AIRPORT LAND USE COMMISSION
RIVERSIDE COUNTY
AGENDA

Riverside County Administration Center
4080 Lemon St., Hearing Room (1st Floor)
Riverside, California

DOCKET
09-AFC-6
DATE
RECD. JUN 07 2010

Thursday 9:00 a.m., June 10, 2010

County Administrative Center
4080 Lemon St., 9th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

NOTE: If you wish to speak, please complete a "SPEAKER IDENTIFICATION FORM" and give it to the Secretary. The purpose of the public hearing is to allow interested parties to express their concerns. Comments shall be limited to 5 minutes and to matters relevant to the item under consideration. Please do not repeat information already given. If you have no additional information, but wish to be on record, simply give your name and address and state that you agree with the previous speaker(s). Also please be aware that the indicated staff recommendation shown below may differ from that presented to the Commission during the public hearing.

Non-exempt materials related to an item on this agenda submitted to the Airport Land Use Commission or its staff after distribution of the agenda packet are available for public inspection in the Airport Land Use Commission's office located at 4080 Lemon Street, 9th Floor, Riverside, CA 92501 during normal business hours.

In compliance with the Americans with Disabilities Act, if any accommodations are needed, please contact Barbara Santos at (951) 955-5132 or E-mail at basantos@rctlma.org. Request should be made at least 48 hours or as soon as possible prior to the scheduled meeting.

1.0 **INTRODUCTIONS**

1.1 CALL TO ORDER

1.2 SALUTE TO FLAG

1.3 ROLL CALL

2.0 **PUBLIC HEARING: NEW BUSINESS**

FLABOB AIRPORT

2.1 ZAP1015FL10 – Riverside County Economic Development Agency, for Riverside County Regional Park and Open-Space District – (Representative: Jill Efron/RHA Landscape Architects Planners Inc.) - Rancho Jurupa Sports Complex (Amended proposal) – A park with soccer fields, including lighted soccer fields, picnic shelters, playground with play structures, restroom/concession building, and storage building, on a 36.54-acre site located northerly of Crestmore Road and 46th Street, westerly of Loring Ranch Road, and southerly of Flabob Airport in the unincorporated Riverside County community of Rubidoux. ALUC Staff Planner: Russell Brady at (951) 955-0549, or e-mail at rbrady@rctlma.org. or John Guerin at (951) 955-0982, or e-mail at jguerin@rctlma.org.

Staff Recommendation: CONDITIONALLY CONSISTENT

MARCH AIR RESERVE BASE

2.2 ZAP1064MA10 – Christian Singletary (Representative: SDH & Associates, Inc. – Steve Sommers) – City Case No. P10-0021 and P10-0234. The applicant proposes to develop nine industrial buildings with a total gross floor area of 76,520 square feet on a 6.7 gross acre site located easterly of San Gorgonio Drive, southerly of Mt. Baldy Drive, northerly of Alessandro Boulevard, and westerly of Sycamore Canyon Boulevard in the City of Riverside, and to change the zoning of the site from Commercial Retail (CR) to Business and Manufacturing Park (BMP). Airport Area II within the March Air Reserve Base Influence Area. ALUC Staff Planner: Russell Brady at (951) 955-0549, or e-mail at rbrady@rctlma.org. or John Guerin at (951) 955-0982, or e-mail at jguerin@rctlma.org.

Staff Recommendation: CONSISTENT

HEMET RYAN AIRPORT

2.3 ZAP1020HR10 – T-Mobile West Corporation (Representative: James A. Rogers) – County Case No. PP24486. PP24486 is a proposal to construct a 65-foot tall monopalm wireless facility including twelve panel antennas, microwave dish, one parabolic antenna, equipment cabinets, and 6-foot high chain link fence on a 4-acre property located southerly of State Highway Route 74 and easterly of Cordoba Road in unincorporated Riverside County. (Hemet Ryan Airport: Area III). *Note: Recommendation subject to change on date of hearing. ALUC Staff Planner: Russell Brady at (951) 955-0549, or e-mail at rbrady@rctlma.org. or John Guerin at (951) 955-0982, or e-mail at jguerin@rctlma.org.

Staff Recommendation: CONTINUANCE to August 12, 2010

3.0 **PUBLIC HEARING: OLD BUSINESS**

FRENCH VALLEY AIRPORT

3.1 ZAP1035FV09 and ZAP1004FV06 – H.G. Fenton Development Co./Fred J. Fleming (Representatives: Allen Jones and Karen Ruggels) - ZAP1035FV09: County Case Nos. CZ07690 (Change of Zone) and SP00265S1 (Substantial Conformance to Specific Plan). ZAP1004FV06: County Case No. PM35212 (Commercial/Industrial Parcel Map). These cases relate to a 56.95-acre site located easterly of Winchester Road, southerly of Sparkman Way (Airport Entrance Road), westerly of French Valley Airport, and northerly of an easterly straight-line extension of Hunter Road, in the unincorporated French Valley area. The site comprises Planning Areas 11.1 and 21.1 along with a portion of Planning Area 21.2, within the Borel Airpark Specific Plan. The site is and would remain zoned SP (Specific Plan), but the allowed land uses and development standards would change from a basis of A-1-10 (Light Agriculture, 10 acre minimum lot size) and C-P-S (Scenic Highway Commercial) to C-O (Commercial-Office) and C-P-S, in accordance with the Specific Plan. Offices, health and exercise centers, and laboratories would be among the permitted uses. PM35212 would divide the site into 20 commercial/industrial lots, with 8.43 acres of road rights-of-way. Airport Compatibility Zones B2 and D. ALUC Staff Planner: John Guerin at (951) 955-0982, or e-mail at jguerin@rctlma.org. (Continued from January 14, February 11, and March 11, 2010)

Staff Recommendation: CONSISTENT

BLYTHE AIRPORT

3.2 ZAP1006BL10 – Palo Verde Solar I, LLC – California Energy Commission Docket No. 09-AFC-6. The project proposes to construct a nominal 1,000 megawatt solar thermal electric generating facility on 9,400 acres of BLM managed land, including four units of north-south oriented tracking parabolic trough mirrors, four 120-foot tall air-cooled condensers, a 230 kV transmission line with maximum 145-foot tall monopoles, and a four-inch diameter 9.8-mile long natural gas pipeline. (Blythe Airport: Zones B1, C, D, and E). ALUC Staff Planner: John Guerin at (951) 955-0982, or e-mail at jguerin@rctlma.org or Russell Brady at (951) 955-0549, or e-mail at rbrady@rctlma.org. (Continued from April 8 and May 13, 2010)

Staff Recommendation: Direct staff to prepare a letter to the California Energy Commission

PERRIS VALLEY AIRPORT

3.3 ZAP1003PV10 – City of Perris (Representative: Brad Eckhardt, Planning Manager) – City Case No. SPA 08-08-0004 (Specific Plan Amendment). The City proposes to adopt a comprehensive revision to the Downtown Specific Plan. The plan designates allowable land uses and densities and prescribes development standards within the 735-acre Downtown Perris area, which is located southerly/southwesterly of Interstate 215, northerly of Ellis Avenue, westerly of Redlands Avenue, and easterly of "A" Street. The existing Specific Plan was adopted in 1993 and allows for a mix of residential, commercial, industrial, and public land uses at various densities. The comprehensive revision is designed around a Regulating Code that focuses on the form and placement of buildings, with the intent of developing a Transit-Oriented Community (focusing on the future Metrolink Station) with a mix of land uses at densities that support transit and meet Housing Element requirements. (Perris Valley Airport: Zones I, II, III on current map; A through E on proposed plan). ALUC Staff Planner: John Guerin at (951) 955-0982, or e-mail at jguerin@rctlma.org or Russell Brady at (951) 955-0549, or e-mail at rbrady@rctlma.org. (Continued from April 8 and May 13, 2010)

Staff Recommendation: CONTINUANCE to August 12, 2010

4.0 **ADMINISTRATIVE ITEMS**

4.1 Director's Approvals

4.2 Election of At Large Commission Member

5.0 **APPROVAL OF MINUTES**
May 13, 2010

6.0 **ORAL COMMUNICATION ON ANY MATTER NOT ON THE AGENDA**

7.0 **COMMISSIONER'S COMMENTS**

COUNTY OF RIVERSIDE
AIRPORT LAND USE COMMISSION
STAFF REPORT

AGENDA ITEM: *3.2* ~~*3.1*~~ ~~2.3~~

HEARING DATE: ***June 10, 2010*** ~~**May 13, 2010**~~ **(continued from *May 13 and*** April **8,** ~~18,~~ 2010**)**

CASE NUMBER: ZAP1006BL10 – Palo Verde Solar I, LLC (Representative: Howard Balentine)

APPROVING JURISDICTION: California Energy Commission

JURISDICTION CASE NO.: 09-AFC-06

MAJOR ISSUES:

~~**Materials submitted with the application include analysis of the proposed project's impacts from structure heights, radio frequency interference, reflectivity/glare, and thermal plumes. While the analysis addresses each impact at length, substantial information is not provided to determine the actual anticipated impacts on the Blythe Airport. In addition, information on provision of a minimum 10% open space area within Compatibility Zone D and analysis on cumulative impacts of hazards to flight were not included. ALUC staff prepared a letter (attached to this staff report) to the applicant on March 22nd requesting the specific additional information needed by staff to make a recommendation of consistency to the Commission.**~~

1. ***Proposed aboveground line extends through Compatibility Zones*** ~~***B1 and***~~ ***C;***
2. ***Possible visible plume from Power Block 4 partially within AIA boundary;***
3. ***Effect on radio communications used by pilots;***
4. ***Reflectivity/glare from Heat Conducting Element tube;***
5. ***Thermal plumes from air-cooled condenser and auxiliary cooling tower; and***
6. ~~***Compliance with Zone D Open Area requirements; and:***~~
7. ~~*7.*~~ ***Cumulative impacts of multiple energy projects.***

RECOMMENDATION:

~~**At the time of the writing of this staff report, staff has not received the requested information from the applicant or their representative. The applicant's representative has indicated that the requested information would not be able to be provided by the April 8th hearing and has requested a continuance.** ~~***Staff recommends that the Commission CONTINUE this matter without discussion* to the meeting of *May 13, 2010*, pending submittal, review, and adequacy of the requested information.~~

~~***At this time, ALUC staff believes that available data is not adequate to enable a finding of consistency for this project.***~~

The California Energy Commission staff has requested an independent review of the effects of this project on the operation of Blythe Airport, but the results of these studies will not be available in time for the June 10 public hearing. The applicant's representative has provided additional information in an attempt to demonstrate that the project does not present a flight hazard. That information is included herewith for your review. ALUC staff does not claim expertise in analysis of this information.

If the Airport Land Use Commission is satisfied that the information that the applicant has provided is sufficient to determine that the project will not individually constitute or cumulatively contribute to a hazard to flight, the Commission should direct staff to forward a letter to the California Energy Commission advising of such a finding, along with the recommended conditions (that could be incorporated into the project environmental document as mitigation measures). This action would conclude ALUC review and be the equivalent of a finding of conditional consistency (pending completion of FAA Form 7460 reviews).

If the Airport Land Use Commission (ALUC) is not satisfied that the information that the applicant has provided is sufficient to demonstrate that the project will not individually constitute or cumulatively contribute to a hazard to flight, staff recommends that ALUC, after consideration of any additional testimony at the June 10 hearing, direct staff to forward a letter to the California Energy Commission (CEC) advising CEC of the concerns that are yet to be satisfied. In this situation, ALUC may decide to continue the matter to a forthcoming hearing (either in August or through the establishment of a special hearing in July, which could include other items continued from this agenda).

If ALUC finds that the project would individually constitute or cumulatively contribute to a hazard to flight, staff recommends that ALUC direct staff to forward a letter to the CEC advising of such a finding and recommending that the portion of the array within the Airport Influence Area be excluded from the project.

~~***enable a finding of consistency, it would seem logical to open the public hearing and consider testimony, but CONTINUE this matter with discussion to the Commission's***~~

~~*June 10 hearing. (It should be noted that there is a possibility that the results of the independent studies will not be available in sufficient time to allow ALUC staff analysis prior to the June meeting.)*~~

PROJECT DESCRIPTION:

The project proposes to construct a nominal 1,000 megawatt solar thermal electric generating facility on 9,400 acres of BLM managed land, including four units of north-south oriented tracking parabolic trough mirrors, four 120-foot tall air-cooled condensers, a 230 kV transmission line with maximum 145-foot tall monopoles, and a four-inch diameter 9.8-mile long natural gas pipeline.

PROJECT LOCATION:

The project site is located northwesterly of the Blythe Airport, with the closest parcel located approximately 4,650 feet northwesterly of the north end of Runway 17-35, in Sections or portions of Sections 1-5, 8-15, 23-24 of Township 6 South, Range 21 East and in Sections or portions of Sections 6, 7, and 18 of Township 6 South, Range 22 East. Blythe Airport is located northerly of Interstate 10 and Hobsonway and easterly of Mesa Drive, in unincorporated Riverside County.

LAND USE PLAN: 2004 Blythe Airport Land Use Compatibility Plan

a.	Airport Influence Area:	Blythe Airport
b.	Land Use Policy:	Airport Compatibility Zones B1, C, D, and E
c.	Noise Levels:	Outside the 55 CNEL contour

BACKGROUND:

California Energy Commission: Due to the project being a thermal solar project exceeding 50 Megawatts, the project's review falls under the jurisdiction of the California Energy Commission (CEC). At this time, the CEC has released a Staff Assessment and Draft Environmental Impact Statement (EIS), which includes analysis of the project's impact on the Blythe Airport. In order for the CEC to better determine the project's consistency with applicable laws, ordinances, regulations and standards (LORS), the EIS recommended that the proposed project file an application with the RCALUC to determine consistency with the Blythe Airport Compatibility Plan. ~~The~~ ***Any*** determination of consistency by the ALUC ~~is~~ ***would be*** advisory to the CEC.

The issue of airport land use compatibility was addressed at a public workshop held by California Energy Commission staff in Palm Springs on April 28.

Flight Hazard Issues: Structure height, electrical interference, reflectivity/glare, and thermal plumes are among the issues that renewable energy facilities in the airport

influence area must address. The majority of structures proposed by the project are located outside of the Blythe Airport ***Influence*** Area. The southeasterly most portion of the project, Solar Unit #4, is located within Zones D and E. The majority of structures of substantial height are located at the center of the solar unit, known as the power block. Within this power block is located the 120 foot air cooled condenser (ACC). According to the materials provided, the ACC is located just outside of the Airport Influence Area and, therefore, would not be subject to its height restrictions. ~~Staff has requested a more detailed map showing the boundaries of the AIA in relation to the precise location of the ACC.~~ **The applicant team has provided a diagram depicting the location of Power Block 4 in relation to the Airport Influence Area (AIA) boundary. The applicant team estimates that the actual air cooled condenser location is approximately 135 feet outside the boundary of the Airport Influence Area, and is willing to accept a condition that a registered land surveyor confirm that the facility is located outside the AIA boundary.**

The 230 kV transmission line generally crosses southerly from the main project site across Compatibility Zones E, D, ***and*** C ~~, and B1~~ perpendicular to runway 8/26 before turning westerly to its connection with the SCE substation. The maximum height of the transmission poles ~~to be 145 feet spaced 1,000 feet apart~~ **would ~~be~~** ***not exceed*** **145 feet** ***in height. Poles would not exceed a height of ninety (90) feet in Zone D and seventy (70) feet in Zone C. It should be noted that the transmission line pole locations would likely be the same within Zones C and D whether or not the portion of the array within the Airport Influence Area is developed.*** ~~, with a portion of the transmission line's poles being limited to 90 feet in height **and** spaced 800 feet apart. No map based information was provided with the application showing the height of the transmission poles in relation to the Airport Compatibility Zones. This information has been requested to determine consistency with height restrictions for each applicable Compatibility Zone as well as flight path clearance of the transmission poles.~~ All other structures associated with the project meet the height restrictions of the applicable Compatibility Zones. **The applicant has provided an exhibit and table identifying the height and Compatibility Zone location of each proposed pole.**

At the April 8 public hearing, Commission Chairman Simon Housman advised that the transmission lines passing through Airport Compatibility Zones B1 and C should be sited underground. He expressed concerns that the airport maintain at least one unobstructed approach, noting that there are already obstructions easterly of the runway.

The applicant maintains that undergrounding a 230kV line would be prohibitively expensive and that "dissipation of heat from the power line into the surrounding dry sands would seriously reduce the amount of power able to be transmitted along the underground segment of the transmission line during the hottest days of the summer, precisely the time of the peak summer load on the California power grid."

ALUC staff raised the option of re-routing the line westerly of its proposed location to avoid areas within Compatibility Zones B1 and C. The applicant team responded

that this would be "potentially counter-productive," as a more westerly route would place the line at a much higher base elevation closer to the McCoy Mountains located westerly of the airport. These mountains basically delineate the westerly edge of the Palo Verde Valley. The applicant team maintains that poles at such locations would "pose a greater hazard to aviation than that posed by the proposed pole locations in Zones B1 and C" due to the greater elevation above sea level.

However, upon further review, the applicant agreed to amend the location of the line so as to avoid traversing Zone B1. For topographic reasons, avoidance of Zone C is not feasible.

The electromagnetic signal/noise emanating from the operation of electrical equipment of the project will be at base frequency 60 hertz with less intense higher frequencies from harmonics. ~~Navigation and communication signals typically utilized are substantially higher in frequency and therefore would not be impacted by electrical equipment proposed by the project. Information has been requested to confirm the signals in use at the Blythe Airport.~~

The applicant team has provided information indicating that gap noise and corona noise associated with the transmission line and the conductors will not result in interference with the use of the Blythe VORTAC signal *or with communications* ~~.ALUC staff has requested that the applicant team also address potential for interference~~ at frequencies used by pilots to communicate with the airport and with other aircraft in the area.

The project proposes to collect thermal solar energy via reflective parabolic troughs that redirect the sun's light to a Heat Conduction Element (HCE) that absorbs the heat generated and distributes it for conversion to steam energy for electricity generation by turbine. Although the majority of the reflected light is focused directly onto the HCE, some scattering of light may occur from the HCE, but not directly from the mirrored trough.

The materials submitted with the application include diagrams of how the parabolic trough functions and sample photographs from the solar array at ~~Kramer Junction~~ **Harper Lake** of light reflection and scattering from the HCE. These indicate that at a specific geometry of the HCE and the observer, there is a concentrated scattering of light from the HCE. The proposed project will construct a 25 foot tall windscreen which will block the scattering from observers from ground level.

In addition, the materials submitted include a sample analysis done for the Victorville 2 Hybrid Power Project (VV2), which is proposed to be located adjacent to the Southern California Logistics Airport (SCLA). As part of the review of this project, **staff members from the California Energy Commission and CALTRANS Aeronautics Division conducted** a test over-flight **of** ~~utilizing~~ the solar array at Kramer Junction, **including simulation of** ~~and simulating~~ an approach to land, based on the proposed layout of the VV2 project and its relation to the SCLA. Comments were also included

from staff from the CEC and City of Victorville that participated in the test. Their comments indicated that there was no glare created by the solar array based on the flight simulation conducted. ~~Although this test and the comments received from it indicate there is little concern for substantial glare to occur that would create a significant hazard to flight, there was no information provided to compare the layout of the VV2 project to the proposed Blythe project to determine if its conclusions are applicable.~~

Reflectivity, glint, or glare has been the central issue of concern for solar arrays such as the Blythe Solar Power Project. At the May 13 hearing, ALUC asked the project representative whether it would be possible – and, if so, at what times of day and seasons of the year – for reflection or glint from any element of the solar array to intersect Runway 26 or its centerline extended easterly at a height of 1,000 feet or less above ground level. (The concern relates to the potential for a flash or beam of light that would affect a pilot on a final approach to a landing on that runway – coming from the east and making a westbound landing.)

The project representative has concluded that the "variation in the sun azimuth and elevation angles during the year would be insufficient to produce the required alignment of the pilot on final approach, the normal to an HCE tube, and the sun." He also examined a scenario whereby the "sun is reflecting at a glancing angle off the side of a joint in the HCE tube" and determined that, while "the required solar geometry for the reflected ray to cross the approach to Runway 26 occurs for about ten weeks near sunrise on either side of the summer solstice," such "reflected ray will strike the ground approximately 350 feet from the reflection point."

The project proposes to cool waste heat from the steam cycle in each power block utilizing an air-cooled condenser (ACC). The ACC is basically a large open air radiator that dissipates heat to the atmosphere through air convection. Due to it being a dry cooling system rather than utilizing water, no visible plumes will be formed. However, the project will still result in the creation of thermal plumes which could result in a hazard to flight. Project materials note that a temperature rise less than 10°C (18°F) is anticipated for the ACCs. Based on the proposed fans utilized for the ACCs and the dimensions of the structure, a vertical velocity of 4.5 meters per second (m/s) is anticipated. The CEC utilizes a threshold of 4.3 m/s as a threshold of significance for the production of turbulence that could interfere with aircraft operation. The velocity of the plume typically decreases as it rises. In addition, as illustrated by project materials, none of the aircraft traffic pattern envelopes for the Blythe Airport take aircraft over the ACCs to be affected by the thermal plumes. **In this regard, the critical question may be at what heights above the top of the stacks does the vertical velocity remain at or above 4.3 meters per second. The plume velocity analysis prepared by William Walters and included in the Draft (CEC) Staff Assessment indicates that, under calm wind conditions, the average velocity would exceed 4.3 meters per second at heights up to 1,670 feet above ground level. Peak velocity could be twice the average velocity.**
The meaning of this statement is that the velocity would vary within the plume, with the velocities generally highest at the center (presumably directly over the facility) and lower as distance from the center point increases..

It is the applicant's contention that the analysis is based on "flawed assumptions and modeling techniques."

The applicant has also commissioned a flyover of an air cooled condenser at a Nevada Power generation facility in Primm, Nevada. The pilot will be present at the June 10 hearing to indicate the results of the flyover.

At the April 28 workshop, James Adams of CEC staff noted that Runway 17-35, the north-south runway, could experience a greater proportion of operations once Blythe 2 (the second conventional energy facility easterly of east-west Runway 8-26) becomes operational. In order to mitigate impacts of potential turbulence from thermal plumes from the Blythe 2 project, the CEC had required that the following conditions be satisfied prior to construction:

--- that a "remark [be] placed on the Airport's Automated Surface Observation System (ASOS), or equivalent broadcast, advising pilots to avoid low-altitude direct overflight of the power plant";
--- that "the VFR traffic pattern to runway 26 [be] changed from left-hand turns to right-hand turns; and"
--- that a "runway, other than runway 26 [be] designated as the primary calm wind runway."

Greater use of Runway 17-35 *could* ~~would~~ **increase the likelihood of flyover of the Unit #4 power block.** *However, as depicted on Figure 5 of the applicant's response dated May 27, 2010, conversion of Runway 26 to a right-hand pattern would not result in flyover of ACC-4 for the majority of aircraft (presuming that the right-hand pattern would be a mirror image of the left-hand pattern), although it would result in flyover of transmiossion lines farther to the south.*

The project also proposes to have one auxiliary two-cell wet cooling tower for each of the four power blocks. This cooling tower would be utilized to cool waste heat from the auxiliary boiler during startup and other non-routine startup operations. ~~No information was provided on how often, for how long, and what time of day these are to be used as well as the amount of temperature rise and velocity of the plumes to determine how these would affect aircraft operations.~~ The materials noted that these were not of concern as hazards to flight during the CEC's analysis. **While the rates of air flow and water circulation would be miniscule in comparison to the steam cycle cooling towers proposed at the Palmdale and Victorville energy plants, the "temperature of the exhaust air from the auxiliary cooling tower would be comparable to that for the steam cycle cooling tower since both plumes would essentially be saturated with water upon release and the temperature would be determined by the ambient temperature and relative humidity," according to the applicant team's statement.**

The project representative has asserted that the potential for a hazard to aviation from the cooling tower is negligible because (1) the facility is much smaller than the cooling tower of the Blythe Energy Project I tower and operates under a much reduced load;

(2) the facilities would be located outside the Airport Influence Area (AIA) and any plumes that may form would be "highly unlikely" to reach the AIA boundary; and (3) "under most circumstances, the plume from the auxiliary cooling tower will not extend above the top of the nearby air cooled condensers."

Open Area: Countywide land use compatibility criteria require that a minimum of 10% of land area in Airport Compatibility Zone D consist of open land as defined in Policy 4.2.4 of the ALUCP. Based on the materials submitted, it appears that the 10% requirement can be **met.** ~~meet. However, Information has yet to be provided on the project's proposed developed area within Zone D and the area to qualify as open space~~ **The applicant team *was* ~~has been~~ asked to submit a diagram demonstrating that at least 10 percent of the area within the proposed Blythe Solar Power Project right-of-way would be maintained as open land, in order** to verify compliance with the open area requirements***, and responded with a diagram demonstrating that 94.4 percent of the portion of the project within Zone D would remain as open land.***.

Part 77: Federal Aviation Administration obstruction evaluation review has commenced on the project. At the time of the submission of the application to ALUC, the FAA ***had*** ~~has~~ issued Determination of No Hazard to Air Navigation letters for the two easterly ACCs (ACC-1 and ACC-4) and for 39 transmission poles. Additional information was requested by the FAA on 15 transmission poles which are pending FAA's clearance.

Subsequently, two major changes to the routing of the transmission line have been made, and new Form 7460-1 applications have been made. Due to the large number of poles associated with this project and the size of this staff report packet, FAA's Letters of Determination and Requests for Additional Information are ***not*** attached to this staff report. ***However, staff has included copies of the status summary reports submitted by the applicant team.***

Noise: The site is located outside the area projected to be subject to average noise levels from aircraft operations in excess of 55 CNEL.

Public Comment: Two letters (in fax form) have been submitted in support of the proposed project.

CONDITIONS:

1. The following uses shall be prohibited:

   (a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.

(b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

(c) Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area.

(d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

2. Any outdoor lighting installed shall be hooded and shielded to prevent either the spillage of lumens or reflection into the sky.

~~3. If the panels are mounted on a framework, said framework shall have a flat or matte finish so as to minimize reflection of sunlight.~~

3. Prior to construction of Power Block #4, the permittee shall submit a statement from a licensed land surveyor verifying that the air cooled condenser within that Power Block is located outside the boundaries of the Blythe Airport Influence Area, as adopted in 2004.

4. In the event that any incidence of glare or electrical interference affecting the safety of air navigation occurs as a result of project operation, the permittee shall be required to take all measures necessary to eliminate such glare or interference.

5. The attached notice shall be provided to all potential purchasers, and shall be recorded as a deed notice for those parcels within the project located wholly or partially within an Airport Influence Area.

Blythe Area Chamber of Commerce
and Tourist Information Center

201 South Broadway
Blythe, California 92225
USA

Phone (760) 922-8166
Fax (760) 922-4010

May 12, 2010

Riverside Airport Land Use Commission
Attn: Chairman Simon Housman

Dear Commission:

As the Chief Operating Officer of the Blythe Area Chamber of Commerce, I am a strong supporter of the Solar Millennium project proposed just outside of our city. Aside from the several hundred jobs it will create in the area and the induced commerce that our community needs to weather the economic downturn, Solar Millennium has been a strong partner of the community from the beginning.

On a more specific note, I believe they have been more than accommodating in addressing any issue that may exist between the project and the nearby Blythe Airport.

Further more, the company, despite a loss in efficiency, voluntarily switched to a dry-cooling technology reducing its original estimated water usage by 90 percent. This will also provide for a significantly less impactful thermal plume, if any at all.

On behalf of the businesses in Blythe, I encourage you to support Solar Millennium's project. Thank you for your time.

Kindest regards,

Jim Shipley
Chief Operating Officer

Gregory E. Sprawls
10810 La Palma
Blythe, California 92225
(760) 989-9616

May 12, 2010

Riverside County Airport Land Use Commission
4080 Lemon Street
Riverside, California 92501
FAX (951) 955-0923

Commission,

I have been a private pilot since 1982, flying mainly out of the Blythe Airport. My opinions and beliefs have been developed from flying a small plane all over the western United States. There are many restricted flight areas whether it is military, prison, domestic housing, power plants, or even special events. Most pilots are familiar with this and take appropriate planning to get to their desired destination.

The proposal to build a solar facility adjacent to the Blythe Airport is brilliant. Neighborhoods complain about the noise when next to an airport. Industry is the perfect land use. There already is a trucking company operating next to the airport. The solar facility cooling station is not an obstacle for aircraft because of its location and it does not emit clouds of moisture. You are taught in Flight School that "wind is not weather" so the release of the cool air is not weather that hampers flight.

The positioning of your towers also seems to be well planned. Aircraft is designed to be in the air unless landing or parked. Pilots are uncomfortable close to the ground so immediately after rotating altitude is desired and landing is a very specific route and slope.

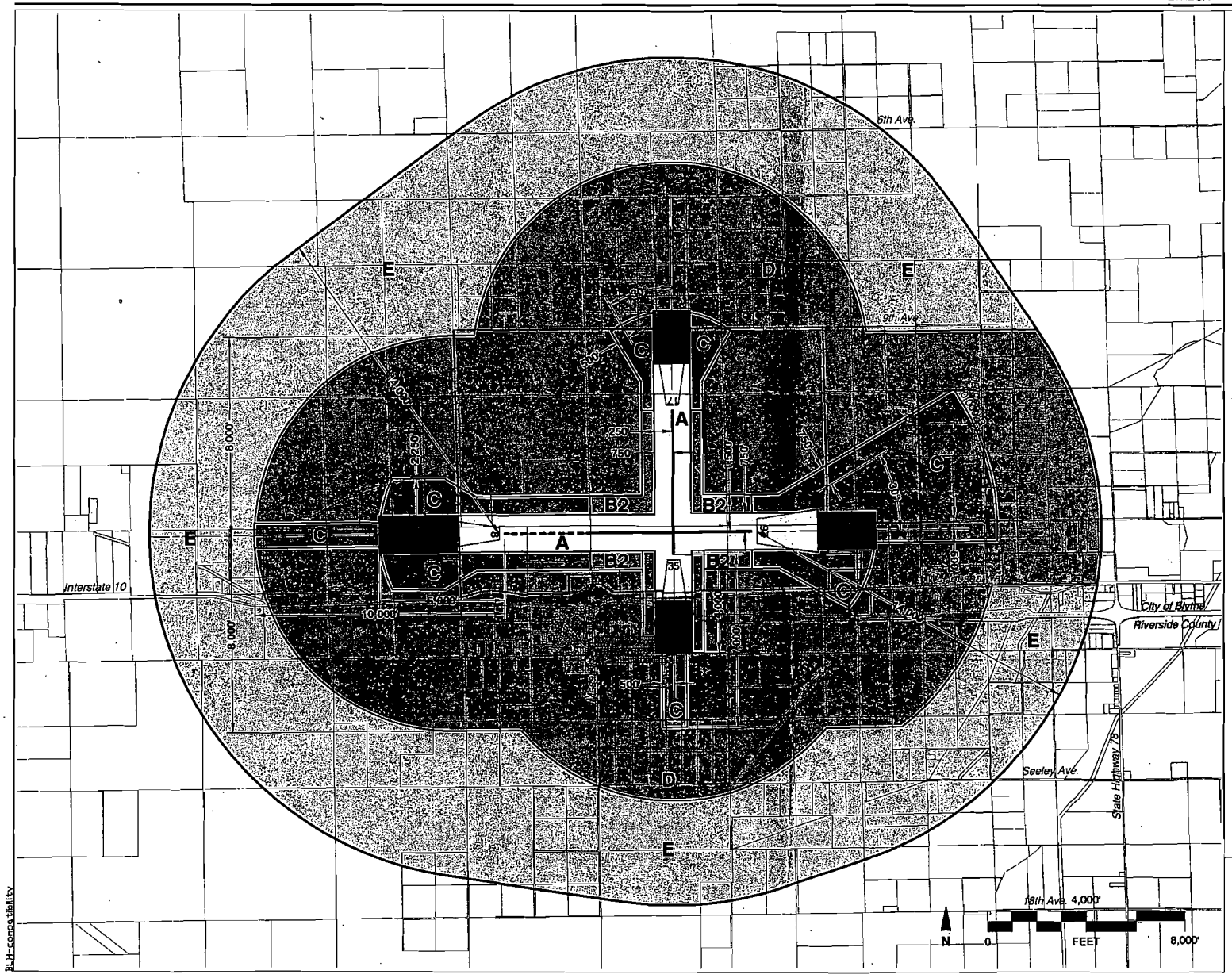
I encourage the construction of this type of industry next to the Blythe Airport. If I can be of any further assistance please do not hesitate to contact me.

Thank you for the opportunity to supply input.

Gregory E. Sprawls

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you. Business & Professions Code Section 11010 (b)(13)(A)



Legend

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C
- Zone D
- Zone E

Boundary Lines

- Airport Property Line
- City Limits

Note

Airport influence boundary measured from a point 200 feet beyond runway ends in accordance with FAA airspace protection criteria (FAR Part 77). All other dimensions measured from runway ends and centerlines.

See Chapter 2, Table 2A for compatibility criteria associated with this map.

Riverside County
Airport Land Use Commission

Riverside County
Airport Land Use Compatibility Plan
Policy Document

(Adopted October 2004)

Map BL-1

Compatibility Map

Blythe Airport

BLH-compatibility

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
BLYTHE SOLAR POWER PROJECT
PALO VERDE SOLAR, LLC

DOCKET NO. 09-AFC-6

NOTICE OF PREHEARING CONFERENCE AND EVIDENTIARY HEARING

PLEASE TAKE NOTICE that the Committee designated by the Energy Commission to conduct proceedings on the Application for Certification (AFC) for the **BLYTHE SOLAR POWER PROJECT** has scheduled the Prehearing Conference and Evidentiary Hearings as follows:

The Prehearing Conference will be conducted as follows:

THURSDAY, JUNE 17, 2010
Beginning at 2:00 p.m.

Bonderson Building
901 P Street
Hearing Room 102
Sacramento, CA 95814

The Evidentiary Hearing will take place on:

THURSDAY, JULY 15, 2010
Beginning at 10:00 a.m.

