

## CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET  
SACRAMENTO, CA 95814-5512  
www.energy.ca.gov



July 20, 2009

**DOCKET**  
**08-AFC-13**

DATE JUL 20 2009

RECD JUL 20 2009

Felicia Bellows  
Vice President of Development  
Tessera Solar  
4800 North Scottsdale, Road, Suite 5500  
Scottsdale, AZ 85251

**RE: STIRLING ENERGY SYSTEMS SOLAR ONE PROJECT (08-AFC-13) - DATA REQUESTS SET 1, PART 2 (#s 92-127)**

Dear Ms. Bellows:

Pursuant to Title 20, California Code of Regulations, Section 1716, the Bureau of Land Management (BLM) and California Energy Commission (Energy Commission) staff seek the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

Part 2 of this set of data requests (#92-127) is being made in the areas of Cultural Resources (#92-108), Public Health (#109-112), Socioeconomics (#113-114), Traffic and Transportation (#115-119), and Visual Resources (#120-127). In order to address these issues at the Data Response and Issues Resolution Workshop/BLM Scoping Meeting, written responses to the enclosed data requests are due to the BLM and Energy Commission staff on or before August 20, 2009, or at such later date as may be mutually agreeable.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, you must send a written notice to both the Committee and me within 20 days of receipt of this notice. The notification must contain the reasons for not providing the information, the need for additional time, and the grounds for any objections (see Title 20, California Code of Regulations, Section 1716 (f)).

If you have any questions, please call me at (916) 653-1639 or email me at [cmeyer@energy.state.ca.us](mailto:cmeyer@energy.state.ca.us).

Sincerely,

Christopher Meyer,  
Project Manager

Enclosure

cc: Docket (08-AFC-13)  
Proof of Service List

PROOF OF SERVICE (REVISED 7/14/09) FILED WITH  
ORIGINAL MAILED FROM SACRAMENTO ON 7/20/09  
HA

**Technical Area:** Cultural Resources  
**Authors:** Michael D. McGuirt and James Shearer

Where the disclosure of information on the location or the character of cultural resources may create a substantial risk of harm, theft, or destruction, one must submit such information under cover of an application for confidential designation pursuant to Title 20, California Code of Regulations, section 2505.

The data requests immediately below relate to information that staff of both the Energy Commission and the BLM (staff) need to complete their respective cultural resources analyses under CEQA and NEPA. To accommodate the joint BLM and CEC process for the environmental review of the proposed project, staff requests that the applicant integrate the responses to the data requests here with the March 30, 2009 BLM comment, prepared by LSA Associates, on what is now the April 2009 draft final of the *Class III Cultural Resources Technical Report for the Solar One Project, San Bernardino County, California* (April 2009 Technical Report).

## **BACKGROUND**

The construction and operation of the proposed project would apparently involve ground disturbance in several different portions of the project area. For those portions of the project area where ground disturbance would exceed one meter in depth (disturbance at depth), staff needs the applicant to take into consideration the potential for the proposed project to truncate buried archaeological deposits. The applicant can document such consideration, for the administrative record of the present certification process, in one of two basic ways. The applicant may be able to make a case, solely on the basis of extant Quaternary science or geoarchaeological literature, that the landforms in the project area that would be subject to disturbance at depth are too old (> 12,000 years) or are of a processual character that would preclude the likelihood of buried archaeological deposits being present. Absent such available data, staff requests that the applicant conduct a geoarchaeological field study the purpose of which would be to provide a factual basis for the assessment of the likelihood that the construction and operation of the proposed project would destroy such deposits. The assessment of the likely effects of the project on buried archaeological deposits is a requisite element of the CEQA analysis for the project. Staff will have no factual basis to assess the potential effects of disturbance at depth without such an assessment. Staff needs finer resolution information on the age, the structure, and the character of the geologic units beneath the surface of the project area to develop a substantive analysis of the project's potential to substantially and adversely change the significance of historical resources that may lie buried in the project area.

## **DATA REQUESTS**

92. Please provide a discussion of the historical geomorphology of the project area to better evidence a consideration of the potential there for buried archaeological deposits. The discussion should describe the development of the landforms on which the project area is proposed, with a focus on the character of the depositional regime of each landform since the Late Pleistocene era. The bases

for the discussion should be data on the geomorphology, sedimentology, pedology, hydrology, and stratigraphy of the project area or the near vicinity. The source of these data should be the available Quaternary science or geoarchaeological literature. The presentation of the discussion should also include maps that overlay the above data on the project area.

93. In the absence of extant Quaternary science or geoarchaeological literature sufficient<sup>1</sup> to enable the reconstruction of the historical geomorphology of the project area, staff requests that the applicant please conduct a primary geoarchaeological field study of the project area to facilitate the assessment of the likelihood that archaeological deposits are buried beneath the project area surface, where the construction and operation of the proposed project will involve disturbance at depth. The primary study should, at a minimum, provide for the following elements:
- a. A map of the present landforms in the project area at a scale not less than 1:12,000. The map may be the result of any combination of satellite or aerial imagery that has been subject to field verification, or the result of a field mapping effort.
  - b. A sampling strategy to document the stratigraphy of the portions of the landforms in the project area where the construction and operation of the proposed project will involve disturbance at depth.
  - c. The collection of the data requisite to determinations of the physical character, the ages, and the depositional rates of the various sedimentary deposits and paleosols beneath the surface of each sampled landform to 0.5 meters below the proposed maximum depth of ground disturbance. Data collection at each sampling locale should include a measured profile drawing and a profile photograph with a metric scale, and the screening of a small (3, 5 gal. buckets) sample of sediment from the major sedimentary deposits in each profile through 1/4 inch hardware cloth. Data collection should also include, in the absence of other viable chronometric techniques, the collection and assaying of enough soil humate samples to reliably radiocarbon date a master stratigraphic column for each sampled landform.
  - d. An analysis of the data that are the result of the above field study, and an assessment, on that basis, of the likelihood that the project would encounter buried archaeological deposits, and, to the extent possible, the likely age and character of such deposits.

The geoarchaeological field study should be performed by a person meeting the U.S. Secretary of the Interior's Professional Qualifications Standards for archaeology who demonstrates completion of graduate level coursework in geoarchaeology or Quaternary Science. Prior to its initiation, a research design of the geoarchaeological field study, including the resume and credentials of the person performing the study, should be submitted for review and approval to the

---

<sup>1</sup> Sufficient Quaternary science or geoarchaeological literature here means literature that includes primary field data on relevant portions of the complete complement of landforms in the project area.

Siting Project Manager. After the study is completed, a report of the results should be provided to the Siting Project Manager.

94. Staff requests that a further aspect of the above research into the geoarchaeology of the project area be a discussion of desert pavement development on landforms in the project area.

The extant discussion of desert pavements in the *Archaeological Field Survey Methodology* subsection of the Technical Report (pp. 4-1–4-3, subsection 4.3.1) correlates the degree of desert pavement development with the likely presence of buried archaeological deposits. Older, more developed desert pavements are said to be less likely to cap such buried deposits. The applicant appears to use this concept later in the Technical Report to evaluate the potential for archaeological sites on the surface of the project area to have subsurface components (see, as examples, site descriptions for DRK-023 and RAN-025 in the December 2008 version of the Technical Report (pp. 6-35 and 6-37), and compare to revised descriptions for CA-SBR-12993 and CA-SBR-13054 in the Technical Report (pp. 5-27 and 5-29)).

