cooling, based on the Applicant’s own confidential data as supplied to Staff.¹² Staff’s analysis is based on an assumed hurdle rate – the internal rate of return necessary to proceed with the project – of at least 11 percent per year.¹³ The 11 percent per year rate is based on Staff conversations with another solar developer.¹⁴

The Applicant’s own data imply that the 11 percent per year hurdle rate Staff has used is too high. The Applicant asserts that forgoing 45,162 Mwh per year of generation at \$0.15 per kwh will result in an annual revenue loss equivalent to a net present value (“NPV”) of \$63.9 million.¹⁵ The annual dollar value of the revenue loss would be \$6.7743 million.¹⁶ Using the Excel program, the discount rate which converts 30 annual \$6.7743 million amounts to a \$63.9 million NPV is 9.9926 percent per year. Alternatively, a 10 percent discount rate converts 30 annual \$6.7743 million amounts to an NPV of \$63.861 million, which rounds off to the Applicant’s \$63.9 million figure. Thus, it is clear that the Applicant has based its comparative evaluation of wet and dry cooling on an economic analysis using a 10 percent per year discount rate.

It is generally accepted economic practice that the appropriate discount rate to compare costs and benefits occurring in different years is a discount rate equal to the rate of return for the entity incurring the costs and benefits. Thus, the California Public Utilities Commission (“CPUC”) and the Federal Energy Regulatory Commission (“FERC”) both use utility-specific rates of return as the appropriate discount rate for evaluating the economics of investments by a specific utility. Therefore, in this particular case, the use of a 10 percent per year discount rate by the Applicant in their NPV calculations is evidence that their expected rate of return is also 10 percent per year.¹⁷ That is lower than Staff’s 11 percent per year hurdle rate, and provides confirmation of the PSA’s finding that if the Project is built with dry cooling, it will still be economically feasible.

¹² PSA, p. 6-11.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ AFC, p. 4-11, Table 4-3.

¹⁶ $45,162 \text{ Mwh} \times \$0.15/\text{kwh} \times 1000 \text{ kwh/Mwh} = \6.7743 million

¹⁷ Note that if the Applicant had used an 11 percent per year rate, like the staff, their NPV number for the value of 30 years of foregone generation revenue due to dry cooling would have been \$58.9 million rather than \$63.9 million. So based on staff’s 11 percent per year figure, the Applicant has overstated the cost of dry cooling with a constant solar field size (in AFC Table 4-3) by some \$5 million.

B. The Applicant Cannot Meet its Burden of Proof Absent a Power Purchase Agreement

The Applicant does not appear to have a power purchase agreement (“PPA”) with any buyer for the output of the Project. Thus, the Applicant’s assumption that it will receive revenue of 15 cents per kwh¹⁸ is purely speculative. Therefore, any claim that increased costs due to dry cooling will imperil the economic feasibility of the Project is also purely speculative. The Applicant has completely failed to meet its burden of proof to show that dry cooling would be economically infeasible.

1. Higher Power Purchase Agreement Prices would Eliminate the Applicant’s Claim that Dry Cooling is Economically Infeasible

Suppose, for example, that the Applicant were actually able to sell Project output for an average price of 16.4 cents per kwh rather than the 15 cents per kwh they have assumed. Based on an average output with dry cooling of 557,365 Mwh,¹⁹ a 1.4 cent per kwh revenue increase would correspond to an annual revenue increase with dry cooling of \$7.083 million above what the Applicant has assumed.²⁰ Converting that annual increase to an NPV, using the same 10 percent per year discount rate as the Applicant, \$7.083 million per year for 30 years corresponds to \$73.56 million. \$73.56 million is more than the total cost penalty of \$71.1 million the Applicant assigned to dry cooling.²¹ Thus, dry cooling with sales revenues of 16.4 cents per kilowatthour would be **more** profitable than the Applicant’s proposed wet cooling with revenues of 15 cents per kwh. The difference between sales revenues of 15 cents per kwh and sales revenues of 16.4 cents per kwh is less than 10 percent.²² The Applicant is improperly asking the CEC to reject an environmentally preferable alternative based on a speculative PPA price when a change of less than 10 percent in that speculative price would reverse its conclusions.

2. Cost-based PPA Prices would Eliminate the Applicant’s Claim that Dry Cooling is Economically Infeasible

Alternatively, the Applicant may seek and get a PPA which is cost-based rather than being purely a negotiated price, such that any increased costs due to dry cooling are borne by the purchaser and do not affect profitability. In the

¹⁸ AFC, p. 4-11, Table 4-3, footnote 3.

¹⁹ PSA, p. 6-22, which uses values taken directly from the Worley Parsons study of dry cooling done for the Applicant.

²⁰ Revenue increase of \$.0164/kwh - .015/kwh = .014/kwh. \$.014/kwh x 557,365 Mwh/year x 1000 kwh/Mwh = \$7.803 million/year.

²¹ AFC, p. 4-11, Table 4-3, bottom line.

²² $(16.4-15)/15 = 1.4/15 = .0933 = 9.3$ percent.

recently decided Russell City Energy Center (“RCEC”) case at the CPUC, for example, an existing PPA was renegotiated to a 30 percent higher price²³ based on independently verified increases²⁴ in underlying costs.²⁵ If the Applicant were to negotiate a PPA for the Project which allowed for cost increases to cover the incremental costs of dry cooling, then using dry cooling would not affect the economic feasibility of the Project. Similarly, if the Applicant were to enter into a PPA with prices premised on wet cooling, but later succeeded in revising that PPA to reflect actual cost increases due to dry cooling (analogous to the renegotiation of the RCEC PPA), then switching from wet to dry cooling would not impair the economic feasibility of the Project.

Absent an actual PPA with prices, a showing by the Applicant that a cost-based PPA is not possible, or a showing by the Applicant that it will not be able to renegotiate PPA prices to reflect dry cooling costs, there is simply no basis for concluding that the Project will be economically infeasible using dry cooling.

C. The Applicant’s Claim that a Switch from Wet to Dry Cooling Reverses Economics is Dubious

The Applicant claims that dry cooling will decrease its net profits by \$71.1 million, in NPV terms, based on a combination of reduced revenues and increased capital costs which would be only partially offset by decreased O&M costs.²⁶ The Applicant has further claimed that this increase would make the project uneconomical to pursue.²⁷ Even if the Applicant’s incremental cost estimate of \$71.1 million is correct, it does not automatically follow that the Project would be unable to afford that cost. The Applicant asserts that the Project as proposed would generate 602.5 gwh per year of electricity,²⁸ which could be sold at a nominal price of 15 cents per kwh.²⁹ That corresponds to annual revenues of \$90.38 million per year.³⁰ The NPV of that revenue, over 30 years, would be about \$850 million.³¹ Thus, the Applicant’s claim that a \$71 million NPV decrease in net revenues would

²³ D.09-04-010, April 20, 2009, at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/100001-02.htm#TopOfPage.

²⁴ D.-09-04-010, April 20, 2009, finding of fact #8, at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/100001-08.htm#TopOfPage.

²⁵ D.-09-04-010, April 20, 2009, at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/100001-03.htm#TopOfPage. See also section 4.2.1 of the decision, approving the cost basis for PPA price increases, at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/100001-04.htm#TopOfPage.

²⁶ AFC, p. 4-11, Table 4-3, left column. The right hand column of the same table suggests that the NPV net cost of dry cooling might be only \$60.1 million.

²⁷ Workshop on PSA, April 14, 2009, where the Applicant declared that a dry cooling requirement would effectively kill the project.

²⁸ PSA, p. 6-22.

²⁹ AFC, p. 4-11, Table 4-3, footnote 3.

³⁰ 602,527 Mwh/year x \$0.15/kwh x 1000 kwh/Mwh.

³¹ AFC, p. 4-11, Table 4-3, showing that an annual cost of \$6.8 million per year has an NPV of \$63.9 million. \$90.38 million/year x 63.9/6.8 = \$849.3 million.

ruin the Project's profitability is equivalent to a claim that the Project needs revenues of at least \$850 minus \$71 = \$779 million in order to be economically feasible. Converting back to a revenue rate, \$779 million in NPV corresponds to revenues of 13.74 cents per kwh.³²

The Applicant is claiming, de facto, that the only PPAs it could obtain for the Project would have to be priced between 13.7 and 16.4 cents per kwh. With PPA prices at or below 13.7 cents per kwh, Project revenues would be more than \$71 million lower (in NPV terms) than the Applicant's projection, and thus the Project would be unprofitable even with wet cooling. With PPA prices at or above 16.4 cents per kwh, Project revenues would be more than \$71 million higher (in NPV terms) than the Applicant's projections, and thus the Project would be profitable even with dry cooling. The Applicant's claim that the incremental cost of dry cooling reverses Project economics can only be true within a narrow range of PPA prices, and the Applicant has provided no evidence that actual PPA prices will fall within that range.

The actual range of PPA prices that would reverse the economic feasibility of the Project is even lower than the 13.7-16.4 cent/kwh range shown above. That is because the 13.7 cent/kwh lower bound is based on the assumption that the full \$71 million reduction in net revenues must occur before the Project becomes unprofitable. But if that were true, then the Project would still be profitable, albeit just barely, with dry cooling and a PPA at 15 cents per kwh. Thus, the range of PPA prices for which a switch to dry cooling would erase profitability would be 13.7-15 cents per kwh. At the other extreme, 15 cents per kwh could be the **lowest** PPA price at which the Project would be profitable. In that case, the Project would need revenues of 16.4 cents per kwh to be profitable with dry cooling, and the range of PPA prices for which a switch to dry cooling would erase profitability would be 15-16.4 cents per kwh.

Without data from the Applicant on how much of a "cushion" of profitability a 15 cent per kwh PPA provides, the CEC cannot know which of the two extremes applies. What the CEC can determine, based on the Applicant's numbers, is that dry cooling changes the profitability of the Project only if the future Project PPA has prices in the narrow range from 13.7-15 cents per kwh (low range) or 15-16.4 cents per kwh (high range), or some intermediate 1.3-1.4 cent per kwh interval.

Stated qualitatively, the Applicant's claim that dry cooling makes the Project economically infeasible hinges on an unstated claim that the Project as proposed, with wet cooling, will be profitable, but just barely, with the future PPA price falling inside a narrow range that is no more than 1.4 cents per kwh wide. Of course the Applicant's claim also depends on correctly estimated costs and not just the revenues from a not-yet-existent PPA.

³² $779/850 \times 15$ cents/kwh.

The PSA already indicates that, with the Staff's analysis of Applicant's confidential cost data, the Project will be economically feasible with either dry or wet cooling.³³ The PSA should further indicate the dubious likelihood that the actual future PPA price will turn out to be just high enough to make the Project economically feasible with wet cooling, but not high enough to make it also economically feasible with dry cooling.

D. The Applicant's Claim that a Switch from Wet to Dry Cooling Reverses Economic Feasibility, if True, Suggests that the Project May not be Economic in Any Case

If a \$71 million (NPV) decrease in Project profitability due to dry cooling would make the Project infeasible, then so would a \$71 million decrease in Project profitability due to any other cause(s). The source of the cost wouldn't matter. Therefore, any set of costs which add up to the cost of dry cooling would reverse the economics of the Project.

The Applicant has not priced the various non-cooling mitigation measures or Project design changes (e.g., flood control and mitigation) proposed by Staff or others – which could also reverse the economics. Thus, the Applicant's arguments against dry cooling are really arguments against mitigation measures in general, and as such should be rejected.

The Applicant claims a switch from wet to dry cooling reverses Project economics, but the Applicant does not state where the switch occurs. Is the Project as proposed \$70 million above the economic feasibility threshold, or only \$1 million? If the latter, then the Applicant is really claiming that it can't afford to spend even \$1 million, let alone \$71 million, on all mitigation measures combined. Such a position should clearly be rejected by the Commission – it's not the CEC's job to rescue uneconomic projects by absolving them of mitigation responsibilities.

D. The Applicant's Numbers may Themselves be Wrong, and are Certainly Incorrectly Reported in the PSA

The Applicant's claim that dry cooling will make the Project unprofitable hinges on, inter alia, a series of assumptions regarding capital costs with dry cooling and capital costs with wet cooling. The PSA purports to use the Applicant's own data,³⁴ but includes an error that makes dry cooling look worse than even the Applicant claims it would be.

³³ PSA, p. 6-11.

³⁴ PSA, p. 6-21, footnote 1, citing the 2/1/08 Worley Parsons report prepared for the Applicant.

1. Error in the PSA

The PSA includes a \$53 million cost for solar arrays,³⁵ but this cost would only be incurred if the size of the solar field were increased to hold Project output with dry cooling equal to output with wet cooling.³⁶ In that case, the efficiency losses calculated in the PSA would not occur.³⁷

The PSA's solar field costs carry through to its bottom line. The PSA shows an incremental total system cost of \$53.745 million for dry cooling.³⁸ Without the \$53 million incremental cost for additional solar arrays, this cost would be less than \$1 million,³⁹ and the associated annualized cost would be reduced \$5 million per year, from \$5.07 million per year to \$0.07 million per year.⁴⁰ Either the PSA has overstated the annualized costs due to the capital cost of dry cooling by some \$5 million per year, or it has overstated the output loss due to dry cooling. A revised PSA must clarify this issue.

2. Errors by the Applicant

The Applicant estimates a capital cost for water treatment of \$21.158 million with wet cooling. The PSA however, indicates that the Applicant has underestimated the acreage of cooling ponds required for the Project.⁴¹ For this (and perhaps other) reason(s), the PSA estimates that the capital cost for water treatment will total \$42.71 million,⁴² more than twice⁴³ as much as the Applicant's consultant stated. The net difference between the PSA and the Applicant regarding water treatment capital costs is \$19.452 million,⁴⁴ in the direction of more favorable economics for dry cooling with the PSA's numbers. That difference is enough to almost totally eliminate the Applicant's claimed \$20.5 million difference between wet and dry cooling capital costs.⁴⁵

³⁵ PSA, p. 6-21, "Additional Solar Arrays" line.

³⁶ Worley Parsons report, 2/1/2008, p. 7, footnote 1.

³⁷ PSA, p. 6-22.

³⁸ PSA, p. 6-21, "Total System Cost" lines (second line of two).

³⁹ \$53.745 million minus \$53 million = \$0.745 million.

⁴⁰ \$5.07 million x 0.745/53.745 = \$0.07 million.

⁴¹ PSA, p. 6-16.

⁴² PSA, p. 6-20 table, "Total Installed Water Treatment Costs" line; p. 6-21 table, "Water Treatment Costs" line. The PSA also reports water treatment capital costs with dry cooling that are higher than those reported by the Applicant, but the difference is smaller in percentage terms and only \$2.1 million in dollar terms. See Worley Parsons, p. 7 ("Water treatment Capital Cost – Installed" line) vs. PSA, p. 6-21 ("Water Treatment Costs" line).

⁴³ \$42.71/\$21.158 = 2.02.

⁴⁴ \$42.71 minus \$21.158 = \$21.552 million for wet cooling. \$4.6 minus \$2.5 = \$2.1 million for wet cooling. The two differences offset each other, for a net difference of \$21.552 minus \$2.1, or \$19.452 million.

⁴⁵ \$20.5 million per AFC, p. 4-11, Table 4-3, "Additional Capital Expenses for Dry Cooling Compared to Wet Cooling" line, first column. The \$20.5 million figure in the AFC is in turn derived from the

3. The PSA Omits Other Important Information

The PSA includes increased costs for larger cooling pond acreage than proposed by the Applicant. It is not clear whether either the PSA or the Applicant have included costs associated with mitigating the harm and risks to avian life from the cooling ponds, and mitigating the surface disturbance caused by building the cooling ponds.

In addition, neither the PSA nor the AFC appear to have fully considered possibilities for reoptimizing other aspects of power block design to take into account differences between wet and dry cooling. Since the plant design has presumably already been optimized for the proposed wet cooling system, any such changes should have the effect of reducing the net cost of dry cooling.

E. Unprofitability, Even if True, does not Mean Dry Cooling Must be Rejected

The above comments all deal with the economic differences between a Project with dry cooling and a Project with wet cooling. As a policy matter, even if all of the Applicant's economic claims were 100 percent accurate, that still would not be grounds for allowing the use of potable water for wet cooling. The Applicant has no statutory right to a profitable project. It is quite possible for the CEC to approve a project with conditions that, in combination with subsequent market conditions, lead to the project not getting built. Indeed, the Commission has done so numerous times in the past.⁴⁶

The PSA alludes to the possibility of rejecting the Applicant's proposed wet cooling plan when it identifies all five other solar thermal projects brought to the CEC (one of them already approved by the Commission) as projects which do not propose to use wet cooling with potable water.⁴⁷ However, the PSA's point appears to be that the developers of these projects think they can operate profitably without using potable water for cooling. An alternative interpretation of the same data is that the CEC will have numerous opportunities to approve solar thermal projects using dry cooling or reclaimed water cooling, and thus does not need to second-guess the market as to which ones will or will not be profitable. If some are not – as the Applicant claims would be the case for the Project using dry cooling – then so be it. Not every potential project needs to be built.

figures of \$50.653 and \$71.15 million for wet and dry cooling respectively in the Worley Parsons report, 2/1/08, p. 7, bottom line. $\$71.15 - \$50.653 = \$20.497$ million.

⁴⁶ See http://www.energy.ca.gov/sitingcases/all_projects.html for a list of some 18 projects approved by the CEC in the last 8+ years that have never started construction, 8 of which are definitively dead.

⁴⁷ PSA, p. 6-12.

The PSA should further explain that, given the willingness of all other solar thermal project applicants to propose use of dry cooling or reclaimed water cooling, there is no need to make an exception for this particular project. The Project can be required to avoid use of potable water for cooling even if such a condition would turn out to make it uneconomical to build and operate. There will still be plenty of other projects – including solar thermal projects in California – that don’t use potable water, including the six already identified in the PSA.⁴⁸

II. THE PSA SHOULD BE REVISED AND RECIRCULATED FOR PUBLIC COMMENT

In the approval process for an application for certification of a power plant project, the Energy Commission acts as lead agency under CEQA.⁴⁹ In all essential respects, its process is functionally equivalent to that of all other CEQA proceedings.⁵⁰ Specifically, a PSA is the functional equivalent to a draft environmental impact report (“EIR”),⁵¹ the draft environmental document prepared by Staff to inform decision-makers and the public of a project’s significant environmental impacts and feasible measures to mitigate the impacts.

CEQA has two basic purposes. Unfortunately, the PSA falls short of satisfying either of them. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental effects of a project.⁵² The PSA, like an EIR, is the “heart” of this requirement.⁵³ The EIR has been described as “an environmental ‘alarm bell’ whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.”⁵⁴ CEQA mandates that an EIR, or EIR equivalent, be prepared “with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes

⁴⁸ Five projects are listed in Alternatives table 2 on PSA p. 6-12, and another (eSolar) is discussed on PSA p. 6-11. Note that the projects listed on PSA p. 6-12 represent **all** of the solar thermal projects presently before the CEC other than BSEP. See http://www.energy.ca.gov/sitingcases/all_projects.html.

⁴⁹ Pub. Resources Code, § 25519(c).

⁵⁰ Pub. Resources Code, § 21080.5.

⁵¹ See Memorandum of Understanding Between the U.S. Department of the Interior, Bureau of Land Management California Desert District and the California Energy Commission Staff, Concerning Joint Environmental Review For Solar Thermal Power Plant Projects, p. 4, available at http://www.energy.ca.gov/siting/solar/BLM_CEC_MOU.PDF (“[t]he assessments provided by the Parties must be sufficient to meet all federal and state requirements for NEPA and CEQA and shall be included as part of the joint Preliminary Staff Assessment/Draft Environmental Impact Statement and the joint Final Staff Assessment/Final Environmental Impact Statement.”)