LOCATION TO BE DETERMINED

TELECONFERENCE OPTION: The following toll-free phone number will be available for callers to participate in both the prehearing conference and evidentiary hearing.

Call: 800-593-9996
Use Passcode: "Blythe"
Conference Leader: "Raoul Renaud"

PLEASE TAKE NOTICE that the Committee has established the following schedule which **supersedes** all prior schedules:

ITEM	DATE
Staff publishes Staff Assessment	3/11/10
Status Conference	4/15/10
Last day to file information requests	5/17/10
Staff publishes Revised Staff Assessment	6/4/10
Applicant files opening testimony	6/9/10
Staff and Intervenors file opening testimony	6/11/10
Last day to file Petitions to Intervene	6/16/10
All parties file rebuttal testimony and submit exhibits organized numerically and by topic (see below) to the Hearing Office	6/16/10
All parties file Prehearing Conference Statements	6/16/10
Prehearing Conference	6/17/10
Evidentiary Hearing	7/15/10
Issuance of Presiding Member's Proposed Decision (PMPD)	8/11/10
Committee Conference on PMPD (if necessary)	To Be Determined
End of 30-day comment period for PMPD	9/10/10
PMPD Errata (if necessary)	To Be Determined
Energy Commission Hearing--Final Decision	9/22/10

Purpose of Prehearing Conferences

The Prehearing Conference is a public forum where the Committee will assess the parties' readiness for an evidentiary hearing, identify areas of agreement or dispute, and discuss the remaining schedule and procedures necessary to conclude the certification process. (Cal. Code Regs., tit. 20, § 1718.5.)

At the Prehearing Conference, all parties (Staff, Applicant, and Intervenors) shall present their respective positions regarding: 1) the substantive topic areas ready for evidentiary hearing; 2) those topics that require further analysis, including the nature of, and time frame for, any such analysis; 3) the topic areas that have been resolved; and

4) the topic areas that are disputed and require adjudication, and topic areas where a party seeks an overriding finding of public necessity and convenience. (Pub. Res. Code § 25525.) The parties shall also identify proposed witnesses, as well as the time required for direct testimony and/or cross-examination.

We invite BLM representatives to attend the Prehearing Conference to facilitate coordination of BLM's process with this AFC process.

Local, state, and federal governmental agencies may participate at the Prehearing Conference and Evidentiary Hearings, as necessary. (Cal. Code Regs., tit. 20, § 1714.5.) Elected officials and members of the public may present public comments at these events and/or submit written comments to the Energy Commission's Docket Unit. Please include "Docket No.09-AFC-6" on any written comments.

Prehearing Conference Statements

To facilitate the process, each party shall serve and file a **PREHEARING CONFERENCE STATEMENT**. Each party's Prehearing Conference Statement shall be provided to and received by the other parties and the Commission's Docket Unit, 1516 9th Street, MS-4, Sacramento, California 95814-5512, **NO LATER than 3:00 p.m., Wednesday, June 16, 2010**. The parties shall e-mail their statements to the Hearing Officer as well as to the Docket Unit and the parties as indicated on the Proof-of-Service list. The parties shall also submit a **Word version** of their statements to the Hearing Officer via e-mail.

FAILURE TO FILE A TIMELY PREHEARING CONFERENCE STATEMENT MAY PRECLUDE A PARTY FROM PARTICIPATING AT THIS HEARING.

Each statement shall set forth under a separate heading:

a) The topic areas that are complete and ready to proceed to Evidentiary Hearing;

b) The topic areas that are not complete and not yet ready to proceed to Evidentiary Hearing, and the reasons therefor;

c) The topic areas that remain disputed and require adjudication, and the precise nature of the dispute for each topic;

d) The identity of each witness sponsored by each party (***note***: witnesses must have professional expertise in the discipline of their testimony); the topic area(s) which each witness will present; a brief summary of the testimony to be offered by each witness; qualifications of each witness; the time required to present direct testimony by each witness; and whether the party seeks to have the witness testify in person or telephonically;

e) Topic areas upon which a party desires to cross-examine witnesses, a summary of the scope of each such cross-examination (including voir dire of any witness' qualifications), and the time desired for each such cross-examination;

f) A list identifying exhibits and declarations that each party intends to offer into evidence and the technical topics to which they apply (as explained in the following section on Formats for Presenting Evidence);

g) Topic areas for which the Applicant will seek a commission override due to public necessity and convenience pursuant to Pub. Res. Code § 25525.

h) Proposals for briefing deadlines, impact of vacation schedules, and other scheduling matters; and

i) For all topics, any proposed modifications to the proposed Conditions of Certification listed in the Revised Staff Analysis (RSA) based upon enforceability, ease of comprehension, and consistency with the evidence.

Format for Presenting Evidence

The parties shall provide written testimonial and documentary evidence in two formats.

1. Each document shall be numbered and identified on an **Exhibit List (*Use the form attached to this Notice.*)**

   - Applicant's exhibits shall be numbered consecutively as **Exhibits 1 through 199.**
   - Staff's exhibits shall be numbered consecutively as **Exhibits 200 through 299.**
   - Intervenor CURE's exhibits shall be numbered consecutively as **Exhibits 300 through 399.**

   Printed copies of the Exhibits shall be provided to the Committee and other parties no later than 3 p.m. on the dates set forth in the filing schedule table, above. Failure to timely exchange Exhibits may result in exclusion of evidence.

2. To facilitate the Committee's efficient organization and review of the Project, printed copies of the exhibits for each topic area shall ***also*** be compiled in separate file folders designated by topic with the appropriate Exhibit Number attached to each document. This compilation shall include all opening and rebuttal testimony filed by the party and shall be provided to the Hearing Officer **no later than Wednesday, June 16, 2010.**

FAILURE TO COMPLY WITH THE FILING REQUIREMENTS STATED IN THIS ORDER MAY PRECLUDE A PARTY FROM PARTICIPATING AT THIS HEARING.

Official Notice

Pursuant to section 1213 of the Commission's regulations, the Committee intends to take Official Notice of the report issued by the Commission's Siting Committee entitled:

Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications.

The report was issued in March 2009 and is found on the Commission website at: http://www.energy.ca.gov/2009publications/CEC-700-2009-004/CEC-700-2009-004.PDF

Petitions to Intervene to Become a Formal Party

Only formal parties (Applicant, Staff, or Intervenors) may present evidence and cross-examine witnesses at the Evidentiary Hearing. The Energy Commission's Presiding Member's Proposed Decision (PMPD) on the ***BLYTHE SOLAR POWER PROJECT*** will be based solely upon the official evidentiary record developed at the Evidentiary Hearing.

Anyone with an appropriate interest in the ***BLYTHE SOLAR POWER PROJECT*** may file a Petition to Intervene and become a formal party. At the Evidentiary Hearing, the formal parties may offer testimony and documentary evidence, receive documents filed by other parties, and cross-examine witnesses. However, a formal party must also comply with all Committee orders, procedures, and filing requirements, and is subject to discovery and having its own witnesses cross-examined by other parties.

To facilitate the participation of all parties at the Prehearing Conference, and allow for an orderly and efficient Evidentiary Hearing, **the DEADLINE TO FILE a Petition to Intervene in this case is 3:00 p.m., Wednesday, June 16, 2010**. [Cal. Code Regs., tit. 20 § 1203(f).] Time extensions will not be granted for new Intervenors to review case materials since this accelerated proceeding has been ongoing since November 18, 2009.

Public Adviser and Public Participation

The Energy Commission Public Adviser is available to assist the public in participating in the application review process. For information on how to participate, please contact the Public Adviser's Office at (916) 654-4489 or 1-800-822-6228 or e-mail: **[publicadviser@energy.state.ca.us].**

If you have a disability and need assistance to participate in any scheduled event, contact Lourdes Quiroz no less than five days prior to the hearing at (916) 654-5146 or e-mail: **[lquiroz@energy.state.ca.us].**

Information

Questions of a legal or procedural nature should be directed to Raoul Renaud, the Hearing Officer, at (916) 651-2020 or e-mail: **[rrenaud@energy.state.ca.us]**.

Technical questions concerning the Project should be addressed to Alan Solomon, the Staff Project Manager, at (916) 653-3826 or e-mail: **[asolomon@energy.state.ca.us]**.

Media inquiries should be directed to the Office of Media and Public Communications at (916) 654-4989 or e-mail: **[mediaoffice@energy.state.ca.us]**.

Information concerning the status of the project, as well as notices and other relevant documents may be viewed on the Energy Commission's Internet web page at: **[www.energy.ca.gov/sitingcases/solar_millennium_blythe]**.

Dated: April 30, 2010 at Sacramento, California.

KAREN DOUGLAS
Chairman and Presiding Member
Blythe Solar AFC Committee

ROBERT B. WEISENMILLER
Commissioner and Associate Member
Blythe Solar AFC Committee

Mailed to Lists: POS, 7366, 7367, 7368, 7369

Proof of Service List filed with original document. Mailed from Sacramento on 4/30/2010 MAT

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

Project Name and Docket Number: **BLYTHE SOLAR POWER PROJECT – Docket No. 09-AFC-6**

Name of Project Participant: ***(i.e., Energy Commission Staff)***

TENTATIVE EXHIBIT LIST

Exhibit	Witness	Brief Description	Stipulation	Offered	Admitted	CEC Use Only

Submit all Exhibit Lists in Word Format

Howard Balentine has sent you 2 files using AECOM's File Transfer System.

Howard Balentine says:

Transmittal to John Guerin and Barbara Santo of the Riverside County ALUC:
Response to comments by Commissioners at the May 13 ALUC Hearing
Copied to:
Alice Harron
Elizabeth Ingram
Scott Galati
Mark Luttrell
Carl Lindner

These files will be available for download until 6/3/2010

BLYTHE SOLAR POWER PROJECT (09-AFC-6)
RESPONSE TO ALUC COMMISSION COMMENTS
FROM MAY 13, 2010 COMMISSION MEETING

SUMMARY

The Blythe Solar Power Project (BSPP) does not add any hindrances to aircraft operations, reduce operational flexibility, or cause any cumulative impacts on aviation safety at Blythe Airport. The impacts of the Project on aircraft operations at the Blythe Airport are negligible and generally occur outside the Airport Influence Area (AIA). The minor impacts that are expected to occur within the AIA are limited to weak visible glow from the mirror arrays and the relocated GenTie line that crosses Compatibility Zone C approximately 6,100 ft from the end of the future extension of Runway 26. Due to the physical separation of the BSPP from other potential sources of impacts on aviation in the vicinity of the Blythe Airport, there will be no interaction between the negligible impacts that the BSPP will produce and the impacts produced by the other sources in the area.

- The Applicant has demonstrated, in prior submittals, testimony, and this response to comments, that glint and reflections from the solar mirror arrays will not produce a significant distraction to a pilot during the critical approach phase to Runways 17 or 26.
- The Air Cooled Condensers (ACCs) and auxiliary cooling towers proposed for the project are outside the AIA.
- A Notice to Airman (NOTAM) advising avoidance of overflight of project structures will not hinder airport operations since the project's ACCs are well outside the normal traffic pattern for the airport.
- Even if a pilot were to overfly the ACC thermal plume, the affect on aircraft flight stability is not expected to be significant and will likely be less than that produced by daily convective thermals in the vicinity of the airport.
- Radio Frequency Interference (RFI) on airport communication and navigation systems is projected to be negligible due to operation of the Project and its power lines.
- The open space with Compatibility Zone D will be approximately 94 percent, greatly exceeding the ALUC minimum open space in Zone D of 10 percent.
- The Applicant has move the GenTie line outside of Compatibility Zone B1 to meet ALUC concerns.
- All power poles associated with the project will meet ALUC height limitation within the AIA and will meet Federal Aviation Administration (FAA) requirements.
- If requested by the Commission, the Applicant will install visibility marker balls on the shield wires for that portion of the GenTie Power line located within ALUC Zone C.

COMMENTS AND APPLICANT RESPONSES

Comment 1:

Please provide a topographic map showing the terrain in the vicinity of the Blythe Solar Power Project (BSPP) and the revised Generation Tie (GenTie) transmission line route to the Southern California Edison (SCE) substation.

Response:

Two topographic figures were prepared that show the terrain in the vicinity of the proposed BSPP and revised GenTie route. Figure 1 is a topographic map showing terrain contours in relation to the facility right of way (ROW) and the revised GenTie route. Figure 2 is an approximate pilot view of an approach to Runway 26 consisting of a pseudo 3-dimensional plot of terrain elevations, overlaid with the airport compatibility zones, the project ROW, and the revised GenTie route.

Comment 2:

Confirm the closeout of the open-space issue in Zone D.

Response:

The Applicant understands that the issue of the amount of open space in that portion of the project within Compatibility Zone D had been addressed to the satisfaction of the Commission Staff. To reiterate, that portion of the disturbed project within the Airport Influence Area Zone D where solar mirrors will be located comprises 31.6 acres, or 5.6 percent of the total project area within Zone D. Thus, the open space within Zone D is 94.4 percent, compared with the open space required by the ALUC of at least 10 percent. Figure 3 below presents a plot of the BSPP open space and built space within the area defined as Zone D.

Comment 3:

Status of Federal Aviation Administration (FAA) revised submittals.

Response:

The applicant submitted FAA Form 7460 applications for the new GenTie poles on May 12. Forms for each new pole were received by the FAA and a case number was assigned to each application, and the review is in progress. Upon submittal of the new applications, the Applicant withdrew previous, obsolete GenTie pole applications. Applications in process and complete for those poles and structures on the proposed facility that would remain unchanged with the new GenTie route were left in place. The Applicant has requested expedited processing of the new GenTie route pole applications but did not receive confirmation from the FAA that such expedited processing would take place. Therefore, we suspect that the new applications will be processed in normal order by FAA staff. However, the review by FAA staff should be simplified as the poles in Compatibility Zone B1 have been moved, along with some of the poles in Zone C. To reiterate information presented at the May 13 Commission meeting, all poles within Zone C will be 70 ft high, all poles in Zone D will be 90 ft high, and the remaining poles in Zone E and beyond (with two exceptions) will be 145 ft high (See Figure 4 below). The two exceptions are at the boundary between Zone D and Zone E. To prevent line ground clearance from falling below acceptable limits during the transition from 90 ft poles to 145 ft poles, the first pole in Zone E at the two transition points will have an intermediate height of 115 ft. See Attachment 1 for documentation of the status of the ongoing FAA review.

Comment 4:

Please supply a figure of the proposed right hand pattern for Runway 26 and the potential for the Blythe II Notice to Airmen (NOTAM)/mitigation to cause pilots to overfly an Air Cooled Condenser on the project site.

Response:

The Riverside County Airport Land Use Compatibility Plan, Volume 3 Blythe Airport, Exhibit BL-7, contains a drawing of the estimated limits of the traffic pattern at the Blythe Airport. The exhibit reflects the 80th percentile file profile in that 80 percent of all traffic is expected to occur within the delineated bounds for the pattern. To approximate the 80th percentile for a right hand traffic pattern, a mirror image of the left hand pattern was created and placed on top of the Compatibility Plan figure. This new plot is presented in Figure 5. It is clear from the plot that the ACC-4 is well outside the traffic pattern. By scaling from the figure, the ACC-4 is approximately 10,400 feet from the outer edge of the right hand traffic pattern at its nearest point, and 24,400 feet from the inner edge of the left hand pattern. Therefore, the potential NOTAM/mitigation for the Blythe II project resulting in a right hand turn pattern for Runway 26 will not cause pilots to overfly the ACC-4. Because the existing and proposed future traffic patterns for the Blythe Airport do not take pilots near any of the project's ACCs, the only way any pilot would fly over an ACC is if the pilot directed the aircraft to purposely fly over the ACC. For pilots following the normal patterns, BSPP does not have an impact on the airport operations.

Comment 5:

> Please determine whether it would be possible and – if so, at what times of day and seasons of the year – for reflection, glint, or glare from any element of the solar array to intersect Runway 26 or its centerline extended easterly at a height of 1000 feet or less above ground level. Presumably, this would be most likely to occur on the summer solstice, but you may need to check other dates if Snell's Law results in this having a greater probability of occurring at other times. The concern is the potential for a flash or beam of light that would affect a pilot on a final approach to a landing on that runway (coming from east and making a westbound landing).

Response:

As presented at the ALUC meeting on May 13, the glint from a solar array mirror will occur on the normal to the Heat Conduction Element (HCE) tubes. As the Blythe Airport is to the southeast of the closest mirror array, a pilot approaching Runway 26 at 1,000 ft or lower would not be on the normal to any of the HCE tubes. The variation in the sun azimuth and elevation angles during the year would be insufficient to produce the required alignment the pilot on final approach, the normal to an HCE tube, and the sun. Consequently, there is no potential for direct glint from the normal to the HCE tube to impact the pilot. The analysis of the scenario dealing with off-normality incidence of the sun's light with respect to the HCE tube, as postulated by the Commission, is presented below. This additional postulated glint scenario will not produce glint or reflection that could be viewed by a pilot below 1,000 ft on approach to Runway 26.

Postulated Scenario:

The sun is reflecting at a glancing angle off the side of a joint in the HCE tube and is reflected to a pilot on final approach to Runway 26 at an altitude of 1,000 ft or less. The sun is at its most northern extent at sunrise on the summer solstice (June 21), which would maximize the geometric potential for a pilot to be exposed to the postulated glint/reflection along the intended flight path.

Scenario Geometry:

As previously demonstrated to the Commission in the May 13 Commission meeting, only a tiny fraction of the sunlight impinging on the parabolic trough mirrors escapes capture by the HCE tube and thus there is

no direct reflection of the sunlight from the mirror surface involved in this postulated scenario. The postulated reflection will occur off of the metallic joints in the HCE tube and reflection by the glass surface. Due to curvature in the joint and HCE tube, only a small portion of the surface will be involved in the reflection to a given viewpoint. According to Snell's law, the incident and reflected light must be in the same plane and form equal angles with respect to the normal to the HCE tube (due east, or 90° azimuth because of the north-south alignment of the HCE tubes). The summer solstice will produce the worst-case geometry because the sun is at it northern most extent on the solstice, which will maximize the incident and reflected angle with respect to the normal, thereby maximizing the area in which the postulated reflection could potentially be seen. Figures 6 provides a plan view of the postulated reflection scenario while Figure 7 presents a side view.

Analysis:

Two conditions must be satisfied for a pilot on approach to Runway 26 at any altitude to observe the postulated reflected ray.

1. Condition 1 addresses the reflection of a ray from an HCE tube projected on a horizontal surface, and if this projected ray crosses the approach to Runway 26. Only if this projected ray crosses the approach would the reflection be potentially visible. This is a necessary but not sufficient condition for a pilot to observe glint.

2. Condition 2 addresses the elevation angle of the reflected ray, and if the elevation angle is sufficient to allow the pilot to intercept the reflected ray at the given altitude. Again this is a necessary, but not sufficient condition. Both Conditions 1 and 2 must be met for the proposed scenario to product glint observable by a pilot.

At 6:00 AM PDT on June 21, the solar elevation angle (θ) above the horizon is 5 degrees and the solar azimuth (measured clockwise from north) is 65°. Snell's law requires the reflected light to form the same angle with the normal to the tube (directed on an azimuth of 90°, or due east). For a 65° incident azimuth, the reflected ray will be at an azimuth of 155°. Thus, a bearing 180° opposite the reflected ray, or 335° from the pilot's viewpoint, would be the view bearing along which the glint would be observable (Figure 6). As the sun's azimuth moves south in advance of or past the summer solstice, the reflected ray will decrease from an azimuth of155° near sunrise on the solstice to an azimuth of 90° at the equinox on either side of the solstice. For a given sun elevation and azimuth angle, a series of potential reflection points occur along the view bearing opposite of the azimuth of the reflected ray, corresponding to each mirror trough along the bearing. However, the intensity of each succeeding reflection along the view bearing will decrease as the square of the distance from the pilot. This, only the nearest reflection points need to be considered.

The required solar geometry for the reflected ray to cross the approach to Runway 26 occurs for about ten weeks near sunrise on either side of the summer solstice (June 21). As the temporal distance from the solstice increases, the angle at which the reflection occurs becomes more acute, and eventually the horizontal projection of the reflected ray does not cross the flight path of a pilot on approach to the airport. Similar, but mirror image, geometry will occur on either side of the winter solstice (December 22), with the solar azimuth at approximately 120° at sunrise on the winter solstice. However, near the winter solstice, any such reflections will be from the pilot's back or side on approach to Runway 26.

Snell's Law, in addition to requiring equal incidence and reflection angles with respect to the normal, requires the reflected light to be coplanar with the incident light. This requirement means that on the summer solstice with a sunlight incidence angle of 5° above the horizon, the reflected ray will have a

departure angle of 5° below horizontal. The azimuth of the reflected ray will be 65° south of the normal (east), or on an azimuth of 155°. As the HCE tube will be approximately 30 ft above the ground at its maximum (the actual height varies with the orientation of the mirror), trigonometry indicates that the reflected ray will strike the ground approximately 350 ft from the reflection point, measured along the HCE tube. See Figure 7. As the reflected ray is directed at a projected horizontal angle of 65° from the HCE tube in a downward direction, the reflected ray will most likely be intercepted by the adjoining parabolic mirror support structure before it can reach the ground. As the sun rises during the day, the solar elevation angle will increase, as will the reflection angle below the horizontal. Beyond a certain solar elevation (and resultant solar azimuth), it would not be possible for the horizontal projection of the ray to cross the path of the pilot in the pattern on final approach due to Snell's Law.

Conclusion:

The postulated scenario of glint impacting a pilot on final approach to Runway 26 cannot happen because all such postulated reflections will be directed downward to the ground and would not leave the project boundary

Comment 6:

> Please provide additional documentation as to the potential for cumulative impacts on airport operations and flight safety at the Blythe Airport due to operation of the proposed project.

Response:

The Applicant has demonstrated that the concerns expressed by the CEC in its Comment Letter dated March 22, 2010, and in subsequent comments and questions, that the Project does not produce a significant impact on flight operations and safety at the Blythe Airport. This demonstration of less than significant impact was made in the following material submitted by the Applicant to the ALUC:

1. Original ALUC application (submitted to the ALUC on February 25, 2010),
2. Response and design changes to ALUC staff and Commission Member comments on that application (submitted to the ALUC on May 4),
3. Presentation given at the ALUC 13 Commission meeting, and
4. These response to comments from the May 13 Commission meeting.

Table 1 lists the concerns identified by the ALUC Commission and staff and a summary of the reasons for the lack of significance of each concern, as demonstrated by the Applicant in its submittals and presentation.

Table 1. Review of Potential Cumulative Impact Issues

Concern	Resolution
Height of structures	Forms 7460 have been submitted for FAA review for all structures associated with the project that require FAA review. The Applicant has moved the GenTie line outside of Compatibility Zone B1 and pole heights have been lowered in Zone C. All Project Air Cooled Condensers (ACCs) and auxiliary cooling towers will be located outside the Airport Influence Area boundary. Therefore, all issues dealing with structure height within the Airport Influence Area have been addressed and mitigated.
Radio Frequency Interference	Radio frequency interference (RFI) from project sources on airport navigation and communication signals were demonstrated to be negligible, including from corona discharge from transmission line insulators.
Reflectivity and Glare	The applicant demonstrated in its submittals and during the presentation at the May 13 Commission meeting that direct reflection of the sun from the solar trough parabolic mirrors does not occur. From the geometry of optics, direct reflection from the HCE tubes will occur in a direction normal to the tubes (i.e., to the east and west) and will not be visible from the airport. Glancing reflection of the sun along the length of the HCE tube, if it occurs, will be directed towards the ground and will not be visible outside the boundary of the facility. Glint from HCE tube connectors will be small in intensity, instantaneous in duration, and subject to very precise geometrical constraints that would potentially affect a very limited number of flight operations.
Thermal Plumes	The threat to aircraft flight stability posed by the ACC-4 is very small. The airport traffic pattern, even with a right hand turn pattern on Runway 26, will be at least 10,400 ft away from ACC-4. The modeling analysis performed by the California Energy Commission indicating potential hazard to flight safety above an ACC was demonstrated by the Applicant to be based on flawed assumptions and modeling techniques. In addition, physical reasoning and screening calculations demonstrate that the source of thermal energy density within an ACC does not exist at levels that would produce severe turbulence. In summary, traffic at the airport will not be directed over ACC-4, and any stray aircraft that may pass over ACC-4 is highly unlikely to be exposed to conditions that lead to flight safety issues. Thus, thermal plumes from the facility will have a less than significant impact on flight safety at the Blythe Airport. If the CEC was to require a NOTAM directing pilots to avoid overflight of the ACC-4, although unnecessary, the NOTAM will not contribute to a cumulative impact to airport operations because as identified in Response to Comment 4, no pilot must fly over ACC-4 to use either Runway for landing. Therefore, the only pilots that could be potentially affected are those that wish to fly directly over the ACC-4
Open Space with Zone D	The disturbed portion of the project with solar mirror construction within the Airport Influence Area Zone D comprises 31.6 acres, or approximately 6 percent of the total project area within Zone D. Open space of the project within Zone D is therefore approximately 94 percent, and is well above the allowable minimum criteria of 10 percent established by the ALUC.

Response:

If the Commission so requests, the Applicant will install visibility marker balls on the shield wires for that portion of the GenTie Power line located within ALUC Zone C.

Comment 10:

Please provide an update on those studies commissioned by the CEC and discuss the availability of the results of those studies for use by the Commission in its deliberation.

Response:

According to Alan Solomon, CEC Project Manager assigned to BSPP, the CEC staff has commissioned the following studies that will be available to the ALUC and public on June 30, 2010:

1. A pilot who has performed previous overflights of the SEGS facility will prepare written documentation of his observations of glint from solar trough mirror arrays

2. CEC staff will prepare a discussion on gen-tie zoning and safety issues

3. CEC staff will conduct a revised analysis of thermal plumes from ACCs.

The CEC decided not to proceed with a flyover of the ACC located at the Sutter power plant in California. As a result, the Applicant has separately commissioned a flyover of the ACC at the Nevada Power Walter E. Higgins Power Plant in Primm, Nevada. This plant was selected since it is most representative of conditions expected at the proposed BSPP as it is located in the desert, it has an ACC of the same general design, and is of approximate, but somewhat, smaller size than those proposed at BSPP. Both the Higgins ACC and the proposed BSPP ACCs were/will be manufactured by SPX. The Higgins plant ACC is a 40-cell ACC with a fan rating of 200 hp each. The proposed BSPP ACC has 45 cells with a fan rating of 250 hp each. Dimensionally, the two ACCs are roughly comparable. The fans at Higgins are arranged in two adjoining 4x5 blocks while those proposed at the BSPP are arranged in a single 5x9 block. It should be noted that ACC fans are operated at a constant speed to keep a constant airflow across the heat exchanger unit. If condensing load is reduced, rather than reducing flow across the entire ACC, individual fan modules will be taken off line. Thus, as load on the power plant changes, the effective size of the ACC is reduced but the airflow above an operating section is not changed.

The flyover is planned for Wednesday, June 2, 2010, subject to acceptable low wind conditions. The pilot will be Mr. Douglas Moss. Mr. Howard Balentine, consultant to Applicant, will be an observer. Douglas Moss' C.V. and qualifications are attached in Attachment 3. Mr. Moss will be present at the ALUC hearing on June 10th to discuss results of this flyover, previous flyovers of cooling tower plumes, and personal observations as a pilot with potential glint from a solar trough mirror array.

Comment 11:

The Commission expressed interest in getting input from the local community, the City of Blythe (the operator of the Blythe Airport), and local pilots that use the airport.

Response:

Please See Attachment 4 for letters of support from local pilots that use the Blythe Airport. No comments are available from the City of Blythe.

Comment 12:

> Evaluate the potential for visible plumes and thermal plumes from the wet cell cooling tower backup system. Address the potential for moderate turbulence resulting from peak velocity flows, which could be up to twice the average velocity, or explain why this would not occur. (Would the peak velocity only occur at very low heights directly over the unit?)

Response:

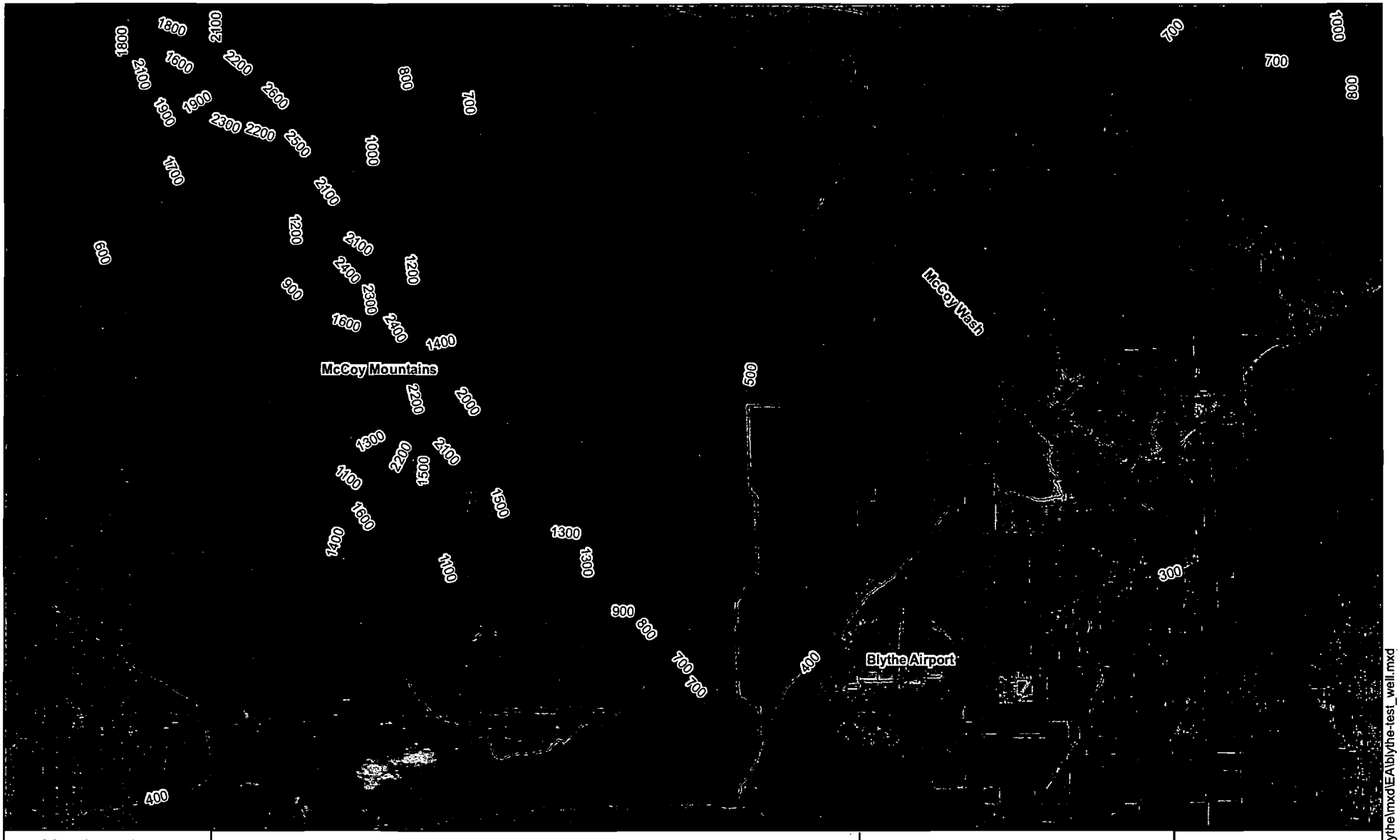
In our response of to the ALUC staff comment letter, we provided information that demonstrated that the small auxiliary cooling tower is not a hazard to aviation. We reiterate four reasons for concluding that the four auxiliary cooling towers proposed for the BSPP do not constitute a potential hazard to aviation.

1. The auxiliary cooling tower is much smaller than the Blythe Energy Project I (BEP I) cooling tower, serves a completely different function, and operates under a much reduced load. The visible and thermal plumes above such a cooling tower have a much smaller footprint and impact than that from the much larger steam cycle cooling tower at BEP I. While no visible plume or thermal plume modeling was performed for these auxiliary cooling towers, it is the informed opinion of the Applicant's Consultant, a consultant with a long history of performing visible and thermal plume modeling of wet cooling towers, that the potential for a hazard to aviation from these four small cooling towers is negligible.

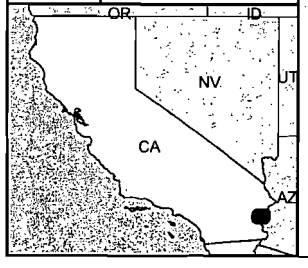
2. All four auxiliary cooling towers proposed for the Project will be located outside of the Airport Influence Area (AIA) boundary. Any small visible or thermal plumes that may form are highly unlikely to reach the AIA boundary.

3. The auxiliary cooling towers are located near the ACC, and under most circumstances, the plume from the auxiliary cooling tower will not extend above the top of the nearby ACC. An aircraft would have to be overflying the power block at very low altitude to be affected by a potential plume from the auxiliary cooling tower and would be at much more risk from collision with power block structures such as power poles and ACCs that from any plume from the cooling tower.

4. The CEC, in their review of the Applicant's Application for Certification, and in their Data Requests based on the AFC, did not address impacts from the small auxiliary cooling towers. In fact, these cooling towers are not even mentioned in the Traffic and Transportation section of the Staff Assessment.