More recent research indicates that this largely anecdotal concept is inaccurate; that the degree of desert pavement is not in fact indicative of the presence of buried archaeological deposits. (See e.g., Harvey and Wells 2003; McDonald, McFadden, and Wells 2003; Wells, McFadden, and Dohrenwend 1987). A more critical discussion of desert pavement development, therefore, may have significant implications for the preliminary interpretation of archaeological sites across the surface of the project area.

Please include in the above research into the geoarchaeology of the project area a thorough discussion of the principles of desert pavement development in arid and semiarid environments and a discussion of the differential development and distribution of such pavements across the project area. The discussion needs to reference the recent literature on the topic, preferably the peer-reviewed literature, and to avoid any substantive conclusions based on anecdote or opinion.

95. Staff requests that the applicant use the results of the above research into the geoarchaeology of the project area to more clearly reflect the physical contexts of project area cultural resources. Specifically, staff requests that the applicant please provide revisions to the inconsistent conventions in the Technical Report that are meant to describe the geomorphic settings of the cultural resources that the applicant found in the project area of analysis. The revisions need to reflect more standard geomorphic conventions for landforms and subordinate landform features. The present descriptive conventions in the Technical Report, such as “open desert pavement plateau wash,” “eroding desert terrace,” and “open desert plateau,” do not help place the individual cultural resources in the context of the major landforms in the project area. The revisions to the present conventions need to facilitate the correlation of found cultural resources with the results of the above geoarchaeological research, and describe the particular, perhaps multiple subordinate geomorphic features that bound and encase the

individual archaeological sites on the major landforms in the project area. Such revisions would enable meaningful interpretations of the distribution of found cultural resources across the project area landscape.

96. As further clarification of the physical contexts of project area cultural resources, please explain whether the desert pavements depicted on the Sketch Maps of the DPR 523 Series forms represent sub-meter GPS polygons, or whether the depicted pavements are simply general symbols.

## **BACKGROUND**

The individual archaeological site descriptions in the *Class III Intensive Field Survey Results/Evaluations* subsection of the *Report of Findings* section of the April 2009 Technical Report typically describe the sites in a cursory manner that does not facilitate a meaningful comprehension of the material composition of the sites or of the material culture distribution patterns across the sites. The site descriptions provide a non-intuitive calculation for the surface frequency of site artifacts, which is reported in fractional parts of an artifact per square meter of site surface. Artifact totals for most sites are reported, but the *Site Recording Methodology* subsection of the *Methods* section of the Technical Report does not explicitly state whether the totals are actual, or whether they are instead approximations with a reasonably quantifiable range of error. While the gross types of lithic flakes (primary, secondary, or tertiary) present on the sites are noted, no calculations are given to indicate the relative frequency of these types. Numbers of point-provenienced lithic cores, hammerstones, and tools are noted, but the site descriptions do not explicitly state whether these totals represent all or a subset of these artifact types.

The site descriptions provide almost no discussion of the patterns of distribution of the material culture across each site. Beyond the calculation for the overall surface frequency of site artifacts noted above, the site descriptions simply provide the number of archaeological features, or artifact concentrations present. The site descriptions do not appear to provide descriptions of the character of the individual features on the sites or of the individual artifact concentrations, of the differential distribution of the features and concentrations across the sites, or of the differential distribution of the frequency and types of lithic debris in the overall site assemblage, generally and in relation to the features and artifact concentrations.

The site descriptions also do not evaluate the character of the material culture distribution patterns on the individual sites relative to the geomorphic setting of each site. The use of global positioning system technology permits field researchers to document much more accurate archaeological site boundaries. Many of the archaeological sites in the project area of analysis have erratic boundaries in the extreme. Why is this? What broader geomorphic forces on and off each archaeological site may have led to these shapes? How may these forces have altered the primary archaeological record and is there a plausible way to correct for any such alterations? What is the degree of correlation on any given site among the distribution of the overall artifact scatter, individual unique or exotic artifacts, features, artifact concentrations, ephemeral stream channels, sand sheets, coppice dunes, and desert pavements?

The site descriptions do not conclude with explicitly reasoned preliminary interpretations and evaluations of the individual archaeological sites. The site descriptions need to draw the information together from the descriptions of the site artifact and feature assemblages, the discussions of the differential distribution of these assemblages across the sites, and the consideration of the geomorphic contexts of site deposits to derive preliminary behavioral interpretations of each site. These interpretations then inform preliminary evaluations of the potential historical significance of each site, both as a stand-alone resource and as a potential contributor to a potential archaeological district or landscape. The site descriptions in the Technical Report do not provide such interpretation, and the preliminary evaluations are not explicitly argued, do not consider the potential broader archaeological contexts for the individual sites, and are typically perfunctory.

The individual site descriptions in the Technical Report are not particularly useful, as a whole, for informing agency and applicant decisions about the disposition of the subject resources under the present certification process. The absence of the above types of information implicitly exclude whole potential archaeological data sets from consideration and use in the interpretation and subsequent evaluation of the historical significance of the archaeological resources in the project area of analysis. Staff requires a complete revision of the site descriptions in the Technical Report to be able to draft a defensible analysis of the impacts of the proposed project on the cultural resources in the project area of analysis.

## **DATA REQUEST**

97. To enable staff to reliably identify, analyze, and develop preliminary evaluations for each of the newly found archaeological sites in the proposed project area, please provide revisions to the descriptions of the approximately 143 archaeological sites in the Technical Report to present, in a consistent format, objective and informed archaeological site and artifact assemblage descriptions using explicit descriptive conventions, and develop a reasoned interpretation for each site.

More specifically, please provide revisions to the site descriptions in the *Report of Findings* section that include:

- a. Objective, non-interpretative descriptions of the overall physical character of the surface of each archaeological site including the approximate area of the site, the presence and approximate location of any architectural ruins, archaeological features, or concentrations of material culture, the gross distribution pattern of artifacts and ecofacts across each site, and any variation in the color, texture, or composition of the sedimentary matrix for each site.
- b. Descriptions of the artifact and ecofact assemblages for each site that rely on objective, non-interpretative descriptive conventions that the subject report may lay out in the introduction to the site description section or as a report glossary, that discuss artifact and ecofact frequency and the differential patterns of their distribution across each site.

- c. Artifact descriptions for representative samples from each site that type out individual artifacts to a level that meaningfully informs archaeological site interpretation (For prehistoric archaeological sites, individual artifact descriptions would include, for instance, assigning lithic debitage to flake types with reference to an explicit flake typology, assigning lithic cores to core types or describing core flaking patterns, and descriptions of unique tool shapes, edge angles, and apparent patterns of retouch or use wear. For historical archaeological sites, individual artifact descriptions for ceramic sherds would include the identification of established ceramic types or descriptions of the ceramic body, glaze, mode and character of decoration, vessel portion represented, and probable vessel form. Descriptions for glass vessel fragments and sherds would include, at a minimum, the identification of glass color, inclusions in the sherd body of nineteenth century glass, sherd curvature, manufacturing clues such as seam locations, pontils, and hand appliqués, mode and character of decoration, vessel portion represented, and probable vessel form. Descriptions for tin cans would include tin can type or method of closure, tin can dimensions, and seam type and method of seam fastening, including evidence for degree of hand manufacture.
- d. With reference to the above descriptive data, a preliminary interpretation of the use of each archaeological site, the approximate date range of use, and the integrity of the subject deposits.

To facilitate the revision process, please use the Template for Class III, Phase I Archaeological Site Descriptions (Attachment 1) to draft the revisions. Please note that it is critical to the interpretation and preliminary evaluation of the historic significance of site components to discuss potential cultural contexts for each site component. Such contexts make explicit the prehistoric or historic themes to which each component has the potential to relate.