⁵² 14 Cal. Code Regs. (“CEQA Guidelines”), § 15002(a)(1).

⁵³ *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 84.

⁵⁴ *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795.

account of environmental consequences.”⁵⁵ Further, in preparing an environmental document, “an agency must use its best efforts to find out and disclose all that it reasonably can.”⁵⁶ Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures.⁵⁷

The PSA could not have satisfied these purposes because the Applicant failed to provide Staff with the information necessary to draft a CEQA-compliant document. Although Staff asserts that the analyses in the PSA are similar to those contained in an EIR,⁵⁸ the PSA simply does not contain the information required by CEQA and its implementing guidelines.⁵⁹ Because the Applicant neglected to provide Staff with sufficient information, Staff issued a PSA that is incomplete with respect to potentially significant impacts and mitigation measures for several resource areas.⁶⁰

It appears that Staff’s goal is to include additional analyses and mitigation measures in the Final Staff Assessment (“FSA”). However, CEQA requires recirculation of an EIR, or EIR equivalent, when significant new information is added to the EIR following public review but before certification.⁶¹ The CEQA Guidelines clarify that new information is significant if “the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect.”⁶² The purpose of recirculation is to give the public and other agencies an opportunity to evaluate the new data and the validity of conclusions drawn from it.⁶³ Consequently, Staff’s objective to include numerous additional analyses and mitigation measures in the FSA violates CEQA. Rather, Staff must recirculate a revised PSA that includes the outstanding analyses and currently unidentified mitigation measures.

As shown below, the PSA must be revised to inform the public and decision makers of the Project’s significant impacts, and to avoid or reduce environmental damage when possible by requiring alternatives or mitigation measures. Thus, Staff, after receiving the necessary information from the Applicant to draft a

⁵⁵ CEQA Guidelines, § 15151.

⁵⁶ CEQA Guidelines, § 15144.

⁵⁷ CEQA Guidelines, § 15002(a)(2) and (3). *See also Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Ass’n v. Regents of the University of California* (1988) 47 Cal.3d 376, 400.

⁵⁸ PSA, p. 1-1.

⁵⁹ Pub. Resources Code, § 21100; CEQA Guidelines, §§ 15120(c), 15122-15131.

⁶⁰ PSA, p. 1-7.

⁶¹ Pub. Resources Code, § 21092.1.

⁶² CEQA Guidelines § 15088.5.

⁶³ *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors* (1981) 122 Cal.App.3d 813, 822.

complete PSA, must correct the shortcomings outlined below, and circulate a revised PSA for public review and comment.

III. THE PSA MUST ACCURATELY DESCRIBE THE PROJECT

An accurate, stable and finite project description is the sine qua non of an informative and legally adequate environmental review document.⁶⁴ Without it, CEQA's objective of fostering public disclosure and informed decision making is stymied. "Only through an accurate view of the Project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal (i.e., the 'no Project' alternative) and weigh other alternatives in the balance."⁶⁵ A project description is legally inadequate if it is factually flawed or if it lacks sufficient information to enable the decision-makers and the public to evaluate the impacts of the project.⁶⁶

As discussed below, the PSA must be revised to accurately, completely, and consistently describe the operational life of the Project and the Project's required telecommunications facilities. Currently, the PSA fails to properly describe Project features that have the potential to result in significant impacts. As a result, potentially significant environmental impacts were not adequately analyzed or addressed in the PSA.

A. The PSA Must Accurately and Consistently Describe the Operational Life of the Project

The PSA's project description states that the plant's operational life will be approximately 40 years.⁶⁷ However, the PSA bases its analysis of impacts to soil and water resources on a 30-year Project life.⁶⁸ Because the PSA inconsistently describes the life of the Project, it is impossible to determine whether Project impacts have been adequately analyzed or addressed in the PSA. For example, if the Project's operational life will be 40 years, the PSA's conclusion that the Project will cause five feet or more of drawdown in nearby wells,⁶⁹ is underestimated. Moreover, it is unclear whether the PSA bases its impact analyses for other resource areas on a 30-year or 40-year Project life. Without clear and consistent information regarding the operational life of the Project, decision-makers and the public cannot evaluate the Project's impacts. The PSA must therefore be corrected and recirculated for public review and comment.

⁶⁴ *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192.

⁶⁵ *Id.* at 192-193.

⁶⁶ *Id.* at 193.

⁶⁷ PSA, p. 3-4.

⁶⁸ PSA, p. 4.9-29.

⁶⁹ PSA, p. 4.9-29.

B. The PSA Must Completely Describe the Project's Required Telecommunication Services

The PSA states that the Project requires telecommunication services, but “it is not clear at this time what the scope of offsite improvements will be related to providing telecommunications infrastructure.”⁷⁰ The PSA’s project description fails to accurately identify all Project components, and consequently, the PSA fails to analyze impacts resulting from the Project as a whole. The PSA must evaluate all components associated with the Project. Environmental review of Project components at a later date constitutes improper piecemealing of environmental review and is a clear violation of CEQA. Environmental problems should be considered at a point in the planning process “where genuine flexibility remains.”⁷¹ The PSA fails to meet this legal standard.

If the Project proponent is unaware of the off-site improvements required for the Project, then review of the Project is premature. To satisfy CEQA, all potential environmental impacts associated with the Project must be assessed and should be included in a revised PSA. This failure to adequately describe the Project and the resulting failure to analyze its impacts deprive both the public and governmental decision makers of their right to review the environmental impacts of the Project.

IV. THE PSA MUST PROVIDE SUFFICIENT DETAIL TO ANALYZE THE PROJECT'S IMPACTS

The PSA, like an EIR, must provide sufficient information to allow decision-makers and the public to understand the environmental consequences of the Project.⁷² Because the Applicant failed to provide Staff with necessary information, the PSA falls short of CEQA’s requirements. Instead, Staff was compelled to release an incomplete PSA, with the intention of providing additional information and analyses in the FSA. In turn, the public was denied an adequate opportunity to evaluate the environmental impacts of the Project.

Preparation of an EIR, or EIR equivalent, and consideration of comments on it from the public enables the agencies that will consider the project to have the information necessary to weigh competing policies and interests.⁷³ Further, if significant new information is added to the EIR, the lead agency must recirculate the document for further review and comment.⁷⁴

⁷⁰ PSA, p. 3-5.

⁷¹ *Mount Sutro Defense Committee v. Regents of University of California* (1978) 77 Cal.App.3d 20, 34.

⁷² *Napa Citizens for Honest Gov't v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 356.

⁷³ *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 576.

⁷⁴ Pub. Resources Code, § 21092.1; Cal. Code Regs., § 15088.5.

The following statements contained in the PSA demonstrate that, due to insufficient information, the PSA is deficient under CEQA:

- “Staff and California Department of Fish and Game have determined the proposed design of the rerouted wash is currently deficient. Applicant is reevaluating the design and will provide a revised design prior to the FSA being finalized.”⁷⁵
- “Staff has identified any outstanding issues in the respective technical sections of the PSA. To resolve these issues, staff requires either additional data, further discussion and analysis, or is awaiting conditions from a permitting agency prescribing mitigation or participating in a joint environmental review with staff.”⁷⁶
- “. . . staff will work to resolve the outstanding issues and update our preliminary conclusions for the FSA.”⁷⁷
- “The BSEP will require telecommunication services although it is not clear at this time what the scope of offsite improvements will be related to providing telecommunications infrastructure.”⁷⁸
- “Staff’s review of the applicant’s emission estimate indicates that there is a potential that the fugitive dust emissions have been underestimated due to a low silt content estimate used to determine the unpaved road dust and dozing/scraping/grading emission factors. . . . One aspect of the quantification of the construction emissions that were inadvertently not analyzed were the emissions associated with the delivery of the considerable amounts of material....to the site. An accurate accounting of those emissions within Kern County needs to be considered and will be presented in the Final Staff Assessment.”⁷⁹
- “. . . staff will work with the applicant to more fully define the construction greenhouse gas emission for the final staff assessment.”⁸⁰
- “Staff . . . recommends the applicant re-evaluate the channel design and create a channel stabilization plan that includes bioengineering solutions. Staff’s proposed Condition of Certification further requires that a final

⁷⁵ PSA, p. 1-6.

⁷⁶ *Id.* at 1-7.

⁷⁷ *Id.*

⁷⁸ *Id.* at 3-5.

⁷⁹ *Id.* at 4.1-13.

⁸⁰ *Id.* at 4.1-70.

mitigation plan be prepared in consultation with the CDFG, Energy Commission staff, and appropriate experts (revegetation specialist, engineer, geomorphologist, hydrologist) that would provide adequate detail for implementation, maintenance, and monitoring.”⁸¹

- “The issue is not yet resolved, and staff has requested that the applicant develop a comprehensive draft Evaporation Pond Design, Monitoring, and Management Plan. Once the document is reviewed and approved by CDFG, USFWS and staff, the plan will be incorporated into staff’s proposed Condition of Certification”⁸²
- “Staff concurs with the applicant’s goal of replacing the biological functions and values of the impacted desert wash with the re-routed drainage, but this issue is not yet resolved.”⁸³
- “The complete scope of these impacts is, however, incompletely known at present. A critical source of information on the physical contexts of the archaeological resources in the project area, a geoarchaeology study . . . is currently underway.”⁸⁴
- “Still, this evidence does not provide staff a sufficient basis for the substantive analysis and mitigation of the impacts that the construction of the proposed project may have on cultural resources because staff lacks information on the extent to which buried cultural resources are present on the proposed BSEP plant site.”⁸⁵
- “The applicant is presently in the process of gathering that information and foresees being able to provide preliminary responses prior to the publication of the Final Staff Assessment. This additional information is critical to preparing a substantive factual analysis of the proposed project’s potential to impact cultural resources, and to informing the development of conditions of certification that may more genuinely reduce such impacts to less than significant.”⁸⁶
- “The physical contexts for the two subsurface flakes are unclear, because the broader stratigraphy of the project site is also presently unclear The results of the geoarchaeology study . . . may provide more informative

⁸¹ *Id.* at 4.2-28.

⁸² *Id.* at 4.2-45.

⁸³ *Id.* at 4.2-46.

⁸⁴ *Id.* at 4.3-1.

⁸⁵ *Id.* at 4.3-32.

⁸⁶ *Id.* at 4.3-33.

physical contexts for the flakes and facilitate the association of the artifacts with other buried archaeological deposits nearby.”⁸⁷

- “The physical contexts for the material culture of the subsurface component are unclear, because the broader stratigraphy of the project site is also presently unclear The results of the geoarchaeology study . . . may provide more informative physical contexts for the materials and facilitate their association with other buried archaeological deposits nearby.”⁸⁸
- “Absent a better understanding of the landscape context for the archaeological site and absent any examination of the sedimentary deposits beneath the surface artifact assemblage, staff believes a determination of the historical significance of the site would be premature.”⁸⁹
- “The physical context for the surface artifact assemblage at Site 18 is unclear, because the broader geomorphic context of the project site is also presently unclear. The results of the geoarchaeology study . . . may provide more informative physical context for the assemblage and facilitate the association of the artifacts with other archaeological deposits nearby.”⁹⁰
- “Staff anticipates that further consultation with the applicant and the preliminary results of the geoarchaeology study will enable the development of a CRHR-eligibility recommendation for the site prior to the publication of the FSA.”⁹¹
- “Staff anticipates that the applicant will reconsider the historical significance of Site 59 prior to the publication of the FSA and include a discussion of whether the recorded trail segments may contribute to the historical significance of a broader trail system.”⁹²
- “Staff therefore awaits the results of the geoarchaeology study before recommending whether Site 6 is eligible for listing in the CRHR.”⁹³
- “The construction of the proposed project may pose other significant impacts on historical resources on the project site. It is not presently well understood the extent to which known surface archaeological sites may have significant subsurface components.”⁹⁴

⁸⁷ *Id.* at 4.3-41.

⁸⁸ *Id.* at 4.3-46.

⁸⁹ *Id.* at 4.3-47, 4.3-48, 4.3-54, 4.3-55.

⁹⁰ *Id.* at 4.3-47, 4.3-48, 4.3-49.

⁹¹ *Id.* at 4.3-49, 4.3-51, 4.3-52.

⁹² *Id.* at 4.3-49.

⁹³ *Id.* at 4.3-55.

⁹⁴ *Id.* at 4.3-62.

- “At present, absence of the results of the geoarchaeology study precludes the ability of staff to make recommendations to the Energy Commission on the eligibility of a number of archaeological sites and archaeological site components in the project area . . . for listing in the CRHR.”⁹⁵
- “There appear to be two archaeological sites . . . that would potentially be subject to construction impacts from the proposed project, but the status of the sites as being eligible for listing on the CRHR or as being chosen by the applicant for avoidance remains unresolved at this time.”⁹⁶
- “No significant direct impacts to historical resources along the alignment for the proposed natural gas pipeline are presently confirmed. . . . There appears to be one archaeological site . . . that would potentially be subject to construction impacts from the proposed project, but the status of the site as being eligible for listing on the CRHR or as being chosen by the applicant for avoidance remains unresolved at this time.”⁹⁷
- “At present, absence of the results of the geoarchaeology study precludes the ability of staff to make recommendations to the Energy Commission on the eligibility of a number of archaeological sites and archaeological site components in the project area . . . for listing in the CRHR”⁹⁸
- “Staff anticipates that further consultation with the applicant on such issues as the character of the artifact assemblages on some of the sites and . . . the historical significance of others will resolve the outstanding concerns and facilitate the final disposition of these cultural resources.”⁹⁹
- “Staff is unaware of any formal public commitments to avoid these cultural resources and does not know whether the applicant would propose to avoid the resources through the re-design of portions of the proposed project or through the implementation of avoidance measures.”¹⁰⁰
- “Staff anticipates modifying the proposed conditions of certification prior to the publication of the FSA in response to the results of the geoarchaeology study and further consultation with the applicant.”¹⁰¹

⁹⁵ *Id.* at 4.3-66.

⁹⁶ *Id.* at 4.3-62-63.

⁹⁷ *Id.* at 4.3-63.

⁹⁸ *Id.* at 4.3-66.

⁹⁹ *Id.* at 4.3-66.

¹⁰⁰ *Id.* at 4.3-66.

¹⁰¹ *Id.* at 4.3-67.

- “As noted by the applicant . . . there have been no specific studies within KCAPCD to assess the health status of residents or measure the area’s toxic pollutant levels.”¹⁰²
- “. . . staff will work with the applicant to conduct a complete health risk assessment using the Hotspots Analysis and Reporting Program (HARP) tool for inclusion in the Final Staff Assessment.”¹⁰³
- “Staff recommends that the following engineering studies be provided for review so staff can complete an analysis of potential environmental impacts from the proposed reconfiguration of Pine Tree Creek . . .”¹⁰⁴
- “However, staff’s review of the same data indicated substantial uncertainty in spatial and temporal TDS concentration trends.”¹⁰⁵
- “There is uncertainty in the water budget components, and assumptions employed in previous budget assessments have provided variable results.”¹⁰⁶
- “Staff requests that BSEP provide an adequate routing assessment of the ditch to assess its capacity and flow path and assure the adjacent property owners are not impacted by BSEP diverting storm water away from the BSEP property. Staff is also requesting that BSEP include a maintenance discussion for this ditch as needed to route peak flood flows from the site and avoid future potential flood related impacts.”¹⁰⁷
- “To assess potential impacts caused by the proposed drainage features, staff requests that the applicant revise the Conceptual Drainage Study . . .”¹⁰⁸
- “Staff recommends that the applicant develop a channel stabilization plan for the design flow based on the establishment of a homogeneous and stable channel slope which would reduce velocities and thus erosion potential.”¹⁰⁹
- “Staff requests a geomorphic study be conducted by a fluvial geomorphologist with expertise in arid system channel design.”¹¹⁰

¹⁰² *Id.* at 4.7-9-10.

¹⁰³ *Id.* at 4.7-15.

¹⁰⁴ *Id.* at 4.9-2, 4.9-51.

¹⁰⁵ *Id.* at 4.9-17.

¹⁰⁶ *Id.* at 4.9-21.

¹⁰⁷ *Id.* at 4.9-37.

¹⁰⁸ *Id.*

¹⁰⁹ *Id.* at 4.9-38.

¹¹⁰ *Id.*

- “Staff has concluded that BSEP did not provide detailed assessment of the existing Pine Tree Creek flood hazards. Without knowledge of the existing condition flood hazard, staff was unable to assess the potential impacts caused by the proposed project. Staff requests that the BSEP conduct a detailed engineering analysis to determine the existing Pine Tree Creek flood hazards upstream, onsite, and downstream of the property. Staff recommends that existing conditions analyses tie into Jawbone Creek immediately downstream of BSEP.”¹¹¹
- “Staff did not have access to an investigation by a soil engineer who can validate the channel’s strength.”¹¹²
- “Staff concludes that the applicant has not sufficiently addressed the downstream mapping restrictions and recommends that BSEP identify the most appropriate outfall to Jawbone Creek that would minimize impacts to adjacent property owners.”¹¹³
- “Staff further requests that the applicant provide a hydraulic analysis The hydraulic analysis is requested so that staff can adequately review the existing flood hazards at the site, the potential flood impacts as a result of the proposed project, and the adequacy of the mitigation to meet the Kern County Floodplain Management Ordinance.”¹¹⁴
- “The key findings and outstanding issues identified by our assessment are summarized”¹¹⁵
- “The proposed channel, as designed, does not adequately address the adverse hydraulic conditions that would result from the design discharge or, for that matter, the bankfull discharge. Staff requests that the applicant revise the diversion channel design. . . .”¹¹⁶
- “Staff also requests that the applicant consult with a soils engineer and provide a Soils Engineering Report for Staff’s review.”¹¹⁷
- “. . . staff believes the applicant has not adequately demonstrated the use of ZLD is an ‘environmental undesirable’ or ‘economically unsound’ wastewater treatment and disposal alternative. While staff believes the applicant should

¹¹¹ *Id.* at 4.9-40.

¹¹² *Id.* at 4.9-41.

¹¹³ *Id.* at 4.9-42.

¹¹⁴ *Id.*

¹¹⁵ *Id.* at 4.9-43.

¹¹⁶ *Id.*

¹¹⁷ *Id.* at 4.9-44.

further evaluate alternative water supplies and/or cooling technologies staff recognizes depending on the water source or cooling alternative chosen there could be a significant effect on the volume of wastewater that would be generated. . . . Therefore, staff believes the applicant should further evaluate wastewater disposal as a part of the analysis for alternatives to the use of freshwater.”¹¹⁸

- “Staff could not determine the historic offsite drainage patterns from this offsite watershed area.”¹¹⁹
- “Staff could not validate the mitigation plan for the revised drainageway.”¹²⁰
- “BSEP did not provide sufficient information for staff to assess the potential for significant debris laden flows and their impacts.”¹²¹
- “Staff is requesting that the project owner assess the potential for sediment debris flows and adjust the peak design flow. The request would help staff identify the potential significance of sediment and its potential to affect the mitigation and carrying capacity of the diversion channel.”¹²²
- “Staff is requesting an Engineering Soils Report to provide a sufficient understanding of the soil characteristics in the channel so that the appropriate hydraulic criteria can be developed for the channel. Staff also recommends that BSEP provide mitigation measures such as bank protection or grade control when the design criteria are exceeded.”¹²³
- “Staff is requesting a Geomorphic Study and Engineering Soils Report to be provided for review of the diversion channel design.”¹²⁴
- “Staff recommends that the BSEP evaluate the need for grade control or instream structures that dissipate hydraulic forces and reduce the effective longitudinal slope of the channel.”¹²⁵
- “Staff recommends that the applicant provide additional detailed analysis for staff’s review.”¹²⁶

¹¹⁸ *Id.* at 4.9-49.