Map Location



Legend

Project Right-of-Way

Proposed Transmission Line Route

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2009 Riverside County

0 2 4 Miles

N W E S

Blythe Solar Power Project

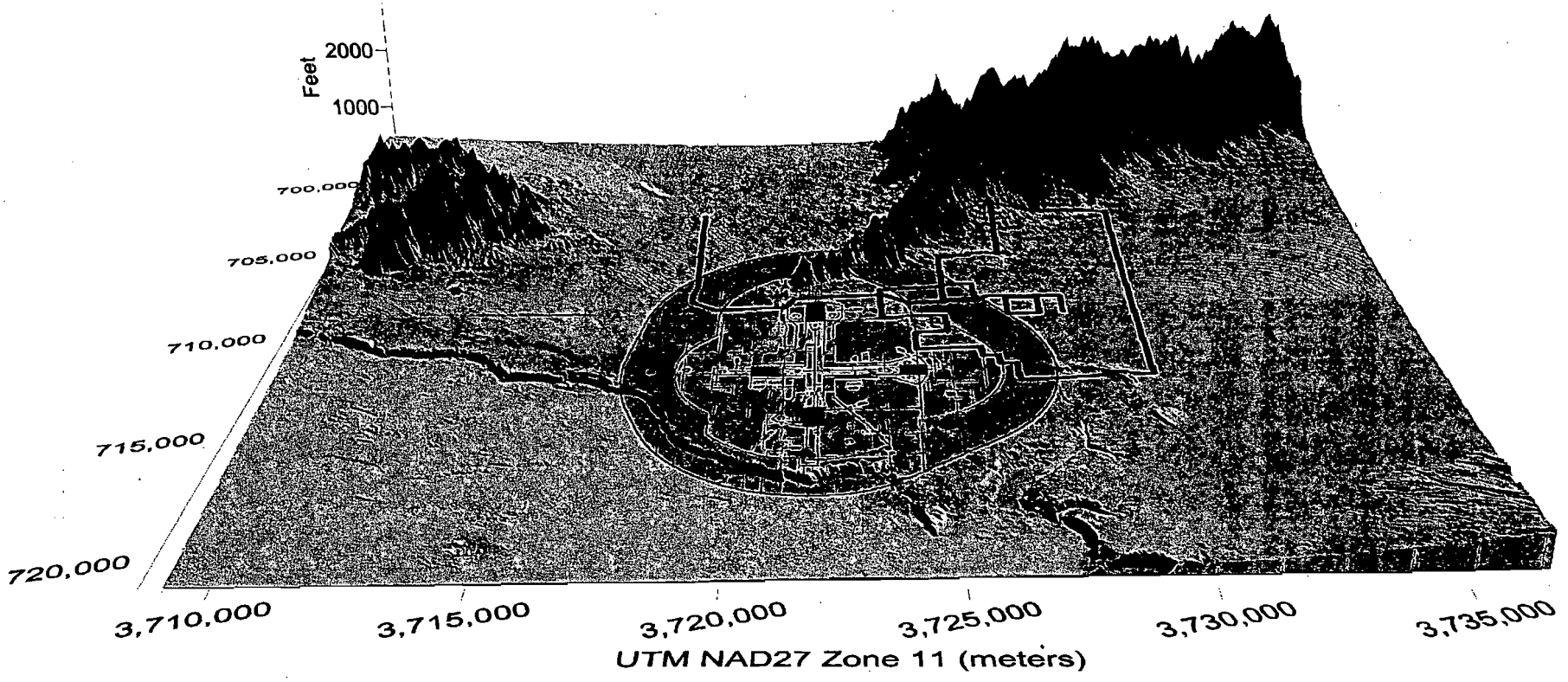
Figure 1
Topography

Palo Verde I, LLC

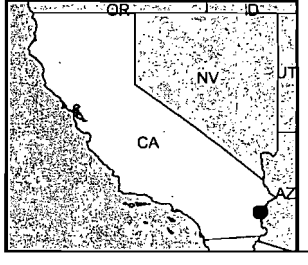
AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\mxd\EA\blythe-test_well.mxd



Map Location



Blythe Solar Power Project

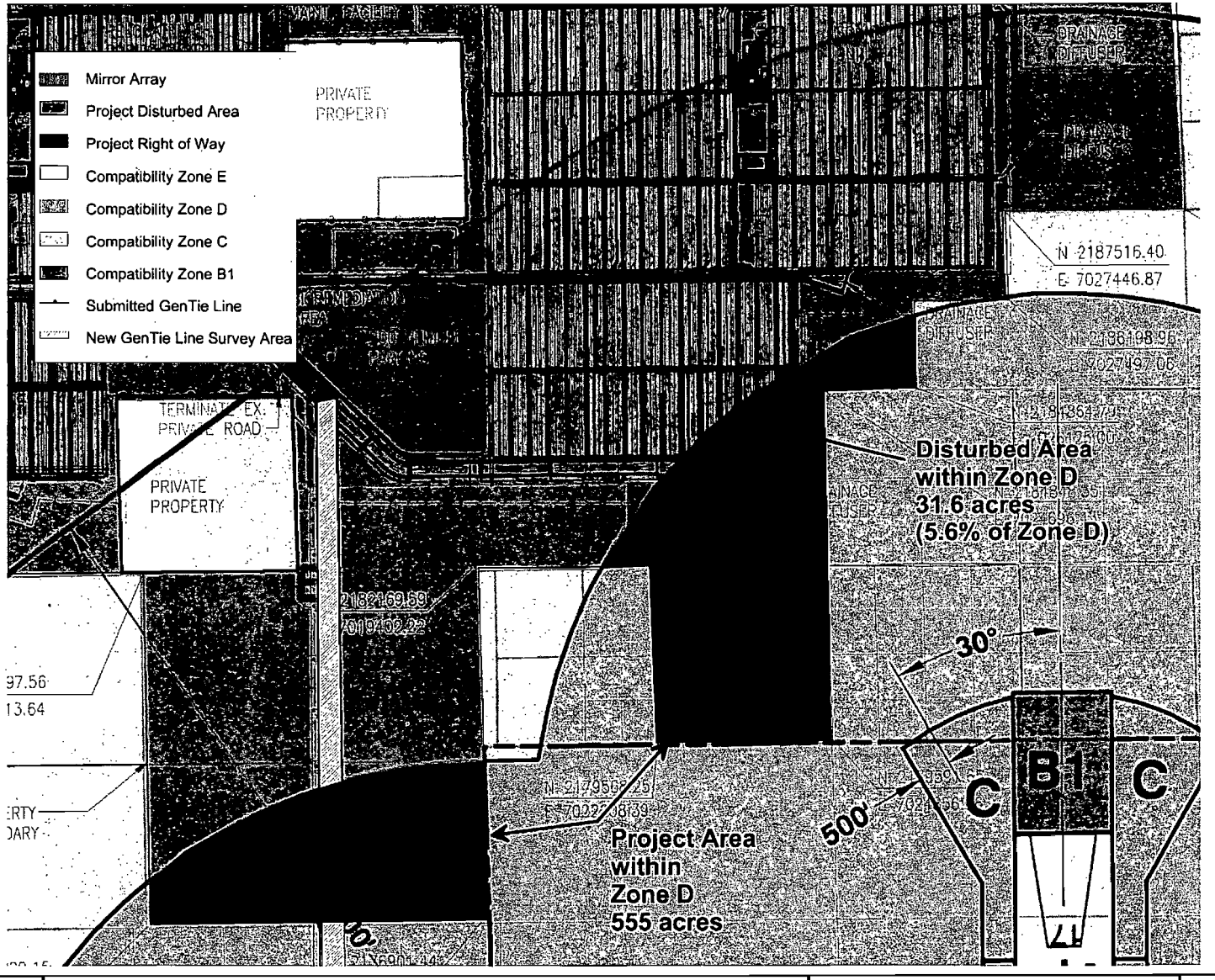
Figure 2
Elevation View of Airport Compatibility Zones, BSPP Site, GenTie Line and McCoy Mountains, Looking West

Palo Verde I, LLC

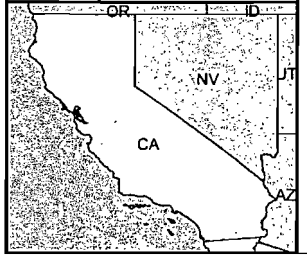
AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\data\airport\figure2.mxd



Map Location



Blythe Solar Power Project

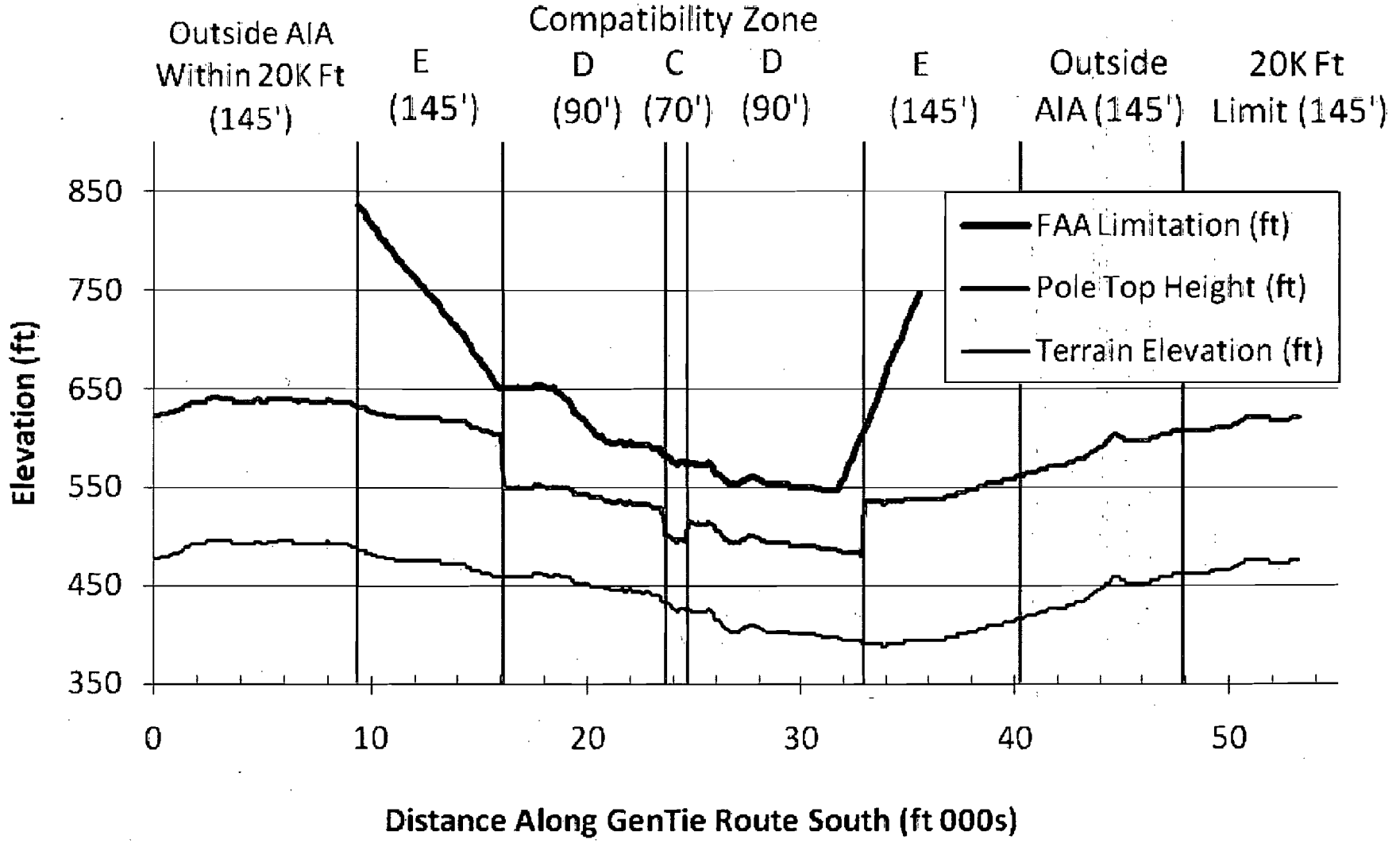
Figure 3
Project Disturbed and Open Space in Zone D

Palo Verde I, LLC

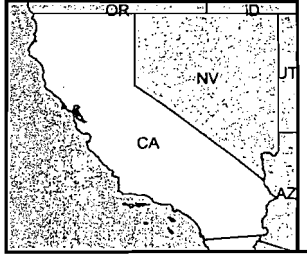
AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\data\airport\figure6.mxd



Map Location



Blythe Solar Power Project

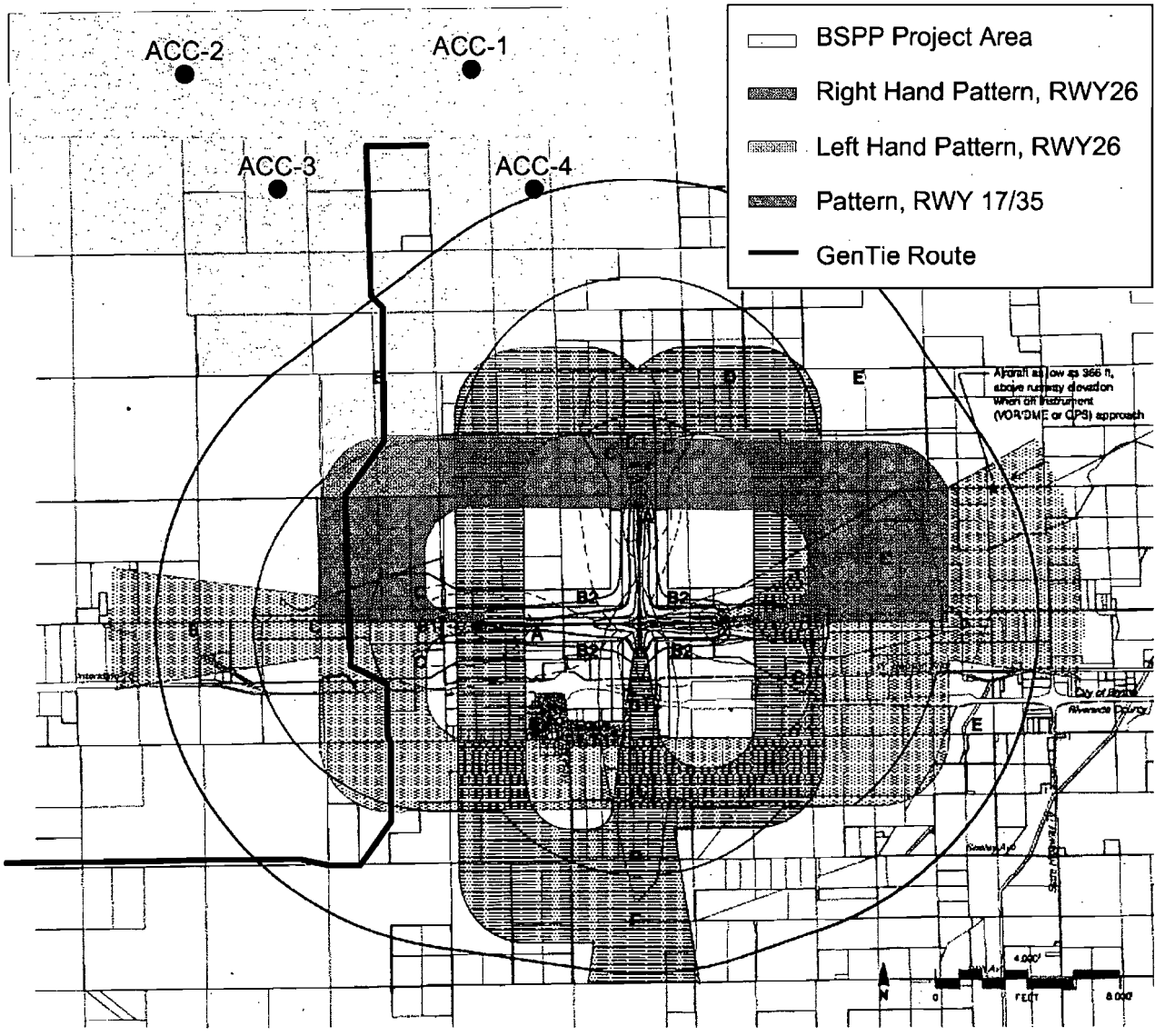
Figure 4
Pole Elevations and Compliance with ALUC Compatibility Zones

Palo Verde I, LLC

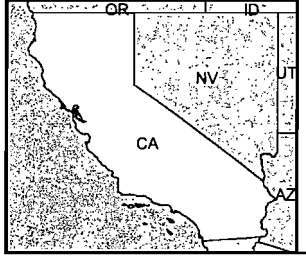
AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\data\airport\figure4.mxd



Map Location



Blythe Solar Power Project

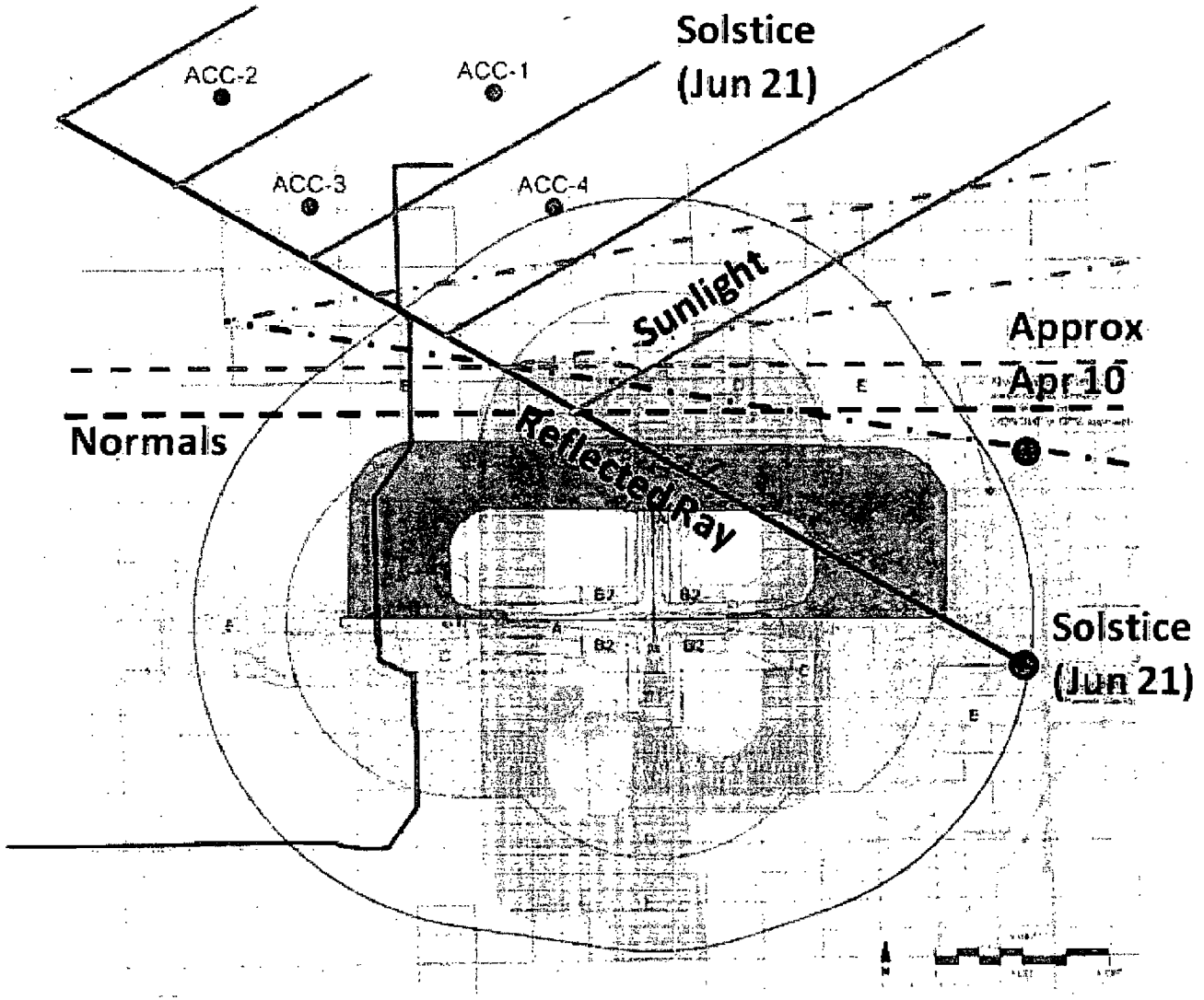
Figure 5
Blythe Airport Estimated Future Right Hand Turn Pattern for Runway 26 (Approximately 80% of Traffic)

Palo Verde I, LLC

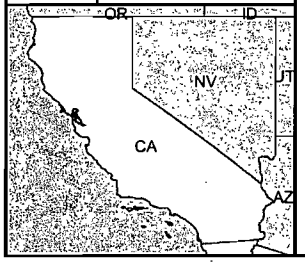
AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\data\airport\figure5.mxd



Map Location



The above geometry reflects 6:00 AM PDT on June 21 at Blythe. The solar elevation angle is 5 degrees above the horizon and the solar azimuth is 65 degrees clockwise from north. Any reflection along the HCE tube will be directed downward and will strike the ground within a short distance. Such a reflection will not be visible from the air.

Blythe Solar Power Project

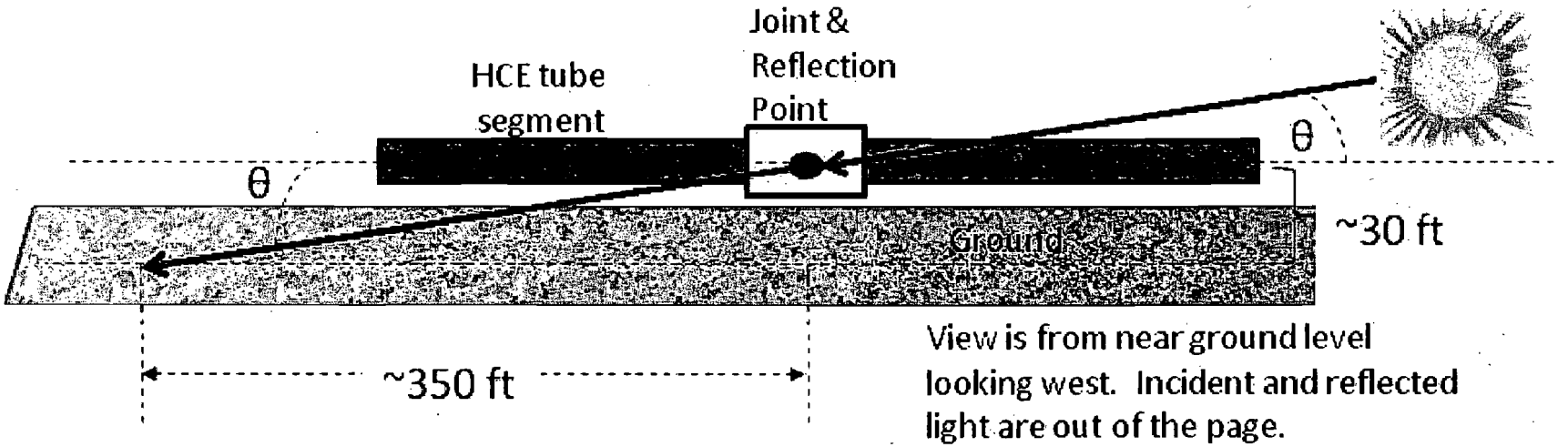
Figure 6
Horizontal Projection of Sun's Rays and Reflection Rays, for June 21 and April 10

Palo Verde I, LLC

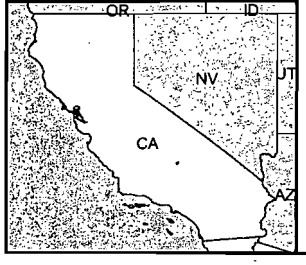
AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\data\airport\figure7.mxd



Map Location



The above geometry reflects 6:00 AM PDT on June 21 at Blythe. The solar elevation angle is 5 degrees above the horizon and the solar azimuth is 65 degrees clockwise from north. Any reflection along the HCE tube will be directed downward and will strike the ground within a short distance. Such a reflection will not be visible from the air.

Blythe Solar Power Project

Figure 7
Analysis of Postulated Reflection Scenario for a Reflection Along the HCE Tube

Palo Verde I, LLC

AECOM

Project: 60139695-5460
Date: May 2010

J:\GIS\Projects\SolarMillinneum\Blythe\data\airport\figure7.mxd

Attachment 1

FAA Review Status

ALL of My Cases (Off Airport)

faa.gov Tools: Print this page

All Cases	Filter by Case Status	Cases Requiring Action
Show All Cases (134)	Draft (0) | Accepted (0) | Work In Progress (67) Determined (23) | Circularized (0) | Terminated (44)	7460-2 Required (9) | Add Letter (0)

Records 1 to 134 of 134 Page 1 of 1

Project Name	Structure Name	ASN	Status	Date Accepted	Date Determined	City	State
SOLAR-000134596-09	Air-Cooled Condenser...	2009-AWP-6298-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	Air-Cooled Condenser...	2009-AWP-6297-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB1-1	2009-AWP-6293-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB1-2	2009-AWP-6292-OE	Determined	12/02/2009	12/21/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB1.4-1	2009-AWP-6295-OE	Determined	12/02/2009	12/21/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB1.4-2	2009-AWP-6294-OE	Determined	12/02/2009	12/21/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB2.3-1	2009-AWP-6291-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB2.3-2	2009-AWP-6290-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB2.3-3	2009-AWP-6289-OE	Determined	12/02/2009	04/19/2010	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB4-1	2009-AWP-6288-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB4-2	2009-AWP-6287-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB4-3	2009-AWP-6286-OE	Determined	12/02/2009	12/21/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB4-4	2009-AWP-6341-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PB4-5	2009-AWP-6284-OE	Determined	12/02/2009	12/21/2009	Blythe	CA
SOLAR-000134596-09	BSPP Pole #PBS-1	2009-AWP-6296-OE	Determined	12/02/2009	12/29/2009	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-101	2010-AWP-3766-OE	Work In Progress	05/12/2010		Blythe	CA
SOLAR-000146442-10	BSPP-gentie-102	2010-AWP-3765-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-103	2010-AWP-3764-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-104	2010-AWP-3763-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-105	2010-AWP-3762-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-106	2010-AWP-3761-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-107	2010-AWP-3760-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-108	2010-AWP-3759-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-109	2010-AWP-3758-OE	Determined	05/12/2010	05/26/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-110	2010-AWP-3757-OE	Work In Progress	05/12/2010		Blythe	CA

SOLAR-000146442-10	BSPP-gentie-111	2010-AWP-3756-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-112	2010-AWP-3755-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-113	2010-AWP-3754-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-114	2010-AWP-3753-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-115	2010-AWP-3752-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-116	2010-AWP-3751-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-117	2010-AWP-3750-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-118	2010-AWP-3749-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-119	2010-AWP-3748-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-120	2010-AWP-3747-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-121	2010-AWP-3746-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-122	2010-AWP-3745-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-123	2010-AWP-3744-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-124	2010-AWP-3743-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-125	2010-AWP-3742-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-126	2010-AWP-3741-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-127	2010-AWP-3740-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-128	2010-AWP-3739-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-129	2010-AWP-3738-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-130	2010-AWP-3737-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-131	2010-AWP-3736-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-132	2010-AWP-3735-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-133	2010-AWP-3734-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-134	2010-AWP-3733-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-135	2010-AWP-3732-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-136	2010-AWP-3731-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-137	2010-AWP-3730-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-138	2010-AWP-3729-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-139	2010-AWP-3728-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-140	2010-AWP-3727-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-141	2010-AWP-3726-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-142	2010-AWP-3725-OE	Work In Progress	05/12/2010	Blythe	CA

SOLAR-000146442-10	BSPP-gentie-143	2010-AWP-3724-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-144	2010-AWP-3723-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-145	2010-AWP-3722-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-146	2010-AWP-3721-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-147	2010-AWP-3720-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-148	2010-AWP-3719-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-149	2010-AWP-3718-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-150	2010-AWP-3717-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-151	2010-AWP-3716-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-152	2010-AWP-3715-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-153	2010-AWP-3714-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-154	2010-AWP-3713-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-155	2010-AWP-3712-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-156	2010-AWP-3711-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-157	2010-AWP-3710-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-158	2010-AWP-3709-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-159	2010-AWP-3708-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-160	2010-AWP-3707-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-161	2010-AWP-3706-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-162	2010-AWP-3705-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-163	2010-AWP-3704-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-164	2010-AWP-3703-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-165	2010-AWP-3702-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-166	2010-AWP-3701-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-167	2010-AWP-3700-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-168	2010-AWP-3699-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-169	2010-AWP-3698-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-170	2010-AWP-3697-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-171	2010-AWP-3696-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-172	2010-AWP-3695-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-173	2010-AWP-3694-OE	Work In Progress	05/12/2010	Blythe	CA
SOLAR-000146442-10	BSPP-gentie-174	2010-AWP-3693-OE	Work In Progress	05/12/2010	Blythe	CA

SOLAR-000146442-10	BSPP-gentie-175	2010-AWP-3692-OE	Work In Progress	05/12/2010	Blythe CA

Attachment 2

Alternative Project Location and Size Consideration Documentation

(In a separate file)

Attachment 3

CV and Qualifications for Douglas Moss

Douglas M. Moss

AeroPacific Consulting
22487 Kent Ave
Torrance, CA 90505
888-291-7881
http://www.aeropacific.net
Info@aeropacific.net

Firm/Expert Profile:

Douglas Moss (BS Engr, MS Engr, MBA, JD) is a trained and experienced professional pilot and engineer. He provides research and investigations of aircraft accidents to determine the causal factors. His professional experience spans over 30 years in aviation as an engineer and professional pilot, including assignments as a USAF fighter pilot, USAF experimental test pilot, McDonnell Douglas engineering test pilot, airline pilot, and general aviation pilot. His academic education includes both bachelor and master degrees in engineering, with additional advanced degrees in business and law. He has also been a faculty instructor at the USAF Test Pilot School, teaching aircraft certification, flying qualities, performance, systems, and human factors.

His analysis of aviation accidents typically involve the following considerations:

- Engineering and scientific bases
- Operational factors
- Human factors
- Aircraft certification compliance (14 CFR Parts 21 and 25)
- FAR statutory compliance (14 CFR Parts 91, 121 and 135)
- Strict products liability
- Aircrew standard of care

Professional Experience:

Over 10,000 flight hours
USAF experimental test pilot
McDonnell Douglas engineering test pilot
USAF Test Pilot School instructor
Airline pilot
ATP Typed DC-9, MD-80, MD-90, MD-11, A320 and Flight Engineer
Qualified in various models of Cessna, Piper, and Beechcraft

Education/ Training:

Concord Law School, Juris Doctor
University of Phoenix: Master of Business Administration
Georgia Institute of Technology: Master of Science – Mechanical Engineering
Georgia Institute of Technology: Bachelor of Engineering - Nuclear Engineering
US Air Force: USAF Test Pilot School, Air War College, Air Command & Staff College, Squadron Office School

Professional Qualifications:

Airline Transport Pilot
Type Certificates: A320, MD-11, DC-9 (MD-80, MD-90)
Type Qualifications: F-15, F-4, A-37, T-33, T-34, T-37, T-38, T-46
Single-Engine, Land & Sea; Multi-Engine; Instrument
Flight Engineer – Turbojet Powered

Professional Affiliations:

Society of Experimental Test Pilots
Air Line Pilots Association
Aircraft Owners and Pilots Association
American Institute of Aeronautics and Astronautics
Society of Automotive Engineers - SAE International
Association of Aviation Psychology

Attachment 4

Letters of Support from Pilots in the Blythe Area

Fax

54th District Agricultural Association

COLORADO RIVER FAIR

591 N. Olive Lake Blvd

Blythe, CA 92225

Phone 1-760-922-3247 Fax 1-760-922-6196

crfb@verizon.net www.coloradoriverfair.com

TO Ryan Orr **From** Greg Spruls

Fax 661 793-6627 **Pages** 2

Phone 760 989-9616 **Date** May 13, 2010

RE: **CC:**

Message:

Tropical Nights
and Midway Lights
at the
COLORADO RIVER FAIR 2010

APRIL 8-11
2010
BLYTHE, CA
Be There!

Gregory E. Sprawls
10810 La Palma
Blythe, California 92225
(760) 989-9616

May 12, 2010

Riverside County Airport Land Use Commission
4080 Lemon Street
Riverside, California 92501
FAX (951) 955-0923

Commission,

I have been a private pilot since 1982, flying mainly out of the Blythe Airport. My opinions and beliefs have been developed from flying a small plane all over the western United States. There are many restricted flight areas whether it is military, prison, domestic housing, power plants, or even special events. Most pilots are familiar with this and take appropriate planning to get to their desired destination.

The proposal to build a solar facility adjacent to the Blythe Airport is brilliant. Neighborhoods complain about the noise when next to an airport. Industry is the perfect land use. There already is a trucking company operating next to the airport. The solar facility cooling station is not an obstacle for aircraft because of its location and it does not emit clouds of moisture. You are taught in Flight School that "wind is not weather" so the release of the cool air is not weather that hampers flight.

The positioning of your towers also seems to be well planned. Aircraft is designed to be in the air unless landing or parked. Pilots are uncomfortable close to the ground so immediately after rotating altitude is desired and landing is a very specific route and slope.

I encourage the construction of this type of industry next to the Blythe Airport. If I can be of any further assistance please do not hesitate to contact me.

Thank you for the opportunity to supply input.

Gregory E. Sprawls

Attachment 2

Alternative Project Location and Size Consideration Documentation

(In a separate file)

4.0 Project Alternatives

4.1 Introduction

Alternatives to the proposed Blythe Solar Power Project (BSPP or Project) are presented in this section. Alternatives include the "No Action" (also called "No Project") alternative, alternative Project sites, layout or size, as well as Project design and technology alternatives. The section summarizes the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) requirements with respect to alternatives evaluations and discusses the methodologies and criteria used to identify and screen the various kinds of alternatives (alternative sites, layouts, sizes, water supply alternatives, etc.).

As this section makes clear, many of the alternatives to the Project would not meet the Project's basic objectives or the necessary screening criteria, and/or would not lessen the Project's potential environmental effects. In each instance in which an alternative would achieve the Project objectives and lessen potential effects, the Project has been modified to adopt that alternative.

Summary

Alternatives evaluated by the Applicants include the "No Action" ("No Project") alternative, alternative Project sites, an alternative site layout, a smaller facility, freeze protection and auxiliary boiler heating alternatives, alternative water sources, and alternative power generation technologies. The "No Project" alternative was rejected because it would not fulfill the Project's objectives of helping meet Federal and State renewable energy mandates and goals.