## **BACKGROUND**

The preliminary division of the cultural resources inventory of the project area of analysis into objective subsets is critical to the comprehension of the inventory, to the analysis of the potential impacts of the proposed project on the inventory, and to the development of appropriate mitigations for any significant project impacts. The applicant needs initially to quantitatively and chronologically split the inventory into meaningful subsets to facilitate the analysis of project impacts. This needs to occur prior to any discussions about which resources may contribute to known historic districts or landscapes, which resources may contribute to previously unknown districts or landscapes, which resources may warrant treatment as groups under extant evaluation programs or evaluation programs that may be devised for this project, and which resources may warrant individual evaluation. The discussions of the cultural resources inventory for the proposed project need to occur relative to an explicit taxonomy of objective resource types. An objective taxonomy of prehistoric and historical archaeological site types will enable agency and applicant staff to better comprehend and plan the disposition of each individual resource in a manner that is publicly transparent and defensible. To the extent possible, it would further facilitate agency and

applicant discussions of the cultural resources inventory to group the resources of each type relative, where feasible, to resource age.

The archaeological resource taxonomy that the applicant devised in the *Research Design* section of the April 2009 Technical Report does not attempt to break the inventory into chronological groups. The resource taxonomy defines six prehistoric resource types and five historic resource types. The six prehistoric resource types are largely subjective descriptors that impart *a priori* behavioral interpretations to the surface archaeological deposits across the project area of analysis. Three of the types, “permanent or semi-permanent settlement sites,” “temporary camps or food processing sites,” and “ephemeral stone acquisition and use or surface quarry sites,” have substantive overlap in the range of the material culture that the applicant proposes using to type project area archaeological deposits. The discussion of the permanent or semi-permanent settlement site type in the Technical Report (p. 3-2) proposes to identify this site type by the presence of non-specific constellations of lithic debitage, chipped stone and groundstone tools, deposits of anthropogenic sediments, apparent hearths, and stone-free circular areas that the applicant may interpret as habitation debris. To qualify as a temporary camp or food processing site, archaeological deposits need to demonstrate the subjective quality of having habitation debris that may include lithic scatters (apparently, chipped stone tool manufacturing debris and chipped stone tools), apparent hearths or pits, stone features, and, among other artifact types, groundstone artifacts and ceramic sherds. Ephemeral stone acquisition and use or surface quarry sites need to have natural cobbles present as well as two or more lithic cores, partially manufactured stone tools or preforms, hammerstones, and lithic debitage with a high percentage of lithic flakes that have one face being the cortex of a natural cobble and angular stone shatter. The applicant notes that rock cairns and apparent hearths may also be associated with this third site type. The high degree of overlap in the characteristics that are supposed to distinguish each of the above three site types essentially renders the assignment of any given archaeological site to one of the types an unsubstantiated and subjective opinion.

The five historical archaeological resource types suffer subjective flaws analogous to those of the prehistoric archaeological site types. One of the five types, historic-period debris scatters or refuse deposit sites, has the potential to represent three of the other site types, “railroad affiliated temporary encampments,” “homesteads or farms,” and “historic-period mining facilities and claims.” And many of the characteristics cited as evidence for the latter three types are not necessary or consistent constituents of such types. Staff believes that the use of the proposed historical archaeological site types would not result in a reliable analysis of the historical archaeological deposits in the project area of analysis.

## **DATA REQUEST**

98. Please revise the cultural resources taxonomy to more objectively reflect the character of the archaeological deposits in the project area of analysis, and further divide each type, where feasible, into preliminary chronological groups. Please provide the revisions in the text of the *Research Design* section and in tables 6.2-1 and 6.2-2 of the April 2009 Technical Report. Staff recommends



dropping subjective resource types such as “permanent or semi-permanent settlement sites,” “temporary camps or food processing sites,” and “ephemeral stone acquisition and use or surface quarry sites” in favor of multiple individual types that more precisely articulate the archaeology of the resources. As examples, surface deposits of chipped stone and groundstone artifacts would simply type out as a “chipped stone and groundstone artifact scatter.” A deposit that includes one or more fire-affected rock features and one or more rock piles among a scatter of chipped stone artifacts would type out as a “chipped stone artifact scatter with fire-affected rock features and rock piles.” The interpretation of the individual archaeological site types as semi-permanent settlements, food processing sites, surface quarry sites, and so forth would typically occur in the *Discussions/Interpretations* section of the Technical Report. Such interpretation is a necessary element of the evaluation of the historical significance of each resource and a necessary precursor to the thoughtful disposition of the cultural resources inventory.

The preliminary chronological grouping of the prehistoric and historical archaeological deposits needs to draw on the available sources of chronological data. For prehistoric archaeological sites, the preliminary chronological groups ought to reflect the cultural chronology of the *Environmental and Cultural Setting* section of the April 2009 Technical Report and be made, where feasible, relative to sources of relative chronological data such as the most recent projectile point, ceramic, and “unique artifact” typologies. For historical archaeological sites, the preliminary chronological groups similarly ought to be made relative to the most recent ceramic, bottle and bottle glass, and tin can typologies, and, where applicable, the typologies for less frequent artifact classes such as nails, ammunition, and buttons, and reflect, at a minimum, the broad historic periods set out in the *Environmental and Cultural Setting* section, if not narrower time ranges within those periods.

## **BACKGROUND**

The purpose of the *Discussion/Interpretation* section of the April 2009 Technical Report is ostensibly to provide a synthetic suite of interpretations of the archaeology of the surface of the project area of analysis. The interpretations are critical to the conceptual organization and comprehension of the cultural resources inventory in and adjacent to the project area, to the evaluation of the historical significance of each found resource, and to the thoughtful development of a historic preservation plan for the cultural resources inventory as a whole. Staff believes that the initial consideration in the *Discussion/Interpretation* section of the subject technical report needs to be the interpretation of the objective site types the development of which staff requests in Data Request 97 above. The precursor to such interpretation would be a raw summary statement of the numbers of objective site types and, where feasible, of the chronological subgroups of each objective site type that are now known as a result of previous and recent pedestrian surveys. The statement would introduce the section as a whole and include mention of the numbers for relatively rare artifact classes and materials in the project area of analysis, classes and materials such as projectile points, ceramics, and obsidian. The subsequent subsection of the overall

*Discussion/Interpretation* section would then develop the interpretations of each of the objective site types now known to be in the project area of analysis. The interpretations would, at a minimum, describe each objective site type, discuss the range of variability within each type, develop behavioral interpretations for each type and any subtypes discerned, and propose subjective descriptors, subjective site types for the suite of functions that are found to characterize each site type and subtype. The subjective site types would then be employed throughout the balance of the *Discussion/Interpretation* section to interpret the archaeology of the project area of analysis.

## **DATA REQUEST**

99. Please draft and provide new subsections for the *Discussion/Interpretation* section of the Technical Report that include
  - a. a raw summary statement of the numbers of objective site types and, where feasible, of the chronological subgroups of each objective site type that are now known as a result of previous and recent pedestrian surveys, and of the numbers for relatively rare artifact classes and materials in the project area of analysis, classes and materials such as projectile points, ceramics, and obsidian, and
  - b. interpretations of each of the objective site types now known to be in the project area of analysis which would, at a minimum, describe each objective site type, discuss the range of variability within each type, develop behavioral interpretations for each type and any subtypes discerned, and propose subjective descriptors, subjective site types for the suite of functions that are found to characterize each site type and subtype.