¹¹⁹ *Id.* at 4.9-84.

¹²⁰ *Id.*

¹²¹ *Id.* at 4.9-90.

¹²² *Id.*

¹²³ *Id.* at 4.9-93-94.

¹²⁴ *Id.* at 4.9-94.

¹²⁵ *Id.* at 4.9-105.

¹²⁶ *Id.* at 4.9-107.

- “Further investigation of the power block is necessary to verify subsurface fissuring which could affect foundations stability is not present in that area.”¹²⁷
- “Therefore, at this time, staff cannot conclude that the sources proposed by the applicant represent a reliable supply of water for the project.”¹²⁸
- “For the purpose of this Preliminary Staff Assessment, staff is working under the assumption that the alternative areas identified by applicant contain sites that are available for acquisition, and that staff will later identify specific potential project locations, within said areas.”¹²⁹
- “Because the BSEP proposed site contains designated waters of the state that bisect the project site, and the proposed BSEP would also have impacts to special-status species, the Antelope area should be considered further to determine whether impacts to special-status species and impacts to waters of the state can be reduced or avoided.”¹³⁰
- “Because this area does not appear to be designated habitat for special-status species and potentially has non-potable water resources, staff will identify specific sites in the Manix area and determine whether impacts to those resource areas can be reduced or avoided. Staff’s conclusions will be included in the Final Staff Assessment.”¹³¹
- “Because this area has potential project sites that are not designated habitat for special-status species and potentially has non-potable water resources, staff will identify specific sites in the South Edwards area and determine whether impacts to those resource areas can be reduced or avoided. Staff’s conclusions will be included in the Final Staff Assessment.”¹³²
- “After evaluating the alternative project siting areas proposed by applicant, staff concludes there may be a reasonable alternative site. Staff will conduct further analysis to make that determination and incorporate the conclusion into the Final Staff Assessment (FSA).”¹³³

¹²⁷ *Id.* at 5.2-9.

¹²⁸ *Id.* at 5.4-5.

¹²⁹ *Id.* at 6-6.

¹³⁰ *Id.*

¹³¹ *Id.*

¹³² *Id.* at 6-7.

¹³³ *Id.* at 6-14.

Clearly, the PSA lacks a tremendous amount of information which is necessary to analyze the Project's potentially significant impacts. Thus, the PSA does not satisfy CEQA. Once the Applicant provides Staff with the pertinent information, a revised PSA containing additional analyses and mitigation measures must be drafted and circulated for public review and comment.

V. THE PSA MUST DISCLOSE, ANALYZE, AND MITIGATE ALL POTENTIALLY SIGNIFICANT IMPACTS

CEQA requires the PSA to disclose and analyze all of a project's potentially significant adverse environmental impacts.¹³⁴ Identification of a project's significant environmental effects is one of the primary purposes of an EIR and is necessary to implement the stated public policy that agencies should not approve projects if there are feasible mitigation measures or project alternatives available to reduce or avoid significant environmental impacts.¹³⁵

An EIR, or EIR equivalent, must propose and describe mitigation measures sufficient to minimize the significant adverse environmental impacts identified in the EIR.¹³⁶ Also, mitigation measures must be designed to minimize, reduce, or avoid an identified environmental impact or to rectify or compensate for that impact.¹³⁷

Because the Applicant failed to provide necessary information, however, Staff could not effectively evaluate or mitigate the Project's impacts in the PSA. Thus, the PSA does not satisfy CEQA's requirements. Specifically, due to insufficient information from the Applicant, the PSA contains cursory or flawed analyses of impacts, and/or deficient mitigation associated with biological resources, hazardous waste, and visual resources. As a result, adequate mitigation for impacts could not be proposed in the PSA. The PSA should be revised to address the impacts outlined below, and recirculated for public review and comment.

A. The PSA Must Disclose, Analyze, and Mitigate All Potentially Significant Impacts on Biological Resources

The Project poses significant impacts to a number of species. Staff has identified several of these impacts. However, we are very concerned about the PSA's heavy reliance on the Applicant's flawed assessments and resulting mitigation for the desert tortoise, Western burrowing owl, and Mohave ground squirrel. In addition, the PSA must be revised to adequately address impacts to

¹³⁴ Pub. Resources Code, § 21100(b)(1).

¹³⁵ Pub. Resources Code, §§ 21002, 21002.1(a).

¹³⁶ Pub. Resources Code, §§ 21002.1(a), 21100(b)(3).

¹³⁷ CEQA Guidelines, § 15370.

nesting birds and special status plants, as well as impacts from the evaporation ponds and rerouting of the desert wash.

i. Compensatory Mitigation for Mohave Ground Squirrel and Desert Tortoise Must be Commensurate with Project Impacts

The Project will result in significant impacts to Mohave ground squirrel, which is listed as threatened under the California Endangered Species Act, and desert tortoise, which is listed as threatened under the Federal Endangered Species Act. Condition of Certification (“COC”) BIO-11 of the PSA reflects the Applicant’s proposal to acquire and enhance 115.0 to 117.4 acres of land suitable for the Mohave ground squirrel and desert tortoise. Staff concluded that acquisition of this compensation land will fully mitigate habitat impacts to these two species.¹³⁸

Staff’s conclusion that COC BIO-11 mitigates significant impacts to Mohave ground squirrel and desert tortoise to a less than significant level, or at least to the maximum extent possible, is incorrect for three reasons. First, the Applicant’s assessment of impacts to the desert tortoise and Mohave ground squirrel, on which Staff relies, has several significant flaws. Thus, the compensation proposal does not mitigate actual or potential impacts to habitat for these two species. Second, the Applicant used different units of analysis for the assessment of baseline conditions, Project impacts, and proposed compensation, thus making it impossible to evaluate the ability of mitigation to offset impacts. Third, the proposed compensation is not comparable to habitat compensation ratios required by the California Department of Fish and Game for similar projects with impacts to desert tortoise and Mohave ground squirrel habitat.

a. The PSA Relies on a Flawed Habitat Evaluation for Desert Tortoise

The PSA supports the Applicant’s position that the 2,012-acre plant site provides little or no habitat to support resident desert tortoise.¹³⁹ However, in forming this conclusion, the PSA relies on the Applicant’s flawed habitat evaluation for the desert tortoise.

The methods used by the Applicant to evaluate habitat are not scientifically sound. The evaluation failed to utilize proper field techniques for measuring the habitat variables listed as the basis for determining that the plant site is unsuitable for desert tortoise. The variables include:

¹³⁸ PSA, p. 4.2-60.

¹³⁹ PSA, p. 4.2-14.

- Onsite habitat quality:
 - Vegetation - species composition, shrub cover, shrub patchiness;
 - Soil characteristics;
 - Hydrology;
- Adjacent habitat quality;
- Extent and type of existing disturbance;
- Lack of value of the habitat to long-term and current use by desert tortoise; and
- Lack of connectivity.¹⁴⁰

Although the Applicant's letter report¹⁴¹ provides a general discussion of some of these habitat characteristics, it fails to provide any scientific evidence that links the observations to its conclusions. Thus, the PSA, which relies on the Applicant's position that the 2,012-acre plant site provides little or no habitat to support resident desert tortoise, is not based on substantial evidence in the record.

Substantial evidence does support a finding that a portion of the plant site provides habitat to support resident desert tortoise. First, preferred food items for desert tortoise are present on the site. Although the PSA relies on the Applicant's conclusion that the vegetation characteristics of the Project site are correlated with absence of desert tortoise, the Applicant provided no scientific support for its conclusion.¹⁴² According to published scientific literature, the desert tortoise has been characterized as an opportunistic generalist with respect to diet.¹⁴³ Even though desert tortoises eat a wide variety of herbaceous vegetation, research indicates clear food preferences.¹⁴⁴ A study conducted in the western Mojave Desert calculated the 10 most-preferred food plants consumed. These included *Astragalus laynae*, *Lotus humistratus*, and *Mirabilis bigelovii*,¹⁴⁵ all three of which were

¹⁴⁰ Incidental Take Permit Application, p. 24.

¹⁴¹ AFC, Appendix F, Attachment E, Letter from Alice Karl to Arrie Backrach re Summary of August 10, 2007 site visit, January 3, 3008.

¹⁴² *Id.* at 3-4.

¹⁴³ Morafka DJ, and KH Berry. 2002. Is *Gopherus agassizii* a Desert-Adapted Tortoise, or an Exaptive Opportunist? Implications for Tortoise Conservation. *Chelonian Conservation and Biology*. 4(2):263–287.

¹⁴⁴ U.S. Fish and Wildlife Service. 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento (CA). p. 209.

¹⁴⁵ Jennings, W.B. 1997. Habitat Use and Food Preferences of the Desert Tortoise, *Gopherus agassizii*, in the Western Mojave Desert and Impacts of Off-Road Vehicles. Proceedings of the international conference on conservation, restoration, and management of tortoises and turtles; 1997; New York (NY): New York Turtle and Tortoise Society. pp. 42-45. Some of the preferred plant species were uncommon to rare in the environment, which is evidence that even if the plant species is rare, the plant species is a food preference for desert tortoise. For example, *M. bigelovii* constituted 29.7% of the bites taken even though it represented less than one percent of the perennial plants in the environment and far less of the total biomass of both ephemeral and perennial plants.

documented as occurring within the Project survey area.¹⁴⁶ This clearly indicates that preferred food items for the species are present on the site.

Second, portions of the Project site contain shrubs that are suitable cover for desert tortoise. Throughout most of the Mojave region, desert tortoises are commonly associated with habitat having scattered shrubs and abundant inter-shrub space for growth of herbaceous plants.¹⁴⁷ The Applicant's suggestion that the site lacks the shrub cover associated with desert tortoise presence conflicts with: 1) the AFC, which states "...there is potential that a DT could be observed in these [plant site] shrub patches or in the wash that crosses the Plant Site..."¹⁴⁸ and 2) a Project memorandum, which indicates the presences of shrubs in the areas referred to as "B, C, D, and E."¹⁴⁹ Clearly, shrub cover is lacking in a portion of the site. However, portions of the site that contain shrubs should be considered suitable cover for the species.

Third, substantial evidence supports a finding that a portion of the plant site provides habitat to support resident desert tortoise, because soil types present on the Project site are highly friable, indicating that the soil is suitable for desert tortoise burrowing and nesting. Desert tortoises require suitable substrates for burrow and nest sites. The PSA lacks any evidence regarding whether the soils on the site contain suitable substrates for burrowing and nesting. The Applicant's habitat assessment does not establish a relationship between the soil conditions observed at the site and desert tortoise habitat suitability, other than a reference to the site's all-scale community having poor soil friability. Soil friability is measured by the distribution of flaws or microcracks within it, and estimates of friability generally entail laboratory tests or use of specialized field equipment.¹⁵⁰ As with other estimates, replicate measurements are required to obtain accuracy. There is no indication that the PSA relies on any standard friability tests or that the Applicant otherwise sufficiently examined the soil. Whereas it is recognized that management practices can influence soil friability, the soil types present on the Project site have been classified by the USDA Natural Resource Conservation Service as highly friable.¹⁵¹

¹⁴⁶ AFC, 2008 Spring Survey Report: Appendix C.

¹⁴⁷ U.S. Fish and Wildlife Service. 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento (CA). p. 209.

¹⁴⁸ Incidental Take Permit Application, p. 24.

¹⁴⁹ AFC, Appendix F, Dr. Karl Memorandum.

¹⁵⁰ Dexter, A.R. and C.W. Watts. 2000. Tensile strength and friability. In: Soil and environmental analysis. Physical methods. (Eds: K.A. Smith and C.E. Mullins), 2nd ed. Marcel Dekker, New York, pp. 401-430

¹⁵¹ Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey: Descriptions for Rosamond and Cajon Series. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed [02/20/2009].

Fourth, substantial evidence supports a finding that a portion of the plant site provides habitat to support resident desert tortoise, because the Project site's hydrology does not limit desert tortoise habitat suitability. The Applicant's habitat assessment does not establish a relationship between hydrologic conditions at the site and published information on desert tortoise habitat suitability. The only information provided by the Applicant relating site hydrology to habitat suitability was a single reference to a portion of the site having signs of periodic inundation by water.¹⁵² However, the site contains well-drained soils, receives relatively little rainfall, and according to the Streambed Alteration Agreement application, the site does not have any wetlands features besides washes.¹⁵³ These factors suggest that the site's hydrology does not limit desert tortoise habitat suitability.

Fifth, substantial evidence supports a finding that a portion of the plant site provides habitat to support resident desert tortoise, because good desert tortoise habitat also exists adjacent to the Project site, as admitted to by the Applicant. For example, the Applicant concluded that desert tortoise habitat adjacent to the site ranges from poor (north of the site) to good (south of the site).¹⁵⁴ Suitable habitat adjacent to the Project site is yet another variable indicating that the Project site provides suitable habitat for desert tortoise. Despite this evidence, the PSA provides no explanation for concluding that the Project site is unsuitable for desert tortoise.

Sixth, there is no evidence that potential habitat degradation on the Project site makes the site unsuitable as desert tortoise habitat. Again, the PSA relies on the Applicant's conclusion that the site contains no habitat based, in part, on the Applicant's argument that past disturbance has degraded the site and that the site's degraded conditions make it unsuitable for desert tortoise. However, there are no studies on tortoise habitat choice or preference patterns changing as a result of habitat changes, and thus no evidence to support this conclusion.¹⁵⁵

Seventh, substantial evidence supports a finding that a portion of the plant site may provide long-term and current value to desert tortoises. Desert tortoises were observed on the Project site; the site contains at least three species of preferred food plants, which presumably promote fitness; portions of the Project site contain shrubs that are suitable cover for desert tortoise habitat; soil types present on the Project site are highly friable, indicating that the soil is suitable for desert tortoise burrowing and nesting; good desert tortoise habitat exists adjacent to the Project site; and there is no evidence that the site's hydrology limits desert tortoise habitat suitability or that potential habitat degradation on the Project site makes

¹⁵² AFC, p. 5.3-20.

¹⁵³ BSEP Streambed Alteration Agreement Application, Attachment 3, p. 5.

¹⁵⁴ AFC, Appendix F; Dr. Karl memorandum.

¹⁵⁵ Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): p. 86.

the site unsuitable. The PSA relies on the Applicant's conclusion that the site does not provide long-term and current value to desert tortoises. However, this finding requires more than cursory observations, such as those reported by the Applicant and relied on in the PSA. Even though the Applicant did not effectively establish how the site lacks value, there is some indication that the Applicant is assuming low value based on the low abundance of tortoises detected during surveys. However, the amount of time an organism spends in a location is not necessarily correlated with habitat value or subsequent effects on fitness. Based on the evidence provided, occupancy may be low, i.e. the Applicant's survey results, and the site's habitat value may be high.

Finally, substantial evidence supports a finding that a portion of the plant site may provide habitat connectivity for desert tortoise. The PSA relies on the Applicant's conclusion that the site lacks connectivity for the species, even though the Applicant provided no explanation for why it used connectivity as a variable to support its conclusion that the Project site is unsuitable for desert tortoise. According to the Applicant's habitat assessment, areas B, D, E, and the wash have shrub cover that is partially connected to tortoise habitat outside the site.¹⁵⁶ The evidence is contrary to the Applicant's conclusion that lack of connectivity makes the Project site unsuitable for desert tortoises.

In sum, the PSA relies on a flawed habitat assessment to conclude that the plant site provides little or no habitat to support resident desert tortoise. Thus, it is impossible to determine the actual impacts to the desert tortoise posed by the Project. Consequently, it cannot be determined whether the PSA's proposed mitigation will fully mitigate impacts to the desert tortoise. Thus, the PSA must be revised to include an analysis based on a revised habitat assessment with sound scientific data.

b. The PSA Relies on Flawed Surveys and Incorrect Interpretations of Survey Results for the Desert Tortoise

The PSA states that protocol-level surveys were conducted for the desert tortoise.¹⁵⁷ This statement is incorrect. The protocol referenced by the Applicant requires 100% coverage of the project area through use of belt transects that are no more than 30 feet wide.¹⁵⁸ With respect to transect spacing, the Project's Incidental Take Permit application states:

¹⁵⁶ AFC, Appendix F, Attachment E, Letter from Alice Karl to Arrie Backrach re Summary of August 10, 2007 site visit, January 3, 3008, p. 3.

¹⁵⁷ PSA, p. 4.2-13.

¹⁵⁸ AFC, p. 5.3-11; U.S. Fish and Wildlife Service. 1992. Field Survey Protocol for Any Non-federal Action that may Occur within the Range of the Desert Tortoise, available at <http://www.rctlma.org.epd/surveyprotocols.html>.

For both the 2007 and 2008 surveys, the entire Project (100 percent coverage) was surveyed according to protocol by spacing transects 10 meters [32.8 feet] apart. The survey was conducted by slowly and systematically walking linear transects while surveyors visually searched for DT and sign. Particular emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes.¹⁵⁹

First, it is unclear why surveyors established transects that exceed protocol spacing requirements by over nine percent (i.e., 32.8 feet versus 30 feet). Second, based on the information supplied by the Applicant, the Applicant could not have surveyed the transects at a rate necessary to satisfy the protocol. Assuming that each surveyor worked independently, and each surveyor listed as participating conducted surveys for 10 hours a day (resulting in a 40-hour workweek), the 2008 plant site survey rate is as follows:

Plant Site = 2,012 acres

2,012 acres = 87,642,720 square feet

87,642,720 square feet = 9,361.8 feet by 9,361.8 feet

9,361.8 feet / 32.8 feet (spacing of transects) = 285 transects, each 9,361.8 feet long

285 transects * 9,361.8 feet (length) = 2,668,113 feet of transect

Surveyor Effort = 90 hours (9 person days at 10 hours/day) for the plant site (see Attachment A for survey effort information provided by the Applicant)

Survey Effort = 2,668,113 feet in 90 hours = 29,645 feet per hour = **5.6 miles per hour**

As a frame of reference, 5.6 miles per hour is similar to what is exhibited by racewalkers, and 3.5 to 4.0 miles per hour is equivalent to a brisk walk for the average woman.¹⁶⁰ Presumably the rate for “slowly and systematically” walking¹⁶¹ through a desert environment would be considerably slower. Consequently, it appears nearly impossible for the survey team to have conducted surveys according to protocol.

The CEC must require adherence to one or more of the field survey protocols established by the resource agencies. The purpose of conducting surveys according to protocol is to determine: 1) if a proposed action may adversely affect the desert tortoise; and 2) the potential for incidental take of desert tortoises and tortoise habitat.¹⁶² Surveys conducted by the Applicant only constituted approximately one-

¹⁵⁹ Incidental Take Permit Application, p. 22.

¹⁶⁰ See: <http://walking.about.com/od/measure/f/howfastwalking.htm>.

¹⁶¹ Incidental Take Permit Application, p. 22.

¹⁶² U.S. Fish and Wildlife Service. 1992. Field Survey Protocol for Any Non-Federal Action That May

third of the effort mandated by the protocol.¹⁶³ Thus, the PSA lacks substantial evidence to support its conclusion regarding baseline information for the desert tortoise. Without an adequate baseline, it is impossible for Staff, the decisionmakers, and the public to adequately evaluate and mitigate significant impacts to desert tortoise.