The selected site was the most suitable among the various alternative sites based on economic, technical, environmental, transmission access, and other criteria. Four alternative sites were considered and rejected because they would not avoid or substantially reduce environmental impacts or meet Project objectives as well as the proposed site. Two of the sites posed substantial site control challenges; a third site is in a flood zone and much of the site is in designated desert tortoise critical habitat; the fourth alternative site directly conflicts with an off highway vehicle (OHV) use area. A smaller facility would not meet Project objectives as well and would not offer economies of scale. Given the ready availability of natural gas service, none of the other boiler fuel alternatives were economically preferable to the selected natural gas option. Even with dry cooling, the Project requires some water (e.g., for mirror washing, makeup feedwater, and domestic uses) , and there are no feasible alternatives to site groundwater. Other renewable technology alternatives were rejected because one of the Applicants (Solar Millennium) is an industry leader in parabolic trough technology.

4.1.1 CEQA Requirements

CEQA requires the lead agency to consider "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (Title 14 Code of Regulations [CCR] Section 15126.6(a)). The CEQA Guidelines (Title 14 CCR Section 15126.6(c)) further provide that "among the factors that may be used to eliminate alternatives from detailed consideration in an Environmental Impact Report" are:

- Failure to meet most of the basic project objectives,
- Infeasibility, or
- Inability to avoid significant environmental impacts.

4.1.2 NEPA Requirements

Like CEQA, NEPA requires the identification and analysis of a reasonable range of alternatives. NEPA's requirements for an alternatives analysis are found in NEPA Section 4332, 42 United States Code 4332(2)(C)(iii), and in Section 1502.14 of the White House Council on Environmental Quality (CEQ) NEPA Regulations (Title 40 Code of Federal Regulations [CFR] 1500-1508). Section 1502.14(a) requires Federal agencies to explore a reasonable range of alternatives, "and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated." CEQ Guidance concerning the NEPA regulations adds that reasonable alternatives include those that are "[p]ractical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant" (CEQ NEPA's 40 Most Asked Questions, Answer to Question #2). In short, NEPA requires an Environmental Impact Statement (EIS) to thoroughly explore and evaluate all reasonable alternatives that meet the purpose and need of the proposed action, including those that are not within the jurisdiction of the acting agency. NEPA also requires an explanation of the reasons that an alternative has been eliminated from detailed study.

The Federal Land Policy and Management Act (FLPMA) Section 1765 informs the Bureau of Land Management's (BLM's) NEPA review of the alternatives it must consider in an EIS. Per FLPMA Section 1765, the BLM must, when it grants a right of way (ROW), "minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment;" "require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation and maintenance of [ROWs];" and "require location of the [ROW] along a route that will cause least damage to the environment, taking into consideration feasibility and other factors."

The California Energy Commission (CEC) will be the lead state agency for CEQA compliance for the Project. The BLM will be the Project's Federal agency for NEPA compliance. The CEC and BLM are conducting a joint review of the BSPP and will issue a combined CEQA/NEPA document (Draft Staff Assessment/Draft EIS). The following alternatives discussion is intended to support the combined CEQA/NEPA document.

4.2 Alternatives Screening Methodology

A range of potential alternatives to the proposed Project that could reasonably attain most of the basic objectives are identified and evaluated in this section. Alternatives include the "No Action" (also called "No Project") alternative, alternative project sites, an alternative site layout, a smaller plant alternative, freeze protection and auxiliary boiler heating alternatives, alternative water sources, and alternative power generation technologies.

Alternative solar technologies were not considered because the use of an alternative solar technology would not avoid or substantially reduce environmental impacts compared to the implementation of the Project as proposed. In addition, Solar Millennium, a Project Applicant, is a leader in parabolic trough technology and has demonstrated expertise in this technology; hence, as the Applicant, an alternative solar technology would not meet one of the Project's basic objectives -- to use solar troughs. Alternative transmission line routes were not considered because the location of the Southern California Edison (SCE) substation interconnect (Colorado River substation) was only recently finalized and a final transmission route has not yet been selected. The process of selecting the BSPP transmission line route will involve consideration of alternative routes using essentially the same screening methodology described below, but with criteria appropriate for a linear transmission facility rather than a 3,000-acre generating facility.

While the following screening methodology is presented in terms of alternative project locations (sites), the same process essentially applies to alternative site layouts, technologies, water sources, transmission line routes, etc. In accordance with Title 14 CCR Section 15126.6 (c), and consistent with Title 40 CFR Section 1502.14, alternatives were not carried forward for further analysis if:

1) The alternative would not meet most of the basic Project objectives,
2) The alternative would not avoid or substantially lessen significant environmental impacts of the proposed Project, or
3) The alternative was not "feasible." Per Title 14 CCR Section 15126.6(f)(1), the factors that should be taken into account in determining whether an alternative is feasible are:
   a) Site suitability,
   b) Economic viability,
   c) Availability of infrastructure,
   d) Land use/land use plan consistency or regulatory/jurisdictional limitations, and
   e) Site control.

In order to implement this screening process for selecting the Project site, the Applicants needed to:

- Define the Project objectives, purpose, and need;
- Identify the potentially significant environmental impacts associated with the proposed Project; and
- Further define the feasibility criteria.

These are presented below.

4.3 Project Objectives, Purpose and Need

The Project's objectives, purpose, and need, which guide the Project's alternatives evaluation process, are restated below from Section 2.2.1, Project Description.

4.3.1 Project Objectives and Purpose

The specific objectives and purpose of the Project are:

- To develop a utility-scale solar energy project utilizing parabolic trough technology.
- To construct and operate an environmentally friendly, economically sound, and operationally reliable solar power generation facility that would contribute approximately 2,000,000 megawatt hours (MWh) of clean, renewable solar energy per year to the State of California's renewable energy goals.
- To locate the project in an area with high solar insolation (i.e., high intensity of solar energy).
- To interconnect directly to the California Independent System Operator (CAISO) grid through the SCE electrical transmission system while minimizing additions to electrical infrastructure (e.g., avoiding lengthy new transmission lines).
- Commence construction in 2010 to qualify for the American Recovery and Reinvestment Act (ARRA) of 2009's Renewable Energy Grant Program.

4.3.2 Project Need

The Federal government and the State of California have clearly established the need for the nation and State to increase the development and use of renewable energy in order to enhance the nation's energy independence, meet environmental goals, and create new economic and employment growth opportunities. The Project will help meet these societal needs.

More specifically, the Project will further the development of renewable energy and thereby:

- Assist California in meeting its Renewable Portfolio Standard (RPS) goals of 20 percent of retail electric power sales by 2010 under existing law (Senate Bill 1078 – Chapter 516, Statutes of 2002) and 33 percent of electrical power retail sales by 2020 under pending legislation.
- Support U.S. Secretary of the Interior Salazar's Order 3283 and 3285 making the production, development, and delivery of renewable energy top priorities for the United States.
- Support Governor Schwarzenegger's Executive Order S-14-08 to streamline California's renewable energy project approval process and to increase the State's Renewable Energy Standard to 33 percent renewable power by 2020.
- Sustain and stimulate the economy of Southern California by helping to ensure an adequate supply of renewable electrical energy, while creating additional construction and operations employment and increased expenditures in many local businesses.
- Generate electricity without significant emissions of greenhouse gases, thereby meeting the statewide reduction goals of Assembly Bill 32.

Two integral goals of the ARRA of 2009's Renewable Energy Grant Program, for which the Project hopes to qualify, are to enhance America's energy independence and create near-term employment opportunities for Americans. The BSPP will help meet these vital societal needs.

4.4 Alternative Site Selection Criteria

In a report titled "California Solar Resources," the CEC provided estimates of the solar resources located within California and potentially available for use in meeting the RPS and the California Power Authority's approved Energy Action Plan goals. The CEC provided estimates based on the "gross" potential (i.e., the potential unconstrained by technical, economic or environmental requirements) and the "technical" potential (i.e., unconstrained by economic or environmental requirements). Using National Renewable Energy Laboratory (NREL) direct beam insolation values on a grid size of 10 kilometers (6.2 miles) by 10 kilometers with NREL's Climatological Radiation Model, the CEC identified areas suitable for concentrating solar power (CSP) systems in California. The CEC analysis shows that the best locations for CSP facilities generally tend to be in the southeastern portion of the State. For example, using the criteria selected by the CEC, the total "technical" potential area within Riverside County (where the proposed Project site is located), is approximately 419,267 acres.

The Applicants conducted a similar analysis using NREL data, first analyzing base maps of solar energy values and then applying exclusion criteria to identify study areas for further analysis. The following exclusion criteria were applied:

1) Solar resource: The site must receive insolation of no less than 7.0 kilowatt-hours per square meter per day ($kWh/m^2/day$).
2) Site size, shape, grade, hydrology, land use: The site must be large enough (at least 4,000 contiguous acres) and of adequate proportions to include four 250-MW parabolic trough solar thermal plants. The site also must be large enough to site the plants outside of large washes, to the extent possible. The site needs to have no more than a two percent grade and should not be located in a flood zone. Competing land uses and land use designations may make the site more difficult to develop.
3) Environmental sensitivity: The site should not be highly pristine or biologically sensitive (e.g., not within a designated wilderness area, Area of Critical Environmental Concern [ACEC], or a Desert Wildlife Management Area [DWMA]). The site should also not be located within a military base or park.

4) Proximity to transmission: The site should be located within approximately 10 miles of a CAISO-interconnected transmission line with a rating of 230-kilovolts (kV) or higher.

5) Road access: The site should be in reasonable proximity to existing large, paved roads or freeways.

6) Site control: The land must be available for sale or lease/ROW, at a reasonable cost (e.g., high-value irrigated agricultural lands were excluded). If private land, the site should not be subdivided between more than three landowners to avoid lengthy and/or unsuccessful negotiations. If private land, a lease or purchase option arrangement is necessary so that a large capital investment would not be necessary until the license is obtained.

7) Labor availability: The site should be close enough to areas with large construction labor pools so as to maximize the number of construction workers within daily commuting range.

Several factors that have been used to screen alternatives for other proposed large-scale projects were not considered here. Water availability was not considered, since, as a dry-cooled facility, the plant's water needs are minimal; thus, the Project would minimize potential impacts on local water supplies and other water users. Military low-flight areas were not considered, since the Project's tallest structures will meet low-flight area standards. Proximity to natural gas supply was also not considered to be a requirement since the Project's start up boilers can also be powered using propane.

As discussed in Section 4.3.2, application of the above criteria eliminated all other potential Project locations from being carried forward for more detailed analysis as alternatives to the proposed Project site. The site screening process that led to the selection of the proposed Project site and the elimination of alternative sites is discussed in the following section.

Solar Millennium plans to develop multiple solar projects in California with Chevron Energy Solutions (referred throughout the document as "the Applicants"). Accordingly, Solar Millennium evaluated sites in many parts of the California desert. Solar Millennium alone also is proposing a separate solar project in the northern High Desert of California on a site near Ridgecrest in Kern County, in one of the other areas of the California desert with high solar intensity and other suitable attributes. Solar Millennium and Chevron Energy Solutions also are joint Applicants on another solar project near Palen Dry Lake, approximately 35 miles west of the Project site and also within the U.S. Interstate 10 (I-10) corridor. All three of these projects are on BLM land and thus are under the jurisdiction of both the CEC and BLM. However, the three projects are subject to separate environmental review processes and separate Application for Certifications (AFCs) are being prepared for all three Projects.

The alternatives discussion presented below focuses only on the alternatives considered for a Project site generally speaking in or near the Blythe area of the I-10 corridor. It does not include the evaluation process that led to the selection of the Palen site because that is addressed in the separate Palen Solar Power Project (PSPP) AFC and subsequent CEQA/NEPA document prepared by the CEC and BLM. However, it should be noted that the same alternative sites were considered for both the BSPP and PSPP; all the others were rejected from further consideration ---except the *two* sites for which solar projects have been proposed by the Applicants.

An altogether separate set of sites were considered for the solar project proposed near Ridgecrest. The site evaluation that led to the selection of the proposed site will be addressed in the Ridgecrest Solar Power Project (RSPP) AFC. It is not discussed in the following pages.

The separate AFC for the PSPP, proposed near Desert Center has been submitted at the same time as this BSPP AFC. The RSPP AFC is currently in preparation and is scheduled for separate submittal to the CEC shortly after submittal of the BSPP AFC, which is the subject of this alternatives discussion.

4.5 Alternatives Considered

4.5.1 No Project Alternative

Under the No Project alternative, the Project would not be constructed, and the electrical power that would have been generated will be generated by other facilities, presumably natural gas-fired generation. Since solar power is generated close to peak consumption periods of the day, the peaking power needs met by Project-generated power would likely be met by fossil fuel-fired peaking units such as simple-cycle gas turbines and other rapid starting equipment (e.g., reciprocating engines) that would produce higher levels of air emissions than a solar thermal power plant.

Because the Project facilities would not exist, its potential adverse environmental impacts would not occur. However, the Project's beneficial impacts would also not occur, which would result in greater fossil fuel consumption to meet increasing electricity demand and, as a result, no Project-related reductions in air pollutants, including the gases that contribute to global climate change.

Moreover, the No Project alternative would not assist the State and the nation in meeting renewable energy goals. In 2002, California established the RPS program with a goal of increasing the percentage of renewable energy in the State's electricity mix to 20 percent by 2017. The 2003 Energy Report recommended accelerating the 20 percent goal for renewables to 2010, while the 2004 Energy Report and the State's 2005 Energy Action Plan recommended increasing the target percentage to 33 percent by 2020. The 2006 Energy Report Update states that "California must accelerate its pace of development if it is to meet its long-term RPS Goal of generating 33 percent of the State's electricity from renewable sources by 2020, as recommended by Governor Schwarzenegger, the Energy Commission, and the California Public Utilities Commission." The 2007 Integrated Energy Policy Report (IEPR) states that "renewable resources are an essential tool for reaching Assembly Bill 32 goals", but that "program adjustments" are needed to meet the 2010 RPS goals. The 2007 IEPR cites the statements "critical imperative to reduce greenhouse gas emissions" and "management of the risk borne by ratepayers for electricity generation" as the two main considerations driving the need to achieve the RPS goals. The IEPR states that the goal of 33 percent renewables by 2020 is achievable "with a concerted effort by and coordinated support from government, industry, and the public." The 2008 IEPR reiterates this goal.

Beyond the State RPS program, there is significant State and Federal focus on promoting and expediting the development of renewable resources:

- On August 8, 2007, the U.S. Department of the Interior, BLM, California Desert District, and the CEC staff signed a memorandum of understanding concerning joint environmental review for solar thermal power plant projects. The memorandum sets out a 12-month schedule for joint AFC/EIS review of applications submitted for solar projects located on BLM lands.
- On November 17, 2008, Governor Schwarzenegger signed Executive Order S-14-08, which raises California's renewable energy goals to 33 percent by 2020.
- On January 16, 2009, Department of Interior Secretary Kempthorne's Order 3283 established BLM renewable coordination offices to expedite permitting of solar projects and electrical transmission facilities.
- On March 11, 2009, Department of Interior Secretary Salazar's Order 3285 established the Departmental Task Force on Energy and Climate Change to increase renewable energy development on public lands.

The No Project alternative would mean that the proposed solar project would not be developed. Consequently, the No Project alternative would not support the program goals of the State's RPS, the Governor's Executive Order, or the orders issued by successive Secretaries of the Interior. The purpose of the Project is to generate renewable solar power and provide electric power to California's electrical

users. In short, the No Project alternative would not provide the additional power needed in California in a manner that assists the State in meeting its renewable power and greenhouse gas reduction goals.

4.5.2 Project Site Alternatives

Using the site screening process described above, five candidate site locations (including the proposed site) were identified for a 1,000-MW project. The Applicants did not restrict the site selection efforts merely to the lower portions of the California desert.

The demonstration of this fact is that Solar Millennium also is proposing to develop, (and has considered site alternatives for) a solar project near Ridgecrest, California in the Kern County portion of the High Desert over 150 miles northwest of the BSPP site. The approximate locations of the sites other than the proposed site are shown on Figure 4-1 and described in Table 4-1.

Table 4-1 Alternative Sites Considered and Rejected

Site	General Description/Location
El Centro	BLM property north of Plaster City, California
Johnson Valley	BLM, State of California, and private property near Johnson Valley, California
East of Lancaster	Private land east of Lancaster, California
Chuckwalla Valley	BLM property in general area southwest of Blythe, California

The Applicants propose to deliver the power generated from the Project via a new 500-kV gen-tie line built from the plant site which will interconnect with Southern California Edison's Devers-Palo Verde No. 2 500-kV transmission line to SCE's planned Colorado River substation, the location of which was recently finalized about five miles southwest of the Project site and south of I-10. Because of the uncertainty about the substation location, no BSPP transmission route alternatives have been defined or evaluated. When the Project's transmission line route is finalized and studied, alternative transmission routes also will be analyzed and the information provided to the regulatory agencies and other stakeholders.

4.5.2.1 Insolation, Size, Grade, Road Access

All of the sites considered have good solar insolation, although the El Centro site's insolation level at 6.9 kWh/m^2/day is slightly below the 7.0 kWh/m^2/day criterion (see Figure 4-2). All of the sites are large enough for a 1,000-MW facility. Most of the sites have acceptable grade; although the site east of Lancaster is least desirable with slopes of three to four percent. All of the sites are adjacent to large paved roads or freeways.

4.5.2.2 Environmental Sensitivity

Two of the alternative sites lie within the Colorado Desert, and two of the sites lie within the Mojave Desert. Much of the Colorado Desert is managed under the Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan by the BLM under the multiple use objectives of the FLPMA and the California Desert Conservation Area Resource Management Plan; the same is true with regard to the Mojave Desert and the West Mojave Plan. Considerable land areas are already designated for other land uses: areas for off-road vehicle use, national parks, military areas, etc. The Chuckwalla Valley site is located within desert tortoise critical habit (see Figure 4-3); it is also in a flood zone. Under the West Mojave Plan, neither the East of Lancaster nor the Johnson Valley site is located within a DWMA. However, the Johnson Valley site is located in Category 2 Desert Tortoise Habitat, per the San

Bernardino County Official Land Use Plan Biotic Resource Overlay. None of the sites are located in desert tortoise conservation areas, military bases, parks, wilderness areas or ACECs.

4.5.2.3 Proximity to Transmission

The El Centro site is located approximately seven miles from the existing San Diego Gas & Electric (SDG&E) 500-kV Imperial Valley substation and less than two miles from the proposed SDG&E Southwest Powerlink 500-kV transmission line. The East of Lancaster site is located within 14 miles of SCE's Vincent 500-kV substation. The Chuckwalla Valley site is located seven miles from the proposed Colorado Rivert substation of the SCE Devers-Palo Verde 500-kV transmission line. The Johnson Valley site is located 31 miles from the SCE Lugo 500-kV substation; however, it is located three miles away from the proposed Los Angeles Department of Water and Power 500-kV "Green Path" transmission line (eventual substation locations to be established).

4.5.2.4 Site Control

Two sites have issues related to site control. The Johnson Valley site combines Federal, State and private ownership, while the East of Lancaster site is privately owned and heavily subdivided. Multiple ownerships make obtaining site control a more difficult and higher risk situation. A summary of the site selection criteria and reasons for elimination of alternative sites from further consideration are presented below and summarized in Table 4-2.

Table 4-2 Alternative Sites Dropped from Further Analysis

Site	Site suitability	Site control	Transmission	Environmental Sensitivity
Proposed Site – BSPP	Excellent – Site large enough for four 250-MW plants. Two percent slope.	Good – BLM property	Excellent – Within five miles of existing SCE Colorado River substation.	Good – No outstanding resource values or known environmental conflicts (not in ACEC, DWMA, critical habitat, etc.)
Johnson Valley	Good – Site large enough for four 250-MW projects. Slope of two to three percent.	Poor – BLM, State of California, and private property	Poor – 31 miles from nearest 500 kV substation. However, site is located three miles from the planned Green Path 500-kV transmission line (substation locations presently unknown).	Medium - Located in Category 2 Desert Tortoise habitat, per San Bernardino County Official Land Use Plan Biotic Resource Overlay. Within one to three miles of several landing strips. Within 10 miles of 29 Palms military base.

Table 4-2 Alternative Sites Dropped from Further Analysis

Site	Site suitability	Site control	Transmission	Environmental Sensitivity
El Centro	Good – Site large enough to support four 250-MW plants. Two to three percent slope.	Good – BLM property	Good – approximately seven miles from the existing SDG&E Imperial Valley 500-kV substation and less than two miles from the planned SDG&E Southwest Powerlink 500-kV line.	Poor – potential conflicting resource use; in Plaster City Off Highway Vehicle Open Area.
East of Lancaster	Medium – Site large enough to support four 250-MW plants. Three to four percent slope.	Poor – Heavily subdivided private property	Medium – 14 miles from nearest 500-kV substation.	Good – No outstanding resource values or known environmental conflicts (not in ACEC, DWMA, critical habitat, etc.).
Chuckwalla Valley	Excellent – Site large enough to support four 250-MW plants. Two percent slope.	Good – BLM property	Good - Seven miles to SCE Devers-Palo Verde 500-kV proposed Midpoint substation.	Poor – Per NECO plan, sizable portion of site located in desert tortoise critical habitat. Also, located in flood zone.

4.5.2.5 Alternative Sites Would Not Avoid or Substantially Reduce Environmental Impacts

All of the alternative sites considered would require about 12 square miles of contiguous, rectangularly shaped land area and linear corridors of varying lengths. The Chuckwalla Valley site is located in Desert Tortoise critical habitat, and the Johnson Valley site is located in Category 2 Desert Tortoise habitat, per the San Bernardino County Official Land Use Plan Biotic Resource Overlay. The El Centro site is located in an Off Highway Vehicle Open Area.

4.5.2.6 Alternative Sites Would Fail to Meet Project Objectives

The first two screening criteria categories, solar resource and site suitability, address two of the Project objectives: to construct a 1,000-MW parabolic trough solar thermal power plant and to locate it on a contiguous, sufficiently large area of land with high direct normal insolation (DNI) and slopes of 2 percent or less. The East of Lancaster site has the lowest solar resource of all of the alternative sites. It also does not meet the Project objective of proximity to an existing SCE transmission system.

4.5.2.7 Selection of the Proposed Site

Table 4-2 above compares the potential environmental effects and overall suitability of the BSPP site with the other alternatives. As shown in the table, only the proposed BSPP site received "good" or "excellent" ratings in all four criteria listed in Table in table 4-2. None of the alternative sites would feasibly attain

most of the basic objectives of the Project while also avoiding or substantially reducing any potentially significant impacts of the Project.

The BSPP site and the alternative sites are all able to meet the basic objective of hosting four 250-MW solar power plants, but the BSPP site has several advantages over the others. The BSPP is located entirely on BLM land; it has a slope of less than two percent; it shows little environmental sensitivity and is considered to be low-value habitat for desert tortoise. The site was used during World War II by General Patton's tanks for training exercises, as part of the 18,000-square mile California-Arizona Maneuver Area covering 18,000 square miles. It is easily accessible from major roads. The site is not located in a wilderness study area, ACEC, or DWMA, and it is not in critical habitat.

Based on the foregoing analysis, the No Project Alternative would have the least potential for significant impacts. However, the No Project Alternative would not meet the basic project objectives and would not provide the benefits of the Project. It also fails to implement the multiple use goals of the FLPMA and the various State and Federal renewable energy goals.

Given the clear preferability of the proposed site for the Project, both in terms of meeting necessary site screening criteria and reducing environmental impacts, none of the alternative sites was carried forward for detailed analysis.

4.6 Alternative Site Layout

The proposed 1,000-MW Project configuration is the result of geographic, site control and environmental constraints, as well as engineering design and operating constraints and requirements of a utility-scale 1,000-MW solar thermal power plant.

- Geographic and site control constraints: The Project configuration has been limited by site area geographic constraints such as Blythe Airport to the southeast, and private property in the center and adjacent to the south of the site.
- Environmental constraints: The requested ROW area was reduced to avoid impacting the environmentally sensitive McCoy Wash, which traversed the northeastern-most portion of the original ROW.

4.7 Plant Size

The Applicants also considered the alternative of developing the Project as a single 250-MW unit or a 500-MW unit. Building one or two units would have a smaller footprint and thus likely also fewer environmental impacts than the proposed 1,000-MW facility. However, given the infrastructure requirements and environmental impacts associated with building a single 250-MW plant, or even two 250-MW units, as the Applicants have proposed 35 miles west of the BSPP (the Palen Solar Power Project) ,building four plants on one site allows for greater economies of scale than a smaller project.

It also potentially has some apparent environmental advantages compared to four separate facilities (or two separate facilities). In a sense, there are environmental economies of scale. For example, separate facilities inherently consume more total acreage because they must duplicate amenities that can be shared at larger facilities. This increases potential habitat loss, habitat fragmentation, and for resource and/or use-related conflicts (e.g., environmentally sensitive area or recreational use). Because of increased potential impacts of a transmission corridor, a larger facility would disturb less habitat in a single transmission corridor than singular 250-MW units with multiple transmission corridors. Similarly, infrastructure needs for solar facilities, potentially including water and/or gas pipelines, road improvements, and their associated environmental and other impacts, would likely be greater for multiple facilities compared to a single larger facility.

Finally, given the importance of attainment of renewable energy mandates and objectives, a 250-MW or 500-MW facility would not be as effective in meeting the Project objective of supporting renewable energy goals as a 1,000-MW facility. For these reasons, the development of a smaller project was rejected.

4.8 Freeze Protection and Auxiliary Boiler Heating Alternatives

The Applicants considered several alternatives for generating energy for freeze protection of the heat transfer fluid (HTF) and quick start for the auxiliary boiler during early morning hours. The four options that can achieve this are:

- Electricity purchased from SCE,
- Solar energy from the Project,
- Propane acquired from a third-party distributor, or
- Installation of a natural gas pipeline.

As discussed in Section 5.2, Air Quality, emissions related to the propane option are relatively minor and are well below the thresholds of the Federal permitting and Clean Air Act programs that are applicable to major sources of emissions. As the solar and purchased electricity approaches also do not pose air quality concerns, the alternatives analysis focused on economic efficiency.

Electricity delivered via the Project's transmission interconnect could be used for generating energy freeze protection of the HTF and quick start for the auxiliary boiler. This would entail the installation of several small electric boilers. This alternative is high in capital cost.

The Applicants analyzed the option of using solar energy to heat the HTF, in essence using the Project's own thermal energy to heat its own HTF. This option would eliminate the need for an alternative fuel source, but would delay the daily heating to operating temperatures of the HTF. This delay in morning hour production would significantly impact the efficiency and power generation of the overall plant. The loss in production would make the Project economically infeasible.

The Applicants have researched the alternative of designing a heating system that would use propane as the fuel. Propane would be delivered to the Project by a third-party distributor in bulk using trucks. The propane would be stored on site near the propane heating system.

While propane is a suitable option for the Project, natural gas is a better one. A natural gas option is a short distance away from the Project site (less than two miles from the site boundary). The Project can interconnect to the Southern California Gas main feeder line just south of the I-10. Considering the various factors, the Applicants have selected the option of utilizing natural gas as the fuel for HTF freeze protection and for quick start up of the entire facility.

4.9 Water Supply Alternatives

The Project was initially planned with wet cooling due to the considerable operational efficiencies and economic advantages associated with this technology. However, after careful research and analysis of the proposed Project site conditions and development plan, and in the context of the current water supply situation in California and State water policy, the Applicants have chosen to propose dry cooling. No water will be used for power plant cooling. This means that the Project will be in compliance with State Water Resources Control Board Policy 75-58.

Even a dry-cooled facility requires some water use, although it is a small fraction of what is required for wet cooling. Water will be needed for plant requirements such as solar mirror washing, feed water makeup, fire water supply, onsite domestic use, makeup water for ancillary equipment, heat rejection, and

dust control. The total anticipated water usage for operational requirements of the proposed facilities is approximately 600 acre-feet per year, or 150 acre-feet per plant per year. The Project will also need approximately 3,100 acre-feet of water during the construction period for soil compaction and dust control.

Currently, available data indicates that the water available from groundwater wells is brackish (high Total Dissolved Solids). A package water treatment system will be used to treat the water to meet potable standards. A sanitary septic system and onsite leach field will be used to dispose of sanitary wastewater. Existing offsite wells could provide backup water supply in the event of outages affecting the onsite supply well.

As part of the initial site analysis, the Proponent investigated potential alternatives to meet the water requirements for the proposed Project. Three potential water sources were investigated: 1) onsite groundwater (the alternative that was selected), 2) reclaimed water from the City of Blythe wastewater plant, and 3) water purchased from the Palo Verde Irrigation District. All three alternatives are discussed below:

Groundwater via wells on the site	Onsite wells (two, the second for backup in case of outage of the first) are adequate for the BSPP's needs and would utilize brackish water that can be treated for use. This is the selected alternative.
Reclaimed water from City of Blythe wastewater plant	The City of Blythe wastewater treatment plant is located approximately 12 miles from the site. The City's 30-year old wastewater treatment facility is a Class III facility that discharges 1,456 acre-feet per year of water into percolation ponds. Although the City's wastewater could potentially supply Project water needs, the City wastewater is owned by the Palo Verde Irrigation District and cannot be sold outside the District's boundaries. Even if this were not the case, it would not be economically feasible to build a pipeline from the treatment plant to the Project site.
Supply of water from the Palo Verde Irrigation District	As noted above, the District cannot sell water outside its boundaries. Please see Figure 4-3.

The Project site is located outside water district boundaries (see Figure 4-3). BSPPs proposed water use, which will be supplied by onsite wells and does not use any water for power plant cooling, is consistent with California water law and policy.

The Applicants are aware of the Bureau of Reclamation's proposed (but now withdrawn) rule regarding the use of Colorado River water (1006-AA50). The proposed rule would have established an "accounting surface" to determine when water pumped from an aquifer is replaced with water drawn from the lower Colorado River. If the rule or one like it were adopted, the rule could require the Project to contract with a Colorado River entitlement holder for water supply. As noted, the rule has been withdrawn and no new rule has been proposed.

4.10 Power Generation Technology Alternatives

An objective of the Project is to support the State's policies/goals with respect to increasing the use of renewable energy sources. Fossil fuel technologies (simple-cycle, combined-cycle, advanced combustion turbine technologies, integrated gas combined cycle, fluidized bed boilers, etc.) by definition do not support this objective and thus were not considered as alternatives for the Project. In addition, nuclear power is not renewable energy and is prohibited by California law at present because of concerns about nuclear waste disposal.

As for alternative renewable energy sources, the proposed Project would generate power by using concentrating solar thermal trough technology to produce high-pressure steam to drive a steam turbine generator. Other renewable energy technologies, including, for example, photovoltaic solar energy, have not been analyzed as alternatives because Solar Millennium is a technology leader in parabolic trough technology and has expertise with this technology. In addition, there is little evidence that the use of other technologies would meaningfully decrease the Project's potential environmental impacts.

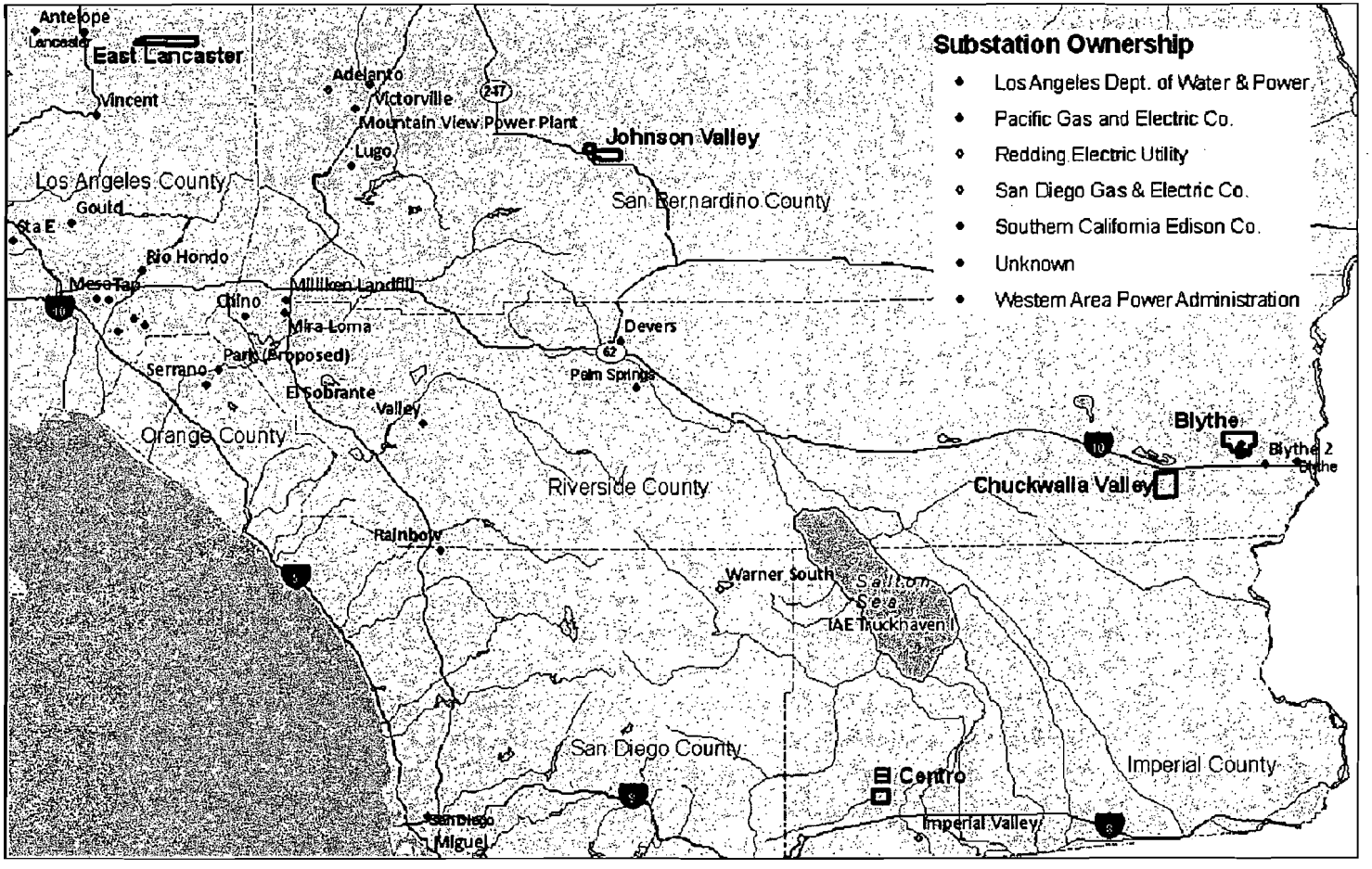
4.11 References

CEC, 2005. Integrated Energy Policy Report.