## **BACKGROUND**

The *Discussion/Interpretation* section of the ultimate Technical Report needs a subsection that describes and interprets the spatial arrangement and the material composition of the archaeological deposits across the surface of the project area of analysis. The subsection needs to describe the broader archaeological landscape of the project area and the more specific distribution or settlement patterns of the subjective archaeological site types across that landscape, and examine potential causal explanations for the structure of the local archaeological record. Why, for example, do the vast majority of the archaeological sites in the project area of analysis appear to be along the toe of the Cady Mountains bajada and along the ephemeral stream channels that course through the southern portion of the project area, while the frequency of archaeological sites on the bajada itself is so low? If the chipped stone artifact scatters in the project area are largely thought to reflect the procurement and initial reduction of raw lithic material on moderately to well developed desert pavements, then what may account for the relative absence of such scatters on similar desert pavements on the bajada? Do the desert pavements of the bajada differ in the degree of development, or are the rock types that are constituent elements of the bajada pavements differ from those along the toe of the bajada or adjacent to the ephemeral steam channels? Another aspect of the local archaeological record that that may be worthy of

examination is the low frequency of prehistoric trail segments relative to other areas in the Mojave Desert. What may account for this phenomenon? Posing and considering questions such as these facilitates the understanding of the local archaeological record, provides contexts for and helps factually inform evaluations of the historical significance of the cultural resources in the project area of analysis, and enables the development of meaningful historic preservation plans to mitigate the potential impacts of the proposed project on those resources.

## **DATA REQUEST**

100. Please provide revisions to the *Settlement Pattern* subsection of the *Discussion/Interpretation* section of the April 2009 Technical Report that describe the broader archaeological landscape of the project area and the more specific distribution or settlement patterns of the subjective archaeological site types across that landscape, and examine potential causal explanations for the structure of the local archaeological record. Please use the example questions above to formulate a more robust suite of questions to explain the structure and character of that record.

## **BACKGROUND**

There are a minimum of four artifacts in the cultural resources inventory for the project area of analysis that are rare to the project area and the interpretation of which may be significant to the comprehension of the local and regional archaeological records. Three of the four artifacts are isolate finds, an obsidian flake (P36-014832), four fragments of one brownware ceramic sherd (P36-014829), and an apparent black-on-gray ceramic sherd (P36-014814). The fourth artifact is an apparent black-on-gray ceramic sherd found as a part of the artifact assemblage of CA-SBR-13095. The obsidian flake would appear to be exotic to the project area and may represent a significant bit of information on prehistoric trade in the area. The brownware ceramic sherd may similarly offer significant information on local prehistoric trade interactions. The apparent black-on-gray ceramic sherds may be regionally significant as data points that may document the outer reach of the Anasazi sphere of influence or that of other Puebloan groups of the North American Southwest. More detail on these four artifacts would better inform, at a minimum, the *Chronology* and *Trade and Economic Exchange* subsections of the *Discussion/Interpretation* section of the Technical Report.

## **DATA REQUEST**

101. Please collect these four artifacts and submit each for expert analyses of specific artifact type, geographic origin, and age, as appropriate to each artifact type and as feasible. The analyses of the black-on-gray ceramic sherds, in particular, should be conducted by an expert in the ceramics of the North American Southwest. Please provide the results of the analyses.

## **BACKGROUND**

Staff believes that one purpose of researching and developing the ethnographic setting for the project area and vicinity is to help model the types of Native American traditional use areas of the protohistoric through early historic periods that one may anticipate finding in or near the project area. While the *Ethnography* subsection of the *Environmental and Cultural Setting* section of the April 2009 Technical Report provides useful information on the lifeways of the Serrano, the Vanyume, the Chemehuevi, and, to a lesser degree, other Native American groups, it does not offer specific information on the material character or the diversity of the traditional use areas for these groups (pp. 2-12–2-16).

## **DATA REQUEST**

102. Using the *Ethnography* subsection of the April 2009 Technical Report as a point of departure, please provide a discussion of potential traditional use areas in or near the proposed project area. Please include considerations of
- a. the types of domestic, economic, and ritual use areas that are known for the Serrano, the Vanyume, the Chemehuevi, and other Native American groups that have associations with the project area,
  - b. the material character of such use areas, and
  - c. the patterns of such use areas across the local landscape, and the potential archaeological signature of such use areas.

## **BACKGROUND**

The construction of the proposed project may produce a stark visual intrusion across the portion of Mojave Valley encompassed by Troy Lake, the Cady Mountains, and Pisgah Crater. The April 2009 Technical Report does not consider whether the project has the potential to affect Native American traditional use areas that may be in sight of the proposed facility, as a consequence, staff needs additional information to evaluate the potential of the proposed project to adversely impact potentially significant ethnographic resources.

## **DATA REQUEST**

103. Please provide a discussion, on the basis of extant literature and Native American informants, of known traditional use areas such as rock art sites, shrines, or gathering places that are in sight of the project and that may be subject to the project's visual intrusion, and a discussion of the potential presence or absence of other such areas in sight of the project.

## **BACKGROUND**

There is only one cultural resource in the project area of analysis that unequivocally relates to the historic theme of Mojave Desert mining. That resource is the historical

archaeological remains of the Logan Mine (CA-SBR-4558H). The April 2009 Technical Report associates three other cultural resources (P36-014519, P36-014520, and P36-014578) with this theme, but it is presently unclear that these associations are appropriate. P36-014519 and P36-014520 are rock concentrations or cairns that the applicant notes to each be approximately 25 meters to the northeast of a former alignment of US Route 66 (CA-SBR-2910H). A rectangular to polar coordinate conversion of the UTM coordinates for the rock concentrations, UTM coordinates taken with sub-meter GPS equipment, demonstrates that the rock concentrations are less than one foot from being exactly 400 feet apart. The relatively exact distance between the rock concentrations and their apparent relatively equivalent distance from the centerline of the former highway alignment offer support to the interpretation that the concentrations may in fact represent land surveying monuments of an offset baseline that would have been used in the engineering of the former road alignment, rather than representing mining-related features. The DPR 523 Series site record for P36-014578 appears to be absent from the confidential portion of the AFC, and the description of the feature in the Technical Report (p. 5-29) is too sparse to offer further comment on it.

The historic context that the applicant provides in the April 2009 Technical Report for manganese mining in the vicinity of the project area (p. 2-25) does not well support the preliminary evaluation of the resource in the *Report of Findings* section of the Technical Report (p. 5-33). The applicant states that the preliminary evaluation of the Logan Mine is set against the context of manganese mining in San Bernardino County, yet the context for manganese mining does not provide a local overview of this industry. How many manganese mines were operating in the project vicinity during what range of time? Were the manganese mines independent or parts of broader mining districts? What was the variability in the size of the various mining operations? What is the range in variability in how the manganese mines in the project vicinity were capitalized? What was the range of technologies that were used to extract and process the ores in the San Bernardino County manganese mines? Who worked the manganese mines? What was the source of the labor pool? What is the labor history of the manganese mines in project vicinity?

The applicant determines that the Logan Mine, a historical archaeological site, lacks integrity as a resource because it is a ruin, and concludes that it has no further data potential. Staff does not believe that the applicant has provided enough information to reasonably support this assessment, and here seeks additional information.

## **DATA REQUESTS**

104. Please provide a redraft of the *Manganese Mining in the Project Vicinity* subsection of the *Environmental and Cultural Setting* section of the April 2009 Technical Report that includes a more in-depth historic context that would more soundly support the preliminary evaluation of the Logan Mine. The revision to the subject subsection should, at a minimum, address the questions above.
105. Please provide a redraft of the preliminary evaluation of the Logan Mine so that the evaluation reflects the above revision of the manganese mining context, and more appropriately addresses the aspects of resource integrity pertinent to

historical archaeological sites, as opposed to standing built environment resources.