Further, substantial evidence supports a conclusion that the baseline includes presence of desert tortoise and desert tortoise habitat. The PSA concludes that survey results support the inference that the plant site provides little or no habitat for desert tortoises.¹⁶⁴ However, according to the Applicant, an intact juvenile desert tortoise carcass was detected in the plant site. Surveyors concluded that the carcass was less than two years old and that the individual had succumbed to raven predation.¹⁶⁵ However, succumbing to raven predation does not mean that the species originated outside of the Project site. The carcass was located in the middle of the site within the Fallow Agricultural-Disturbed Atriplex Scrub community. If the tortoise had originated outside of the site, the raven would have had to carry it at least 2,300 feet to its resting point. This scenario does not coincide with the habits of the species and is extremely unlikely. A more plausible explanation is that the tortoise occurred near the carcass location when it was predated. Assuming the latter scenario, survey results have demonstrated that the site's Fallow Agricultural-Disturbed Atriplex Scrub community provides habitat for desert tortoises. Regardless of the scenario that occurred, the U.S. Fish and Wildlife Service has stated that occurrence of tortoise carcasses indicates desert tortoise presence (and thus habitat).¹⁶⁶

The PSA incorrectly relies on flawed surveys and incorrect interpretations of surveys. Thus, the biological resource baseline is inaccurate, and it is impossible to determine the actual impacts to the desert tortoise posed by the Project. Consequently, it cannot be determined whether the PSA's proposed mitigation will fully mitigate impacts to the species. The PSA must be revised accordingly.

Occur within the Range of the Desert Tortoise.

¹⁶³ Assuming a walking speed of 3.0 miles/hour, time spent searching the ground, breaks, and an undersample of 9%.

¹⁶⁴ PSA, p. 4.2-14.

¹⁶⁵ Incidental Take Permit Application, Figure 4a.

¹⁶⁶ USFWS. 2009. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). Available at: http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/

c. The PSA Relies on a Flawed Habitat Evaluation for Mohave Ground Squirrel

The PSA supports the Applicant's position that the 2,012-acre plant site provides little or no habitat to support the Mohave ground squirrel.¹⁶⁷ The Applicant uses three lines of evidence to support its conclusion that the plant site is incapable of supporting a resident Mohave ground squirrel population: 1) food resources; 2) demographic evidence; and 3) trapping data.¹⁶⁸ However, several of the Applicant's statements in the Project memorandum contradict scientific literature or otherwise lack scientific integrity. Thus, the environmental baseline for the Project site is inadequate, rendering it impossible to determine the actual impacts to the Mojave ground squirrel posed by the Project or whether the PSA's proposed mitigation will fully mitigate impacts to the species.

Substantial evidence supports a finding that the Project site provides habitat to support Mohave ground squirrel. First, preferred food items for Mohave ground squirrel are present on the site. According to the Draft Mohave Ground Squirrel Conservation Strategy, a study indicated that the leaves of winterfat, spiny hopsage, and saltbush (*Atriplex* sp.) constituted 60% of the Mohave ground squirrel shrub diet, and that these three shrubs are considered the mainstay food for Mohave ground squirrel when forbs are not available.¹⁶⁹ These three plant species are present on the Project site. Despite these facts, the PSA relies on the Applicant's conclusion that the Project site does not contain the food resources necessary to support resident animals.¹⁷⁰ However, the Applicant's conclusion is not supported by evidence.

Specifically, the Applicant dismisses the ability of the plant site to provide food resources by stating "there is no evidence that MGS can maintain themselves on a diet made up of only these plants."¹⁷¹ However, the Applicant supports its argument by referencing a study in Inyo County that did not document a single case in which the diet of Mohave ground squirrels consisted of only one or any combination of the three food items present on the plant site.¹⁷² The Applicant has confused the distinction between food *selection* and *requirements*. Specifically, the results of a food selection study do not support the conclusion that the site does not have the food resources necessary to support the species. There is no evidence that Mohave ground squirrel cannot maintain themselves on a diet of these plants. In

¹⁶⁷ PSA, p. 4.2-15.

¹⁶⁸ AFC, Appendix F, Attachment E, Mojave Ground Squirrel Habitat Assessment, December 21, 2007.

¹⁶⁹ Desert Managers Mohave Ground Squirrel Work Group. 2006. Draft Mohave Ground Squirrel Conservation Strategy. Available at: <http://www.dmg.gov/otherdocs.php?search=mgs>.

¹⁷⁰ Incidental Take Permit Application, pp. 28-29.

¹⁷¹ *Id.*

¹⁷² *Id.*

fact, the Draft Mohave Ground Squirrel Conservation Strategy provides evidence that it can.

Second, substantial evidence supports a finding that the Project site provides habitat to support Mohave ground squirrel, because the Project site provides vegetative cover which is suitable for the species. The PSA relies on the Applicant's conclusion that the site is not suitable habitat based on the Applicant's position that the type of vegetative cover present at the plant site is not suitable Mohave ground squirrel habitat. The Applicant again references the Inyo County study, in which an *Atriplex*-dominated site was the only one of four study sites that did not support a permanent Mohave ground squirrel population. The Applicant also used anecdotal trapping survey data provided by two biologists. This is not substantial evidence.

Standard scientific practice recognizes the minimal strength associated with a sample size of one, and of the importance of discussing other possible explanations for particular observations (i.e., other habitat variables that may have influenced residency), and the unreliability of anecdotal data that is not based on site specific work or supported by the literature. Furthermore, a year after the Inyo County study was published, a popular article was published by the Applicant's consultant containing the following excerpt: "...little is known of Mohave ground squirrel habitat needs or even where it still occurs."¹⁷³ According to the Desert Tortoise Preserve Committee, "[m]uch more work will be needed to clear up the mysteries surrounding the Mohave ground squirrel and to assure it a secure future in the Mojave Desert ecosystem."¹⁷⁴ Indeed, numerous scientific publications have made it abundantly clear that many aspects of Mohave ground squirrel ecology and distribution remain under-studied or unknown.¹⁷⁵

According to scientific literature, analysis of vegetation community composition at Mohave ground squirrel sites clearly indicates that the species is a generalist in terms of plant community preference.¹⁷⁶ It is neither restricted to nor concentrated within any of the 16 plant communities where it has been reported, and its occurrence is directly proportional to the occurrence of plant communities.¹⁷⁷

¹⁷³ Leitner P. 1999. The Mysterious Mohave Ground Squirrel. Tortoise Tracks 19: 2 Summer 1999. [Homepage of Desert Tortoise Preserve Committee], [Online]. Available at: <http://www.tortoise-tracks.org/denizens/mgs.html>.

¹⁷⁴ Leitner P. 1999. The Mysterious Mohave Ground Squirrel. Tortoise Tracks 19: 2 Summer 1999. [Homepage of Desert Tortoise Preserve Committee], [Online]. Available at: <http://www.tortoise-tracks.org/denizens/mgs.html>

¹⁷⁵ E.g., Stewart GR. 2005. Petition to list the Mohave ground squirrel (*Spermophilus mohavensis*) As a Federally Endangered Species. Defenders of Wildlife. Available at: <http://www.defenders.org/>

¹⁷⁶ Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District.

¹⁷⁷ *Id.*

Mohave ground squirrels have been documented as occurring in urban and agricultural plant communities, and in an area entirely surrounded by urban and agricultural development.¹⁷⁸ In fact, one squirrel was trapped at the recently opened Hyundai Proving Ground south of California City, where the consultant had identified habitats as being “marginal.”¹⁷⁹

In addition, the West Mojave Plan provides data from vegetation surveys at 19 sites where Mohave ground squirrels had been documented as occurring through trapping efforts. Although the data has limitations, it provides relatively extensive information on vegetation characteristics at sites where squirrels occurred. Of the 19 sites examined, three (16%) were dominated by *Atriplex*, and two (11%) contained abundant *Atriplex*, but no winterfat (*Krascheninnikovia lanata*) or spiny hopsage (*Grayia spinosa*).¹⁸⁰ The occurrence of Mohave ground squirrels in *Atriplex* communities lacking winterfat and spiny hopsage provides empirical data that the site provides suitable habitat for Mohave ground squirrel.

As shown above, the PSA’s conclusion that the Project site does not provide suitable habitat for the Mohave ground squirrel is based on an inadequate baseline for purposes of evaluating impacts and is not supported by substantial evidence. Consequently, it cannot be determined whether the PSA’s proposed mitigation will fully mitigate significant impacts to the Mohave ground squirrel. The PSA must be revised to include an analysis based on sound scientific data.

d. The PSA Relies on Flawed Habitat Definitions

The PSA appears to support the Applicant’s position that the plant site does not provide habitat for either the desert tortoise or Mohave ground squirrel, despite the potential occurrence of “transient” individuals. The term “transient” is infrequently used in wildlife science, and thus it lacks an operational definition. Although the term has not been defined by the Applicant or Staff, it appears to have been used in the AFC and PSA to define individuals that occur in an area for only a short period of time. However, there is no scientific evidence to support the assumption that any individuals occurring on the Project site would be transients. Such an assumption would have required a detailed occupancy study, which was simply not conducted for this Project.

Perhaps more consequential is the notion that “transient” individuals can occur in an area, but that the area does not provide habitat. There is no scientific

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave plan: a habitat conservation plan and California desert conservation area plan amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District.

literature that supports this idea. In fact, Dr. Michael Morrison, one of the foremost experts on wildlife-habitat relationships, is unfamiliar with the term “transient” being applied to a terrestrial organism such as the desert tortoise.¹⁸¹ Dr. Morrison confirmed the well-defined scientific approach that if an organism occurs in an area, that area provides habitat.¹⁸² Thus, by definition, habitat is defined by the behaviors of an organism.¹⁸³ Habitat cannot be defined through subjectively derived expectations.¹⁸⁴ Consequently, the PSA’s concept of habitat is fundamentally flawed. Any portions of the Project site where a desert tortoise or Mohave ground squirrel could occur are habitat, and this habitat requires mitigation to offset impacts. The PSA must be revised accordingly.

e. The Calculations Used to Determine Compensation are Flawed

1. The PSA has General Data Reliability Issues

The PSA has general data reliability and validity issues and thus lacks substantial evidence upon which to base its conclusions. Specifically, the PSA’s proposed compensation acreages for impacts to the desert tortoise and Mohave ground squirrel are based on the Applicant’s flawed calculations. The Applicant achieved its calculations through the use of formulas that incorporated animal density and habitat quality. Numerical values used in the calculations were derived from numerous unsupported assumptions and speculations. Boarman provides an excellent discussion of this technique in his review of literature addressing threats to desert tortoise populations:

Speculations may be seductive; often they present a series of progressively dependent statements that have an internal logic of their own. The logic may appear compelling and is often bolstered by attempts to provide ‘proof’ through analogies. Such argumentation often collapses when primary assumptions are nullified or when they are tested against real data, but too often the test is never made. Although they may sometimes form the basis for hypotheses and experiments, speculations are risky to base management decisions on because there is essentially no way to evaluate them and their predictive value is low.¹⁸⁵

¹⁸¹ ML Morrison, Dept. of Wildlife and Fisheries Sciences, Texas A&M University, personal communication with Scott Cashen, November 2008.

¹⁸² *Id.*

¹⁸³ Morrison ML, BG Marcot, and RW Mannan. 2006. Wildlife-Habitat Relationships: Concepts and Applications. 3rd ed. Washington (DC): Island Press, p. 493.

¹⁸⁴ “Expectation” is expressed throughout the Application (e.g., see pages 24, 25, 30, 38, 51, and Dr. Karl’s memorandum).

¹⁸⁵ Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): p. 86.

Boarman classifies speculation as the most risky (i.e., least reliable) type of data, and professional judgment as the second least reliable source of data.¹⁸⁶ Thus, Staff has accepted a compensation proposal based on very unreliable data.

The PSA is setting an alarming precedent by accepting speculation instead of studies involving project-specific field data. We recommend that Staff review Boarman's discussion on the role of data in making management decisions. Although Boarman's review focuses on the desert tortoise, it has a broad application. As the Applicant stated itself, mitigation should be based on the best available biological evidence.¹⁸⁷ In the case of the Mohave ground squirrel, considerably more reliable biological evidence would be available through visual and small mammal trapping surveys, such as those specified in the Mohave Ground Squirrel Survey Guidelines.¹⁸⁸ In the case of the desert tortoise, considerably more reliable evidence would be available through adherence to protocol survey guidelines and a corrected assessment of habitat suitability.

2. The PSA has Specific Data Reliability and Validity Issues

The PSA also has specific data reliability and validity issues. The PSA relies on the Applicant's fundamentally flawed calculations and unsupported reasoning.

First, one of the core premises of the Applicant's calculations is that desert tortoise and Mohave ground squirrel density is positively correlated with habitat quality. A positive correlation between density and habitat quality for a particular species needs to be established before it can be considered valid. Several types of limitations and ecological processes must be considered when density data is used to evaluate habitat quality.¹⁸⁹ For example, higher-quality habitats may be occupied by dominant individuals, forcing subdominants into lower-quality habitat. Thus, higher densities may be present in poorer, not better, habitats.¹⁹⁰ Although behavior studies of Mohave ground squirrels have provided mixed results, there is evidence that the species exhibits some form of territoriality.¹⁹¹ As a result, the use

¹⁸⁶ *Id.*

¹⁸⁷ Incidental Take Permit Application, Phil Leitner, 2008 Memorandum.

¹⁸⁸ California Department of Fish and Game. 2003. Mohave Ground Squirrel survey guidelines. Unpublished document distributed to biologists authorized to conduct trapping surveys under a Memorandum of Understanding with CDFG; 1989 survey guidelines available at <http://cadreenvironmental.com/mgssurveyprotocol.pdf>.

¹⁸⁹ Anderson SH. 1981. Correlating habitat variables and birds. Pages 538-542 in CJ Ralph and JM Scott, editors. Estimating numbers of terrestrial birds. Studies in Avian Biology 6.

¹⁹⁰ McDonald LL, JR Alldredge, MS Boyce, and WP Erickson. 2005. Measuring Availability and Vertebrate Use of Terrestrial Habitats and Foods. Pages 465-488 in CE Braun, editor. Techniques for Wildlife Investigations and Management. The Wildlife Society, Bethesda (MD).

¹⁹¹ Stewart GR. 2005. Petition to list the Mohave ground squirrel (*Spermophilus mohavensis*). Defenders of Wildlife.

of density estimates to calculate mitigation is not appropriate without additional consideration and study.

Second, the PSA relies on conclusions that misapplied scientific concepts. For the Mohave ground squirrel, the Applicant concluded that 20 acres would offset impacts to two Mohave ground squirrels.¹⁹² This conclusion was based on a study near the Desert Tortoise Natural Area (“DTNA”), and data from the Coso study site. The Applicant references these studies as providing information on carrying capacity. Subsequently, the Applicant reasons that fencing acquisition land would increase Mohave ground squirrel carrying capacity by 25%. The Applicant’s use of carrying capacity is confusing in that it is not consistent with the definition of the term. Specifically, carrying capacity is the maximum number of individuals an area can support, not the estimated density of individuals. Predicting carrying capacity is extremely complicated, and rarely do real-world populations exhibit the dynamics used in carrying capacity models.¹⁹³ By definition, use of carrying capacity values to calculate the amount of compensation land results in underestimated acreage.

Third, the PSA’s conclusions regarding impacts to Mohave ground squirrel are not based on scientific data. The PSA relies on the Applicant’s unsupported assumption regarding the number of Mohave ground squirrel individuals potentially impacted by the Project. For the Mohave ground squirrel, the Applicant alludes that Coso data supports a reasonable estimate of two individuals exposed to possible incidental take on 429.5 acres within the plant site. This estimate needs to be substantiated before it can be considered valid. Burt estimated density at 15 to 20 Mohave ground squirrels per 1 mi², which is equivalent to 10 to 13.4 individuals per 429.5 acres.¹⁹⁴

In calculating compensation acreage, the Applicant used an estimate of one individual per 10 acres of protected land.¹⁹⁵ The Applicant indicated that this estimate is supported by trapping data, which exhibited comparable results.¹⁹⁶ However, trapping numbers cannot be used to estimate density unless trapping success is incorporated into the estimate. Trapping numbers are further limited unless one incorporates the distinction between the capture of dispersing and resident individuals, which may be impossible without additional study (e.g., radio-telemetry).¹⁹⁷ If dispersing individuals are captured and used in density calculations, the estimate will be inflated.

¹⁹² Incidental Take Permit Application, Attachment 2: Phil Leitner 2008 Memorandum.

¹⁹³ Morrison ML, BG Marcot, and RW Mannan. 2006. Wildlife-Habitat Relationships: Concepts and Applications. 3rd ed. Washington (DC): Island Press, p. 493.

¹⁹⁴ Burt, WH. 1936. Notes on the habits of Mohave ground squirrel. J.Mammal. 17:221-224.

¹⁹⁵ Incidental Take Permit Application, Attachment 2, Phil Leitner 2008 Memorandum.

¹⁹⁶ *Id.*

¹⁹⁷ Bureau of Land Management. 2005. Final environmental impact report and statement for the West Mojave plan: a habitat conservation plan and California desert conservation area plan

The Applicant's "conservative" approach to calculating mitigation uses the value of 0.8 animal/10 acres, which the Applicant terms a "generous estimate" for baseline conditions at unprotected land subject to off-highway vehicle ("OHV") use and livestock grazing.¹⁹⁸ However, this value does not appear consistent with the Applicant's assertion that trapping data from mitigation land purchased for desert tortoise and Mohave ground squirrel strongly indicate that the "population density of the species on this parcel is currently very low, possibly approaching zero."¹⁹⁹ The trapping data was derived from land in the vicinity of the DTNA, similar to land being proposed for Mohave ground squirrel mitigation by the Applicant. An assumption of 0.8 animal/10 acres was a fundamental part of the Applicant's compensation land calculations, and undoubtedly the use of an estimate obtained from trapping data near the proposed compensation site (i.e., almost 0.0 animal/10 acres) would have yielded very different results.

Fourth, the PSA relies on the Applicant's assumption regarding the number of desert tortoise individuals potentially impacted by the Project, which is based on a poorly conducted habitat assessment and inadequate surveys. Moreover, the number of individual desert tortoises that the compensation area is expected to support is purely conjecture. The Applicant has used desert tortoise density estimates (i.e., one individual per 10 acres) from the DTNA to infer that acquisition and enhancement of 20 acres will offset impacts to two tortoises.²⁰⁰ This inference is not reliable without a comparison of baseline conditions present at the two sites, and a demonstration that the compensation area will undergo the same management regime as the DTNA. The DTNA was established in 1976 and has subsequently been managed specifically for the benefit of the desert tortoise as both a research natural area and an Area of Critical Concern.²⁰¹ It also has one of the highest known densities of desert tortoises per square mile in the species' geographic range.²⁰² Consequently, applying density estimates obtained from the DTNA to land that has been subject to grazing and OHV use will likely underestimate the amount of compensation land required to support two tortoises.

Fifth, the PSA relies on a baseline assessment, impact analysis, and compensation package that apply different units of analysis, which makes it impossible to evaluate the ability of mitigation to offset impacts. Specifically, the

amendment. Moreno Valley (CA): U.S. Dept. of the Interior, Bureau of Land Management, California Desert District.

¹⁹⁸ Incidental Take Permit Application, Attachment 2: Phil Leitner 2008 Memorandum.

¹⁹⁹ *Id.*

²⁰⁰ Incidental Take Permit Application, p. 38.