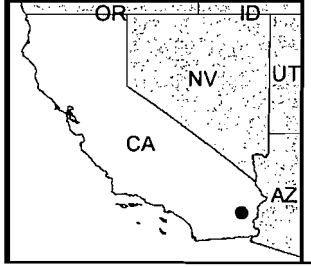
CEC, 2002-08. Committee Draft Integrated Energy Policy Reports.

CEQ, 1981. http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm. Accessed July 2009.

State Water Resources Control Board, 1975. State Water Resources Control Board Resolution No. 75-58 Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling.



Project Location



Data Sources:
United States Fish and Wildlife Service
(http://criticalhabitat.fws.gov/)

Blythe Solar Power Project

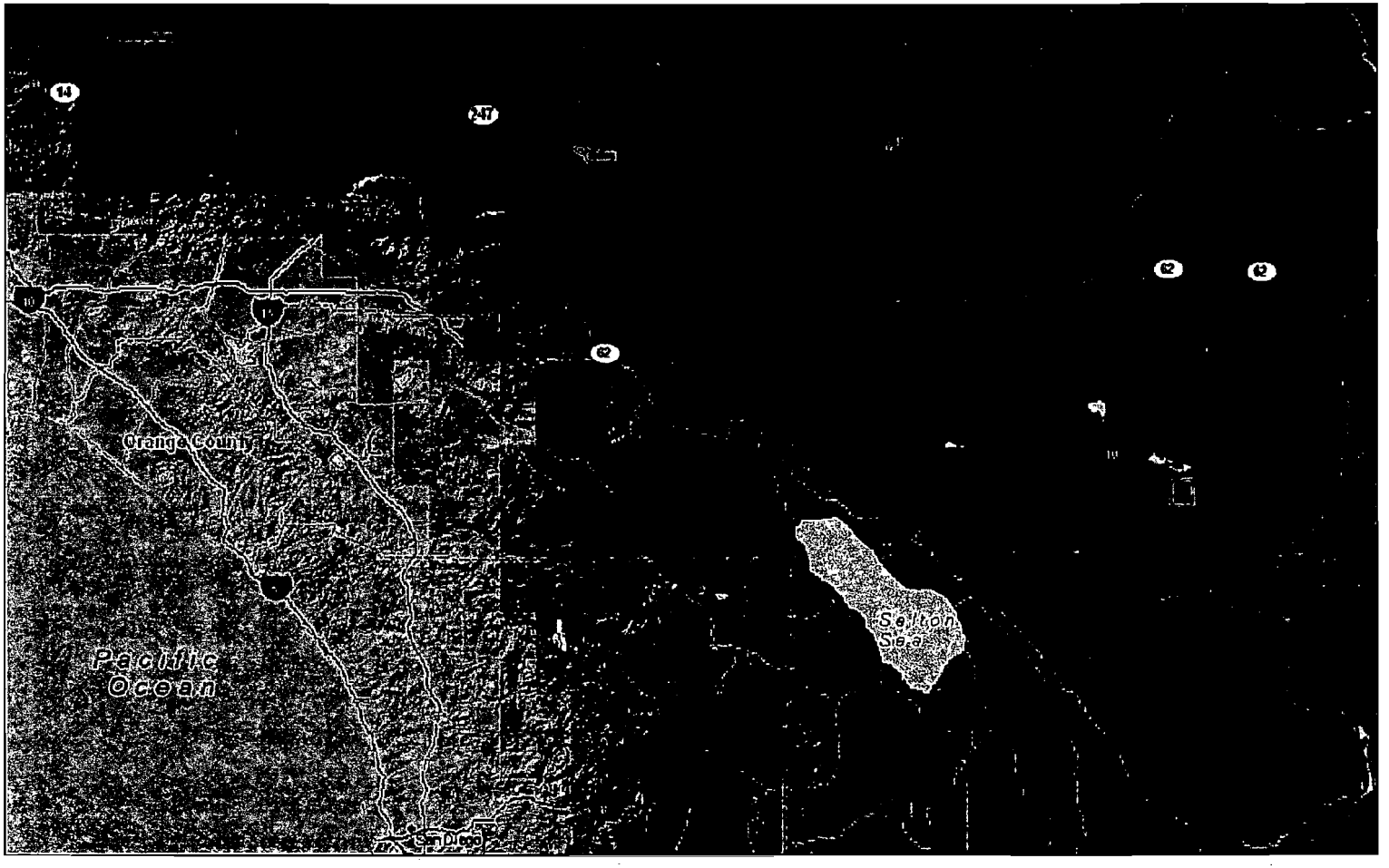
Figure 4-1
Alternative Sites Initially Considered

Solar Millennium

AECOM

Project: 12944-002
Date: August 2009

I:\2009 Projects\12944_SolarMillennium\Figures for Engineering\Alternatives\Fig4-1blythe.mxd



N

0 10 20 40

Miles

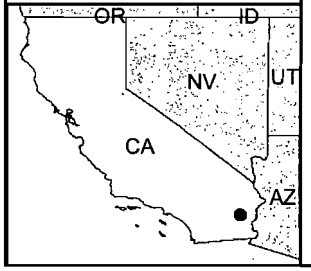
Alternative Site

Planned Site

kWh/sqm/day

Below 6 | 6 - 6.5 | 6.5 - 7 | 7 - 7.5 | 7.5+

Project Location



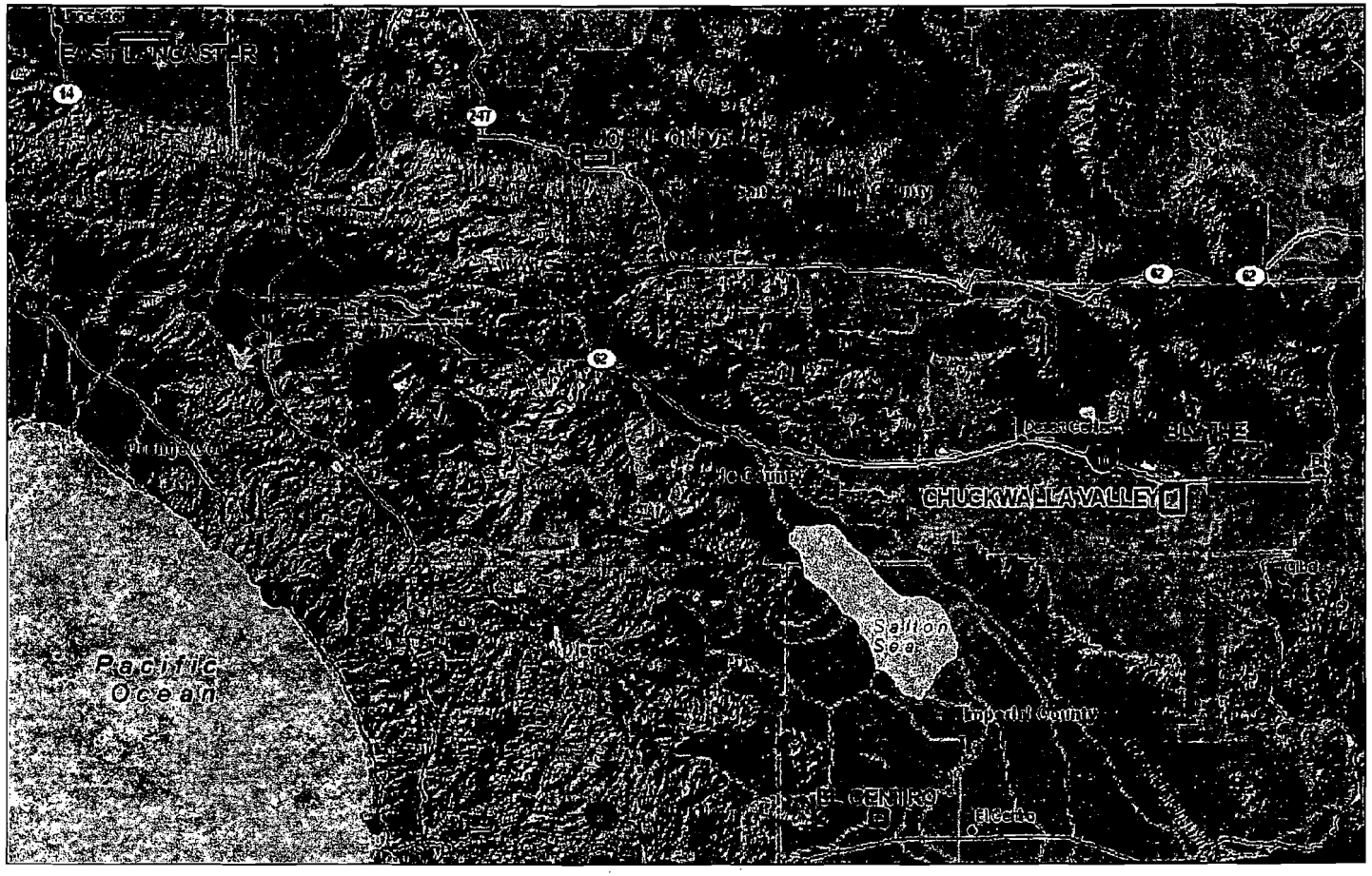
Blythe Solar Power Project

Figure 4-2
Alternative Sites Initially Considered and Solar Resource Quality

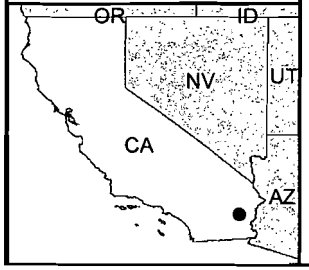
Solar Millennium

AECOM

Project: 12944-002
Date: August 2009



Project Location



Data Sources:
United States Fish and Wildlife Service
(http://criticalhabitat.fws.gov/)

Blythe Solar Power Project

Figure 4-3
Alternative Sites and
Desert Tortoise Critical Habitat

Solar Millennium

AECOM

Project: 12944-002
Date: August 2009

DR-ALT-30

Information Required:

In order to facilitate preparation of the SA/DEIS document and allow further analysis of the project site with alternative sites, please provide the precise locations of the four alternative sites (Township/Range/Section and/or parcel numbers) and GIS data if available.

Response:

The alternative sites are located in the following sections. Township and range are abbreviated as T and R respectively. North, South, East and West are abbreviated N, S, E and W respectively. All descriptions are relative to the San Bernardino Baseline and Meridian.

East of Lancaster:	T 7 N, R 9 W, Sections 19, 20, 21, 28, 29, 30
	T 7 N, R 10 W, Sections 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30
	T 7 N, R 11 W, Section 25
El Centro:	T 15 S, R 11 E, Sections 26, 27, 28, 33, 34, 35
	T 16 S, R 11 E, Sections 2, 3, 4
Johnson Valley:	T 4 N, R 3 E, Sections 21, 22, 25, 26, 27, 28, 34, 35, 36
	T 4 N, R 4 E, Sections 29, 30, 31, 32
Chuckwalla Valley	T 7 S, R 18, E, Sections 1, 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 21, 22, 23, 24

DR-ALT-31

Information Required:

Please identify the size (total acreage) and dimensions of each alternative site.

Response:

All of the alternative sites are irregularly shaped. Approximate total acreage of the sites (rounded to the nearest hundred acres) is as follows:

- East of Lancaster 7,900 acres
- El Centro 3,500 acres
- Johnson Valley 5,700 acres
- Chuckwalla Valley 9,000 acres

DR-ALT-32

Information Required:

For private property sites, please indicate the number of individual landowners comprising ownership of the alternative site, the assessor's parcel number, and the acreage of each separate parcel and landowner.

Response:

The El Centro alternative site is situated on land owned by two separate landowners. Ten parcels are owned by the U.S. Government and one parcel is owned by Van Derpoel. Table DR-ALT-32-1 identifies the 11 assessor's parcel numbers, acreage, and landowner of each separate parcel.

Table DR-ALT-32-1 El Centro Alternative Site

Assessor's Parcel #	Acreage	Landowner
034280009000	639.6403175	U.S. Government Land
034280010000	640.0728757	U.S. Government Land
034280011000	639.9146183	U.S. Government Land
034280016000	639.8684616	U.S. Government Land
034280017000	640.064745	U.S. Government Land
034280018000	159.9573732	Van Derpoel
034280019000	479.7209017	U.S. Government Land
034360004000	639.9408156	U.S. Government Land
034360005000	640.1737789	U.S. Government Land
034360006000	479.9721278	U.S. Government Land

The Johnson Valley alternative site is situated on land owned by 29 separate landowners. Table DR-ALT-32-2 identifies the 55 assessor's parcel number, acreage, and landowner of each separate parcel.

Table DR-ALT-32-2 Johnson Valley Alternative Site

Assessor's Parcel #	Acreage	Landowner
0447421070000	2.38	Government Land
0447421080000	2.33	Government Land
0448251030000	640	State of California
0448261030000	640	State of California
0448261060000	200	State of California
0448261080000	480	State of California
0448261090000	160	Government Land
0448261100000	400	State of California
0448261110000	240	Government Land
0448271010000	20	Remmers, Eugene T & Carolyn E
0448271020000	60	Jin, Ling
0448271030000	60	Gip, Pao A Etal & Phong N (HW-PAO)
0448271040000	20	Tsou, Alice W
0448271050000	20	Tsou, Alice W
0448271060000	60	Wilcox, Carl R etal; C/O Robert J Wilcox
0448271070000	80	Chen, Nancy Trust
0448281010000	640	Government Land
0448281040000	40	Luu, Tri Thanh
0448281100000	10	Axtater, John T TR & Arlene D TR
0448281110000	10	Axtater, Arlene D TR
0448281120000	20	Dang, Thanh; Ong, Lillian
0448281140000	40	Gip, Pao A Etal & Sy A
0448281150000	30	Cangco, Francisco A & Matilde P
0448281170000	10	Lee, Davy
0448281180000	40	Miller, John W & Carole C
0448281190000	20	Witte, Randall
0448281200000	20	Eckel Family TR; C/O Roberta J Eckel TR
0448281210000	27.71	Charlson, Antoinette M Trust

Table DR-ALT-32-2 Johnson Valley Alternative Site

Assessor's Parcel #	Acreage	Landowner
0448281220000	10	Atkinson, Tommy L & Martha J
0448281230000	10	Larderuccio, Salvatore Rev TR & Jennie
0448281240000	10	Larderuccio, Salvatore Rev TR & Jennie
0448281250000	10	Larderuccio, Salvatore Rev TR & Jennie
0448281260000	10	Larderuccio, Salvatore Rev TR & Jennie
0448301060000	480	State of California
0448301080000	20	Gudgin, Bernadette
0448301110000	20	Bailey, Nathan T III & Carla J
0448301120000	120	State of California
0448301130000	10	Pino, Jerry & Martha
0448301140000	10	Valley Trust Deed Services Inc
0448301170000	270	Government Land
0448301180000	10	O'hara, Dennis G TR & Virginia J TR
0448301190000	10	Lafon, David L & Terry M TR
0448301200000	20	Campbell, Harry J
0448311050000	640	State of California
0454421100000	320	State of California
0454421110000	640	Lehavi, Dov Etal; RCOB Inc
0454421120000	315.74	Government Land
0454421200000	320	State of California
0454421220000	200	State of California
0454421230000	431.7	State of California
0454421240000	480	State of California
0454421250000	160	Government Land
0454421260000	480	State of California
0454421270000	160	Government Land

The Chuckwalla Valley alternative site is situated on land owned by nine separate landowners. Table DR-ALT-32-3 identifies the assessor's parcel number, acreage, and landowner address of each separate parcel. The publicly available data from the Riverside County Assessor does not provide landowner names, only addresses. It is assumed that each separate address represents a separate landowner.

Table DR-ALT-32-3 Parcel Information Chuckwalla Valley Alternative Site

Assessor's Parcel #	Acreage	Landowner Address
860140004	20.0	1101 Shannon Drive, Medford, OR 97504
860140003	20.2	1101 Shannon Drive, Medford, OR 97504
860140011	39.9	1935 University Way, San Jose, CA 95126
860140013	79.8	4426 Braeburn Road, San Diego, CA 92116
860140010	39.9	6169 North Reno Avenue, Temple City, CA 91780
860140014	79.7	698 Lookout Avenue, Prineville, OR 97754
860140005	322.3	8004 Clock Tower Court, Las Vegas, NV 89117
860140012	79.8	9031 Cypress Creek Road, Lantana, TX 76226

The East of Lancaster alternative site is comprised of 1,370 parcels. The parcels are illustrated below. Because of the huge number of parcels, individual ownership information is not provided

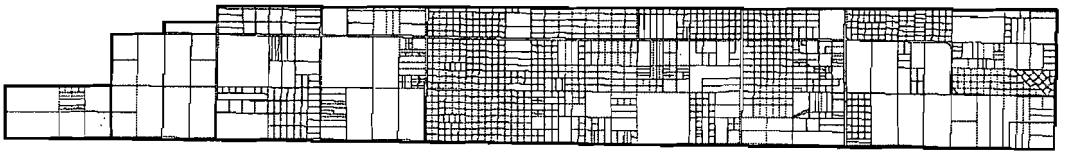


Figure DR-ALT-32-1

DR-ALT-33

Information Required:

For sites located on BLM-administered land, please indicate if the BLM has received a right-of-way application for use of any of the alternative site land and the status of the application, if available.

Response:

On July 3, 2008, Solar Millennium LLC submitted a right- of-way (ROW) application to Bureau of Land Management (BLM) for the Chuckwalla Valley alternative site. In August 2008, BLM indicated that the Chuckwalla Valley site was partly in a Desert Wildlife Management Agency (DWMA) and partly in the Chuckwalla Valley Dune Thicket Areas of Critical Environmental Concern (ACEC) and the site was rejected.

DR-ALT-34

Information Required:

Please fill in Table 1 on the last page of this Data Request to compare the East of Lancaster alternative site with the proposed project. Please also include any information previously gathered on the El Centro, Johnson Valley, Chuckwalla Valley alternative sites.

Response:

Table DR-ALT-34-1 compares the Project as proposed with the East of Lancaster site and the other three alternative sites included in the AFC.

Table DR-ALT-34 -1 Blythe Solar Power Project: Alternative Sites Environmental Comparison Table

Environmental Criteria	Proposed Project Site	East of Lancaster	El Centro	Johnson Valley	Chuckwalla Valley
Is site mechanically disturbed?	Some roads and vehicle tracks	Partially. Some agriculture on west side, several residences	Some roads and off road vehicle impacts	Some roads and residences	Some off-road vehicle impacts
Is site adjacent to degraded and impacted private lands?	None listed	Several LUFT sites identified	None listed	None listed	None listed
Is site a Brownfield?	No	No	No	No	No
Is site located adjacent to urbanized areas (indicate distance)?	~ 7 miles northwest of the center of Blythe	Site located within the city limits of both Palmdale and Lancaster	~ 6 miles northwest of unincorporated community of Seely, 13.5 miles northwest of El Centro	~ 31 miles southeast of Apple Valley/Victorville, 14 miles northeast of Big Bear Lake, 20 miles northwest of Yucca Valley	~ 19 miles west of Blythe
Does site require the building of new roads (indicate length)?	Yes, site is approximately 1.5 miles north of U.S. Interstate 10 (I-10)	No, site accessible by surface streets	Yes, site is ~1 mile north of State Highway 80	Yes, site is ~700 feet northeast of State Highway 247	Yes, site is ~0.5 mile south of I-10
Could site be served by existing substations (indicate name and distance)?		~ 14 miles from Southern California Edison (SCE) substation; suitability, availability, etc. unknown	~ 7 miles from San Diego Gas and Electric substation, suitability, availability, etc. unknown	~ 31 miles from SCE substation, 3 miles from proposed Los Angeles Department of Water and Power line; suitability, availability, etc. unknown	~ 7 miles from proposed SCE substation; suitability, availability, etc. unknown
Is site located proximate to sources of municipal wastewater (indicate name and distance)?	~ 8 miles from Blythe Wastewater Treatment Plant (WWTP). However, this wastewater source is not available as it is accounted for as Colorado River Water return flow.	~ 5 miles from Palmdale Water Reclamation Plant (has tertiary treatment but availability unknown)	~ 14.5 miles from El Centro WWTP	~ 40 miles from Victor Valley Wastewater Reclamation Plant (has tertiary treatment but availability unknown)	~ 19.5 miles from Blythe WWTP. However, this wastewater source is not available as it is accounted for as Colorado River Water return flow
Is site located proximate to load centers (indicate name and distance?)	~ 200 miles to Los Angeles, ~ 150 miles to San Diego, and ~ 170 miles to Las Vegas	~ 30 miles from Los Angeles	~ 75 miles from San Diego, ~60 miles from Los Angeles	~ 75 miles from Los Angeles	~ 190 miles to Los Angeles, ~140 miles to San Diego and ~180 miles to Las Vegas
Is site located adjacent to federally designated corridors with existing transmission lines?	Yes	~ 20 miles to nearest transmission corridor	Yes	Yes	Yes
Does site support sensitive biological resources, including federally designated/proposed critical habitat; significant populations of federal or state threatened and endangered species, significant populations of sensitive, rare and special status species and rare or unique plant communities?	Yes. contains observed small tortoise population	Yes, Swainson's hawk identified on site by California Natural Diversity Database (CNDDB)	Yes, flat tailed horned lizard identified on site by CNDDB	Yes, desert tortoise identified on site by CNDDB	Yes, site is located within designated Desert Tortoise critical habitat. Other special-status species also documented on the site, see CNDDB map for more details.
Is site within Area of Critical Environmental Concern, Wildlife Habitat Management Area, proposed HCP and NCCP Conservation Reserves?	None identified	Yes, site includes portion of Mojave Fringe-toed Lizard ACEC	None identified	None identified	Yes, most of site is within Chuckwalla DWMA, portion of site within Chuckwalla Valley Dune Thicket ACEC

Table DR-ALT-34 -1 Blythe Solar Power Project: Alternative Sites Environmental Comparison Table

Environmental Criteria	Proposed Project Site	East of Lancaster	El Centro	Johnson Valley	Chuckwalla Valley
Does site contain land purchased for conservation including those conveyed to BLM?	No	None identified	None identified	None identified	None identified
Does site contain landscape-level biological linkage areas required for the continued functioning of biological and ecological processes?	Site contains desert washes that facilitate animal movement in the desert. Project has potential for impact on wildlife movement corridors, but would not be considered, by itself as required for the continued functioning of biological and ecological processes.	Site is adjacent to the cities of Lancaster and Palmdale and characterized by a patchwork of disturbed lands, including current and former agricultural areas, and some sparse native vegetation. Based on the proximity to urban areas and the historical land uses on the site and in the surrounding areas, the site does not function as a biological linkage and is not required for the continued functioning of biological and ecological processes.	This site lies in an area of relatively undisturbed desert habitat to the west of agricultural lands of the southern Imperial Valley. The southern portion of the site has been disturbed by use as a sanctioned off-highway vehicle recreation area (Plaster City Off-Highway Vehicle Area). Two sizable desert washes, which are known to facilitate animal movement in the desert traverse the site and thus, desert wildlife may move through or inhabit portions of the site. However, because of the abundance of relatively intact habitat surrounding the site, it is unlikely that this site, in and of itself, is required for the continued functioning of biological and ecological processes.	The site lies within a large area of relatively undisturbed habitat. While the site does not appear to function as a critical linkage between different areas of habitat, desert tortoise have been documented in surrounding areas. It is possible that desert wildlife may move through or inhabit portions of the site. However, based on the abundance of quality habitat surrounding the site, it is unlikely that this site, in and of itself, is required for the continued functioning of biological and ecological processes.	The site lies within a large area of relatively undisturbed desert habitat. While the site does not appear the site does not function as a critical linkage between different areas of habitat, the site lies almost entirely within desert tortoise critical habitat and the Chuckwalla DWMA and a portion is within the Chuckwalla Valley Dune Thicket ACEC. There are also a number of desert washes that traverse the site. While it is likely that wildlife may move through or inhabit portions of the site, it is unlikely that this site, in and of itself, is required for the continued functioning of biological and ecological processes. However, the designation of the area as desert tortoise critical habitat, a DWMA, and ACEC would indicate that its preservation is important to the ecology of Mojave desert wildlife.
Is the site within Proposed Wilderness Area, proposed National Monuments, and Citizens' Wilderness Inventory Areas	None identified	None identified	None identified	None identified	None identified
Does the site contain wetlands and riparian areas, including the upland habitat and groundwater resources required to protect the integrity of seeps, springs, streams or wetlands?	Site contains no wetlands or riparian areas but does contain ephemeral washes which are being considered waters of the State	Site contains no wetlands or riparian areas but does contain ephemeral washes which may be considered waters of the State	Site contains no wetlands or riparian areas but does contain jurisdictional waters of the State (ephemeral washes)	Site contains no wetlands or riparian areas but does contain jurisdictional waters of the State (ephemeral washes)	Site contains no wetlands or riparian areas but does contain jurisdictional waters of the State (ephemeral washes)
Is the site a National Historic Register eligible site and does it contain other known cultural resources?	Site contains a number of sites requiring evaluation (NHPA Sec 106) for potential eligibility for National Register	Class I archival research underway. Results will be available by January 20, 2010.	Class I archival research underway. Results will be available by January 8, 2010.	Class I archival research underway. Results will be available by January 20 2010.	Class I archival research underway. Results will be available on January 8, 2010.
Is the site located directly adjacent to National or State Park units?	None identified	Yes, site adjacent to Antelope Valley Indian State Park and ¼ mile from Saddleback Butte State Park	None identified	None identified	None identified

DR-ALT-35

Information Required:

Given the uncertainty regarding the transmission line route and possible substation location, please detail what additional transmission line routes or substations are being considered. Illustrate all options on a detailed map that includes section numbers and boundaries.

Response:

Figure DR-ALT-35-1 shows the transmission routes and substation alternatives that have been considered. There are two routes being considered. However, either of the two routes would terminate at the same planned SCE Colorado River substation where the BSPP would interconnect with the SCE system. Thus, both transmission routes terminate at the location that has been selected by SCE for the substation facility.

One of the two transmission line routes was the one included in the July 2009 AFC and the other route is included in the October 2009 AFC Volume 3 Data Adequacy Supplement.

DR-ALT-36

Information Required:

One of the site selection criteria for the proposed Blythe SPP site was environmental sensitivity. Please provide the results of a CNDDB search for the East of Lancaster alternative site.

Response:

Figure DR-ALT-36-1 illustrates the results of the CNDDB search conducted for the East of Lancaster site. The species identified at the site and within a 5-mile radius are listed immediately below:

Species	Status
Alkali mariposa lily	CNPS 1B.2
Parish's popcorn-flower	CNPS 1B.1
Parry's spineflower	CNPS 3.2
Le Conte's thrasher	State – Species of Special Concern
Mountain plover (nonbreeding/wintering)	State – Species of Special Concern
Swainson's hawk	State – Threatened
Western burrowing owl	State – Species of Special Concern
Desert tortoise	Fed – Threatened; State – Threatened
American badger	State – Species of Special Concern
Mohave ground squirrel	State – Threatened

DR-ALT-37

Information Required:

Please provide an Information Center search (Class I) for recorded sites identified within the East of Lancaster alternative site.

Response:

The South Central Coastal Information Center is the repository for cultural resources data that covers the East of Lancaster alternative site. However, the Information Center closes over the Christmas/New Year holiday and it was not possible to complete the Class I research until after the Information Center reopened on January 4, 2010. We anticipate providing the results of the Class I search for the East of Lancaster site by January 20, 2010.

DR-ALT-38

Information Required:

Please provide the results of a CNDDB search for the Blythe Disturbed Land alternative site.

Response:

Figure DR-ALT-38-1 shows the results of the CNDDB search for the Blythe Disturbed Land alternative site. The data shown is for the site plus a 5-mile radius. The species identified in the search are listed immediately below:

Species	Status
Angel trumpets	CNPS 2.3
California satintail	CNPS 2.1
Harwood's milk-vetch	CNPS 2.2
Razorback sucker	Fed – Endangered; State – Endangered
Crissal thrasher	State – Species of Special Concern
Elf owl	State – Threatened
Gila woodpecker	State – Endangered
Sonoran yellow warbler (nesting)	State – Species of Special Concern
Southwestern willow flycatcher	Fed – Endangered; State – Endangered
Summer tanager (nesting)	State – Species of Special Concern
Vermilion flycatcher (nesting)	State – Species of Special Concern
Western burrowing owl	State – Species of Special Concern
Western yellow-billed cuckoo	Fed – Candidate; State Endangered
Yellow-breasted chat (nesting)	State – Species of Special Concern
Yuma clapper rail	Fed – Endangered; State – Threatened
Desert tortoise	Fed – Threatened; State – Threatened
Arizona myotis	State – Species of Special Concern
Cave myotis	State – Species of Special Concern
Colorado River cotton rat	State – Species of Special Concern
Pallid bat	State – Species of Special Concern

Pocketed free-tailed bat	State – Species of Special Concern
Western yellow bat	State – Species of Special Concern

DR-ALT-39

Information Required:

Please provide an Information Center search (Class I) for recorded sites identified within the Blythe Disturbed Land alternative site.

Response:

The Eastern Information Center is the repository for cultural resources information for the Blythe Disturbed Lands alternative site. However, the Eastern Information Center (like the other cultural resources repositories) closes over the Christmas/New Year holiday.

Thus, we were not able to provide the full results of the Class 1 search on January 6, 2010. Specifically, we did not have the historical maps for the site in time. We expect to be able to obtain the needed historical maps in time to make a full submittal of the requested cultural resources information for this alternative site by January 20, 2010.

DR-ALT-40

Information Required:

To determine the feasibility of obtaining site control, please explain how many separate owners would result in an unacceptable probability of obtaining site control. Consider the Renewable Energy Transmission Initiative (RETI) Phase 2A Report's statement that: "At the recommendation of solar generators and other stakeholders, proxy solar projects in areas having more than 20 different owners per two-square mile area were deemed unlikely to be developed."

Response:

As stated in Section 4.2.2, Alternative Site Selection Criteria of the AFC, "site control" is one of the criteria used by the Applicant during the site selection process. In the AFC description of the site control criterion, it notes "If private land, the site should not be subdivided between more than **three** landowners to avoid lengthy or unsuccessful negotiations."

Solar thermal projects the size of the proposed BSPP represent enormous investments, whoever the proponent(s) might be. Obviously, these are major, complex business decisions not taken lightly by any applicant. The ease/difficulty and cost of obtaining site control is one of the components of such business decisions. Different applicants legitimately may have different views of how many landowners with whom successful negotiations would be required is "too many". The Applicant has decided that the appropriate maximum number of landowners they would be willing to deal with is three.

DR-ALT-41

Information Required:

Please describe in detail the engineering constraints, if any, to the development of a revised configuration of each 250 MW unit. A revised configuration may result in the rows of troughs not being as long and not configured in a solid rectangular area. As an example, it may be desirable to allow existing washes to pass through an undeveloped portion of the site and to allow troughs to be installed on either side of the wash.

a. Please define whether there is a specific minimum or maximum length that each individual solar collector loop assembly must be, and if it is necessary that the solar collector loops be identical in length. Please define both engineering and economic constraints to having variable collector loop lengths.

b. Please describe in detail whether there is flexibility in the lengths of the supply and return header piping or if these are specific to the solar collector assemblies, and if so, what is the flexibility.

c. Please describe whether there is a distance between components of the solar field and the power block that would result in a loss of heat in the heat transfer fluid such that is would reduce the economic or engineering feasibility of the project

d. Please describe if there is a minimum number of rows of solar collector loops that would make up a unit or if there is flexibility in the number of units that could be arranged to create a 500 MW power plant.

e. Please describe if it is possible to have multiple and smaller power blocks (e.g., 50 or 100 MW) and describe how this would increase the flexibility of the solar field arrangement.

f. Please explain the difference between the crossover pipe, HTF loops, and Heat Collection Elements. If a reconfigured solar array were developed, discuss whether these components would traverse desert washes to reach the power blocks.

Response:

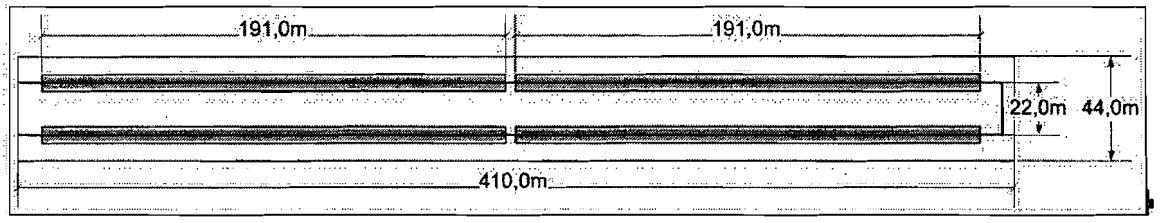
Solar Field Design Criteria

The basic building block of a parabolic trough solar field is the so-called "loop". Each loop is made up of 40 solar collector assemblies with an aperture area of 5,025 square meters. A loop is carefully engineered with the specified collector area and a range of flow rates to raise the temperature of the heat transfer fluid (HTF) circulating in the solar field from the "cold " temperature that exists at the first preheater in the steam generation train to the maximum, design point temperature of the system. In the case of the proposed Project (and all other solar trough plants that use Therminol® VP1 or equivalent synthetic oil as the HTF[1]) the cold return HTF temperature is approximately 300 degrees Celsius (°C) and the hot design point temperature is approximately 400°C.