## **BACKGROUND**

The project area of analysis appears, on the basis of the presently incomplete information on the cultural resources inventory, to potentially contain portions of three historic districts and a prehistoric archaeological landscape. The three historic districts may each include built environment and historical archaeological components. One district may be a part of a historic transmission line district that would include the Southern California Edison 220-kV North and South Transmission Lines (CA-SBR-13115H and CA-SBR-13116H), the Pisgah Substation (CA-SBR-13117H), and CA-SBR-12992H, the potential remains of a work camp related to the construction of the transmission lines and Pisgah Substation. A second district may be a part of a historic railroad district that would include the former Atlantic and Pacific Railroad, the former Atchison, Topeka, and Santa Fe Railroad, and the present Burlington Northern Santa Fe Railway (CA-SBR-6693H) along with a presently unclear number of historical archaeological deposits that may relate to the construction, operation, and public use of the railroad. These deposits may include CA-SBR-12996H, CA-SBR-12997/H, CA-SBR-12999H, CA-SBR-13002/H, CA-SBR-13012H, CA-SBR-13014H, CA-SBR-13017H, CA-SBR-13023/H, CA-SBR-13101, and CA-SBR- CA-SBR-13108/H. A third district may be a part of the extant district for the National Trails Highway and US Route 66 (CA-SBR-2910H) and may include the rock concentrations P36-014519, P36-014520, and P36-014578 as contributing elements of the district.

A major portion of the proposed project area may represent a part of a prehistoric archaeological landscape related to the exploitation of a consequential source of toolstone along the toe of the Cady Mountain bajada and south along the ephemeral stream channels that drop into Troy Lake. The landscape would include a large suite of chipped stone artifact scatters in the project area of analysis which represents a significant and distinguishable entity, though many of the scatters may lack individual distinction.

## **DATA REQUEST**

106. Please prepare the responses to all of the above data requests with consideration of the possible presence of these districts and this landscape, and, if the further work on the documentation for the cultural resources in the project area of analysis seems to the applicant to support their presence, please develop and provide preliminary descriptions, interpretations, and evaluations of these broader, more complex cultural resource types.

## **BACKGROUND**

The applicant relates, in response to Data Adequacy Request 15 (pp. CUL-7 and CUL-9, SES Solar One 2009), that small portions of the project area of analysis have not been subject to pedestrian survey for cultural resources. These portions include eleven

acres of steep (grade of > 45%) terrain, the right-of-way (ROW) along Interstate Route 40 (I-40), private parcels in the project area where the applicant was not granted rights-of-entry to survey regulatory buffers, and one unspecified private parcel in section 16, T. 8 N., R. 5 E. owned by the Pacific Gas and Electric Company (PG&E). The applicant states that they have a pending application before the California Department of Transportation (Caltrans) for an encroachment permit to survey the I-40 ROW, and that PG&E refuses to authorize the survey of the private parcel in section 16.

Staff determines that the cultural resources analysis for the proposed project can be concluded without survey data from the eleven acres of steep terrain or from the outstanding regulatory buffer areas. Staff does, however, need the applicant to survey the I-40 ROW, and would appreciate further information on the PG&E parcel.

## DATA REQUESTS

107. Please provide an update on the status of the application for the Caltrans encroachment permit and a preliminary schedule for the completion of the pedestrian survey of the I-40 ROW.
108. Please provide more specific information on the size and the location of the PG&E parcel, and describe the anticipated use of the parcel for the proposed project.

## REFERENCES

**Harvey and Wells 2003 — A.M. Harvey and S.G. Wells.** Late Quaternary Variations in Alluvial Fan Sedimentologic and Geomorphic Processes, Soda Lake Basin, Eastern Mojave Desert, California. In *Paleoenvironments and Paleohydrology of the Mojave and Southern Great Basin Deserts. Geological Society of America Special Paper 368:207–230.*

**McDonald, McFadden, and Wells 2003 — E.V. McDonald, L.D. McFadden, and S.G. Wells.** Regional Response of Alluvial Fans to the Pleistocene-Holocene Climatic Transition, Mojave Desert, California. In *Paleoenvironments and Paleohydrology of the Mojave and Southern Great Basin Deserts. Geological Society of America Special Paper 368:189–205.*

**SES Solar One 2009 — SES Solar One, LLC/C.** Champion (tn 50880). In *Supplemental Information in Response to CEC Data Adequacy Requests, Application for Certification (08-AFC-13), SES Solar Three, LLC and SES Solar Six, LLC, dated April 2009. Submitted to CEC/Docket Unit on 04/6/09.*

**Wells, McFadden, and Dohrenwend 1987 — S.G. Wells, L.D. McFadden, and J.C. Dohrenwend.** Influence of Late Quaternary Climatic Changes on Geomorphic and Pedogenic Processes on a Desert Piedmont, Eastern Mojave Desert, California. *Quaternary Research 27:130–146.*

## ATTACHMENT 1

### ***California Energy Commission Staff Template for Class III, Phase I Archaeological Site Descriptions***

Energy Commission staff here provides a template for the description of archaeological sites on the basis of data that one would gather as a result of a class III, phase I intensive pedestrian cultural resources survey. The template represents consultation and consensus between Energy Commission staff and the staff of the Barstow Field Office of the Bureau of Land Management (BLM).

The present template represents informal guidance from Energy Commission and BLM staff about the level of information that staff needs to reasonably well inform the analysis of the potential impacts of the proposed project on cultural resources and to develop the protocols and procedures that would ensure the avoidance, minimization, or mitigation of any such impacts. The intent of the template is to provide the applicant with further, more concrete clarification and direction on Data Request 97 above.

Please note that staff has not completed the entire outline. Subheaders such as II.B.3 below that have a greater amount of detail are to be extrapolated by the applicant to other analogous subheaders. The applicant is free to organize the information in the template differently to better suit the style of the authors who will revise the site descriptions for the proposed project. Staff only requests that the applicant chose one consistent format and include all of the information set out and implied by the template below.

An example site description from an unrelated project is provided below to help clarify the template. The example description is written from a staff perspective. The applicant would naturally need to adjust the perspective to that of the applicant. The resultant site descriptions are to be incorporated, *en masse*, into the Technical Report, and will be added to by Energy Commission staff and incorporated into the Energy Commission's staff assessment. The use of phrases in the example that refer to information that is "unreported" or that is "reported to be" indicates, in the former case, information that the applicant should have provided but did not, or, in the latter case, information for which the applicant does not provide compelling descriptive context. In contrast to the example description, the preliminary evaluations that are to be written under IV below should make reference to both the National Register of Historic Places and the California Register of Historical Resources (CRHR).