²⁰¹ US Dept Interior, Fish and Wildlife Service. 8 Feb 1994. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for the Mojave Population of the Desert Tortoise. Fed Reg 59(26): p 5837.

²⁰² BLM. 2007. Desert Tortoise Natural Area [internet; accessed 1 Mar 2009]. Available at: <http://www.blm.gov/ca/st/en/fo/ridgecrest/deserttortoisenaturalarea.html>

Applicant used habitat as the unit of analysis for baseline conditions and proposed mitigation, and individual animals as the unit of analysis for impact assessment. Units of analysis must be comparable to achieve an accurate assessment of Project impacts.

Also, the Applicant's selection of an unquantified variable (i.e., number of individuals potentially impacted) over a quantified one (i.e., acres of potential habitat) introduces an additional level of uncertainty to the mitigation plan and its capability of success. That is, if Mohave ground squirrel surveys have not been conducted (and it appears desert tortoise and burrowing owl surveys were not conducted according to protocol), it is not possible to conclude the presence of target organisms at the compensation site offsets impacts that occurred.

The PSA's incorporation of the Applicant's proposed monitoring cannot be used to demonstrate successful implementation of the mitigation program. For example, the Applicant states that the compensation habitat will provide long-term maintenance of an equal or greater number of desert tortoises and Mohave ground squirrels.²⁰³ Similar to the impact assessment, the Applicant has selected the organism as the variable for analysis to determine success of the mitigation area. However, this variable for analysis is remarkably absent from the proposed Mitigation, Monitoring, and Reporting Program. Instead, the Applicant has reverted to habitat monitoring as the requirement. This monitoring approach cannot be used to demonstrate successful implementation of the mitigation program due to discrepancy in variables being assessed. If the assessment of impacts and mitigation are made at the organism level, monitoring and reporting must also occur at that level.

The PSA's proposed five years of annual reporting falls far short of being able to demonstrate compensation land is equivalent to other protected lands, which in the case of the DTNA has been managed for tortoise conservation for 33 years.²⁰⁴ Specifically, the Applicant used desert tortoise and Mohave ground squirrel density estimates from locations that have received long-term protection (e.g., the DTNA) to calculate proposed compensation acreage. The Applicant concluded that if compensation land is similarly protected, it too would achieve these densities.²⁰⁵ This conclusion holds no weight unless compensation land will be managed in the same fashion, and for the same duration, as the locations cited.

Should Staff continue to accept the Applicant's proposed approach to mitigation, Staff's conditions of certification need to be revised to reflect the appropriate units of analysis. For example, BIO-11 requires the Project owner to be

²⁰³ *Id.*

²⁰⁴ BLM. 2007. Desert Tortoise Natural Area [internet; accessed 1 Mar 2009]. Available at: <http://www.blm.gov/ca/st/en/fo/ridgecrest/deserttortoisenaturalarea.html>

²⁰⁵ Incidental Take Permit Application, p. A3-12.

responsible for acquisition and management of additional compensation lands to compensate for any additional habitat disturbances beyond what has been estimated in the AFC. Although this requirement shows Staff's intent to hold the Project owner accountable for actual impacts, it does not reflect the unit of analysis (i.e., number of animals) used in the Applicant's compensation proposal. Conditions BIO-9 and BIO-10 require reporting of the number of Mohave ground squirrels and desert tortoises detected during clearance surveys. Assuming the PSA's intent is to mitigate actual impacts, these numbers should be used for any adjustments to the compensation package.

In sum, the habitat assessments are so significantly flawed that revised assessments are needed before Staff proposes final compensation. However, according to the FSA prepared for the Victorville 2 project, other energy projects licensed by the Energy Commission and having impacts to Mohave ground squirrel, desert tortoise, and burrowing owl, have required mitigation of 3:1 (Victorville 2), 4:1 (High Desert Power Plant pipeline), and 5:1 (LUZ SEGS Units IV and X). For Victorville 2, a ratio of 1.5:1 was required for desert tortoise alone. In this case, for Project impacts within the transmission line corridor, the Applicant has proposed a compensation ratio of 3:1 for the Mohave ground squirrel and 1:1 for the desert tortoise. Assuming compensation land supports both species, the Applicant's proposal for impacts in the transmission line corridor is roughly in-line with Staff's previous recommendations.

For impacts within the plant site, the Applicant used the estimated number of individuals impacted as the unit of analysis. This approach does not constitute a reliable means of estimating and mitigating for impacts. In recommending compensation, Staff must apply the true definition of habitat and base compensation on habitat impacts as has been done for other energy projects. The Applicant indicated that 429.5 acres of the plant site could contain "transient" Mohave ground squirrels.²⁰⁶ Applying a 3:1 compensation ratio to this habitat, as was done for the transmission line, would result in acquisition of 1,288.5 acres of compensation land. The PSA proposes 100 acres for impacts to this habitat,²⁰⁷ or a compensation ratio of 0.23:1. This value is clearly not comparable to what has been applied for other Energy Commission projects with impacts to the Mohave ground squirrel. Accordingly, the PSA must be revised.

f. The PSA Must Specify Identifiable Means for Ensuring Compensation Lands are Suitable for Desert Tortoise and Mohave Ground Squirrel

Condition BIO-11.1b of the PSA states: "[t]he compensation land shall provide moderate to good quality habitat for Mohave ground squirrel and desert

²⁰⁶ Incidental Take Permit Application, Phil Leitner Memorandum.

²⁰⁷ PSA, p. 4.2-60; see also Incidental Take Permit Application, Table 3.

tortoise with capacity to improve in quality and value for these species.” The PSA should be revised to prescribe habitat analysis procedures to determine “moderate to good” quality habitat. Habitat is defined as the biotic and abiotic factors that influence an organism’s occurrence.²⁰⁸ Because habitat by itself does not guarantee long-term fitness of individuals and viability of populations, the focus of habitat evaluation should be determining limiting agents in species abundance.²⁰⁹ Since documents prepared by the Applicant rely on visual observations and comparisons, instead of limiting agents in species abundance, the PSA must include a discussion of habitat analysis procedures that need to be applied to proposed compensation land to infer “moderate to good” quality habitat.

Condition BIO-11.1f of the PSA states that the compensation land should not have a history of intensive recreational use, grazing, or other disturbance. This condition should be revised to reflect the *level* of actual disturbance as the variable of interest, as opposed to *history* of disturbance. Specifically, a more appropriate condition would be: “Compensation land shall not be characterized by extensive and significant disturbance activities and features known to have an adverse effect on desert tortoise, Mohave ground squirrel, and the other species for which the site is intended to provide habitat compensation.”

Also, Staff appears to concur with the Applicant’s assumption that “[a]ll MGS compensation lands will be suitable for DT and therefore will also compensate for potential losses to DT habitat.”²¹⁰ Based on the following statement, this is not a valid assumption:

Current observations indicate that desert tortoise habitat quality does not necessarily equate with Mohave ground squirrel habitat quality (P. Leitner, personal communication). There are extensive areas within Mohave ground squirrel range that appear to support good desert tortoise populations but are absent of Mohave ground squirrels.²¹¹

As a result, the PSA must specify identifiable means for ensuring that compensation lands are suitable for both species.

Means for ensuring compensation lands are suitable for both desert tortoise and Mohave ground squirrel include enhancement measures. The PSA reflects the Applicant’s proposal to provide \$250 an acre for enhancement of compensation habitat.²¹² According to the Applicant, enhancement measures “may include

²⁰⁸ Morrison ML, BG Marcot, and RW Mannan. 2006. Wildlife-Habitat Relationships: Concepts and Applications. 3rd ed. Washington (DC): Island Press, p. 493.

²⁰⁹ *Id.*

²¹⁰ Incidental Take Permit Application, p. 49.

²¹¹ Stewart GR. 2005. Petition to list the Mohave ground squirrel (*Spermophilus mohavensis*) As a Federally Endangered Species. Defenders of Wildlife. Available at: <http://www.defenders.org/>

²¹² PSA, p. 4.2-62.

habitat restoration, construction and maintenance of protective fencing, etc.”²¹³ In addition to enhancing habitat, the Applicant’s Mitigation, Monitoring, and Reporting Program indicates that annual monitoring reports will address the level of success of habitat enhancement, and any suggestions for devising or implementing adaptive management strategies to improve the long-term viability of the covered species associated with the acquired lands.²¹⁴ The Applicant’s proposal to provide \$250 an acre for enhancement of compensation habitat enhancement is insufficient.

Desert habitat enhancement costs can be expensive. The cost of comprehensive rehabilitation may exceed \$10,000 per acre.²¹⁵ In 1999, “modest” rehabilitation techniques implemented to expedite natural recovery reportedly cost \$500 to \$2,000 an acre.²¹⁶ These costs suggest that few habitat enhancement measures can be accomplished with the Applicant’s proposed funding. Thus, the Applicant’s declaration that proposed habitat impacts will be offset by acquisition of a relatively small amount of high-quality habitat is invalid.²¹⁷

The PSA should be revised to specify monitoring of long-term management of compensation lands. As currently proposed, the Applicant’s ability to offset Project impacts hinges on the assumption that acquired lands can be enhanced to increase habitat suitability for the target species. As a result, the focus of Staff’s enhancement requirements should be attainment of quantifiable habitat improvements, not simply the allocation of a specific amount of funds. Given the slow recovery time of desert ecosystems, and the likelihood that acquisition lands have been subject to OHV use and livestock disturbance, long-term monitoring will be required to demonstrate success of habitat enhancement. Although the PSA requires an endowment for the long-term management of compensation lands, it does not appear to specify any particular monitoring requirements. The PSA should clarify expectations for long-term monitoring of compensation lands, including expectations for the establishment of success criteria and triggers for implementing adaptive management. These expectations should incorporate a timeframe appropriate to the desert ecosystem, baseline and desired conditions of the acquisition site, and the increases in relative abundance that will result from habitat enhancement.

²¹³ Incidental Take Permit Application, p. 47.

²¹⁴ Incidental Take Permit Application, p. A3-12.

²¹⁵ Hailey J, and D Bainbridge. 1999. Desert Restoration: Do something or wait a thousand years? [abstract] Mojave Desert Science Symposium; 1999 Feb 25-27, Las Vegas. USGS, Western Ecological Research Center [internet]. Available from: <http://www.werc.usgs.gov/mojave-symposium/>

²¹⁶ *Id.*

²¹⁷ Incidental Take Permit Application, p. 38.

2. Burrowing Owl Impact Avoidance, Minimization, and Compensation Conditions do Not Meet California Burrowing Owl Consortium Guidelines

Staff has concurred with the Applicant's proposed impact avoidance, minimization, and mitigation measures for the burrowing owl. There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs, there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey methods impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation. As a result, the California Burrowing Owl Consortium ("CBOC") developed survey protocol and mitigation guidelines to meet the need for uniform standards when surveying burrowing owl populations and evaluating impacts from development projects. Although the PSA demonstrated the intent to have the Project comply with the CBOC guidelines, several of the conditions imposed by Staff do not adhere to the guidelines.

a. The PSA Relies on a Resource Assessment that does Not Satisfy CBOC Guidelines

The AFC indicates that CBOC protocol surveys were conducted for the burrowing owl.²¹⁸ CBOC survey protocol consists of four phases.²¹⁹ Phase 4 of the protocol requires preparation of a resource report that describes and discusses the results of the other three phases of the survey protocol. The Applicant did not provide a Phase 4 report or otherwise provide the content required therein. This constitutes a significant deviation from the protocol.

How data is collected strongly affects the reliability and validity of ecological conclusions that can be made. Understanding the quality of data being used to make management decisions helps to separate the philosophical or value-based aspects of arguments from the objective ones, thus helping to clarify the decisions and judgments that need to be made. Therefore, without a Phase 4 report, it is difficult to determine the Applicant's adherence to the other three phases of the protocol, and the extent to which the PSA's proposed mitigation compensates for impacts to burrowing owls.

²¹⁸ AFC, p. 5.3-12.

²¹⁹ The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines. Available online at: <http://www.dfg.ca.gov/wildlife/species/docs/boconsortium.pdf>

b. The PSA Relies on Survey Results and an Impact Assessment that do Not Satisfy CBOC Guidelines

The Applicant conducted burrowing owl surveys in 2007 and 2008. During 2007, 27 burrows with burrowing owl sign were detected, 14 of which were within the survey area (as opposed to the buffer area). Five of these burrows had recent sign of burrowing owl use.²²⁰ During 2008, the applicant reported results as follows:

Of the potential WBO burrows observed, nine were active (recent WBO sign) and two were inactive (WBO burrows but without recent sign). Eleven animal burrows with potential WBO sign were observed and six of these burrows showed recent WBO sign (active) and five had degraded WBO sign (inactive).²²¹

These results are confusing (i.e., unknown whether there were 6 or 9 active burrows, and whether there was “potential” or “recent” sign detected). Nonetheless, the Applicant’s survey results indicate the presence of between five and nine active burrows within the survey area (possibly more due to a discrepancy in survey areas between the two years) and additional active burrows within the buffer zone.

The PSA’s mitigation proposal appears to reflect the number of owls actually observed during surveys. This is not a valid approach to impact assessment and mitigation. Accurate estimates of abundance require synthesis of all available cues and data to derive a reliable conclusion. For the burrowing owl, visual observation data almost assuredly provides a less reliable estimate of abundance than an estimate obtained by burrow status. Discussion provided by the Applicant partially supports this assertion. In response to Staff’s Data Request 20, the Applicant stated “...only two burrowing owls were detected within the Plant Site boundary, in association with four active burrowing owl burrows.” The Applicant failed to provide a plausible explanation for this assumption, particularly for the idea that each owl was occupying two active burrows, as opposed to the notion that each active burrow was occupied by a pair of owls. The Applicant’s response continued with the statement that “[t]he two burrowing owls observed within the Plant Site boundary were documented during the 2007 surveys; no burrowing owls were observed within the Plant Site boundary during the 2008 surveys. It is likely that each of the owls observed in 2007 represent a pair of burrowing owls.” By assuming that each owl observed in 2007 likely represented a pair, the Applicant has acknowledged a less than 100 percent detection rate (i.e., an assumed 50 percent detection rate). Burrowing owls are known to exhibit moderate to high site fidelity

²²⁰ AFC, p. 5.3-22.

²²¹ 2008 Spring Survey Report, p. 28.

to general breeding areas and even to particular nest burrows.²²² Given this fact, the detection of owls in 2007, and the relative high abundance of active burrows that were detected, a valid inference would be that owls were present in 2008 but were not detected. This would further support the inference of a low detection rate and the need to incorporate other data (e.g., burrow status) into the PSA's impact assessment.

c. The PSA's Proposed Mitigation does Not Satisfy CBOC Guidelines

i. The Proposed Habitat Compensation is Inadequate

Condition BIO-17 of the PSA requires the Applicant to provide 20 acres of mitigation land with suitable habitat for burrowing owls. The acquisition lands must either currently support burrowing owls or be no farther than five miles from an active burrowing owl nesting territory. This requirement does not ensure compliance with CBOC mitigation guidelines, which specify that offsite compensation should use one of the following ratios:

- (1) Replacement of occupied habitat with occupied habitat: 1.5 times 6.5 (9.75) acres per pair or single bird;
- (2) Replacement of occupied habitat with habitat contiguous to currently occupied habitat: 2 times 6.5 (13.0) acres per pair or single bird; or
- (3) Replacement of occupied habitat with suitable unoccupied habitat: 3 times 6.5 (19.5) acres per pair or single bird.²²³

CBOC mitigation guidelines further state that a minimum of 6.5 acres of foraging habitat, calculated on a 100-meter, or 300-foot, foraging radius around the natal burrow, should be maintained per pair (or unpaired resident single bird) contiguous with burrows occupied within the last three years. Ideally, foraging habitat should be retained in a long-term conservation easement.²²⁴ Condition BIO-17, which requires the Project owner to protect only six acres of the 14.39-acre translocation area, falls considerably short of this guideline, even under the assumption that only two pairs will be displaced by Project construction.

²²² Klute D.S., L.W. Ayers, M.T. Green, W.H. Howe, S.L. Jones, J.A. Shaffer, S.R. Sheffield, T.S. Zimmerman. 2003. Status assessment and conservation plan for the western Burrowing Owl in the United States. Bio Tech Pub FWS/BTP-R6001-2003. Washington: US Fish and Wildlife Service. Available at: <http://mountain-prairie.fws.gov/birds>.

²²³ See Burrowing Owl Survey Protocol and Mitigation Guidelines, prepared by The California Burrowing Owl Consortium, April 1993, available online at: <http://www.dfg.ca.gov/wildlife/species/docs/boconsortium.pdf>

²²⁴ *Id.*

ii. The Proposed Passive Relocation is Inadequate

CBOC guidelines specify that any passive relocation efforts be conducted outside of the breeding season. CBOC guidelines further state that the project area should be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows in the immediate impact zone. The PSA's conditions of certification should reflect these monitoring requirements to minimize potential take of owls.

Also, burrowing owl burrows require regular maintenance to provide long-term nesting habitat.²²⁵ Colonial rodents often provide burrow maintenance, but artificial burrows may require human maintenance.²²⁶ The PSA's conditions should incorporate periodic maintenance of artificial burrows.

iii. The Proposed Preconstruction Survey is Inadequate

Condition BIO-17 of the PSA requires preconstruction surveys in accordance with CBOC guidelines. The condition indicates that these surveys can be conducted concurrent with desert tortoise clearance surveys. CBOC survey protocol calls for four distinct survey phases entailing multiple site visits. Survey visits designed to detect owls must be conducted during the hours around sunrise or sunset. Staff needs to clarify the extent to which the Applicant will be required to conform to CBOC guidelines. If the Applicant will not be held responsible for conducting all four phases called for in the CBOC guidelines, the PSA should specify the survey techniques expected of the Applicant, including the time of day surveys will be permitted.

Further, the ability to effectively survey for multiple species concurrently depends on the habits of the target species. Average burrowing owl flushing distance was reported to be 102 feet from observers on foot.²²⁷ Effective detection of birds generally involves experience and the ability to incorporate several different visual and aural cues of presence. Often, burrowing owls are detected when flushed from the burrow or perch site. Assuming observers are carefully scanning the ground for desert tortoises and burrows, it is questionable that they will be able to

²²⁵ Miller, J. 2003. Petition to the State of California Fish and Game Commission and supporting information for listing the California population of the Western Burrowing Owl (*Athene cunicularia hypugaea*) as an endangered or threatened species under the California Endangered Species Act. Available from Ctr. Biol. Diversity, 1095 Market St., Suite 511, San Francisco, CA 94103 or at www.biologicaldiversity.org/swcbd/species/b-owl/index.html.

²²⁶ *Id.*

²²⁷ Klute D.S., L.W. Ayers, M.T. Green, W.H. Howe, S.L. Jones, J.A. Shaffer, S.R. Sheffield, T.S. Zimmerman. 2003. Status assessment and conservation plan for the western Burrowing Owl in the United States. Bio Tech Pub FWS/BTP-R6001-2003. Washington: US Fish and Wildlife

detect owls that flush from a distance potentially more than 100 feet away (i.e., how can a surveyor look down and 100 feet ahead at the same time?). Whereas potential time constraints associated with pre-construction surveys do exist, the PSA should not assume that surveys for multiple species can effectively be conducted concurrently.