---

1 Steam cycles have improved efficiency with higher peak operating temperature. So system designers strive to achieve peak operating temperatures up to 550°C (1000 degrees Fahrenheit).

Each Heliotrough loop is made up of 4 collectors 191 meters in length with an aperture width of 6.77 meters. To ensure optimal annual energy capture, it is critical that loops be oriented in a precise north-south alignment. The "U" shaped loop illustrated below is optimal from a pressure drop standpoint. This loop system allows the hot and cold headers to be routed in the same header pipe corridors, with the delivery and return points of the HTF at roughly the same location. While it is possible to double each collector section back on itself, in a "W" shape, this results in large additional pressure drop in each loop. Furthermore, an optimal layout will have opposing loops on the north and south side of an east-west header. An optimal solar field will therefore be laid out in 820 meter (approximately ½ mile) north south increments.



Ideal HelioTrough Loop Geometry and Layout

Multiple studies in the history of solar trough technology development have shown that the north-south orientation is optimal. Comparisons to an east-west orientation have shown extreme deviations between summer and winter performance due to the sun angles. This east-west orientation would require that the solar field be much larger or overdesigned to reach the same annual energy as a north-south oriented field. Setting the collectors to any angle deviating between perfect north-south reduces annual energy production and causes operational and control problems. Difficulties will be encountered in controlling temperature due to complex shading of collectors during mornings and evenings specific to each day of the year (and also differing year to year). This often can lead to an inefficient use of land and additional heat and pressure losses, since interconnecting piping will be lengthened to provide necessary clearance for maintenance and movement of the collectors themselves.

While it is possible to mix and match loops of different sizes, a large solar field for utility scale electric generating facility is best designed with loops of identical size. The solar radiation incident on each loop varies between approximately 300 watts/meter^2 to over 1000 watt/meter^2 during plant operations. To maintain a constant temperature increase across each loop of 100°C (300°C up to 400°C), the flow rate is varied up or down to accommodate the precise level of solar power incident on the loop^2. For this reason it is critical that the fluid flow in each loop throughout the entire solar field be identical.

Loops of shorter or longer length are possible, but would require a unique HTF flow to achieve the design-point temperature rise. Each loop would then have limited maximum and minimum power performance with respect to one another and also a unique pressure drop. This would reduce overall performance and lead to extreme flow control difficulties.

However, synthetic oils such as Therminol start to break down at temperatures above 400°C. As this happens, hydrogen evolves from the oil and slowly destroys the vacuum in the annulus of the solar receiver tubes that carry the HTF oil in the solar field. In the extreme, lost vacuum across an entire solar field renders it useless.
2 The central pumping station utilizes variable speed drives for HTF pumping, making a wide range of flowrates possible to accommodate a wide range of incident solar radiation.

In order to achieve identical flow in every one of the approximately 290 loops in a 250-megawatt (MW) solar plant, it is critical that the solar field is "balanced". Adjusting flow at the entrance of each loop with automated flow control valves is not practical. A balanced solar field requires that the pressure drop from the central pumping station to each subfield be the same. A key criteria to achieve such balance is that that the main headers that carry HTF to and from the central pumping station to the outer reaches of the solar field be identical (or close to it) in length and include equal number of loops.

The length of the header pipes and the number of loops determine the volume of HTF necessary for the operation of the solar plant. Any additional length of large header piping needed to accommodate suboptimal field layouts, unbalanced solar fields, or odd loop configurations creates a "dead volume" of HTF. This extra mass of HTF needs to be heated up each morning, expands the size of the overflow and ullage system, burdens the freeze protection system, and creates additional capacity requirements in the pumping system. Additionally, when loops are set opposing one another, a single cold or hot header can be shared between a north and south field reducing the need for additional pipe, as well as for additional pipe supports, insulation, foundations and all the labor involved in welding and constructing the headers. Thus, each deviation from the optimal configuration can have compounding negative effects of increasing capital cost and decreasing plant performance.

There is a hierarchy of design features for a solar field ranging from "desirable" features to those that are considered "critical":

Desirable Solar Field Design Features

- Loops assembled in "opposing pairs" along east-west headers
- Solar Field is a perfect rectangle, preferably close to square
- Power Block is located in the center of the solar field

Important Solar Field Design Features

- Pumping station is at the hydraulic center of peripheral loops
- Loops are laid out in a "U" configuration

Critical Solar Field Design Features

- Perfect north-south alignment of collector rows
- All loops are the same size

Design and Capital Cost Impacts

In summary, deviations from optimal collector configurations and solar field layouts cause the following negative impacts on cost and performance:

Additional capital cost

- Longer main headers, with expansion loops, insulation and foundations
- Additional HTF volume
- Additional expansion vessel capacity

- Additional pumps – split pumping station with loss of system redundancy
- Additional instrumentation and controls
- Additional grading and storm water management costs

Performance Impacts

- Decrease in annual energy capture
- Pressure loss in additional piping
- Heat loss in additional piping
- Delayed Startup each day – while additional HTF volume is brought to operating temperature

Overall Impacts:

Depending on the specific deviation from optimal designs, capital costs can rise by approximately 3 to 5 percent. Plant output will decrease by an additional 2 to 6 percent. The overall impact is an increase in electricity cost of approximately 5 to 10 percent.

a: Collector Loop Length

Solar collector loops have been carefully designed to maintain the optimal heat transfer flow ranges that can heat the transfer fluid by approximately 100°C for the typical range of solar radiation that occurs throughout the day. The loop unit is made up of four collector assemblies. It is possible to decrease the number of solar collector elements within loop assemblies to create loops of slightly different total length. However, this will require a different design HTF flow rate to achieve the design point temperature rise. For this reason, it is critical that all subfields be designed with loops of equal length.

In plants where each subfield is made up of loops of different lengths, separate pumping stations are required to serve each subfield. While this is physically possible, it creates the following problems:

- Since the entire solar field is no longer a single, pressurized system, the individual subfields have to be operated independently and in parallel from a hydraulic perspective.
- In order to use a common steam generation system, the hot HTF return pressure has to be identical for all subfields. This would likely require use of additional automated throttle/control valves.
- Alternatively, parallel, independent steam generation trains would be required, increasing cost and complexity.

In summary, subfields made up of distinct loop geometries are technically feasible. However, such a design increases capital cost and decreases operational flexibility.

An additional flexibility that exists within the Applicant-proposed standard collector loop design is the ability to set the loop in a double-U layout, where four single collectors are set side-by-side instead of two series sets of collectors in a single-U design. This would result in additional pressure loss and heat loss in the loop as well as twice the amount of installed header piping per loop (see header impacts discussion in item "b" below).

b: Header Piping Flexibility

The length of supply and return (cold and hot) headers is dictated by the number of loops in the plant. It is very desirable to maintain equal header length from the power block to the farthest most loop. BSPP Units use a so-called "H" header design, where the number of loops in each subfield is equal and thus each header is of equal length. When a single header is increased or decreased in length, with a corresponding change in the number of connected loops, the hydraulic system becomes imbalanced. This requires additional pumping power to overcome the additional pressure loss in the longest header. This comes in conjunction with an increase in total HTF volume and associated heat loss. Auxiliary power consumption increases dramatically as header length increases, which can quickly lead to an infeasible performance-to-investment ratio. Very small changes in the header length will have significant impact on project economics.

c: Potential for impact on Project feasibility of distance between Project components

As described in the introduction and in the response to item "b" above, increasing the length of the header between components, the loops or solar field, and the power block as systems will lead to a compounded negative effect of additional heat loss, auxiliary pumping power and increased investment. While it is possible to design engineering solutions for this, the increased cost in custom engineering of a unique and non-optimal solar field design will increase project cost. The critical point at which such changes may render a project infeasible depends on the specifics of the header layout.

d: Flexibility in number of collector loops or number of units to comprise a 500 MW power plant

The number of loop/units in a single 250-MW solar plant is optimized with respect to typical annual solar radiation. The fewer loops there are in the plant with a fixed turbine size, the less annual energy the plant will produce, thus directly impacting the cost of electricity. For the solar radiation profile at the BSPP site, a range of 250 to 300 loops could power a nominal 250-MW power block. In current electricity markets and current collector technology, the minimum number of loops to power a nominal 250-MW plant is approximately 290 loops. As currently configured, Units 1 and 2 at BSPP are designed with 296 loops each. These units will be constructed first and put into commercial service to serve existing contracts. Units 3 and 4 are currently designed with 250 to 260 loops. These plants would operate at a reduced capacity factor compared to Units 1 and 2. The economic viability of plants with lower output is supported by the site infrastructure (roads, transmission and gas lines, assembly hall and administration buildings, and storm water management systems) constructed to support the more robust Units 1 and 2.

e: Possibility of multiple, smaller power blocks and effects on solar field flexibility

Multiple power blocks for a large solar field can provide operational benefits (which depend on how the individual blocks are positioned with the field), but inevitably increase overall project costs. If individual small power blocks are positioned at or near the center of the sub-solar field that is providing the necessary solar power, HTF header piping, HTF volume, and HTF pumping requirement can be reduced somewhat. These factors will reduce capital cost, reduce daily startup times, and increase annual energy production. However, if all of the power blocks are located together in a central location, these benefits are largely eliminated.

Steam turbine generators have well known and significant economies of scale, meaning that the unit installed cost of small systems are significantly higher than large systems. This is clearly illustrated in today's power markets. Combined cycle plants are typically "2 on 1", meaning that although there are

often two gas turbines, they are matched up to only one steam turbine. The power plants at Diablo Canyon and San Onofre have single 1,100-MW steam turbine-generators matched up with each nuclear steam supply system.

Three steam turbines vs. one large turbine requires three sets of feedwater heaters, three sets of boiler feed pumps, three turbine pedestals, and three stepup transformers. If the small turbines are distributed throughout the solar field, there is also a need for three individual air-cooled condensers, three water treatment systems, three HTF pumping stations, three HTF expansion systems and three ullage systems. In short, when the installed cost of all of this additional equipment is considered, the cost increase in the power island dwarfs the cost savings in the HTF header system.

Typically, large steam turbines also have cycle efficiencies that are superior to small ones (this also is a key driver in steam turbine size selection with combined cycle, coal and nuclear plants). The steam cycle efficiency is leveraged against the entire solar field. A decrease in cycle efficiency by one percentage point (typical of the difference between a 100-MW and 270-MW turbine), requires that the solar field be 35,000 square meters (aperture area) larger to produce the same annual energy.

There are alleged operational benefits with multiple small turbines. We believe that these benefits are small, and potentially negative. Even on winter days, solar field power ramps up quickly such that all three turbines in a three- turbine plant would need to start up in rapid succession. On summer mornings, the turbines would need to be brought up simultaneously. While a large turbine has a longer startup time than a small turbine, the complexities of starting up three small turbines simultaneously are significant. This is illustrated with new combined cycle plants that are designed for daily startup – they employ one large turbine, not two.

In summary, multiple small turbines vs. one large turbine can have small cost and operational benefits for the HTF system, but they also have cost and performance penalties for the power island that are much more significant than the benefits.

f: Difference between the crossover pipe, HTF loops, and Heat Collection Elements? and could these components traverse desert washes

The crossover pipe is simply the pipe that flows partially heated heat transfer fluid from the first leg of the collector loop to the second leg (the bottom of the "U" shape). The Collector Loop is described in detail in the introduction. The Heat Collecting Elements (HCE) are part of the solar collector assemblies. They are mounted in front of the mirrors at the focal line of the parabola. HCEs are the same length as the collector itself.

A loop that contains both the HCE and is linked together by the crossover pipe is the precisely laid out building block of the overall solar collection system. The precision required for the loop layout and construction requires that it be sited on a flat, compacted plain of earth surface. As such, loops cannot be constructed with washes flowing through them.

It is, however, possible to lay out groupings of loops (subfields) on opposite sides of washes and to connect subfields together and back to the central pumping station with header pipes that traverse washes. However, there are losses associated with such a configuration.

DR-ALT-42

Information Required:

Please provide detailed information regarding any alternative configurations/engineering considered but rejected by the applicant. Please include details regarding the engineering constraints to each alternative configuration.

Response:

The BSPP was originally proposed as a 1,000-MW (nominal) wet cooled power plant. In 2009, the Applicant decided to drastically reduce water use by utilizing air-cooled condensers, an alternative cooling method commonly referred to as "dry cooling". A dry cooling system is more expensive for the Project as this cooling system is less efficient, most noticeably in the hot summer months when power demand is highest.

In an earlier configuration of the Project, the solar fields were designed to utilize three of the private parcels in and around the Project ROW (see Figure DR-ALT-42-1). Due to difficulties in acquiring the private parcels, the Applicant created a layout used in the BLM ROW application that included only BLM land (see Figure DR-ALT-42-2). In addition, in June 2009, the Applicant decreased the ROW size for BSPP by relinquishing three and a half sections in the northeast portion of the ROW. In earlier site layouts, the northeast area was planned for solar energy generation. This area, partly in the McCoy Wash, was relinquished for environmental stewardship reasons to minimize the Project's impact on biological and cultural resources (see Figure DR-ALT-42-3).

With regard to engineering constraints, the solar fields have minimum size requirements to generate adequate amounts of electrical power, the drainage channels have minimum size requirements to convey expected surface water flows, and the internal roads and fencing have clearance requirements. Each of these factors (solar field and drainage channel size requirements; roads/fencing clearance requirements) pushes the layout of Project components up to the ROW boundary.

DR-ALT-43

Information Required:

Please see **Alternatives Data Request – Figure 2,** which illustrates areas within project boundaries that are occupied by the most sensitive biological resources – desert washes (shown in green) and special status plant species (shown in pink). The areas outlined in red identify potential revised configurations that would reduce effects on these resources. In order for the Energy Commission and BLM to evaluate a potential alternative that avoids effects on these sensitive areas without reducing generation output, surveys must be completed within the portions of these areas that are outside of the current project footprint. Please complete biological and cultural resources surveys (as defined in Title 20, Section 1704, and Division 2, Chapter 5, Appendix B of the CCR for the 12 month process) for the areas outlined in red. Alternatively, complete biological and cultural resources surveys for other areas within the project ROW application boundaries (but outside of the current project footprint) that minimize effects on biological resources to the same degree as the areas identified on Figure 2.

Response:

CEC Staff Alternatives Data Request – Figure 2 illustrates areas within the Project site boundaries that are occupied by the most sensitive biological resources. In Figure 2, Staff has identified additional land (outlined in red) outside of the BLM ROW that is proposed as an alternative area for the Project to site solar facilities without reducing generation output. The Applicant (PVSI) analyzed the area within the red outline and has determined that it is not a feasible alternative site configuration because it has significant site control problems. Specifically, the area within the red line is comprised of 42 privately-owned parcels with 22 different owners. PVSI has made repeated attempts to discuss the purchase of some of these parcels with the respective owners, to no avail. For example, PVSI previously and repeatedly contacted the owner of a 200-acre parcel adjacent to the southeast corner of the ROW, but the owner did not respond. PVSI expects that similar problems would be encountered with some or many of the other private landowners. The acquisition of several private parcels could easily take years to complete negotiations. As the Commission is aware, a primary objective of the project is to obtain American Reinvestment & Recovery Act (ARRA) funding and lengthy negotiations with multiple landowners would likely result in failure to achieve that objective. Acquiring all of the 42 parcels in a timely manner therefore is not feasible.

Based on the request in DR-ALT-43 to establish a revised configuration that would reduce effects on the most sensitive biological resources, PVSI has conducted additional siting analysis for this purpose. As explained above, the outlined red area is not a feasible alternative site configuration. In Figure 2, it appears that the CEC Staff uses criteria to establish a revised configuration that would allow Project facilities to be constructed outside of the BLM ROW application area. In the additional siting analysis, PVSI has used this flexibility, as well as economic and engineering criteria as described in the response to DR-ALT-41, and environmental impact criteria based on aerial photos and previous Project surveys (e.g., buffer zones surrounding the Project disturbance area), to produce a revised configuration (see Figure DR-ALT-43-1).

The newly developed revised configuration maintains the economic and engineering viability of the Project, while minimizing the impacts to the most sensitive biological resources. This configuration would move the southwest unit (Unit 3) onto BLM land that is outside of the current ROW application, while maintaining its economic and engineering viability. This alternative is only feasible if the BLM allows this modification to the 299 ROW Grant Application without a delay in permitting that would jeopardize a major Project objective of receiving ARRA funding.

Engineering and economic analyses also were undertaken to evaluate alternative designs for the northwest unit (Unit 2), for the purpose of fitting the unit within the Staff's Figure 2 Reduced Project boundary. Such designs were not feasible. Specifically, PVSI evaluated a design that would relocate the southwest quadrant of the solar field to an area south and east of the original Unit 2 solar field (in space vacated by the movement of Unit 3). The resulting design has an extremely sub-optimal layout. Additional pumping auxiliaries, heat losses, and additional dead HTF mass would reduce the expected yearly efficiency by more than one percent. Please see the response to DR- ALT-41 for a thorough description of the engineering constraints that govern economic solar field design. This layout would also increase the total investment cost of the project and the daily startup time, while the anticipated electricity output and resulting revenue of the plant would be reduced by approximately 5 percent. Based on the criteria stated above, PVSI proposes that Figure DR-ALT 43-1 be used as the new "Reconfiguration Alternative" in lieu of Staff's Figure 2.

From an environmental perspective, a preliminary review suggests that for most environmental resource areas, there likely would be relatively minor differences for the PVSI Reconfiguration Alternative

compared to the Applicant's proposed configuration. The Reconfiguration Alternative avoids a main east-west wash on the site as currently proposed. The Applicant will investigate the comparison of environmental impacts between the Reconfiguration Alternative and the Applicant's proposed configuration in future environmental reviews discussed below.

Both the proposed Project layout and the new PVSI Reconfiguration Alternative layout maintain their economic viability only if the current AFC/Environmental Impact Statement schedule allows the Project to be licensed and approved by November 2010. Meeting this deadline is necessary to allow the Project to qualify for ARRA funding, which is crucial to the Project's economic viability.

The Applicant will conduct resource assessments, including a field reconnaissance, to identify sensitivities that might make the area(s) in question environmentally unsuitable. After these assessments, surveys, if warranted, within the alternative would follow appropriate protocols.

Due to the seasonality of biological resources, necessary additional surveys for biological resources within the proposed Reconfiguration Alternative described in Figure DR-ALT 43-1 would be conducted in 2010. Biological resources surveys would follow methods previously described in the AFC and Biological Resources Technical Report for vegetation mapping and special-status plant surveys, delineation of State waters, desert tortoise, burrowing owl, avian point count, and general wildlife use. Vegetation mapping would be conducted concurrently with surveys for special-status plants. Habitat suitability would be determined for special-status plant species within the alternative footprint and any additional surveys for species that suitable habitat is identified for will be conducted at the appropriate time of year.

Necessary additional surveys for special status plants within the alternative would follow the same plan described in DR-BIO-81. Necessary Desert Tortoise surveys would be conducted in the spring of 2010 following the survey protocol guidelines published in the U.S. Fish and Wildlife Services (USFWS) Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise (protocol) (USFWS 1992) and CEC Draft Guidelines. Bird surveys (e.g., burrowing owls, avian point counts) would be completed during the spring breeding season when bird activity is at its peak, potentially beginning in March 2010. Burrowing owl surveys would be performed according to the protocol established by California Burrowing Owl Consortium (CBOC 1993) and accepted by California Department of Fish and Game. Avian point count surveys will follow the methodology outlined in the Handbook of Field Methods for Monitoring Landbirds (Ralph et al. 1993) and guidance from the BLM (LaPre 2009). The results of these surveys would be reported in July 2010.

As is the case for biological resources, any additional necessary cultural resources surveys of the proposed alternative configuration would be conducted by qualified professionals following the same professional methodologies, protocols, and procedures as were utilized for the earlier Project cultural resources work. We anticipate that the cultural resources survey work will begin in late January 2010 with results to be provided in June 2010.

DR-ALT-44

Information Required:

Please provide detailed information regarding the feasibility, economic and engineering, of a reduced acreage alternative that would avoid the most sensitive biological resources. See Data Request -Figure 3 as example of a reduced acreage alternative

based on avoiding impacts to desert dry wash woodland, waters (shown in light green) and special status plants (shown in pink), as well as wildlife movement corridors. The area outlined in **Alternatives Data Request Figure 3** retains 75 to 80 percent of the original footprint.

Response:

The area outlined in Staff's Figure 3 of the Data Request would reduce the size of two of the four planned 250-MW units of the 1,000-MW BSPP. In the reduced/redesigned ROW, the solar field for the southwest unit (Unit 3) would be reduced by 50 percent, to approximately 140 loops. The reduced acreage would result in a population of solar collector loops far below the minimum number (280 loops) necessary to support a 250-MW power block, consequently rendering the plant economically infeasible. Please see the response to DR ALT-41 for a description of the engineering constraints associated with design of an economically feasible solar field. The 250-MW size is a required condition to fulfill an investment cost-to-performance ratio that brings the cost of electricity to a competitive level. This ratio, in turn, is what makes the Project economically feasible, as outlined in the response to DR ALT-41.

The reduced/redesigned ROW would reduce the size of the northwest solar field (Unit 2) by 25 percent. As with Unit 3, this reduction would reduce area where collectors could be placed to level below the critical 280 loops for first-stage development, rendering it economically infeasible for same reasons discussed above and in Response to DR ALT-41.

In short, two 250-MW units of the BSPP would be effectively eliminated as a result of the alternate boundaries suggested in Staff's Figure 3. Multiple units at a site allow for shared infrastructure (e.g., access roads, pipelines) and other common facilities (e.g., warehouse, maintenance, waste handling/treatment). This shared infrastructure reduces the amount of land needed for overall Project energy output compared to projects with fewer units. Common facilities and infrastructure reduce capital costs as well as operating and maintenance costs. Using less land to produce the same amount of electrical energy reduces environmental impact potential as well.

This same perspective of concentrating electrical energy production at fewer larger sites rather than a larger number of smaller sites has a similar environmental benefit from a broader State-wide policy perspective. The Applicant received feedback from a number of State agencies indicating a preference for a single large project rather than multiple smaller ones. Perhaps even more importantly, there also would be less need for additional transmission line development (i.e., more individual project gen-tie lines), as well as other infrastructure upgrades (access roads, natural gas and/or water pipelines, etc.).

Alternatives Attachments

Figure DR-ALT-35-1
Transmission Line Alternatives with Parcel Map

Figure DR-ALT-36-1
CNDDB for Alternative Sites East of Lancaster

Figure DR-ALT-38-1
CNDDB for Alternative Sites Blythe Disturbed Land

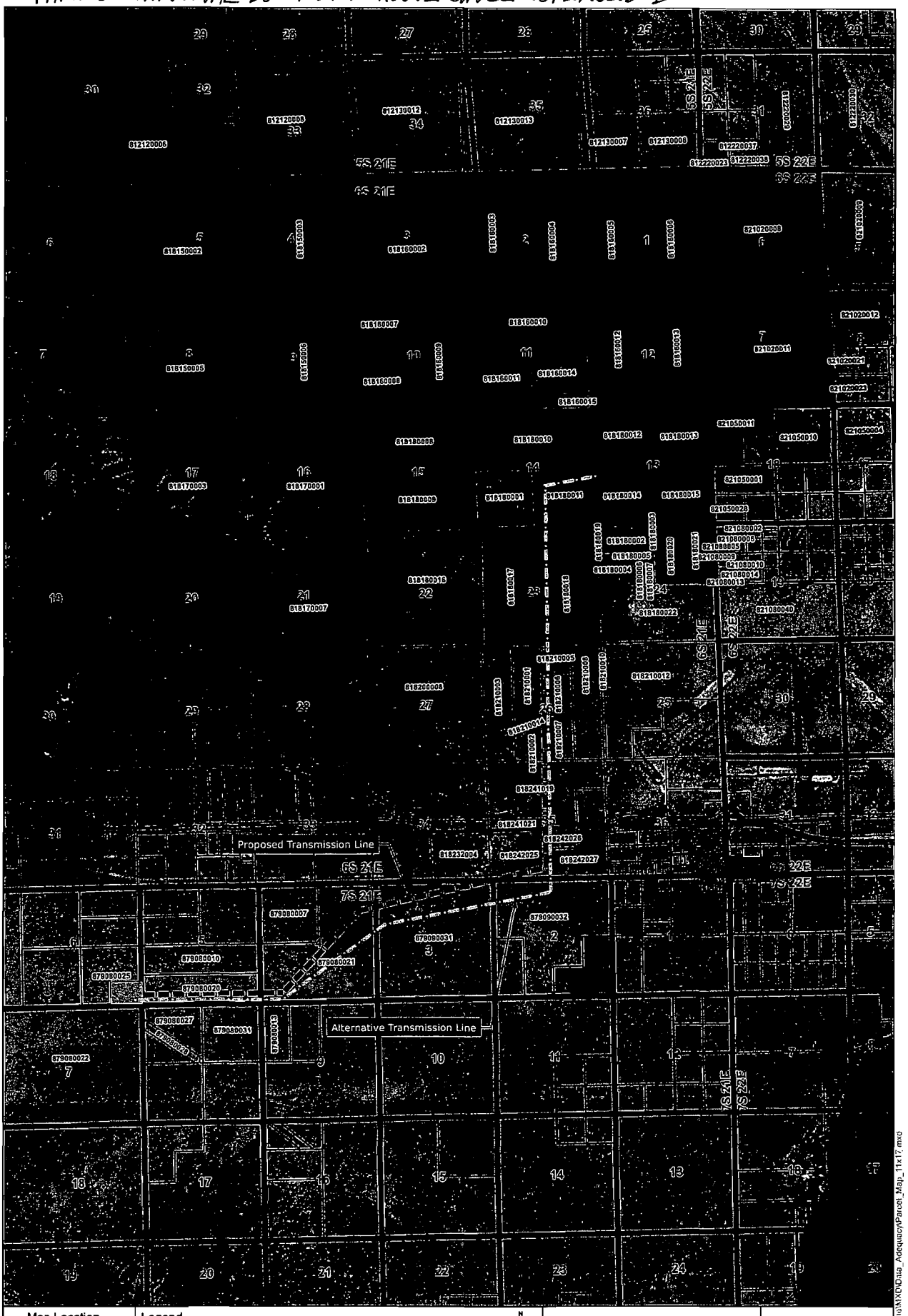
Figure DR-ALT-42-1
Earlier Project Configuration Including Private Land

Figure DR-ALT-42-2
Earlier Project Configuration Using Only BLM Land

Figure DR-ALT-42-3
2009 Project Configuration with Reduced Right-of-Way

Figure DR-ALT-43-1
BSPP Alternative Reconfigured by Applicant

PART OF ORIGINAL DOCUMENT - ROUTE SINCE SUPERSEDED



Map Location

Legend

- Project Right-of-Way
- Project Transmission Line
- Alternative Transmission Line Route
- Parcel Boundary
- Section/Township/Range
- Substation

1 inch = 4,000 feet

0 2,000 4,000 8,000 Feet

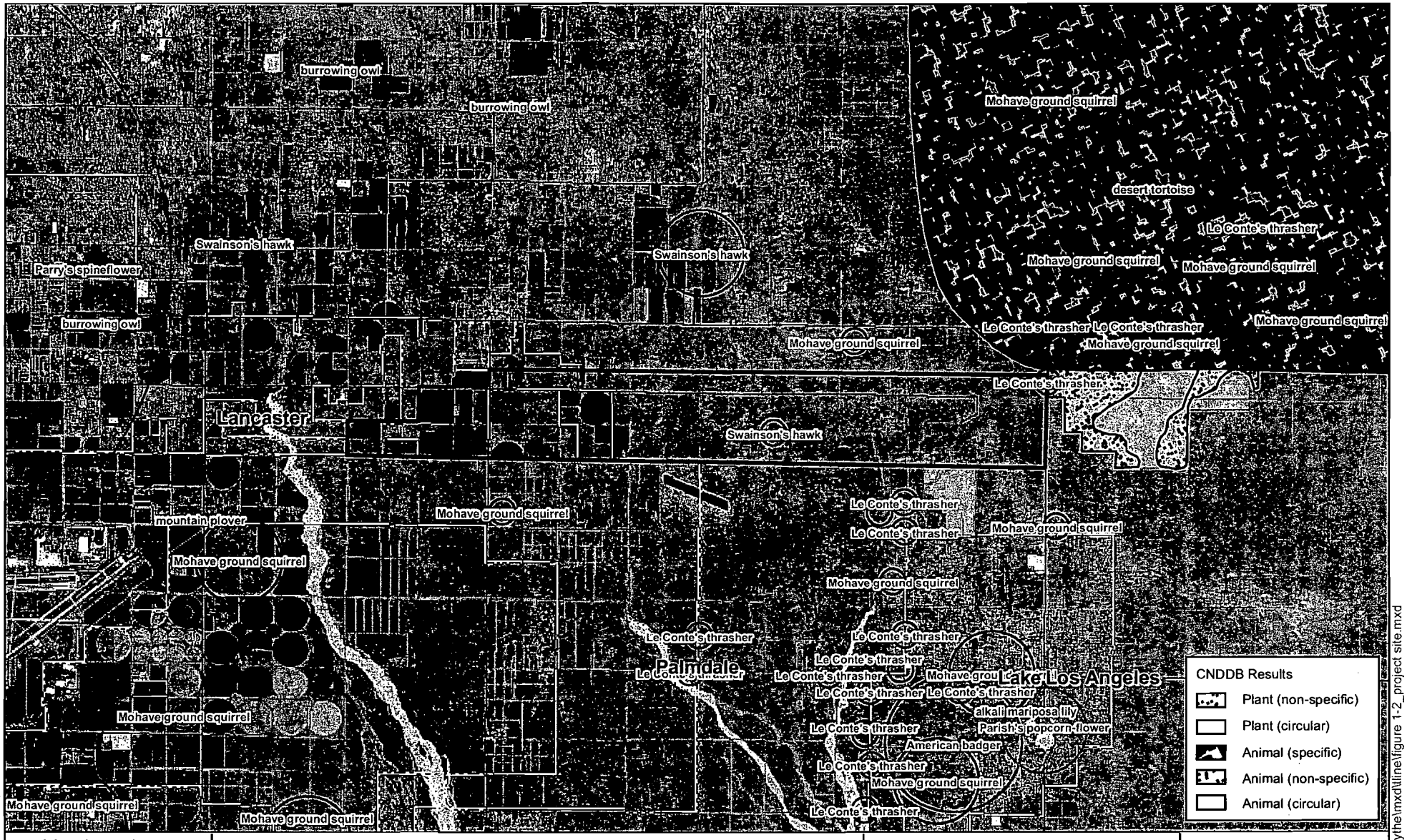
Blythe Solar Power Project
DR-ALT-35 -1
Transmission Line Alternatives with Parcel Map

Solar Millennium

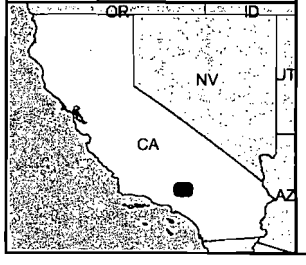
AECOM

Date: January 2010

N:\Projects\Solar_Millennium\Blythe\MXD\Data_Adequacy\Parcel_Map_11x17.mxd



Map Location



Legend

East of Lancaster Alternative Site

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2009 Los Angeles County

CNDDB: California Natural Diversity Database, California Department of Fish and Game

1 in = 2 miles

0 2 4 Miles

N W E S

Blythe Solar Power Project

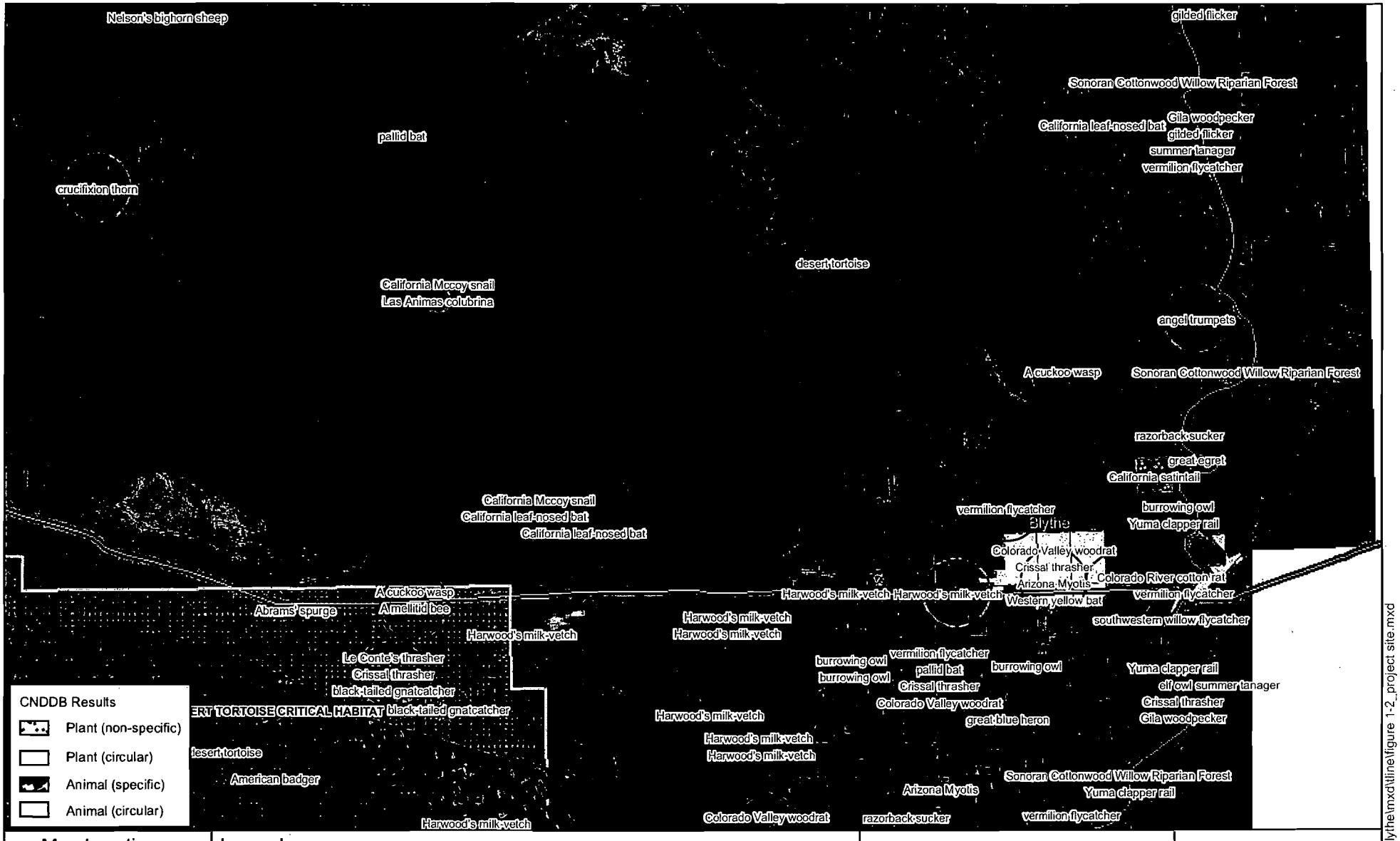
Figure DR-ALT-36 -1
CNDDB Search Results for Alternative Site: East of Lancaster