#### *Site Description Template*

- I. Objective Site Overview
  - A. Objective General Physical Description of Site Archaeology
  - B. Location of Site Relative to Project Area
  - C. Assessment of Site Deposit Depth
  - D. Geomorphic Location of Site
  - E. Physical Character of Site Surface
  - F. Site Surface Vegetation



- II. Objective Descriptions of Site Loci, Architectural Ruins, Features, and Material Culture Concentrations and Scatters
  - A. Objective Physical Description of Material Components of Site, by Apparent and Defensible Chronological Period, and Component Articulation
  - B. Prehistoric Archaeological Site Components
    - 1. Archaeological Loci Descriptions
      - a. Objective Physical Description of the Number and Intra-Locus Distribution of B.2–5 Below, as Applicable
      - b. Individual Objective Physical Descriptions of Each Component in B.1.a Above
    - 2. Architectural Ruin Descriptions
    - 3. Archaeological Feature Descriptions
      - a. Objective General Physical Description of Feature
      - b. Location of Feature Relative to Other Site Components
      - c. Objective Descriptions of Feature Structure, the Material Constituents of the Feature, and the Feature Fill
      - d. Known Dimensions of Feature and Assessment of Dimension Accuracy
      - e. Inventory of Artifact and Ecofact Constituents of Feature Fill that Follow Guidance of Data Request 117.c.
    - 4. Material Culture Concentration Descriptions that Follow Guidance of Data Request 117.c.
    - 5. Material Culture Scatter Descriptions that Follow Guidance of Data Request 117.c.
  - C. Historical Archaeological Site Components
    - 1. Archaeological Loci Descriptions
    - 2. Architectural Ruin Descriptions
    - 3. Archaeological Feature Descriptions
    - 4. Material Culture Concentration Descriptions
    - 5. Material Culture Scatter Descriptions
- III. Site Geoarchaeology
  - A. Thorough Description of Geomorphic Context of Site Material Constituents
  - B. Discussion of Influence of Landform Depositional Regime on Site Formation
  - C. Discussion of Influence of Landform Depositional Regime on Site Taphonomy
- IV. Preliminary Evaluations of Historic Significance of Site Temporal Components
  - A. Preliminary Evaluation of Prehistoric Components
    - 1. Behavioral Interpretation of Prehistoric Components
    - 2. Preliminary Evaluation of Historic Significance of Prehistoric Components as
      - a. Individual Resources
      - b. Contributing Elements to Existing or Potential Prehistoric Archaeological Districts or Landscapes
    - 3. Assessment of Need of Additional Information to Conclude Evaluation of Prehistoric Components
  - B. Preliminary Evaluation of Historical Components

### *Example Site Description*

Site 3 is an oblong archaeological deposit that includes both prehistoric and historic components. The deposit is approximately three-quarters of mile to the west of the project site and 300 feet west of SR 14. The long axis of the deposit parallels and is adjacent to an improved dirt road that runs roughly northwest from SR 14 to a nearby electrical substation. The prehistoric component appears to be a surface phenomenon, while the historic component appears to occur in both surface and subsurface contexts. The present site surface appears to be on a mid-to-lower slope of the Pine Tree Wash alluvial fan. The predominant vegetation type on the site appears to be Mojave Creosote Bush Scrub.

The surface component of the site measures approximately 127 meters from northwest to southeast and 37 meters from northeast to southwest, and includes three concentrations of predominantly historic artifacts, which appear to be partially buried. Surface observations of the concentrations suggest that shallow depressions may have been mechanically excavated through the gravelly deposits on this portion of the Pine Tree Wash alluvial fan, filled with historic refuse, and then partially buried with the excavated dirt and gravel. The archaeologists for the applicant note that construction-related debris and miscellaneous hardware dominate the overall artifact assemblage of the concentrations, although household refuse is present.

Concentration 1, the most northwesterly of the three concentrations on the site, includes the entire prehistoric component of the site, in addition to a concentration of historic artifacts. The concentration measures 5.5 meters from north to south and 6 meters from east to west. The prehistoric component is a sparse scatter of 10 artifacts which includes 1 core, 1 unmodified nodule of obsidian, and 8 stone flakes. The further character of the artifacts is unreported. The historic component of Concentration 1 includes glass, ceramic, tin can, wood, and metal assemblages, and automobile parts. The glass assemblage includes what is reported to be a wine bottle fragment, 11 fragments of flat (window) glass of unreported color, 2 fragments of aqua glass, and 15 fragments of what are reported to be pink frosted glass. The ceramic assemblage is reported as polychrome, glazed, and earthenware fragments. The tin can assemblage includes what is reported to be a Prince Albert tobacco tin and modern food tins (sanitary cans) of unreported character. The wood assemblage is milled lumber of unreported quantity, dimensions, or finish. The metal assemblage includes 1 metal spike, crown caps, 1 gun cartridge, 1 spring, and 15 wire nails. The automobile parts include tire fragments, one air filter, one hose, and an unreported quantity of nuts. The further character of the artifacts in Concentration 1 is unreported.

Concentration 2, approximately 41 meters southeast of Concentration 1, is a historic refuse deposit and measures approximately 4 meters from north to south and 3 meters from east to west. The concentration includes glass, ceramic, tin can, and metal assemblages, and automobile parts. The glass assemblage includes one Delaware Punch bottle fragment with the embossed date of "March 4 1924" (bottle patent date), and two fragments of brown glass. The ceramic assemblage appears to be reported as three glazed ceramic tile fragments. The tin can assemblage is reported to be a Prince Albert tobacco tin. The metal assemblage is four wire nails and an unreported quantity or type of wire mesh. The balance of the reported portion of the concentration is

reported as miscellaneous car parts. The further character of the artifacts in Concentration 2 is unreported.

Concentration 3, roughly adjacent to and southeast of Concentration 2, is a historic refuse deposit that measures approximately 5 meters from north to south and 5 meters from east to west. The concentration includes glass, ceramic, and metal assemblages, and automobile parts. The glass assemblage includes one fragment of frosted glass of unreported color. The ceramic assemblage includes what is reported to be two glazed porcelain tile fragments and one earthenware fragment. The metal assemblage is one wire fan cover, one crown cap, and three wire nails. The balance of the reported portion of the concentration is reported as miscellaneous car parts. The further character of the artifacts in Concentration 3 is unreported.

The more particular physical context for Site 3, extrapolating information from Cultural Resources Figure X to the location of the site, appears to be landform designation Hf3 (see "Geoarchaeology Study" subsection, above). The surface and subsurface aspects of the landform represent moderate- to high-energy deposition of rocks and sediment by water flowing through ephemeral stream channels on and across the middle slopes of the Pine Tree Wash alluvial fan. Although it is presently not known whether the site includes subsurface prehistoric archaeological deposits, older archaeological materials on and in this part of the alluvial fan are less likely to retain spatial associations that reflect the behavior of the people who made, used, or discarded such materials. Older artifacts found on the surface of the alluvial fan or eroding out of the deposits of rock and sediment that form it have often been washed down from a higher elevation and have simply become another part of the inorganic matrix of the fan. Archaeological materials rearranged in such a manner rarely offer the potential to yield information important to prehistory or history.

The archaeologists for the applicant interpret the historic component of Site 3 to reflect three dumping events in the early-to-mid-twentieth century. They cite the apparent similar method of refuse disposal among the three concentrations and the relative similarity of the artifacts in the concentrations as evidence that the same individual or group of people are likely to have been responsible for the deposits and that the deposits may originate from a single source. The archaeologists recommend that Site 3, be found ineligible for listing in the CRHR, primarily due to the difficulty in associating the deposit with important historic themes or persons.

The archaeologists did conduct additional archival research for the evaluation program. The study of five USGS maps for the area that date 1915, 1923, 1943, 1947, and 1956 found no structures along the improved dirt road that now fronts the site or within one mile of the site. While the resolution of the documentation for the deposits makes it difficult to assess the actual date ranges that they represent and to thereby more narrowly focus the potential association of the deposits with important historic themes or persons, staff nonetheless recommends that the historic component of Site 3 is not eligible for listing in the CRHR, because it is highly improbable that the deposit, which appears, on the basis of the above information and a field inspection of the site by staff, to be a Depression-era assemblage, would ever be able to yield information important to the early twentieth-century history of the western Mojave Desert.

The archaeologists for the applicant do not explicitly address whether the prehistoric component of Site 3 is eligible for listing in the CRHR. The sparse character of the surface assemblage, the apparent absence of archaeological materials that would facilitate the placement of the deposit in time, and the apparent loss of the original spatial associations among the artifacts in the assemblage for the site would appear, collectively, to indicate that the component does not have the potential to yield information important to prehistory. Staff therefore recommends that the prehistoric component of Site 3 is not eligible for listing in the CRHR.