Finally, the PSA's preconstruction survey requirement entails a Burrowing Owl Mitigation and Monitoring Plan if owls are detected within the impact area or within 500 feet of proposed construction activity. Owls were detected during the Applicant's 2007 surveys and were likely present during 2008. CBOC guidelines call for mitigation for burrows occupied within the past three years. As a result, the PSA must require the Burrowing Owl Mitigation and Monitoring Plan to be prepared prior to construction for public review and comment.

iv. The Proposed Monitoring is Inadequate

Condition BIO-17 of the PSA requires the designated biologist to submit a report describing the use of the passive relocation site by burrowing owls for a period of five years. However, the condition does not establish any success criteria or triggers for remedial actions. Without success criteria or triggers for remedial actions, a monitoring report is relatively pointless. Few studies have quantitatively studied the long-term effects of burrowing owl translocation, and those that have provide mixed results. Consequently, the rates of survival and reproduction of burrowing owls relocated to artificial burrows, as well as the long-term use of artificial burrows and the ability to maintain populations are unknown.²²⁸ Burrowing owl mitigation guidelines issued by CDFG recommend that the project sponsor provide funding for long-term management and monitoring of the protected lands. The monitoring plan should include success criteria, remedial measures, and an annual report to the Department.²²⁹ The PSA must be revised to incorporate these guidelines into the conditions of certification.

3. Impacts to Special Status Plants Must be Disclosed and Analyzed

The PSA identifies six special-status plant species as having the potential to occur in the Project area.²³⁰ The PSA states that the Applicant's 2008 surveys were adequate for determining the presence or absence of these plant species.²³¹ The PSA concludes that "[g]rading of the entire 2,012-acre BSEP plant site would not

²²⁸ *Id.*

²²⁹ State of California, Department of Fish and Game. 2005. Staff Report on Burrowing Owl Mitigation. Available at: http://www.dfg.ca.gov/hcpb/species/stds_gdl/bird_sg/burowlmit.pdf.

²³⁰ PSA, p. 4.2-12.

²³¹ PSA, p. 4.2-11.

impact sensitive plant communities or rare plants...”²³² However, in forming its conclusion, the PSA relies on flawed floristic surveys. The Project must adhere to one or more of the field survey protocols established by the resource agencies. The Applicant’s rare plant surveys did not adhere to an established protocol. Thus, the PSA has no substantial evidence upon which to base its conclusion that impacts would not occur.

The Applicant’s 2008 survey report indicates that rare plant surveys followed survey guidelines provided by the CEC, USFWS, CDFG, and California Native Plants Society (“CNPS”).²³³ The AFC and associated 2008 plant survey report do not provide any specific information on how rare plant surveys were conducted. The rare plants identified as having potential to occur in the Project area have received special-status listing from CDFG or CNPS. As a result, the Applicant’s surveys should have adhered to the protocol guidelines issued by one or both of these agencies. To adhere to the protocol issued by the CDFG, the less restrictive of the two protocols, the Applicant should have: (1) visited reference sites to determine that target species were identifiable at the time of surveys; (2) provided a detailed description of survey methodology; (3) provided the specific dates of field surveys and total person-hours spent surveying; and, (4) provided a description of the reference site(s) visited and phenological development of target plant species.

Eschscholzia minutiflora [sic] ssp. *minutiflora* and *E. minutiflora* ssp. *twisselmannii* are two of three subspecies of *E. minutiflora*. According to the Applicant, *Eschscholzia minutiflora* [sic] ssp. *minutiflora* was detected during 2008 surveys.²³⁴ *E. minutiflora* ssp. *twisselmannii* is one of the six special-status plant species identified in the PSA as having the potential to occur in the Project area. The distinction between the two subspecies appears to be very subtle.²³⁵ The most diagnostic characteristic of Red Rock poppy (*E. minutiflora* ssp. *twisselmannii*) relative to the other two subspecies of *E. minutiflora* is that it is diploid with six chromosomes, whereas ssp. *covillei* and ssp. *minutiflora* have 12 and 18 chromosomes, respectively.²³⁶ Thus, in order to distinguish the subspecies, and thus conclude the presence or absence of the listed *E. minutiflora* ssp. *twisselmannii*, the Applicant would have had to perform genetic testing. Otherwise, the Applicant would have to assume presence of *E. minutiflora* ssp. *twisselmannii*. The Applicant did not assume presence of this subspecies, and it appears that the Applicant did not perform genetic testing.

²³² PSA, p. 4.2-22.

²³³ Beacon Solar Energy Project - 2008 Spring Survey Report.

²³⁴ 2008 Spring Survey Report, Appendix C.

²³⁵ Species account provided in the West Mojave Plan. Available at:

www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pdfs/cdd_pdfs.Par.d6267d79.File.pdf/Twisspoppy1.PDF

²³⁶ *Ibid.*

Furthermore, although a species' reported range should not be the sole diagnostic characteristic used in identification, it can be used to make an inference. We recommend that Staff consider that *ssp. minutiflora* has not been reported as occurring in Kern County, whereas *ssp. twisselmannii* has.²³⁷

Thus, the PSA has no substantial evidence upon which to base its conclusion that impacts to rare plants would not occur.

4. Impacts to Pine Tree Creek Wash Must be Disclosed, Analyzed, and Adequately Mitigated

The PSA indicates that Staff considers proposed impacts to the Project site's desert washes an unresolved issue.²³⁸ Condition BIO-18 recommends that the Applicant re-evaluate the channel design and requires preparation of a final mitigation plan. We generally agree with Staff's assessment of this issue and provide the following comments.

a. The Wash Mitigation Plan is Deferred

Condition BIO-18 of the PSA states that “[p]rior to publication of the Final Staff Assessment the project owner shall submit to Energy Commission Staff and CDFG a draft Desert Wash Mitigation and Monitoring Plan...”²³⁹ Given the significance of unresolved issues related to rerouting the desert wash, the Applicant's mitigation plan must be subject to public review and comment. Thus, the plan must be developed now and its provisions included in a revised PSA that is made available for public comment.

b. The PSA Must Appropriately Characterize the Wash

The PSA states that vegetation in the Pine Tree Creek wash has been highly degraded by past agricultural activities.²⁴⁰ However, this statement appears to conflict with another portion of the PSA, which characterizes Pine Tree Creek wash vegetation as typical of washes in the Mojave Desert.²⁴¹ A diligent search of the citation provided by the Applicant to substantiate the occurrence of barren sections within the wash²⁴² did not reveal any information to support the assertion that such extensive barren sections exist. To the contrary, imagery available through Google

²³⁷ Calflora: Information on California plants for education, research and conservation. [web application]. 2008. Berkeley, California: The Calflora Database [a non-profit organization]. Available at: <http://www.calflora.org/> (Accessed: 24 Apr 2009).

²³⁸ PSA, p. 4.2-1.

²³⁹ PSA, p. 4.2-73.

²⁴⁰ PSA, p. 4.2-46.

²⁴¹ PSA, p. 4.2-8.

²⁴² Beacon Solar Energy Project Jurisdictional Delineation Report for Waters of the State of California within the Plant Site, July 2008.

Earth shows vegetation throughout Pine Tree Creek Wash, albeit in relatively low abundance in portions of the wash.²⁴³ As a result, references to Pine Tree Creek’s degraded condition should be qualified or omitted from the PSA.

In calculating impacts to desert washes, the Applicant concluded, and Staff accepted, that 2.4 acres were vegetated and 13.6 acres were unvegetated.²⁴⁴ According to the Applicant’s Streambed Alteration Agreement application, methods used to make these calculations were as follows:

To ascertain relative cover of established scale-broom occurring within (or dependent on) the ephemeral washes, seven random reaches (totaling 2,990 linear feet) in the Pine Tree Creek Wash were mapped using sub-foot GPS equipment (Figure 3). A weighted arithmetic mean was calculated by taking into account the differences of sampling effort of scale-broom occurring in Pine Tree Creek Wash. The results were then extrapolated to estimate total cover for nonmapped areas resulting in an overall estimate of scale-broom occurring within both washes. The results of the scale-broom sampling for Pine Tree Creek Wash are located in Table 1.²⁴⁵

**Table 1
Pine Tree Creek Wash Vegetative Cover Sampling**

Reach	Reach Length (ft)	% Absolute Cover	Weighted Mean
1	430	14	0.027
2	310	10	0.026
3	175	6	0.007
4	780	26	0.034
5	200	7	0.046
6	475	16	0.014
7	620	21	0.008
Total	2,990	100	0.16

Very little additional information was provided, although one of the footnotes shows the total weighted mean, 0.16, was multiplied by proposed impacts to Pine Tree Creek Wash, 14.96 acres, to conclude that 2.4 acres of the wash are vegetated.²⁴⁶ The Applicant’s proposed mitigation, including proposed mitigation ratios and the extent to which the rerouted wash will be revegetated, reflects these calculations.

The method used by the Applicant to calculate acreage of vegetated wash is confusing and does not appear to be a valid statistical technique. In particular, the Applicant does not explain or cite the statistical process for calculating weighted

²⁴³ See Attachment B.

²⁴⁴ Beacon Solar Energy Project Jurisdictional Delineation Report, p. 4.

²⁴⁵ Beacon Solar Energy Project Jurisdictional Delineation Report, p. 3.

²⁴⁶ Beacon Solar Energy Project Jurisdictional Delineation Report, p. 4.

means. To substantiate the sampling procedure's validity, the Applicant needs to explain: 1) how weighted means were calculated; 2) how sampling units were selected; 3) the appropriateness of using weighted means given the potential for spatial auto-correlation and a modifiable areal unit problem; 4) the transformation of sampling units measured in linear feet to impacts measured in acres; and 5) how vegetative cover was measured.

The Applicant's current proposal for mitigating impacts to Pine Tree Creek Wash is equally confusing. Specifically, the Applicant appears to have confused the term *coverage* with the ecological concept of *cover*, and consequently has misapplied them throughout the mitigation plan. As a result, the Applicant proposes to revegetate only 4.8 acres of the 18.4-acre rerouted wash.²⁴⁷ This is clearly not proportional to the extent of impacts proposed to the wash, which according to satellite imagery has at least some vegetation and cover continuity throughout. If, as the Applicant's incidental take permit application claims, large expanses of barren areas are likely inhospitable for desert tortoise travel because of their size and lack of cover, then leaving 13.6 acres of created wash unvegetated would adversely affect future corridor use by the species.²⁴⁸

Without explanations from the Applicant regarding its characterization of the wash, it is impossible to determine whether the PSA accurately reflects the Project's impacts, and whether the PSA adequately mitigates those impacts.

c. The Proposed Success Criteria are Inadequate

At Staff's request, the Applicant provided hydrological and biological success criteria to augment the conceptual mitigation plan. These criteria are provided in the PSA.²⁴⁹ However, some of the items listed are either not criteria, or are too vague to be effective. Specifically,

"Minimal" structures or diversions needs to be quantified before this item can be considered a criterion (bullet 1);

"Natural" water sources needs to qualified (e.g., would rainfall that is diverted into the channel be considered natural?) before this item can be considered a criterion (bullet 2);

"Natural" levels of sediment transport and "significant" erosion need to be quantified, and the means for distinguishing these qualifiers need to be discussed before the items listed can be considered criteria (bullet 3); and

²⁴⁷ Beacon Solar Energy Project Conceptual Mitigation Plan, p. 7.

²⁴⁸ Incidental Take Permit Application, p. 25.

²⁴⁹ PSA, p. 4.2-25.

There are no criteria associated with the Applicant's proposal to achieve plant species richness, evenness, and structure equivalent to or better than the reference site (bullet 5).

The PSA must be revised to provide clear and effective criteria that ensures mitigation will reduce impacts to a less than significant level. Without effective criteria, the mitigation plan is insufficient to reduce significant impacts.

5. The PSA Must Include Adequate Impact Avoidance Measures for Nesting Birds

Condition BIO-15 requires pre-construction nest surveys if construction activities will occur during the breeding season. If active nests are detected, buffer zones will be established around the nests. The conditions outlined in the PSA are not a feasible approach to mitigation and compliance with the Migratory Bird Treaty Act ("MBTA").

Locating bird nests can be extremely difficult due to the tendency of many species to construct well-concealed or camouflaged nests. As a result, most studies that involve locating bird nests employ a variety of techniques beyond simply searching for nests. These include efforts focused on observing bird behavior. Often, the results of these observations are sufficient to infer nesting, or not, without having to locate the actual nest. For example, a bird carrying food or nesting material can be a strong cue that a nest is located nearby, or is under construction.

In addition to their varied efficacy, some nest searching techniques have the potential to reduce nest success if conducted incorrectly.²⁵⁰ Specifically, studies indicate that humans can alert predators to a nest's location, or cause disturbance that results in nest abandonment.²⁵¹ Thus, the PSA's requirement for nest monitoring will cause disturbance and may induce predation.

Many public agencies have acknowledged the limitations of nest detection and mandate habitat disturbance projects occur outside of the breeding season. The PSA should adopt this approach to minimize impacts to nesting birds. Alternatively, conditions associated with nesting bird impacts need to be more explicit than currently provided. Specifically, there is a strong positive correlation between survey effort and abundance of nests detected. In addition, breeding birds are known to be most active and detectable early in the morning. The PSA should specify the techniques to be applied to nest surveys, including expected level of

²⁵⁰ Gotmark F. 1992. The effects of investigator disturbance on nesting birds. *Current Ornithology* 9: 63-104.

²⁵¹ Martin T.E., and G.R. Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. *J. Field Ornithol.*, 64(4):507-519.

effort, search techniques, time of day surveys will be permitted, and techniques that should be used to minimize human-induced disturbance. Information on these methods is needed to evaluate the level to which the Project will comply with the MBTA. Finally, given the known difficulty in locating bird nests, the PSA should not allow nest surveys to occur with any other survey efforts.

6. Impacts from Evaporation Ponds to Terrestrial Wildlife Must be Disclosed, Analyzed, and Mitigated

Condition BIO-8 requires all trenches, bores, and other excavations be sloped at a 3:1 ratio at the ends to provide wildlife escape ramps. The PSA also states that the interior sides of the evaporation ponds will be at a 33 percent slope (3:1) to prevent access by ravens or shorebirds.²⁵² The Applicant has indicated that the tortoise-proof perimeter fencing will restrict most, but not all, terrestrial wildlife from entering the plant site where the ponds will be located.²⁵³

Condition BIO-8 demonstrates Staff's intent to prevent mortality to terrestrial animals. However, the PSA does not address the potential mortality associated with terrestrial species attempting to access water in the ponds. The PSA should clarify whether any mortality to terrestrial wildlife at ponds is considered acceptable take, or whether ponds should be designed to prevent ingress of all wildlife species, in which case 3:1 is either not appropriate for ponds or escape ramps.

7. Significant Impacts from Evaporation Ponds to Birds Must be Disclosed, Analyzed, and Mitigated

a. The PSA Must Address Bird Encrustation due to Hyper-salinity

The evaporation ponds will receive process water that will contain an estimated total dissolved solids concentration of 5662 mg/L²⁵⁴ or 5570 mg/L.²⁵⁵ The Applicant stated that the evaporation pond discharge would include concentrations of TDS that could lead to hyper-saline conditions.²⁵⁶ Hyper-saline conditions have been noted elsewhere in the area of the Mojave Desert which can lead to salt

²⁵² PSA, p. 4.2-37.

²⁵³ Applicant's revised response to CEC Data Request 14, p. BR-1.

²⁵⁴

<http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/afc/5.17%20Water%20Resources.pdf> p. 5.17-34

²⁵⁵http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/data_response_set_02/8.%20Water%20Resources%20Data%20Response%20Set%202.pdf p. WR-15.

²⁵⁶ July 16, 2008 Response to Data Requests, p. BR-7

http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/2008-07-16_DATA_RESPONSES_1-70_TN-47078.PDF

encrustation on birds, impeding their ability to fly. In Trona, California, approximately 50 miles from the Project site, hyper-salinity has led to the mortality of over 3,000 birds between 2002 and 2007.²⁵⁷ Over 60 species have been impacted, including various waterfowl, wading birds, raptors, and songbirds. At the Trona site, ponds were covered with netting to prevent waterfowl contact.²⁵⁸

The Applicant stated:

Evidence suggests that salinity levels are not the determining factor in the potential for salt encrustation on waterfowl. Studies have shown that the formation of salt crystals on hyper-saline ponds requires water temperatures at or below 4 degrees Celsius (39 degrees Fahrenheit) (Woebser and Howard 1987, Gordus et al. 2002). It is not anticipated that water temperatures will consistently drop to this level of concern.²⁵⁹

Despite this assertion by the Applicant, the average minimum temperature, as reported for California City, 17 miles southeast of the project, is 33 degrees Fahrenheit in December,²⁶⁰ well below the temperature that was cited as necessary for the formation of salt crystals.

The Applicant proposed diluting the salinity by pumping groundwater or cooling tower discharge to the evaporation ponds. Additional mitigation measures include temperature monitoring and visual inspection of the formation of salt crystals and a program of bird hazing. However, none of the programs that are described by the Applicant are to be conducted at night when waterfowl typically migrate and when researchers have estimated that 80% of bird deaths occur.²⁶¹

Substantial evidence of significant impacts to birds requires that the PSA be revised to require a detailed plan to prevent the formation of salt crystals in the evaporation pond. Specifically, the plan should consider the physical conditions at the Project site that are favorable for the formation of salt. In addition, mitigation should specifically consider bird species that are expected at the evaporation ponds, including duration of seasonal and daily exposure, to protect them from encrustation. The PSA must be revised to address these issues and to include a specific mitigation plan as a condition for certification.

²⁵⁷ http://www.dfg.ca.gov/ospr/spill/nrda/nrda_searles.html

²⁵⁸

http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/ely_field_office/energy_projects/toquop_energy/toquop_2003_feis.Par.99472.File.dat/17%20-%20FEIS%202003%20Toquop%20Energy%20Project%20-%20Appendix%20E.pdf

²⁵⁹ July 16, 2008 Response to Data Requests No. 14, p. BR-7

http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/2008-07-16_DATA_RESPONSES_1-70_TN-47078.PDF

²⁶⁰ <http://www.idcide.com/weather/ca/california-city.htm>

²⁶¹ http://www.dfg.ca.gov/ospr/spill/nrda/searles_injury.pdf

b. The PSA Must Address Toxicity Due to Hyper-salinity

The evaporation ponds will receive process water that will have an estimated total dissolved solids concentration of 5662 mg/L²⁶² or 5570 mg/L.²⁶³ The Applicant states:

Based on the biological monitoring associated with the evaporation ponds at the Harper Lake SEGS, salt toxicosis has been a rare occurrence (i.e., a single event was tied directly to high saline levels in the evaporation pond), and a recurrence has since been avoided by equalizing the water levels in all evaporation ponds that are active at any given time.²⁶⁴

However, hyper-salinity is known to have toxic impacts on waterfowl. The Bureau of Land Management has described effects of salinity conditions on waterfowl as follows:

- Sodium levels as low as 821 ppm reduced growth in 1-day-old mallard ducklings exposed for 28 days.
- Mallard ducklings that drank water with 3,000 ppm of sodium had reduced thymus size and bone strength.
- Concentrations between 8,800 and 12,000 ppm caused 100 percent mortality in mallard ducklings.
- In adult waterfowl, sodium concentrations of 17,000 ppm of sodium caused a die-off when fresh water was unavailable.²⁶⁵

Further, the Applicant operates another solar facility about 40 miles to the southeast, near Barstow, California, that is similar to the proposed facility.²⁶⁶ At

²⁶²

<http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/afc/5.17%20Water%20Resources.pdf> page 5.17-34

²⁶³http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/data_response_set_02/8.%20Water%20Resources%20Data%20Response%20Set%202.pdf p. WR-15

²⁶⁴ July 16, 2008 Response to Data Request No. 14, p. BR-7

http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/2008-07-16_DATA_RESPONSES_1-70_TN-47078.PDF

²⁶⁵http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/ely_field_office/energy_projects/toquop_energy/toquop_2003_feis.Par.99472.File.dat/17%20-%20FEIS%202003%20Toquop%20Energy%20Project%20-%20Appendix%20E.pdf

²⁶⁶ http://www.energy.ca.gov/sitingcases/beacon/documents/2008-09-12_DATA_REQUESTS_71-127.PDF

that location, 19 waterfowl deaths due to salt poisoning at the Harper Lake evaporation ponds were documented in the summer of 2007.²⁶⁷

The Applicant proposed mitigation, including dilution of pond water, temperature monitoring and visual inspection of the formation of salt crystals to address the potential for salt toxicosis. Information regarding estimated total dissolved solids concentrations, as well as major anion and cation concentrations, in the evaporation ponds under a range of conditions is crucial to determine if concentrations may pose a risk to waterfowl and to evaluate the Applicant's proposed mitigation. The Applicant did not provide such data and the PSA fails to specifically address this issue. Further, the PSA should include mitigation such as netting or other physical barriers that could prevent exposure by waterfowl to potentially hypersaline conditions in the evaporation ponds.