Solar Millennium

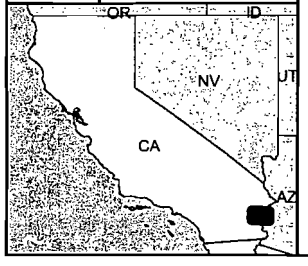
AECOM

Project: 60139695-5230
Date: January 2010

J:\GIS\Projects\SolarMillinneum\Blythe\mxd\line\figure 1-2_project site.mxd



Map Location



Legend

Location of Blythe Disturbed Land Alternative Site

Data Sources:
Air Photo, California Spatial Information Library, NAIP, 2005 Riverside County

CNDDB: California Natural Diversity Database, California Department of Fish and Game

1 in = 4 miles

0 4 8 Miles

N W E S

Blythe Solar Power Project

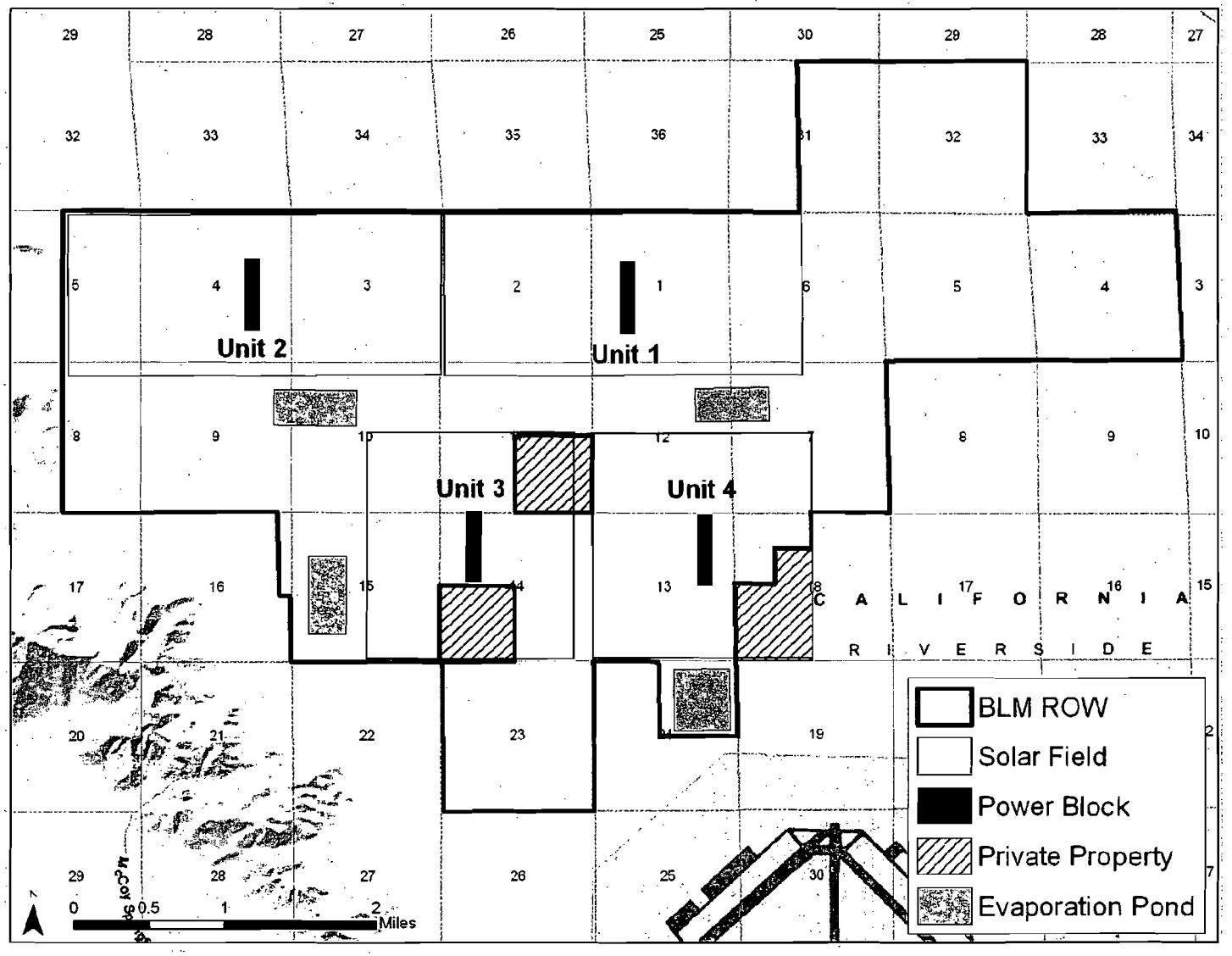
Figure DR-ALT-38 -1
CNDDB Search Results for Alternative Site: Blythe Disturbed Land

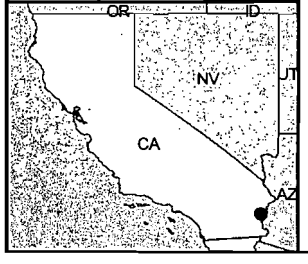
Solar Millennium

AECOM

Project: 60139695-5230
Date: January 2010

J:\GIS\Projects\Solar\Millinneum\Blythe\mxd\line\figure 1-2_project site.mxd





Blythe Solar Power Project

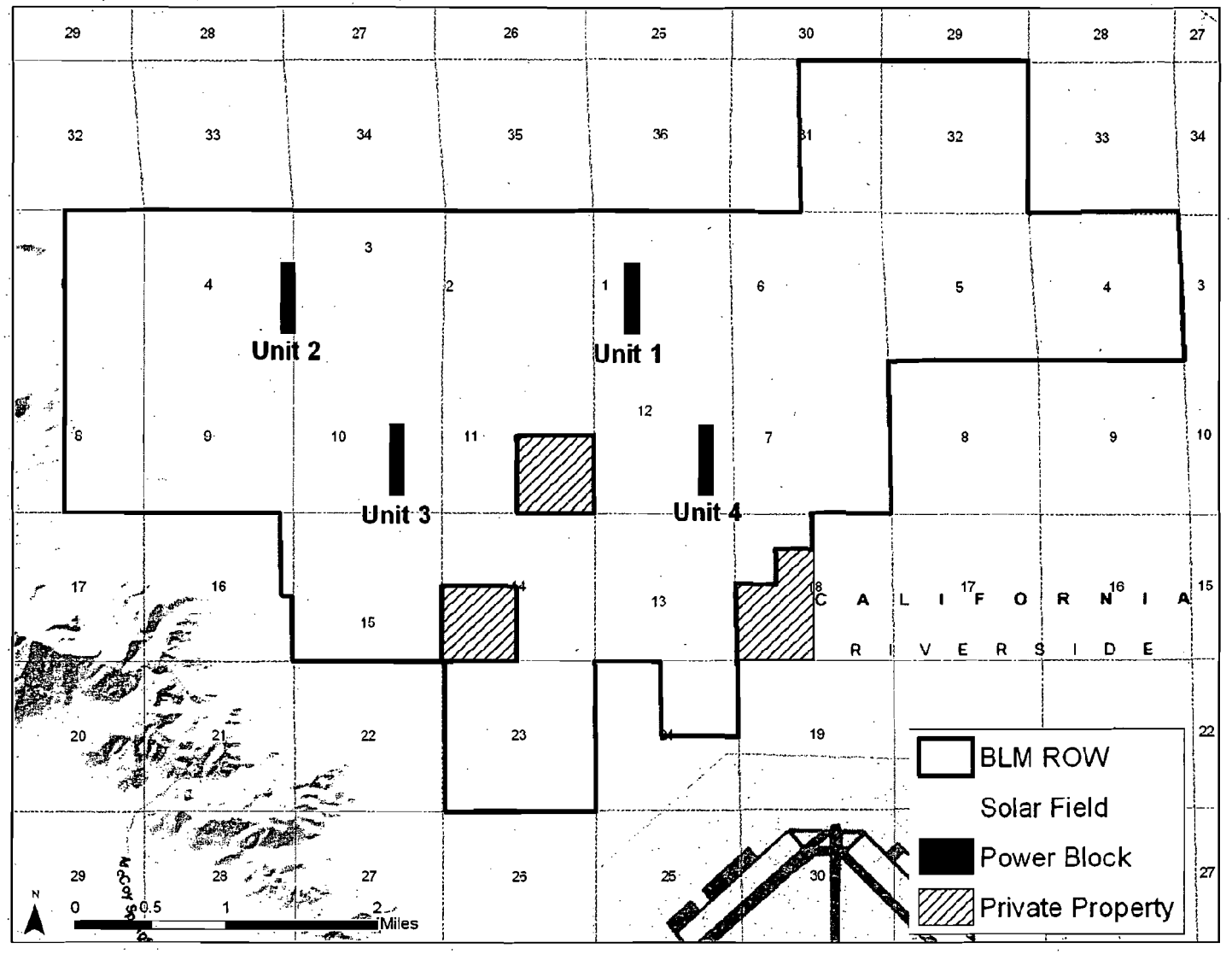
Figure DR-ALT-42-1
Earlier Project Configuration
Including Private Land

Solar Millennium

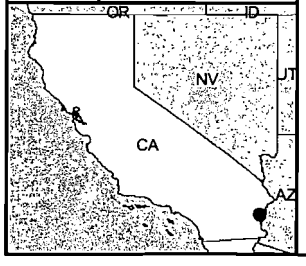
AECOM

Project: 60139694
Date: January 2010

J:\GIS\Projects\SolarMillinneum\Blythe\mxd\Data_Response\figure-dr-alt-42-1.mxd



Map Location



Blythe Solar Power Project

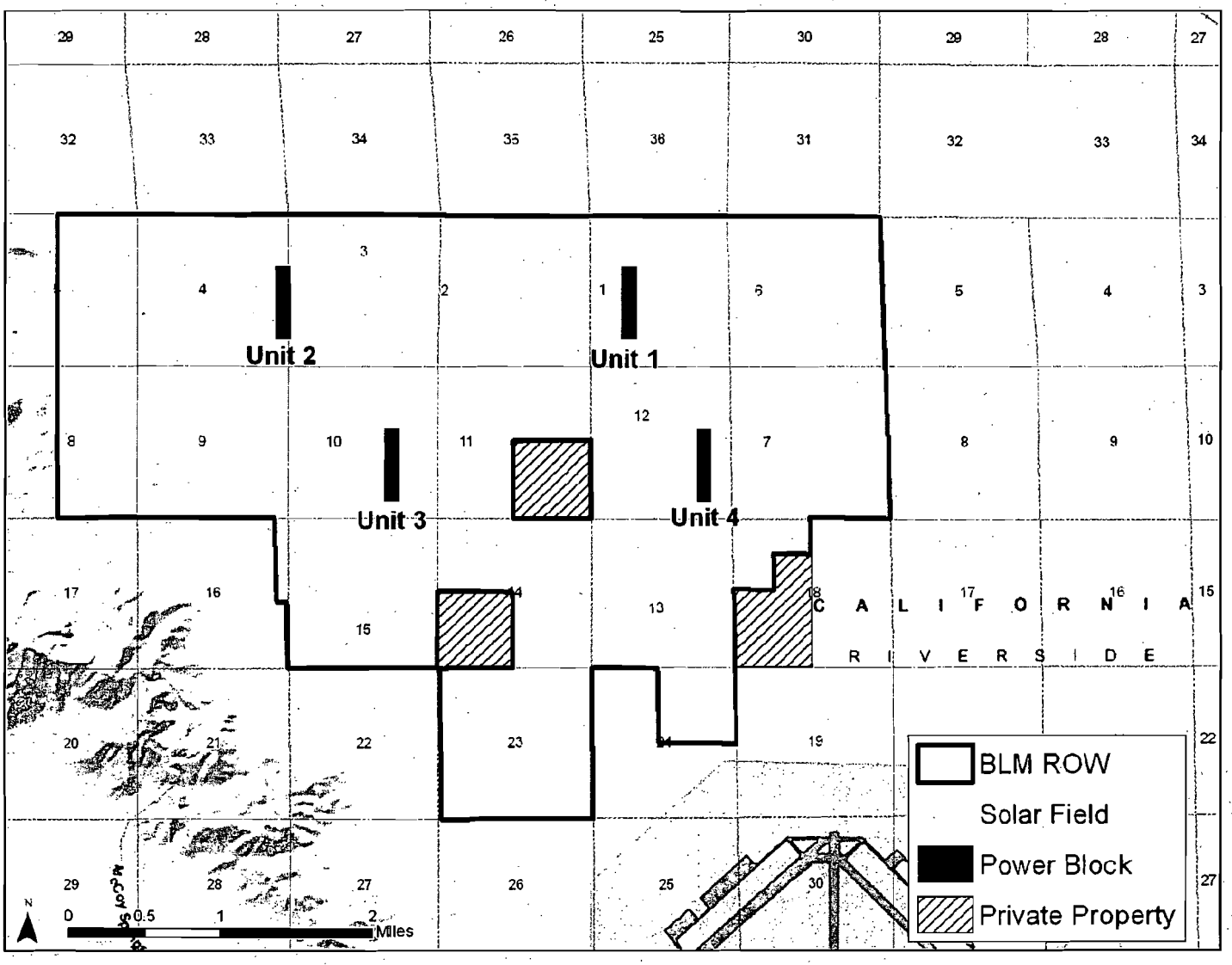
Figure DR-ALT-42-2
Earlier Project Configuration
Using Only BLM Land

Solar Millennium

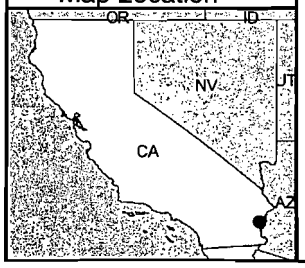
AECOM

Project: 60139694
Date: January 2010

J:\GIS\Projects\SolarMillinneum\Blythe\mxd\Data_Response\figure-dr-alt-42-2.mxd



Map Location



Blythe Solar Power Project

Figure DR-ALT-42-3
2009 Project Configuration with Reduced Right-of-Way

Solar Millennium

AECOM

Project: 60139694
Date: January 2010

J:\GIS\Projects\SolarMillinneum\Blythe\mxd\Data_Response\figure-dr-alt-42-3.mxd

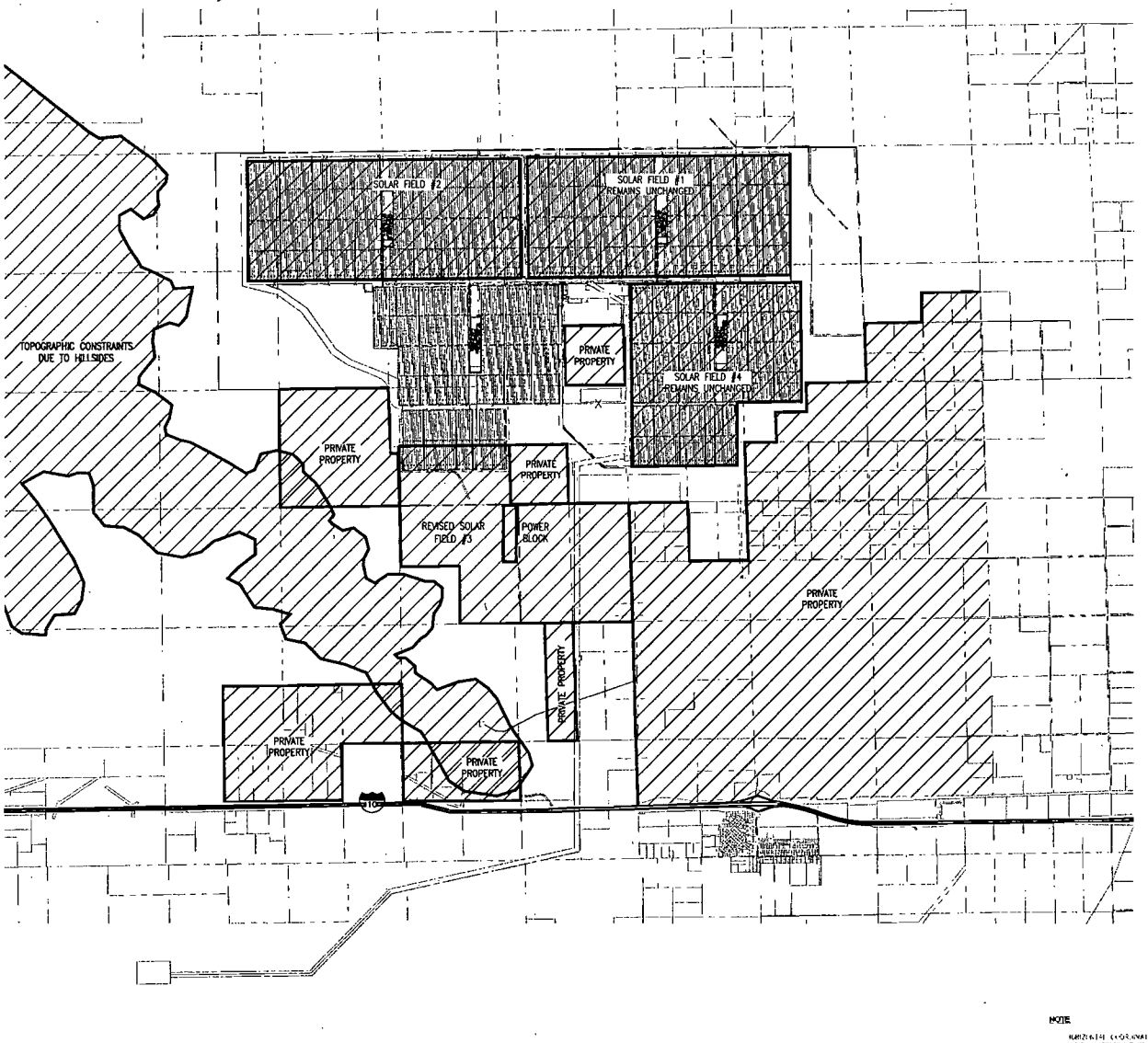


Figure DR-ALT-43-1 BSPP Alternative Reconfigured by Applicant

AECOM

AECOM
999 Town & Country Road
Orange, CA 92868
Phone 714.567.2518
www.aecom.com

Prepared for:

Chevron

345 California Street
San Francisco, California 94104

Solar Millennium LLC

- SOLAR BLOCK LOCATION
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- PROPOSED SILT FENCE
- PROPOSED FIBER ROLLS
- PROPOSED EARTH BERM
- PROPOSED GAS PIPELINE
- PROPOSED 500kV GEN TIE LINE
- PROPOSED TELEPHONE LINE
- PROPOSED FENCE
- PROPOSED WIND FENCE
- PROPOSED CONTOURS
- PROPOSED STREAM LINE
- PROPOSED FLOOD CONTROL
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD
- EXISTING CONTOURS
- EXISTING STREAM LINE
- SITE BOUNDARY
- PUB. R. PUBLIC ROAD
- P.R. PRIVATE ROAD
- DRAINAGE CULVERT

Blythe Solar Power Project

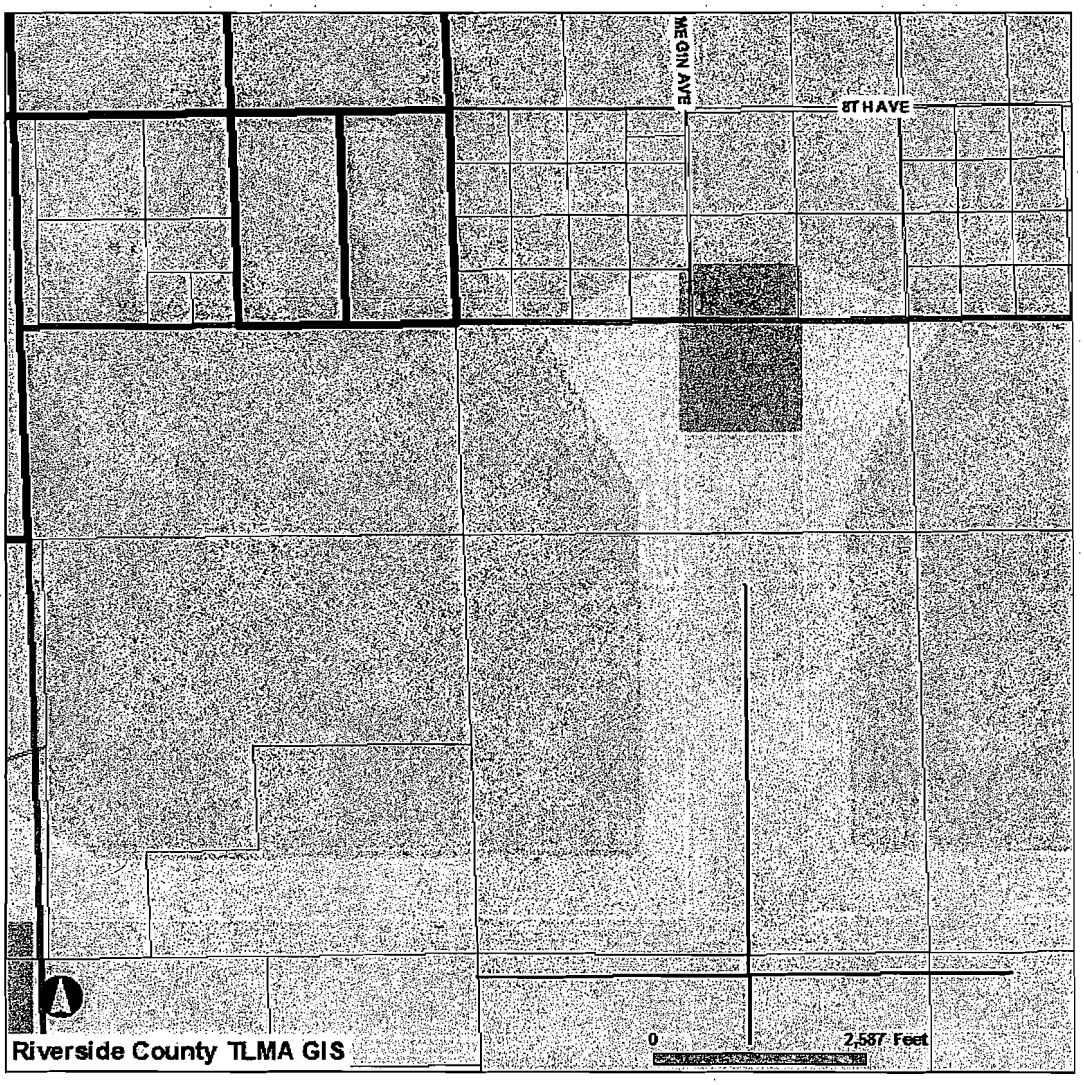
Riverside County, California

Site Boundary & Legend

Date: 8/07/09
Sheet: 2 OF 18

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION

RIVERSIDE COUNTY GIS



Selected parcel(s):

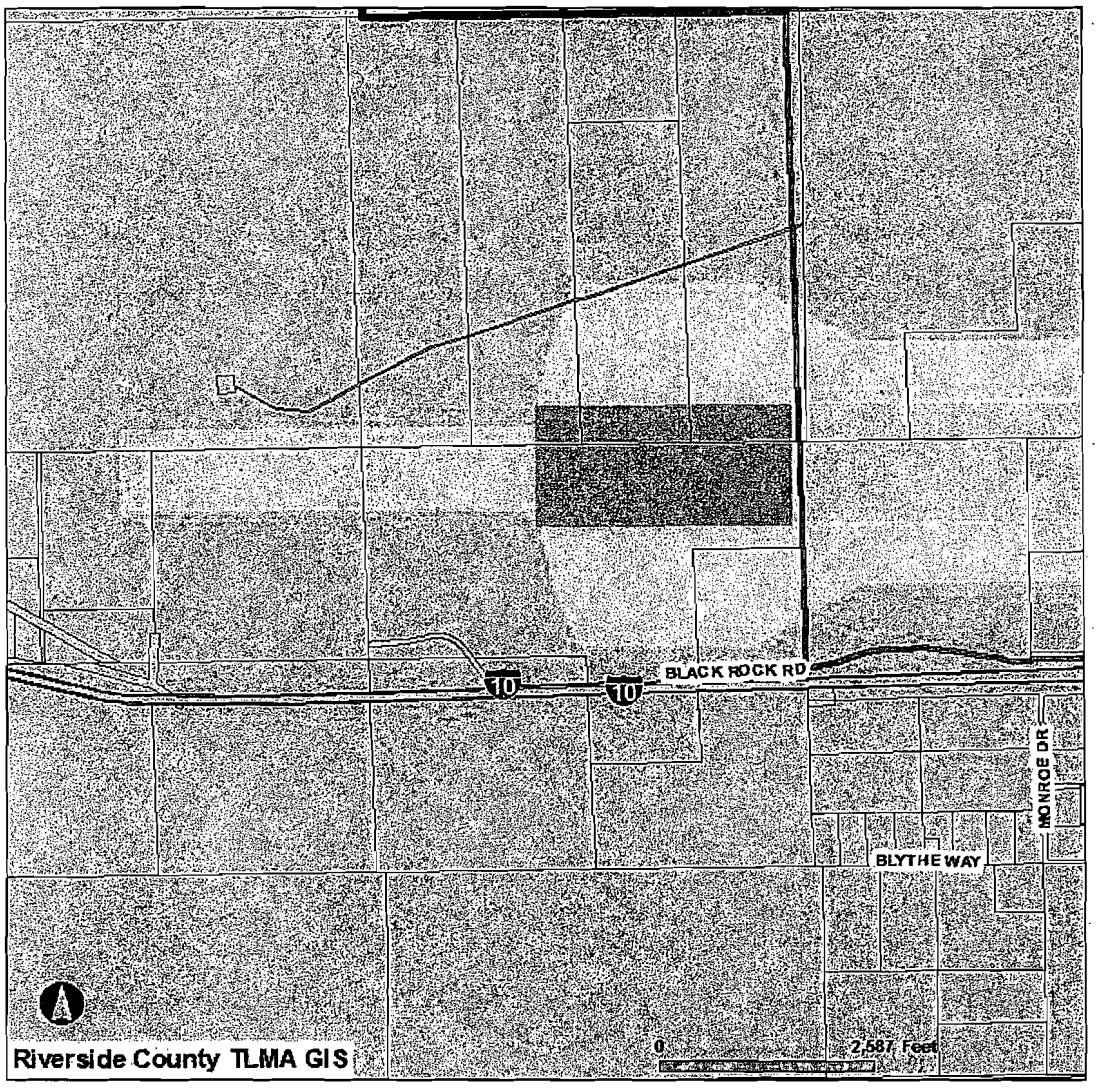
818-150-002 818-150-003 818-150-005 818-150-006 818-160-002 818-160-003 818-160-004
818-160-005 818-160-006 818-160-007 818-160-008 818-160-009 818-160-010 818-160-011
818-160-012 818-160-013 818-180-008 818-180-009 818-180-010 818-180-011 818-180-012
818-180-013 818-180-014 818-180-015 818-180-017 818-180-018 818-180-020 818-180-021
821-020-008 821-020-011 821-050-011

AIRPORTS

- SELECTED PARCEL
- INTERSTATES
- HIGHWAYS
- PARCELS
- AIRPORT RUNWAYS
- AIRPORT INFLUENCE AREAS
- AIRPORT BOUNDARIES
- COMPATIBILTY ZONE A
- COMPATIBILTY ZONE B1
- COMPATIBILTY ZONE B2
- COMPATIBILTY ZONE C
- COMPATIBILTY ZONE D
- COMPATIBILTY ZONE E

REPORT PRINTED ON...Tue Mar 23 10:42:09 2010

RIVERSIDE COUNTY GIS



Selected parcel(s):

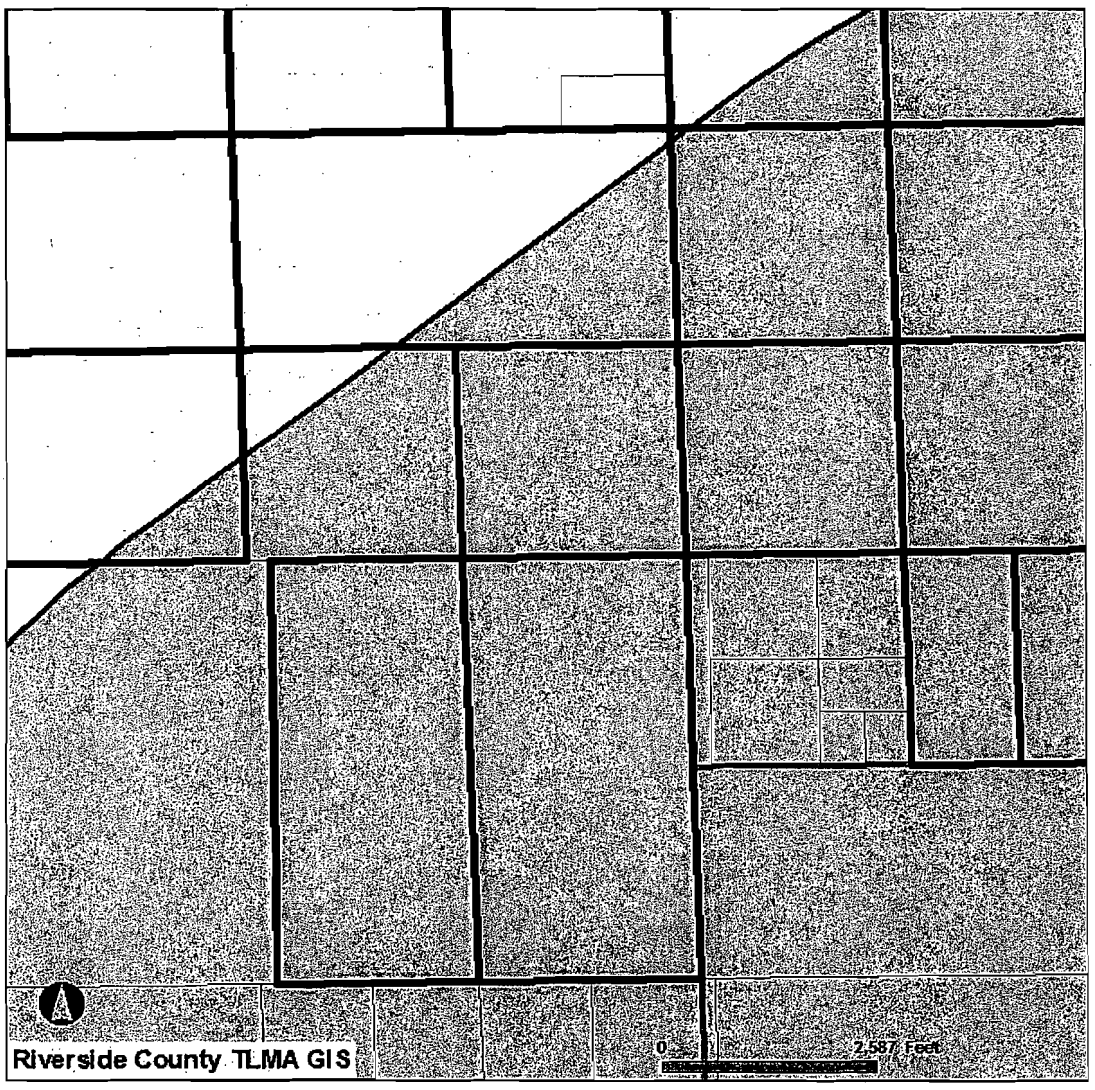
818-150-002 818-150-003 818-150-005 818-150-006 818-160-002 818-160-003 818-160-004
818-160-005 818-160-006 818-160-007 818-160-008 818-160-009 818-160-010 818-160-011
818-160-012 818-160-013 818-180-008 818-180-009 818-180-010 818-180-011 818-180-012
818-180-013 818-180-014 818-180-015 818-180-017 818-180-018 818-180-020 818-180-021
821-020-008 821-020-011 821-050-011

AIRPORTS

SELECTED PARCEL
INTERSTATES
HIGHWAYS
PARCELS
AIRPORT RUNWAYS
AIRPORT INFLUENCE AREAS
AIRPORT BOUNDARIES
COMPATIBILTY ZONE A
COMPATIBILTY ZONE B1
COMPATIBILTY ZONE C
COMPATIBILTY ZONE D
COMPATIBILTY ZONE E

REPORT PRINTED ON...Tue Mar 23 10:43:17 2010

RIVERSIDE COUNTY GIS



Selected parcel(s):