**Technical Area:** Public Health  
**Author:** Dr. Alvin Greenberg

## **BACKGROUND**

In section 5.16.2.3 of the AFC it says that the only stationary sources of Toxic Air Contaminants (TAC) emissions are the emergency diesel generator and emergency diesel fire pump, which would each be operated for 15 minutes a week. However, section 5.16.2.4 states that the Health Risk Assessment (HRA) was conducted using emissions only from the diesel emergency generator engine and there is no mention of the fire pump. The lack of inclusion of the fire pump is reiterated in Table 5.16-1 which provides emission factors for the emergency generator only and for 13 hours of operation per year (based on 15 minutes per week of one engine operated). To further add to staff's confusion, Air Quality section 5.2.2.2 states that the only stationary source of emissions is the diesel emergency generator and that it would be operated for 60 minutes per week (52 hours per year). The HRA calculations in Appendix DD are based on the emissions listed in Table 5.16-1, which are apparently only for 13 annual hours of one diesel engine operation.

In order to properly conduct its assessment of impacts on public health, staff need's to resolve these discrepancies and ensure that the emissions factors and HRA assess all emissions of TACs from stationary sources.

Furthermore, estimations of emissions of TACs from mobile sources such as the vehicles (including gasoline and hybrid vehicles) that will be used for mirror washing, servicing and maintenance of the Suncatchers, site inspection and security, and delivery and removal of supplies and waste are not addressed in the AFC or the Supplemental Information provided to staff's Data Adequacy Requests AQ-1 or AQ-4. In order to properly assess the risk posed to workers at the site and the off-site public, staff needs further information on the HRA, the historical use of the emergency diesel engines at times other than weekly testing and emissions of TACs from vehicles used on-site.

## **DATA REQUESTS**

109. Please clarify the discrepancies described above regarding the emissions factors and HRA for TACs from stationary sources and revise the HRA if appropriate.
110. Please provide historical use patterns of the emergency generator providing power at other facilities that use the Stirling SunCatcher technology. Include the frequency and duration of diesel power generation use. Also, please provide the same historical use information for the emergency fire water pump when activated to fight fires. Additionally, please add those diesel particulate matter (DPM) emissions and the weekly testing DPM emissions provided in the AFC to arrive at an estimated average daily and average annual DPM emission factor over a 30-year facility lifetime. Include all calculations used to arrive at those estimates.

111. Please provide TAC emission factors and air dispersion modeling results for solar field and equipment maintenance activities as per the modeling protocol described in the Supplemental Information provided in answer to staff's Data Adequacy Request AQ-4.
112. Please provide a cumulative PM2.5 emissions estimate on a daily and yearly basis when fugitive dust emissions are added to the DPM emissions from the above stationary sources, assuming that all DPM from diesel engines are PM2.5.

**Technical Area:** Socioeconomics  
**Author:** Robert Fiore

## **BACKGROUND**

Staff needs to know the year that corresponds to all dollar estimates. The time value of money should be reflected for all economic estimates.

## **DATA REQUEST**

113. Please verify the year for all economic estimates (e.g., construction cost, construction and operation payroll, property taxes, sales taxes, school impact fees, etc.) and IMPLAN construction and operation economic impacts which include secondary impacts.

## **BACKGROUND**

SES Solar One Supplemental Information (AFC Section 5.10.2.2, Construction Impacts on Public Facilities) states that additional fire protection and emergency response resources may be required as a result of the project.

## **DATA REQUEST**

114. Please provide a potential funding mechanism to fund the necessary additional fire protection and emergency response resources.

**Technical Area:** Traffic and Transportation  
**Author:** Robert Fiore

## **BACKGROUND**

Section 5.11.1.2 (Highways and Roadways) page 5.11-4 and Section 5.11.1.5 (Project Design Features) page 5.11-14 provides descriptions of the Hector Road and temporary construction access for the project during construction and operation, however, there are no plans provided to show the geometrics (turning radii, sight distance, grades, etc.) for these roadways and intersections. Also, the AFC does not provide discussion and plans for internal traffic movement and parking.

## **DATA REQUEST**

115. Please provide scaled plans (40-scale) for each access point into the proposed project site and the access to the laydown/construction area so that proper analysis of on-site access can be performed. Please also provide internal traffic movement and parking discussion and plans.

## **BACKGROUND**

Section 5.11.1.7 (Level of Service Concept) page 5.11-6 indicates that Caltrans does not have a freeway segment analysis procedure to evaluate freeway segments based upon average daily traffic (ADT). Caltrans has procedures for analysis of freeway road segments during the AM and PM peak hour. However, there is no mention of peak hour analysis.

## **DATA REQUEST**

116. Please provide Caltrans' peak hour delay and Level of Service for the freeway road segments during the AM and PM peak hours for the eastbound and westbound directions on Interstate 40 for all studied scenarios. Also, please provide the associated back up data (i.e. peak hour volumes and analysis worksheets).

## **BACKGROUND**

The CEQA Guidelines, Appendix G, Environmental Checklist Form, for Transportation and Traffic contain questions related to identifying potentially significant impacts related to emergency access and parking.

## **DATA REQUEST**

117. Please provide emergency access routes and geometrics (turning radii, load capacities, grades, etc.).

## **BACKGROUND**

Section 5.11.1.3 (Railroads) discusses the Burlington Northern Santa Fe (BNSF) Railroad.

## **DATA REQUESTS**

118. Please provide BNSF right-of-way (ROW) and setbacks requirements.
119. Please provide information pertaining to the California Public Utility Commission's requirements for crossing the BNSF ROW.



**Technical Area:** Visual Resources  
**Author:** William Kanemoto

## **BACKGROUND**

The visual section of the AFC presents a qualitative and/or anecdotal discussion of glint and glare impacts of the project but does not provide a detailed analysis sufficient to allay concerns about this issue, including the potential for hazard, disability or nuisance glare from the heliostats on motorists, train passengers and conductors, project workers, pilots, and others.

## **DATA REQUESTS**

120. Please provide a detailed quantitative analysis of the project's potential to cause different levels of glare impact (hazard, disability, nuisance) to motorists, train passengers, pilots and on-site workers. The analysis should describe:
  - a) specific project measures and characteristics that address those types of impacts;
  - b) mirror material and its reflective characteristics adequate to analyze levels of diffuse reflection;
  - c) potential for on-site workers to be exposed to harmful glare from heliostats in non-operational (stowed and transitional) positions, and measures to avoid or mitigate such exposure if it exists.
121. Please provide a map of all flight paths within the area of the project's potential glare effects.

## **BACKGROUND**

An understanding of potential glare impacts requires a clear understanding by staff of proposed heliostat tracking. According to the AFC (Glint and Glare, page 5.13-32) the heliostats do not track the sun from east to west, but only by seasonal solar altitude.

## **DATA REQUEST**

122. Please confirm and clarify these statements. Please provide the lowest and highest anticipated annual solar altitude positions of the heliostats.

## **BACKGROUND**

According to the AFC (Section 3.4.5.2) overhead power lines will collect and transmit power from the heliostat groups to the substation.

## **DATA REQUEST**

123. Please illustrate the numbers and typical spacing of those power lines in plan detail, and provide a dimensioned elevation of the proposed collection lines.