8. Collision Impacts to Birds Must be Disclosed, Analyzed, and Mitigated

The PSA states that the structures at the Project site would be unlikely to pose an avian collision risk because they are shorter than those typically associated with bird collision events, and because bird densities are already low in the Project area and would be even lower after the solar fields are built and no habitat is available to attract birds.²⁶⁸ This statement does not accurately reflect what has been presented in literature and it misrepresents the potential significant hazard to birds.

A study prepared for the Fatal Light Awareness Program concluded: 1) the number of fatal bird collisions increases with increasing light emissions, and is not simply a function of the relative size of the building; and 2) weather is the most important factor predisposing birds to collision.²⁶⁹ The majority of bird collisions with structures are associated with migrants. Most migratory songbirds travel at night, which makes them vulnerable to collision with lighted structures encountered along their flight path, particularly when inclement weather forces birds to migrate at low elevations.²⁷⁰ The density of resident birds in the Project area is somewhat irrelevant to the collision hazard, as is the size threshold of Project structures.

Although the PSA acknowledges the collision risk associated with night

²⁶⁷ July 16, 2008 Response to Date Requests, p. 5

http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/2008-07-16_DATA_RESPONSES_1-70_TN-47078.PDF

²⁶⁸ PSA, p. 4.2-38.

²⁶⁹ Evans Ogden LJ. 2002. Summary Report on the Bird Friendly Building Program: Effect of Light Reduction on Collision of Migratory Birds. Special Report for the Fatal Light Awareness Program (FLAP). Available at: <http://www.flap.org/>.

²⁷⁰ *Ibid.*

lighting, the majority of the discussion focuses on potential adverse effects to nocturnal wildlife and not the significant collision hazard associated with nocturnal migrants. The PSA should be revised to include a more thorough and accurate analysis of, and mitigation for, significant collision impacts to birds.

B. The PSA Must Disclose, Analyze, and Mitigate Potentially Significant Impacts from Hazardous Waste

In May 2008, in order to comply with Lahontan Regional Water Quality Control Board (“LRWQCB”) requirements for discharge of process wastewater to land (ponds), the Applicant submitted a Draft Report of Waste Discharge (“ROWD”). In January 2009, LRWQCB provided comments on the ROWD, specifying numerous deficiencies in the report.²⁷¹ A revised ROWD was provided by the Applicant on March 18, 2009. The PSA does not include an analysis of the potential impacts raised by the ROWD.²⁷²

1. The PSA Must Include a Proper Classification of HTF-contaminated Soil

The Project’s land treatment unit will temporarily store soil that is contaminated by spills of Therminol VP-1, a commercially available heat transfer fluid (“HTF”) which is a mixture of biphenyl and diphenyl oxide. The ROWD references a Department of Toxic Substances Control (“DTSC”) determination made in 1995 that classified Therminol as non-hazardous for the Boron, California Solar Electric Generating Station (“SEGS”) project located 20 miles east of the Project site.²⁷³ The ROWD states that DTSC:

issued a letter dated April 4, 1995 stating that soil contaminated with HTF “poses an insignificant hazard” and classifies the waste as non-hazardous pursuant to CCR Title 22, Section 66260.200(f). This material will be managed as a non-hazardous “designated waste” as defined in CCR Title 23, Chapter 15, Section 2522.²⁷⁴

Appendix G to the ROWD further states:

Based on the experience at the existing solar electric generating system (SEGS) facilities, the California Department of Toxics Substances Control (DTSC) has determined that soil contaminated with HTF in concentrations less than 10,000 mg/kg is classified as a non-hazardous waste. Since this project uses similar technology as the SEGS facilities, it is assumed that for

²⁷¹ PSA, p. 4.9-30.

²⁷² PSA, p. 4.9-32.

²⁷³ Appendix E to the ROWD.

²⁷⁴ ROWD, p. 4-4.

this project, HTF-impacted soil will be handled in a similar fashion to the SEGS facilities. A copy of the DTSC determination letter is included in Appendix A.

On April 15, 2009, we contacted DTSC to verify the assertion made in the ROWD that DTSC had determined HTF-contaminated soils to be non hazardous. DTSC stated that the determination made in 1995 was site specific in that it applied to the solar plant in Boron, and that the determination was made before Kern County was granted authority for hazardous waste management under the CUPA.²⁷⁵ In a telephone conversation with Kern County, we confirmed that the Kern County Department of Environmental Health is the authority for a determination of hazardous waste and that Kern County would need information to make the determination, including the concentration of the specific chemical composition of the waste.²⁷⁶ This would require the Applicant to submit samples of Therminol-contaminated soil to an analytical laboratory for analysis, and submit those results to Kern County for review.

Therefore, the ROWD's conclusion that HTF-contaminated soil is non hazardous is in error. A determination of hazardous waste must be made by Kern County. To make the determination of hazardous waste, Kern County would need to have specific chemical analyses of the characteristics of the HTF-contaminated soil, including chemical constituent concentrations (e.g. biphenyl and diphenyl). A specific evaluation of the chemical constituents in the soil was not provided in the ROWD or supporting documents. Further, a determination of hazardous waste by Kern County would need to conform to LORS.²⁷⁷

The PSA must include a discussion of the potential impacts posed by HTF-contaminated soil and compliance with LORS. The PSA must be revised accordingly and recirculated for public review and comment.

2. The PSA Must Address the Design of the Hazardous Waste Land Treatment Unit

If wastes in the land treatment unit are found to be hazardous, the design of the unit would have to comply with State standards. These standards are more rigorous than those described in the ROWD. The ROWD states:

²⁷⁵ Phone conversation with Charles Corcoran, Waste Evaluation Unit, DTSC Headquarters, Sacramento, April 15, 2009.

²⁷⁶ Telephone conversation with Vicki Cheung, Kern County Department of Environmental Health, April 15, 2009.

²⁷⁷ CCR Title 22, Division 4.5, Chapter 11, Identification and Listing of Hazardous Waste and Chapter 15, Article 2, §66265.13. General Waste Analysis.

The LTU (Land Treatment Unit) will not incorporate a liner containment system or LDRS (leak detection and removal system), but will be constructed with a prepared base consisting of 2 feet of compacted, low permeability, lime-treated material. This base will serve as a competent platform for land farming activities, and will serve to slow the rate of surface water infiltration in the treatment area. The compacted and native soil beneath the LTU is designated as a “treatment zone” to a depth of 5 feet. Although the LTU will be taking vehicle traffic, no hard surface will be required, as there is no liner system to protect.²⁷⁸

Hazardous waste units must be underlain by natural or synthetic liners that prevent vertical movement of fluid to underlying groundwater and which are equipped with a leachate collection system. Therefore, the PSA must identify, based on the waste analysis and whether the HTF-contaminated soils are hazardous, the appropriate design of the land treatment unit.

3. The PSA Must Address the Location of Point of Compliance Monitoring Wells

The groundwater monitoring system, as proposed, is inadequate and would unlikely detect releases of hazardous waste to groundwater. Groundwater monitoring wells must be placed at the point of compliance, defined as the “vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.”²⁷⁹ The point of compliance is further defined as follows:

If the facility contains contiguous Units and monitoring along a shared boundary would impair the integrity of a containment or structural feature of any of the Units, the Point of Compliance may be located at the hydraulically downgradient limit of an area described by an imaginary line along the outer boundary of the contiguous Units. This provision only applies to contiguous Units that have operated or have received all permits necessary for construction and operation before 7-1-91.²⁸⁰

The locations of the proposed detection groundwater monitoring wells in the ROWD do not conform to the cited regulatory requirements. According to water level contours provided in the ROWD, only one detection monitoring well (MW-1) is located at what would be downgradient of the land treatment unit.²⁸¹ Water level contours are plotted in Figure 1-11 at a scale of 1 inch = approximately 2000 feet. However, this scale is inadequate for determining groundwater flow direction in the

²⁷⁸ ROWD, p. 7-8.

²⁷⁹ 27 Cal. Code Regs. § 20405(a).

²⁸⁰ 27 Cal. Code Regs. § 20405(b).

²⁸¹ ROWD, Appendix I, Figure 1-11.

vicinity of the land treatment unit. A figure at a scale appropriate for determining flow direction (DTSC specifies 1 inch = 200 feet²⁸²) and adequacy of detection well placement should be included in the PSA.

Two additional detection monitoring wells (MW-2 and 3) are identified in Figure 4-1 at the northern and eastern margin of a boundary that would encompass the evaporation ponds. No upgradient detection monitoring well is identified in Figure 4-1. The ROWD states that the point of compliance after operations at the site commence will be defined by the extraction wells (Well 63 and Well 49).²⁸³ From Figure 1-11, Well 63 was measured to be approximately 1000 feet northeast (and downgradient according to “predicted drawdown contours”) from the northeastern-most evaporation pond and nearly 3000 feet downgradient from the Land Treatment Unit.

Point of compliance monitoring wells, as defined in the CCR, must be located at the margin of the regulated units, not at the distances specified in the ROWD which, in some cases, are more than a half-mile downgradient of the regulated unit. The PSA completely ignores this issue and potentially significant impacts from hazards on the Project site. The PSA should be revised and recirculated accordingly.

4. The PSA Must Address the Classification of Evaporation Pond Waste as Hazardous or Non-hazardous

The Project’s evaporation ponds will be used to impound wastewater and residue that forms in the bottom of the ponds. The ROWD terms the waste to be “designated waste,” a classification under California Water Code Section 13173 that is used when wastes have the potential to affect designated beneficial uses. The ROWD states:

The evaporation pond residue accumulated in the ponds is non hazardous; however, it does contain pollutants which could exceed water quality objectives if released, or that could be expected to affect the beneficial uses of waters of the state. Therefore, the evaporation pond residue is classified as a “designated waste.” This classification is consistent with CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20210.²⁸⁴

However, the determination of hazardous waste for materials in the ponds is the responsibility of the California Certified Unified Program Agencies (“CUPA”). The PSA must provide a discussion of this requirement and compliance with LORS.

²⁸² http://www.dtsc.ca.gov/SiteCleanup/upload/SMP_Report-Hydrogeologic_Char_Data.pdf

²⁸³ ROWD, Appendix I, p. 3-4.

²⁸⁴ ROWD, p. 4-4.

5. The PSA Must Ensure that Reporting Limits Protect Beneficial Uses

In the ROWD, Detection Monitoring Program, diphenyl oxide and biphenyl oxide are listed as annual monitoring parameters and are to be monitored with a reporting limit goal of 500 ug/L each.²⁸⁵ However, in a review of cleanup programs for biphenyl and diphenyl oxide, we found cleanup goals for groundwater at a site in Washington as follows:

- Biphenyl: 230 ug/L; and
- Diphenyl oxide: 410 ug/L.²⁸⁶

COC	Groundwater Cleanup Level (µg/L)	K _{oc} (mg/g)	K _d (mg/g)	Henry's Law Constant (dimensionless)	Unsaturated Zone Soil Concentration (mg/kg)
Benzene	1.2	62	0.062	0.228	0.00676
Toluene	2,000	140	0.14	0.272	14.5
Benzoic Acid	24,590	0.6	0.0006	6.31E-05	99
Biphenyl	230	1,072	1.072	0.016	5.9
Bis(2-ethylhexyl) phthalate	1.8	111,123	111.123	4.18E-06	4.01
Diphenyl Oxide	410	1,655	1.655	0.0089	15.2
Phenol	2,560	28	0.028	1.63E-05	11.7
UCF	0.001		mg/µg		
DF (unsaturated)	20				
Theta w (unsaturated)	0.3				
Theta air (unsaturated)	0.13				
soil bulk density	1.5		kg/L		
fraction of organic carbon	0.001				

Given that the cleanup goals are lower than the monitoring reporting limits, the PSA should evaluate the reporting limits to ensure protection of beneficial uses.

6. The PSA Must Include Specific Requirements of a National Pollutant Discharge Elimination System Permit

Selenium concentrations have been estimated by the Applicant to be discharged to the evaporation ponds from the following individual source terms at the following concentrations:

²⁸⁵ ROWD, Appendix G, Table 4-4.

²⁸⁶ http://www.ecy.wa.gov/programs/tcp/sites/emerald_kal/Kalama%20Consent%20Decree%20-%20Exhibit%20B%20Part%202.pdf

- Mean well water concentration: 0.39 ppb (0.00039 ppm);
- Cooling tower blowdown: 0.6 ppb (0.0006 ppm); and
- Ion exchange regeneration: 4.5 ppb (0.0045 ppm).²⁸⁷

Selenium, in the food chain, is a compound that undergoes bioconcentration, bioaccumulation, and biomagnification as trophic levels increase. In aquatic organisms, including waterfowl, adverse effects include loss of equilibrium, neurological disorders, liver damage, reproductive failure, reduced growth, reduced movement rate, chromosomal aberrations, reduced hemoglobin, increased white blood cell count, and necrosis of the ovaries.

Discharge of selenium is subject to the California Toxics Rule which establishes a water quality criterion for selenium of 5 ppb. Selenium concentrations in wastewater have been limited by California regulatory agencies to concentrations as low as 4 ppb, as demonstrated by the following examples:

- The California Regional Water Quality Control Board (“RWQCB”), Central Valley Region, required the City of Davis to limit selenium discharge in effluent to a weekly average of 5 ppb.²⁸⁸
- The RWQCB, Colorado River Basin Region, required the City of El Centro to limit selenium discharge in effluent to a monthly average of 4 ppb.²⁸⁹
- The City of Davis 2001 National Pollutant Discharge Elimination System (“NPDES”) permit limits selenium discharge in effluent to a four-day average of 5 ppb and to a one-hour maximum of 20 ppb.²⁹⁰

The RWQCB would, via a NPDES permit, make specific requirements regarding selenium. The PSA proposes a condition for certification that “the project owner shall comply with the requirements of the general NPDES permit for discharges of storm water associated with industrial activity.”²⁹¹ However, the PSA fails to discuss the likely requirement of such a permit and how these discharge requirements would be met in wastewater discharged to the ponds upon evaporation as selenium concentrations increase. Thus, the PSA must be revised accordingly.

²⁸⁷ Beacon’s Response to Staff’s Data Request No. 125.

²⁸⁸ R5-2008-0601 City of Davis

http://www.swrcb.ca.gov/rwqcb5/board_decisions/adopted_orders/yolo/r5-2008-0601_enf.pdf

²⁸⁹ R7-2006-0075 City of El Centro

http://www.swrcb.ca.gov/rwqcb7/board_decisions/adopted_orders/orders/2006/06_0075.pdf

²⁹⁰ City of Davis DPDES http://cityofdavis.org/pw/water/pdfs/WWExecSumm_Website.pdf

²⁹¹ PSA Condition of Certification Soil & Water-4, pp. 4.9-52-53.

7. The PSA Must Explain Calculations of Selenium Concentration in the Evaporation Pond Discharge

The Applicant has estimated the selenium concentration in surface water to be discharged into the evaporation ponds at 0.0028 ppm (mg/L) (2.8 ppb)²⁹² and 0.0027 ppm (2.7 ppb).²⁹³ The Applicant has also estimated selenium concentrations to be discharged to the evaporation ponds from the following individual source terms at the following concentrations:

- Mean well water concentration: 0.39 ppb (0.00039 ppm)
- Cooling tower blowdown: 0.6 ppb (0.0006 ppm)
- Ion exchange regeneration: 4.5 ppb (0.0045 ppm)²⁹⁴

However, the applicant does not provide any explanations of how these numbers were derived. Thus, the PSA should address whether the assumptions are valid and whether potentially significant impacts related to selenium concentrations have been adequately analyzed and mitigated.

C. Potentially Significant Impacts on Visual Resources Must Be Disclosed and Analyzed

We agree with the PSA's conclusion that the Project will "introduce a substantial significant "aesthetic" impact...at two selected key observation points (KOPs) that would be unmitigable."²⁹⁵ However, we recommend that the PSA be revised to include an analysis of KOPs that are representative of the most critical viewsheds and to require a glint and glare study for public review and comment.

1. The PSA Cannot Rely on KOPs that are Not representative

To evaluate impacts on visual resources, the PSA "evaluates the existing physical environmental setting, the KOP, and the visual change created by the proposed project to the viewshed."²⁹⁶ However, the KOPs provided by the Applicant are not representative of the most critical viewsheds.

California State Route 14 is located approximately a half-mile to the west of the Project site. No KOPs were established to simulate hazards that may be

²⁹² July 16, 2008 Response to Staff's Data Requests, p. BR-7.

http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/2008-07-16_DATA_RESPONSES_1-70_TN-47078.PDF

²⁹³ http://www.energy.ca.gov/sitingcases/beacon/documents/applicant/data_response_set_02/8.%20Water%20Resources%20Data%20Response%20Set%202.pdf

²⁹⁴ Beacon's Response to Staff's Data Request No. 125.

²⁹⁵ PSA, p. 4.12-1.

²⁹⁶ PSA, p. 4.12-8.

potentially posed to motorists on State Highway 14 from light that may be directed horizontally from the project. KOP 4 was prepared and included in the AFC to simulate a narrow view of the highway and the transmission corridor for a traveler headed northbound on State Route 14, approximately two miles south of the Project site. Because of the narrow field of view, KOP 4 does not show the simulated mirror array of the Project. In addition, KOP 5 was prepared to simulate a view looking south from a location just east of the Project. KOP 5, however, portrays only a small sliver of the array of mirrors and does not portray reflected light. Thus, neither of these views are representative of the reflection potential when it is greatest in the early morning or late afternoon.

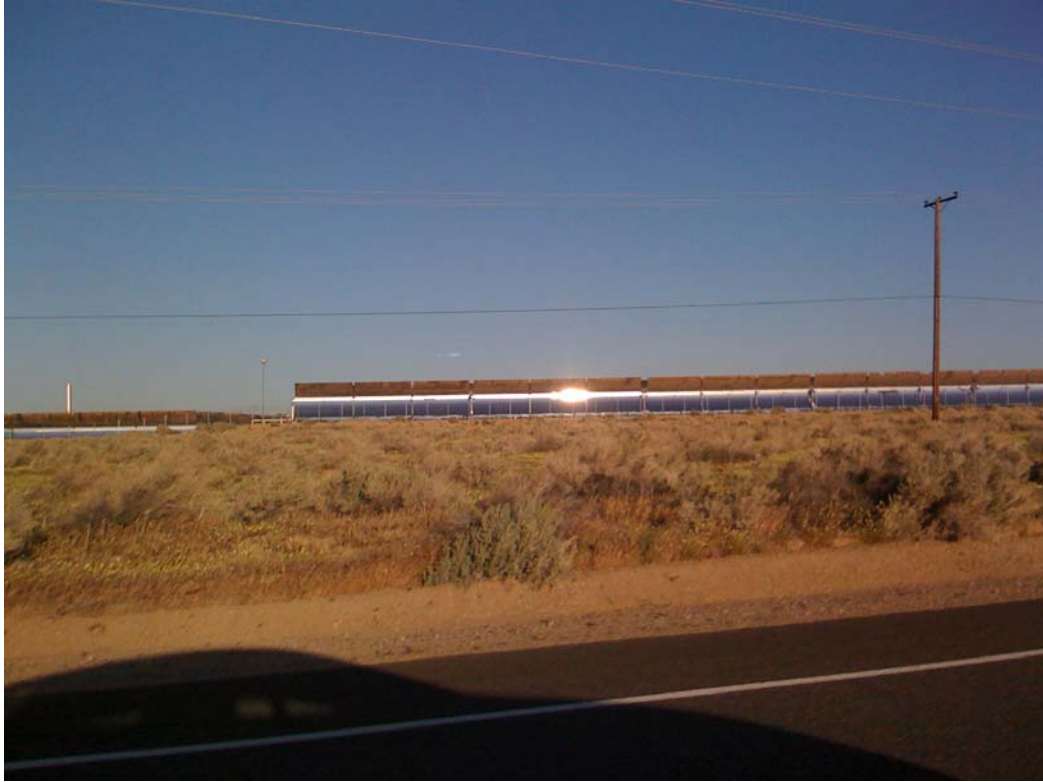
The PSA should be revised to include an analysis of KOPs that are representative of the most critical viewsheds.

2. A Glint and Glare Study Must be Prepared

The PSA concludes that “the project would generate a less than significant new source of light or glare to nighttime or daytime views with the effective implementation of the conditions of certification.”²⁹⁷ However, a glint and glare study was not prepared for the Project.

The photographs below were taken of the Kramer Junction SEGS facility on April 25, 2009 at 7 a.m. The Kramer Junction facility employs the same technology proposed by the Project. The photographs show a significant glare that may pose a risk to motorists passing the Project on State Route 14.

²⁹⁷ PSA, p. 4.12-27.



A glint and glare study should be prepared for the Project that takes into account the potential for horizontally reflected light from the parabolic mirrors and the reflector tubes that may pose an attractive nuisance or an annoyance to motorists while gazing at the completed Project. The glint and glare study should consider seasonal changes in incident sun angle and in reflected light and should attempt to quantify the intensity of the reflected light. The results of the glint and glare study should be included in a revised PSA for public review and comment.

VI. THE PSA MUST INCORPORATE EFFECTIVE MEASURES TO MITIGATE ENVIRONMENTAL IMPACTS TO LESS THAN SIGNIFICANT

A. The PSA Must Describe Effective Mitigation Measures for Each Significant Environmental Impact

An EIR, or EIR equivalent, must propose and describe mitigation measures sufficient to minimize the significant adverse environmental impacts identified in the EIR.²⁹⁸ Also, mitigation measures must be designed to minimize, reduce, or avoid an identified environmental impact or to rectify or compensate for that impact.²⁹⁹ Where several mitigation measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified.³⁰⁰

A public agency may not rely on mitigation measures of uncertain efficacy or feasibility.³⁰¹ “Feasible” means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.³⁰² Moreover, mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments.³⁰³ Finally, CEQA does not allow deferring the formulation of mitigation measures to post-approval studies;³⁰⁴ nor does CEQA permit the delegation of mitigation of significant impacts to responsible agencies.³⁰⁵

As shown below, the PSA lacks effective, feasible mitigation for numerous impacts it identifies as significant. By deferring the development of specific

²⁹⁸ Pub. Resources Code, §§ 21002.1(a), 21100(b)(3).

²⁹⁹ CEQA Guidelines, § 15370.

³⁰⁰ CEQA Guidelines, § 15126.4(a)(2).

³⁰¹ *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727 (finding groundwater purchase agreement inadequate mitigation measure because no record evidence existed that replacement water was available).

³⁰² CEQA Guidelines, § 15364.

³⁰³ CEQA Guidelines, § 15126.4(a)(2).

³⁰⁴ CEQA Guidelines, § 15126.4(a)(1)(B); *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308-309.

³⁰⁵ *City of Marina v. Board of Trustees of the California State University*, (2006) 39 Cal.4th 341, 366.

mitigation measures, the PSA has effectively precluded public input into the effectiveness and/or the development of those measures. Thus, additional mitigation measures must be included in a revised PSA that is circulated for public review and comment.

1. Mitigation Measures for Air Quality Impacts Are Inadequate

The PSA concludes that the Project may elevate NO₂ impacts very close to the state 1-hour standard and exacerbate existing violations of the state PM₁₀ standards.³⁰⁶ In light of the Project's existing PM₁₀ and ozone non-attainment status, the PSA considers the construction NO_x, VOC, and PM emissions to be potentially significant.³⁰⁷ The PSA, however, improperly defers the development of plans to mitigate these impacts into the future, without specifying any performance measures.

For example, condition of certification AQ-SC2 requires the Project owner to submit an Air Quality Construction Mitigation Plan ("AQCMP"), which details the steps that will be taken and the reporting requirements necessary to ensure compliance with conditions of certification AQ-SC3 through AQ-SC6, no later than 60 days prior to ground disturbance.³⁰⁸ In addition, condition of certification AQ-SC7 requires the Project owner to provide a site operations dust control plan, which describes the wind erosion control techniques that will be used and identifies the location of signs throughout the facility that will limit traveling on unpaved roads, no later than 60 days prior to the start of commercial operation.³⁰⁹

Without the mitigation plans or performance standards, however, the public, other agencies, the parties, and the decision-makers cannot determine whether air pollutant emission impacts will be minimized to a less than significant level. Therefore, the AQCMP and the site dust control plan must be completed now, prior to Project approval, and be included in a revised PSA that is circulated for public review and comment.

Further, several of the mitigation measures required by the PSA are worded ambiguously, which renders them unenforceable as a practical matter. For example, condition of certification AQ-SC3(H), designed to prevent fugitive dust from leaving the Project site, states that "[c]onstruction areas adjacent to any paved roadway shall be provided with sandbags *or other measures as specified in the Storm Water Pollution Prevention Plan* (SWPPP)"³¹⁰ The SWPPP,

³⁰⁶ PSA, p. 4.1-21.

³⁰⁷ *Id.*

³⁰⁸ *Id.* at p. 4.1-36.

³⁰⁹ *Id.* at p. 4.1-40.

³¹⁰ *Id.* at p. 4.1-36 (emphasis added).

however, has not yet been developed.³¹¹ Thus, the proposed mitigation is uncertain and vague. The public, other agencies, the parties, and the decision-makers cannot determine whether fugitive dust plumes will be prevented from leaving the Project site.

In addition, AQ-SC5(F) states that diesel heavy construction equipment shall not idle for more than five minutes “*to the extent practical.*”³¹² This measure is vague and uncertain. There is no indication that the measure will in fact minimize emission impacts to a less than significant level. The PSA must therefore be revised to include specific, enforceable mitigation measures.

Finally, there are additional relevant and widely employed feasible mitigation measures contained in the CEQA Guidelines and rules of air districts and other agencies that should be required to satisfy the Project owner’s obligation to employ feasible mitigation necessary to reduce the Project’s adverse impacts on air quality during construction to a less than significant level. The following measures should be included in a revised PSA as conditions of certification:

- Install diesel oxidation catalysts or catalyzed diesel particulate filters;³¹³
- Electrify equipment where feasible;³¹⁴
- Schedule construction truck trips during non-peak hours to reduce peak hour emissions;³¹⁵
- Use alternatively fueled construction equipment on site where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel;³¹⁶
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing of construction activity during the peak hour of vehicular traffic on adjacent roadways;³¹⁷
- The engine size of construction equipment shall be the minimum practical size;³¹⁸ and

³¹¹ *Id.* at p. 4.9-51.

³¹² *Id.* at p. 4.1-39 (emphasis added).

³¹³ *See*, i.e. San Luis Obispo County Air Pollution Control District, CEQA Air Quality Handbook, April 2003.

³¹⁴ *Id.*

³¹⁵ *Id.*

³¹⁶ *Id.*

³¹⁷ *See*, i.e. San Joaquin Valley Unified Air Pollution Control District, Guide for Assessing and Mitigating Air Quality Impacts, Revised June 1, 1999.

- The Project shall demonstrate that the heavy-duty (>50 horsepower) off-road vehicles to be used during construction, including owned, leased and subcontractor vehicles, will achieve a project wide fleet average 20% NO_x reduction and 45% particulate reduction compared to the most recent CARB fleet average at time of construction.³¹⁹

Therefore, we urge Staff to incorporate the AQCMP and the site dust control plan, to clarify mitigation, and to add feasible mitigation in a revised PSA that is circulated for public review and comment.

2. Mitigation Measures for Impacts to Biological Resources Are Inadequate

The PSA improperly defers the development of plans, proposals, and surveys to mitigate significant biological resource impacts. The following conditions of certification are examples of improper deferral of mitigation that deprive the public of the ability to review and submit comments on impacts:

- BIO-7 requires the Project owner to submit a Biological Resources Mitigation Implementation and Monitoring Plan at least 60 days prior to any project-related site disturbance activities.³²⁰
- BIO-11 requires the Project owner to provide a formal acquisition proposal discussing the suitability of proposed parcel(s) as compensation lands for the desert tortoise and Mohave ground squirrel a minimum of two months prior to acquisition of the property.³²¹
- BIO-11 also requires the Project owner to submit a management plan for review and approval for the compensation lands and associated funds within 90 days after the land or easement purchase.³²²
- BIO-14 requires the Project owner to provide a final version of the Evaporation Pond Plan at least 60 days prior to start of any Project-related ground disturbance.³²³
- BIO-15 requires pre-construction nest surveys on the Project site if construction activities will occur from February 1 through August 1,

³¹⁸ See, i.e. Santa Barbara County Air Pollution Control District, Scope and Content of Air Quality Sections in Environmental Documents, September 1997.

³¹⁹ See, i.e. Sacramento Metropolitan Air Quality Management District, Construction Emissions Mitigation; <http://www.airquality.org/ceqa/index.shtml#construction>.

³²⁰ *Id.* at p. 4.2-52.

³²¹ *Id.* at p. 4.2-61.

³²² *Id.* at p. 4.2-65.

³²³ *Id.* at p. 4.2-69.

and, if active nests are detected, a no-disturbance buffer zone and monitoring plan must be developed.³²⁴

- BIO-17 requires pre-construction surveys for burrowing owls on the Project site and along linear facilities, and, if burrowing owls are detected within the impact area or within 500 feet of any proposed construction activities, a Burrowing Owl Monitoring and Mitigation Plan must be developed.³²⁵
- BIO-17 also requires the Project owner to submit a management plan for review and approval for the compensation lands and associated funds within 90 days after the land or easement purchase.³²⁶
- BIO-18 requires the Project owner to submit a final Desert Wash Mitigation and Monitoring Plan no later than 60 days after publication of the Energy Commission Decision.³²⁷ The Plan cannot be developed until the channel design and bank stabilization methods have been finalized, which in turn depends on the results of hydrological and hydraulic studies currently underway.³²⁸

These plans, proposals, and surveys must be developed now, prior to Project approval, and be included in a revised PSA that is circulated for public review and comment.

3. Mitigation Measures for Cultural Resources Impacts Are Inadequate

The PSA finds that the construction, operation, and maintenance of the BSEP will cause substantial adverse changes in the significance of historical resources.³²⁹ The PSA, however, improperly defers the development of plans to mitigate these impacts into the future, without specifying any performance measures.

For example, condition of certification CUL-3 requires the Project owner to submit a Cultural Resources Monitoring and Mitigation Plan (“CRMMP”), which identifies general and specific measures to minimize potential impacts to sensitive cultural resources.³³⁰ The CRMMP will be submitted 30 days prior to the start of ground disturbance.³³¹

³²⁴ *Id.*

³²⁵ *Id.* at p. 4.2-71.

³²⁶ *Id.* at p. 4.2-72.

³²⁷ *Id.* at p. 4.2-78.

³²⁸ *Id.* at pp. 4.2-73-74.

³²⁹ *Id.* at p. 4.3-65.

³³⁰ *Id.* at p. 4.3-70.

³³¹ *Id.* at p. 4.3-72.

As discussed above, the public, other agencies, the parties, and decision-makers must be able to determine whether cultural resources impacts will be minimized. Without preparation of a plan for public review, or the establishment of any performance standards, the PSA's proposed mitigation fails to comply with CEQA. Therefore, the CRMMP must be completed now, prior to Project approval, and be included in a revised PSA that is circulated for public review and comment.

4. Mitigation Measures for Public Health Impacts are Inadequate

The PSA requires the Project owner to develop and submit, at least 30 days prior to the commencement of cooling tower operations, a Cooling Water Management Plan to reduce the likelihood of Legionella or other bacterial growth in the cooling tower.³³² The Cooling Water Management Plan is proposed to ensure that bacterial growth remains at an insignificant level.³³³ However, the public, other agencies, the parties, and decision-makers must be able to determine whether public health impacts will be minimized by the Cooling Water Management Plan. Without preparation of a plan for public review, or the establishment of any performance standards, the PSA's proposed mitigation for public health impacts fails to comply with CEQA. Therefore, the Cooling Water Management Plan must be completed before Project approval.

5. Mitigation Measures for Traffic Impacts are Inadequate

The PSA proposes condition of certification TRANS-2 "to repair any damage to Neuralia Road and California City Boulevard from construction traffic, particularly from heavy trucks."³³⁴ TRANS-2 requires the Applicant to prepare and submit a mitigation plan for Neuralia Road and California City Boulevard at least 90 days prior to the start of site mobilization.³³⁵ Condition of certification TRANS-2 is improper deferral of mitigation to a future date in violation of CEQA. Such deferral deprives the public and the decisionmakers of the right to review and comment on the measure, as required by CEQA. The mitigation plan must be prepared now, prior to Project approval, and circulated for public comment.

6. Mitigation Measures for Visual Impacts are Inadequate

The PSA concludes that "[t]he BSEP during operation has the potential to introduce offsite light and glare to surrounding properties, and up-lighting to the nighttime sky if typically bright exterior lights were not hooded and lights were not

³³² *Id.* at p. 4.7-15.

³³³ *Id.* at p. 4.7-15.

³³⁴ *Id.* at p. 4.10-7.

³³⁵ *Id.* at p. 4.10-15.

directed onsite.”³³⁶ To reduce the extent of this significant impact, Staff proposes condition of certification VIS-4. VIS-4 requires the Applicant to prepare a lighting management plan at least 60 days prior to ordering permanent exterior lighting.³³⁷ However, condition of certification VIS-4 is improperly deferred to a future date, and therefore deprives the public and decisionmakers of the right to review and comment on the measure. It is unknown whether the Project will claim that certain night lighting is required. Rather, a lighting management plan must be prepared now, prior to Project approval, and circulated for public comment.

7. Mitigation Measures Are Improperly Deferred

The PSA defers identification of each of the above-listed mitigation measures until after certification of the Project. However, before it approves the Project, the Commission is required by CEQA to make findings. Specifically, the Commission must find that either: (1) changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen each identified significant impact; (2) such changes or alterations are within the jurisdiction of another public agency and such changes have been adopted by such other agency or can and should be adopted by such other agency; or (3) specific economic, legal, social, technological, or other considerations make infeasible identified mitigation measures or project alternatives. These findings must be based on substantial evidence.³³⁸ Therefore, until these mitigation measures are specifically identified and evaluated, the Energy Commission will not know if a particular mitigation measure will reduce an impact to a less than significant level. The Commission will also not know if it must consider findings of overriding considerations.³³⁹ Thus, to comply with CEQA, the PSA must be revised to include specific mitigation measures.

³³⁶ *Id.* at p. 4.12-20.

³³⁷ *Id.* at p. 4.12-30.

³³⁸ Pub. Resources Code, § 21081; CEQA Guidelines, § 15091(a).

³³⁹ CEQA Guidelines, § 15093.

VII. CONCLUSION

We commend Staff for its efforts in identifying many potentially significant impacts posed by the Project, as well as proposing important and necessary mitigation measures for those impacts. However, the PSA does not satisfy the requirements of CEQA or the Warren-Alquist Act, and impacts remain significant and unmitigated. Accordingly, an adequate, revised PSA must be prepared and circulated for public review and comment.

Sincerely,

/s/

Tanya A. Gulesserian
Rachael E. Koss

REK:bh
Attachments

PROOF OF SERVICE

I, Bonnie Heeley, declare that on April 30, 2009 I served and filed copies of the attached Comments of the California Unions for Reliable Energy on the Preliminary Staff Assessment. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at www.energy.ca.gov/sitingcases/beacon. The document has been sent to both the other parties in this proceeding as shown on the Proof of Service list and to the Commission's Docket Unit electronically to all email addresses on the Proof of Service list and by depositing in the U.S. Mail at South San Francisco, CA with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list to those addresses NOT marked "email preferred." I also sent a copy via email and an original and one copy via U.S. mail to the California Energy Commission Docket Office.

I declare under penalty of perjury that the foregoing is true and correct. Executed at South San Francisco, CA on April 30, 2009.

_____/s/_____
Bonnie Heeley

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Attachment A: Desert tortoise survey information provided by the Applicant.¹

DESERT TORTOISE FOCUSED SURVEYS, 2008

Date		Start	Temp (F°)	Wind (mph)	Wind Max (mph)	% Clouds	Pcp.	Surveyors Present	Notes
3/25/2008	Start	7:37 am	60	8.8	10.9			P. Wood, A. Currylow K. Hall	Plant Site
	End	N/A							
3/26/2008	Start	N/A	57.8	8	11.9			A. Currylow K. Hall	Plant Site
	End	N/A							
3/27/2008	Start	10:00 am	60.8	1.5				A. Currylow K. Hall	Plant Site
	End	N/A							
3/28/2008	Start	N/A	44.5	1.9				A. Currylow K. Hall	Plant Site
	End	N/A							
5/6/2008	Start	6:54 am	60	5.4		0	0	S. Dayman A. Currylow	Transmission line ZOI transects
	End	4:30 pm	92	8		10	0		
5/7/2008	Start	6:22 am	65.9	2.2		0	0	S. Dayman A. Currylow	Transmission line ZOI transects
	End	5:05 pm	83	8		0	0		
5/8/2008	Start	6:20 am	54	0		0	0	S. Dayman A. Currylow	Transmission line ZOI transects
	End	5:30 pm	77.9	17.5		0	0		
5/9/2008	Start	6:47 am	67.8	1.5		0	0	S. Dayman A. Currylow	Transmission line ZOI transects
	End	6:30 pm	76	15		0	0		
5/10/2008	Start	6:30 am	54.6	2.2		hazy		K. Hall A. Currylow	Transmission line ZOI transects
	End	5:22 pm	89.4	7.8		clear			
5/11/2008	Start	6:25 am	66.4	0		clear		K. Hall A. Currylow	Transmission line ZOI transects
	End	1:47 pm	88	12		clear			

¹ 2008 Spring Survey Report, Appendix A.

Attachment B: Aerial imagery of Pine Tree Creek wash. Red lines surround wash; yellow lines added to match images.



Northern section of Pine Tree Creek wash



Central section of Pine Tree Creek wash



Southern section of Pine Tree Creek wash