## **BACKGROUND**

AFC Figure 5.13-12 depicts what is described as worst-case views from Route 66, located a short distance south of Highway 40. However, the simulation appears possibly out of scale. In the simulation the project appears as though it were sited at a considerably lower grade than the adjoining highway. For example, the mirror units are described as 38 feet in height. Yet, the units nearest the trucks depicted on Highway 40 look both considerably smaller and lower in elevation than the adjacent trucks. The assumed height of the truck trailers would be roughly nine feet. Thus, one would expect the adjacent mirror units to be considerably taller (up to four times taller at low solar altitude (morning) position) than the trucks. Accounting for visual foreshortening due to distance between the roadway and the right-of-way boundary, and for possible grade differences, the discrepancy in scale and relative grade appears striking. For instance, in order for the nearest mirror unit to appear less than half the height of the adjacent nine-foot truck, the adjacent grade of the project would have to be at least 20 feet lower than road grade at the pedestal of the nearest mirror unit. While staff recognizes this possibility, if that condition is typical it would substantially affect the overall visual character and impacts of project Phase 2 as experienced by motorists. Accordingly, in order to assess the project's impacts, staff requires additional information to better understand the typical grade relationships between highway and the adjoining project site along the proposed project Phase 2 boundary.

## **DATA REQUESTS**

124. Please provide a close-up plan of the camera location of Figure 5.13-11 showing assumed topography and source, along with horizontal angle of view of the photo. Please also describe, preferably in plan, the plant layout setback assumptions being depicted. Finally, please check simulation model camera matching and adjust image if appropriate.
125. Please provide a scaled elevation drawing of a heliostat unit in front and side view with support structure, along with a description of minimum and maximum anticipated annual solar altitude.

## **BACKGROUND**

The simulation of KOP #5 (Figure 5.13-20) depicts the view to project Phase 2 from Highway 40 and is described as a 'worst-case' view from the highway. However, the simulation depicts the view along a one-mile segment of the highway with an atypical setback; in the simulation, the nearest heliostats are seen at a distance of approximately one mile. According to the layout plans provided in the AFC, however, most or all of the remaining highway frontage of project Phase 2, a remaining frontage of over three miles, would directly adjoin the highway right-of-way, placing heliostats in the immediate visual foreground of motorists. In such a situation, actual project setbacks and grade relationships to the roadway would have a substantial effect on the character and degree of project impacts. In order to assess the typical appearance and effects of the project along project Phase 2, staff requests an additional KOP/simulation.

## **DATA REQUEST**

126. Please prepare a simulation from an additional KOP, depicting the view of motorists on Highway 40 in the segment directly adjoining project Phase 2. The simulation should represent the view of westbound motorists on Highway 40, with the project Phase 2 in the roadside foreground as indicated in the AFC layout plans, with a 'normal' field of view, rotated to the northwest with mountains visible in the background. The photograph should not depict an atypical grade relationship to the highway, e.g. unusually low areas. Similarly, the simulation should depict the heliostats in an 'average' vertical (solar altitude) orientation, midway between lowest and highest overall height. Along with the simulation please provide a close-up plan depicting the simulation location, project siting assumptions depicted (e.g., setback from road), along with assumed topography and horizontal field of view of the photograph.

## **BACKGROUND**

The proposed satellite services complex is not depicted in the AFC project description.

## **DATA REQUEST**

127. Please provide a dimensioned plan and elevation of the satellite services complex.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION  
For the SES SOLAR ONE PROJECT**

**Docket No. 08-AFC-13**

**PROOF OF SERVICE**

*(Revised 7/14/09)*

**APPLICANT**

Felicia Bellows,  
Vice President of Development  
Tessera Solar  
4800 North Scottsdale Road,  
Ste. 5500  
Scottsdale, AZ 85251  
[felicia.bellows@tesseractosolar.com](mailto:felicia.bellows@tesseractosolar.com)

Camille Champion  
Project Manager  
Tessera Solar  
4800 North Scottsdale Road,  
Suite 5500  
Scottsdale, AZ 85251  
[camille.champion@tesseractosolar.com](mailto:camille.champion@tesseractosolar.com)

**CONSULTANT**

Bill Magdych  
AFC Project Manager  
URS Corporation  
1615 Murray Canyon Rd.,  
Ste. 1000  
San Diego, CA 92108  
[bill\\_magdych@urscorp.com](mailto:bill_magdych@urscorp.com)

**APPLICANT'S COUNSEL**

Allan J. Thompson  
Attorney at Law  
21 C Orinda Way #314  
Orinda, CA 94563  
[allanori@comcast.net](mailto:allanori@comcast.net)

**INTERESTED AGENCIES**

California ISO  
[e-recipient@caiso.com](mailto:e-recipient@caiso.com)

Jim Stobaugh  
BLM – Nevada State Office  
P.O. Box 12000  
Reno, NV 89520  
[jim\\_stobaugh@blm.gov](mailto:jim_stobaugh@blm.gov)

Rich Rotte  
Project Manager  
Bureau of Land Management  
Barstow Field Office  
2601 Barstow Road  
Barstow, CA 92311  
[Richard\\_Rotte@blm.gov](mailto:Richard_Rotte@blm.gov)

**INTERVENORS**

California Unions for Reliable  
Energy (CURE)  
Loulena A. Miles,  
Marc D. Joseph  
Adams Broadwell Joseph &  
Cardozo  
601 Gateway Boulevard,  
Ste. 1000  
South San Francisco, CA 94080  
[lmiles@adamsbroadwell.com](mailto:lmiles@adamsbroadwell.com)

**\*Basin and Range Watch  
Laura Cunningham  
Kevin Emmerich  
P.O. Box 70  
Beatty, NV 89003  
[atomatictoadranh@netzero.net](mailto:atomatictoadranh@netzero.net)**

**\*Patrick C. Jackson  
600 N. Darwood Avenue  
San Dimas, CA 91773  
E-MAIL SERVICE PREFERRED  
[ochsjack@earthlink.net](mailto:ochsjack@earthlink.net)**

**ENERGY COMMISSION**

JAMES D. BOYD  
Vice Chair and Presiding Member  
[jboyd@energy.state.ca.us](mailto:jboyd@energy.state.ca.us)

JEFFREY D. BYRON  
Commissioner and Associate Member  
[jbyron@energy.state.ca.us](mailto:jbyron@energy.state.ca.us)

Paul Kramer  
Hearing Officer  
[pkramer@energy.state.ca.us](mailto:pkramer@energy.state.ca.us)

Caryn Holmes, Galen Lemei  
Staff Counsels  
[cholmes@energy.state.ca.us](mailto:cholmes@energy.state.ca.us)  
[glemei@energy.state.ca.us](mailto:glemei@energy.state.ca.us)

Christopher Meyer  
Project Manager  
[cmeyer@energy.state.ca.us](mailto:cmeyer@energy.state.ca.us)

Public Adviser  
[publicadviser@energy.state.ca.us](mailto:publicadviser@energy.state.ca.us)

**DECLARATION OF SERVICE**

I, Hilarie Anderson declare that on July 20, 2009 , I served and filed copies of the attached Data Requests Set 1, Part 2, dated July 20, 2009. 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/solarone](http://www.energy.ca.gov/sitingcases/solarone)].

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, in the following manner:

**(Check all that Apply)**

**FOR SERVICE TO ALL OTHER PARTIES:**

  x   sent electronically to all email addresses on the Proof of Service list;

  x   by personal delivery or by depositing in the United States mail at Sacramento, CA with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

**AND**

**FOR FILING WITH THE ENERGY COMMISSION:**

  x   sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (***preferred method***);

**OR**

       depositing in the mail an original and 12 paper copies, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 08-AFC-13

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct.

**Original Signature in Dockets**  
**Hilarie Anderson**