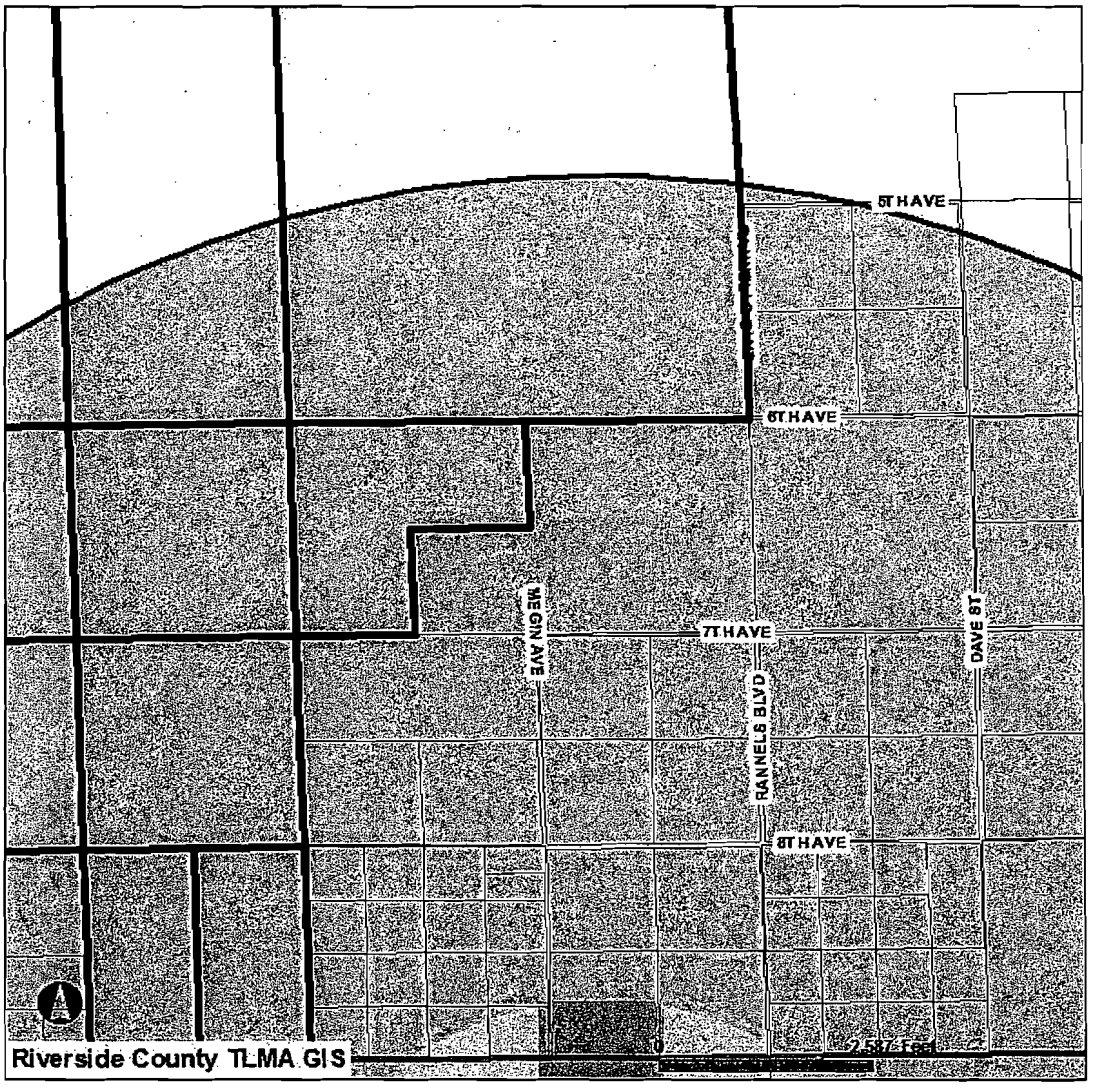
818-150-002	818-150-003	818-150-005	818-150-006	818-160-002	818-160-003	818-160-004
818-160-005	818-160-006	818-160-007	818-160-008	818-160-009	818-160-010	818-160-011
818-160-012	818-160-013	818-180-008	818-180-009	818-180-010	818-180-011	818-180-012
818-180-013	818-180-014	818-180-015	818-180-017	818-180-018	818-180-020	818-180-021
		821-020-008	821-020-011	821-050-011		

AIRPORTS

- SELECTED PARCEL
- INTERSTATES
- HIGHWAYS
- PARCELS
- AIRPORT RUNWAYS
- AIRPORT INFLUENCE AREAS
- AIRPORT BOUNDARIES
- COMPATIBILTY ZONE D
- COMPATIBILTY ZONE E

REPORT PRINTED ON...Tue Mar 23 10:43:43 2010

RIVERSIDE COUNTY GIS



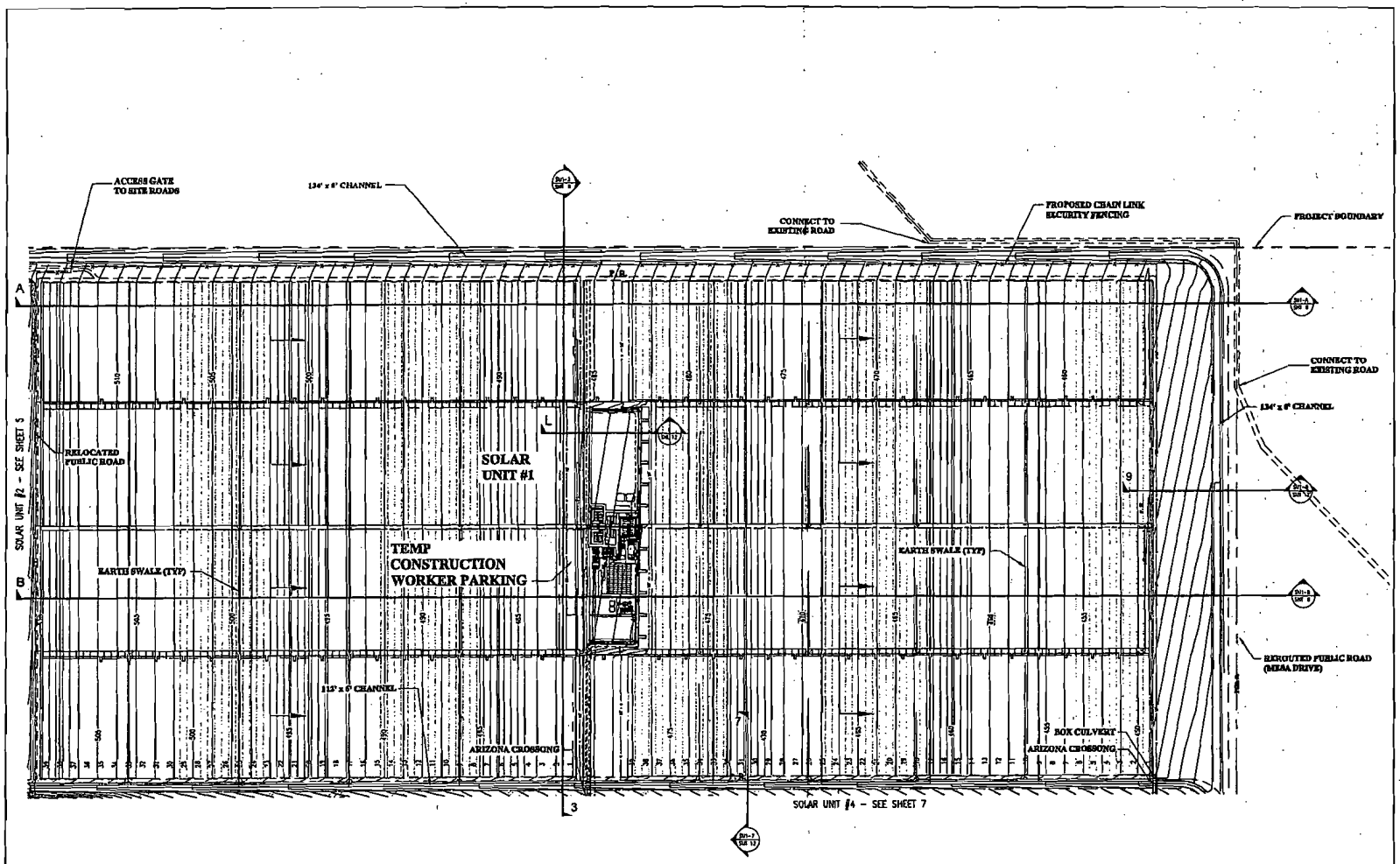
Selected parcel(s):

818-150-002	818-150-003	818-150-005	818-150-006	818-160-002	818-160-003	818-160-004
818-160-005	818-160-006	818-160-007	818-160-008	818-160-009	818-160-010	818-160-011
818-160-012	818-160-013	818-180-008	818-180-009	818-180-010	818-180-011	818-180-012
818-180-013	818-180-014	818-180-015	818-180-017	818-180-018	818-180-020	818-180-021
		821-020-008	821-020-011	821-050-011		

AIRPORTS

- SELECTED PARCEL
- INTERSTATES
- HIGHWAYS
- PARCELS
- AIRPORT RUNWAYS
- AIRPORT INFLUENCE AREAS
- AIRPORT BOUNDARIES
- COMPATIBILTY ZONE B1
- COMPATIBILTY ZONE C
- COMPATIBILTY ZONE D
- COMPATIBILTY ZONE E

REPORT PRINTED ON...Tue Mar 23 10:44:16 2010



EARTHWORK		
CUT (c.y.)	FILL (c.y.)	NET (c.y.)
8,300,000	8,300,000	0

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION

AECOM

AECOM
999 Town & Country Road
Orange, CA 92868
Phone 714.567.2610
www.aecom.com

Prepared for:
Chevron
345 California Street
San Francisco, California 94104

Solar Millennium LLC

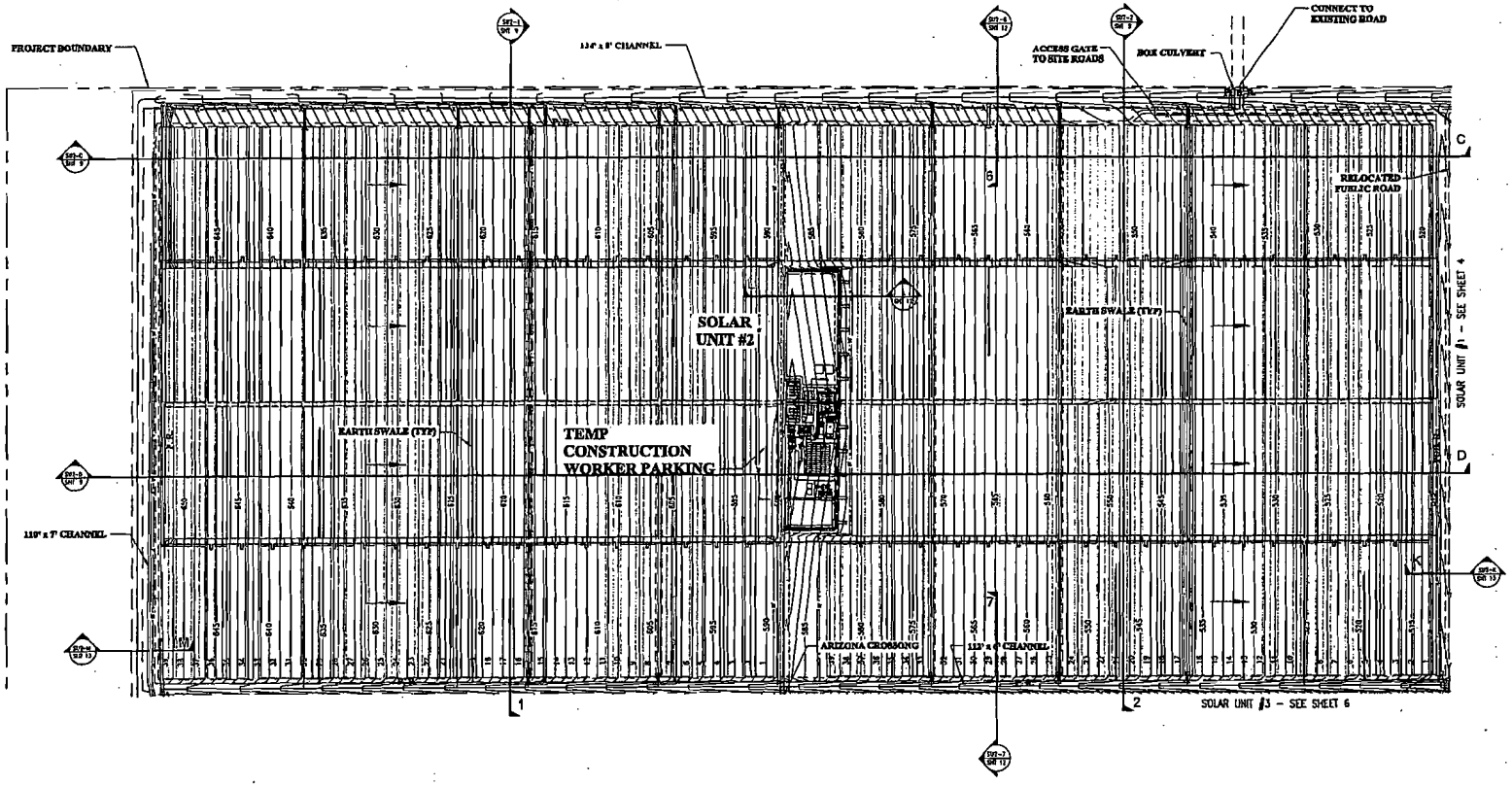
LEGEND:
- SOLAR BLOCK LOCATION
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- PROPOSED SILT FENCE
- PROPOSED FIBER ROLLS
- PROPOSED EARTH BERM
- PROPOSED GAS PIPELINE
- PROPOSED 500kV GEN TIE LINE
- PROPOSED TELEPHONE LINE
- PROPOSED FENCE
- PROPOSED SWD FENCE
- PROPOSED CONTOURS
- PROPOSED STREAM LINE
- PROPOSED FLOOD CONTROL
- EXISTING POWER ROAD
- EXISTING GRAVEL ROAD
- EXISTING CONTOURS
- EXISTING STREAM LINE
- SITE BOUNDARY
- PUB. R. PUBLIC ROAD
- P.R. PRIVATE ROAD

Blythe Solar Power Project

Riverside County, California

Preliminary Grading Plan Unit #1

Date 8/27/09
Sheet 4 OF 18



30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION

AECOM

AECOM
859 Town & Country Road
Orange, CA 92868
Phone: 714.567.2648
www.aecom.com

Prepared for:
Chevron
345 California Street
San Francisco, California 94104
Solar Millennium LLC

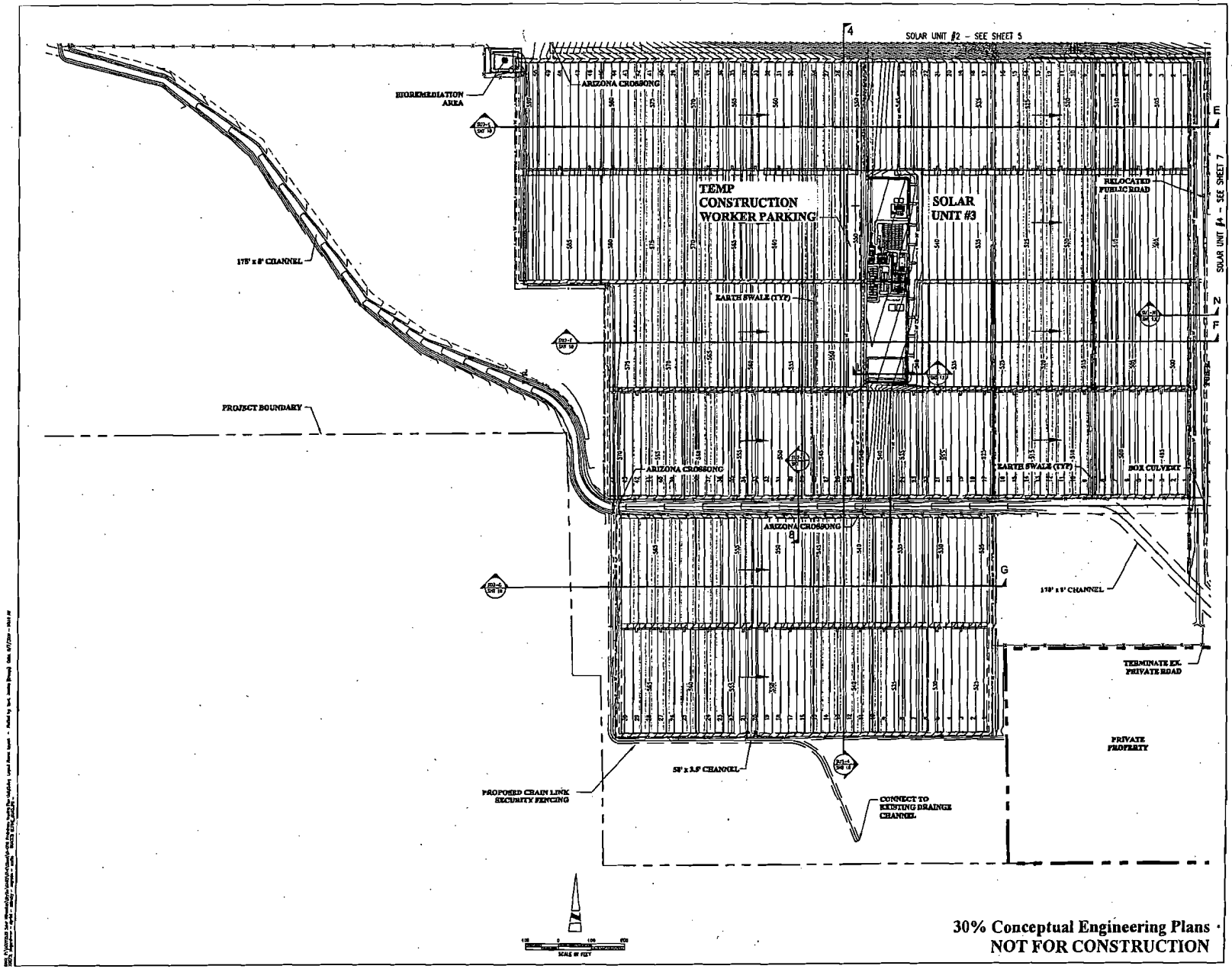
LEGEND:
- SOLAR BLOCK LOCATION
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- PROPOSED SALT FENCE
- PROPOSED FENCE ROLLS
- PROPOSED CAMPUS GATES
- PROPOSED GAS PIPELINE
- PROPOSED SOLAR GEN TIE LINE
- PROPOSED TELEPHONE LINE
- PROPOSED FENCE
- PROPOSED WIND FENCE
- PROPOSED CONTOURS
- PROPOSED STREAM LINE
- PROPOSED FLOOD CONTROL
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD
- EXISTING CONTOURS
- EXISTING STREAM LINE
- SITE BOUNDARY
- PUB. R. PUBLIC ROAD
- P.R. PRIVATE ROAD

Blythe Solar Power Project

Riverside County, California

Preliminary Grading Plan Unit #2

Date 9/01/09
Sheet 5 OF 18



30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION

AECOM

AECOM
999 Town & Country Road
Orange, CA 92868
Phone 714.567.2510
www.aecom.com

Prepared for:
Chevron
345 California Street
San Francisco, California 94104

Solar Millennium LLC

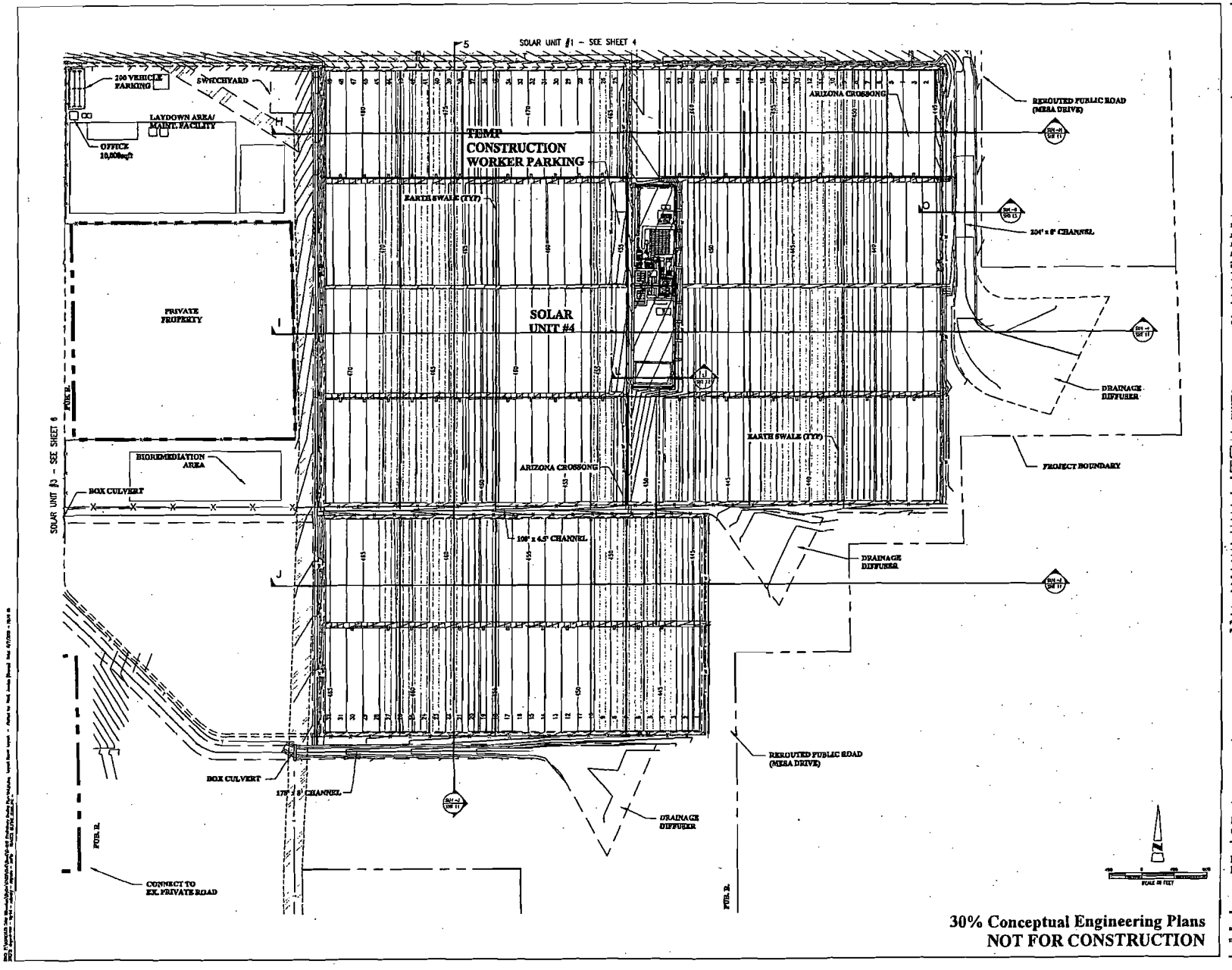
LEGEND:
- SOLAR BLOCK LOCATION
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- PROPOSED SILT FENCE
- PROPOSED FIBER ROLLS
- PROPOSED EARTH SWALE
- PROPOSED GAS PIPELINE
- PROPOSED 500KV GEN TIE LINE
- PROPOSED TELEPHONE LINE
- PROPOSED FENCE
- PROPOSED WIND FENCE
- PROPOSED CONTOURS
- PROPOSED STREAM LINE
- PROPOSED FLOOD CONTROL
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD
- EXISTING CONTOURS
- EXISTING STREAM LINE
- SITE BOUNDARY
- PUB. R. PUBLIC ROAD
- P.R. PRIVATE ROAD

Blythe Solar Power Project

Riverside County, California

Preliminary Grading Plan Unit #3

Date: 8/27/09
Sheet 6 OF 19



30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION

AECOM

AECOM
999 Town & Country Road
Orange, CA 92868
Phone 714.567.2610
www.aecom.com

Prepared for:
Chevron
345 California Street
San Francisco, California 94104

Solar Millennium LLC

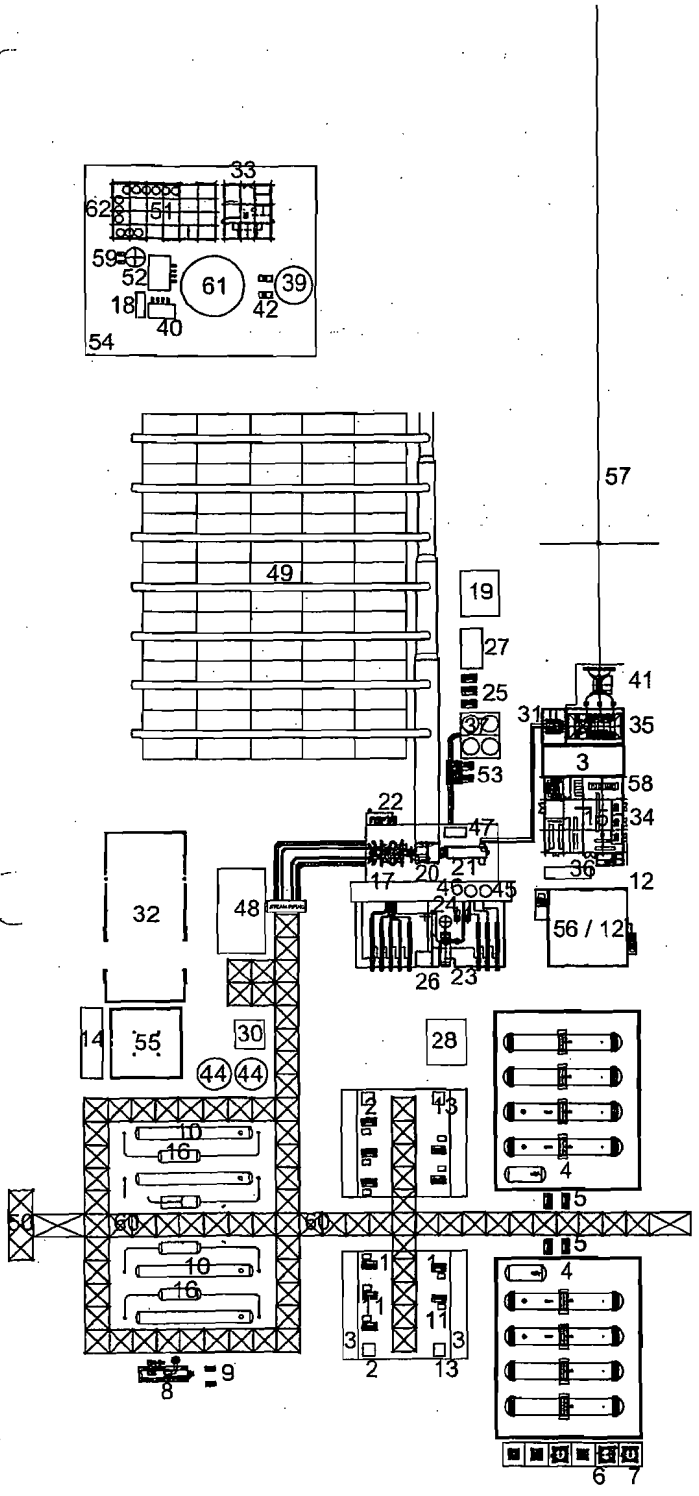
LEGEND:
- SOLAR BLOCK LOCATION
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- PROPOSED SILT FENCE
- PROPOSED FIBER ROLLS
- PROPOSED EARTH BERM
- PROPOSED GAS PIPELINE
- PROPOSED BOOM SER TR LINE
- PROPOSED TELEPHONE LINE
- PROPOSED FENCE
- PROPOSED WIRE FENCE
- PROPOSED CONTOURS
- PROPOSED STREAM LINE
- PROPOSED FLOOD CONTROL
- EXISTING PAVED ROAD
- EXISTING GRAVEL ROAD
- EXISTING CONTOURS
- EXISTING STREAM LINE
- SITE BOUNDARY
- PUB. R. PUBLIC ROAD
- P.R. PRIVATE ROAD

Blythe Solar Power Project

Riverside County, California

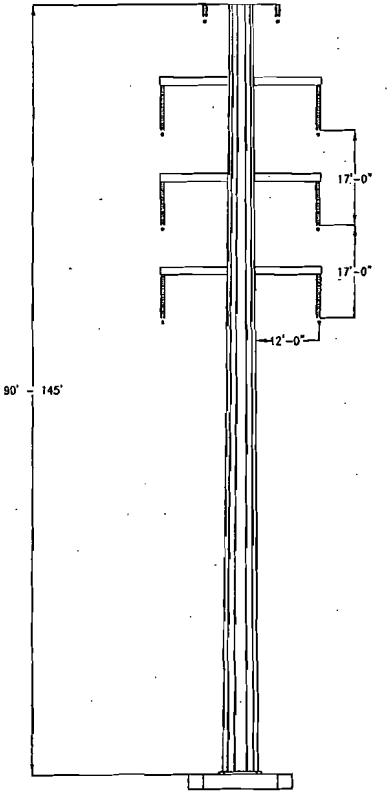
Preliminary Grading Plan Unit #4

Date 9/01/09
Sheet 7 OF 18

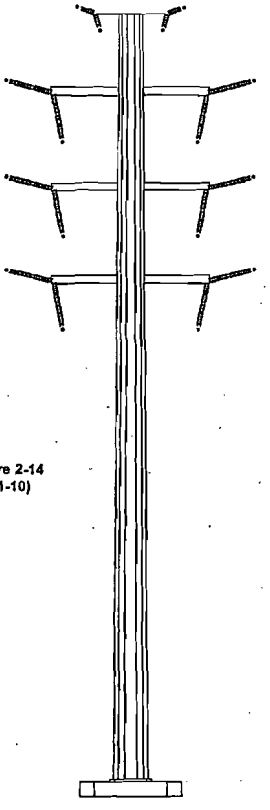


#	LEGEND / NAME	DIMENSIONS (LxWxH) / CAPACITY	FTPRINT (S
1	HTF MAIN PUMPS	INCIDENTAL	
2	HTF PUMPS SEAL OIL UNIT	INCIDENTAL	
3	SWITCH YARD	13' X 92'	1200SF
4	OVERFLOW VESSEL AND EXPANSION VESSEL	124' X 154'	19KSF EA
5	OVERFLOW RETURN PUMPS	INCIDENTAL	
6	ULLAGE COOLERS AND VESSEL	59' X 20'	1200SF
7	NITROGEN SYSTEM	INCIDENTAL	800SF
8	HTF HEATER	50' X 22' X 80' STACK	1100SF
9	FREEZE PROTECTION PUMPS	INCIDENTAL	
10	STEAM GENERATORS	90' X 10' X 24' EA	900SF
11	VARIABLE FREQUENCY DRIVE SYSTEM	INCIDENTAL	
12	WEATHER STATION BUILDING	68' X 68' X 24' (TWO LEVEL BLDG)	4600SF
13	HTF PUMPS LUBE OIL UNIT	INCIDENTAL	
14	NOT USED		
15	BALANCE OF PLANT ELECTRICAL BUILDING	67' X 67' X 24' (TWO LEVEL BLDG)	4500SF
16	REHEATERS	32' X 10' EA	320SF
17	EXCITATION TRANSFORMER	NOT FOUND	
18	WATER TREATMENT MCCS	INCIDENTAL	
19	MCC COOLING TOWER	33' X 40' X 32' HIGH	1320
20	STEAM TURBINE	111' X 50' X 40' HIGH	5500SF
21	GLAND CONDENSER	INCIDENTAL	
22	LUBE OIL CONSOLE	INCIDENTAL	
23	DEAERATOR	125' X 57'	7100SF
24	FEEDWATER PUMPS	INCIDENTAL	
25	CONDENSATE PUMPS	INCIDENTAL	
26	LP/HP PRE-HEATERS	INCIDENTAL	
27	VACUUM SYSTEM	19' X 35' X 24' HIGH	665
28	DIRTY WASTE WATER SUMP, OIL WATER SEPARATOR	INCIDENTAL	
29	FREE FOR USE		
30	COMPRESSED AIR SYSTEM	25' X 25' X 24' HIGH	625 SF
31	GENERATOR CIRCUIT BREAKER	20' X 30' X 20'	600 SF
32	WAREHOUSE	68' X 146' X 30'	10K SF
33	CHEMICAL INJECTION SKID	46' X47' X 24'	2K SF
34	MAIN AUXILIARY TRANSFORMERS	INCIDENTAL	
35	GENERATOR STEP-UP TRANSFORMERS	48' X 32' X 24'	1,500 SF
36	EMERGENCY DIESEL GENERATOR	40' X 10' X 20'	400 SF
37	COOLING TOWER	33' X 40' X 32' HIGH	1,300 SF
38	FREE FOR USE		
39	WATER TANK (RO CONCENTRATE) (BSP1 & 3 ONLY)	50' DIA X 24' HIGH / 300,000 GAL	1,600 SF
40	SERVICE WATER PUMPS	23' X 12' X 16'	275 SF
41	TAKE OFF TOWER	30' X 35' X 50'	1,000 SF
42	FIRE PROTECTION PUMPS	INCIDENTAL	
43	FREE FOR USE		
44	BLOWDOWN TANKS	28' DIA EA	570 SF
45	TURBINE DRAINS TANK	INCIDENTAL	
46	CONDENSATE TANK	INCIDENTAL	
47	STG PACKAGED ELECTRONIC AND ELECTRICAL CONTROL COMPARTMENT	INCIDENTAL	
48	AUXILIARY BOILER	40' X 73' X 32'	2900 SF
49	AIR COOLED CONDENSER	245' X 296' 120' HIGH	73K SF
50	HTF PIPING CONNECTION TO SOLAR FIELD	INCIDENTAL	
51	SAMPLE PANEL & LAB BUILDING	84' X 48' X 24' HIGH	4,000 SF
52	DEMINERALIZED WATER TANK	16' DIA X 24' HIGH	200 SF
53	AUXILIARY COOLING WATER PUMPS	INCIDENTAL	
54	WATER TREATMENT AREA	192' X 148'	28K SF
55	ADMINISTRATION BUILDING	60' X 60' 24' HIGH	3,600 SF
56	CONTROL BUILDING	68' X 68' 24' HIGH	4,600 SF
57	HIGH VOLTAGE LINE	4' DIA 145' HIGH POLES	
58	SUS TRANSFORMER & 480 V BUS	INCIDENTAL	
59	DEMINERALIZED WATER PUMPS	INCIDENTAL	
60	PIPE RACK	40' HIGH MISC.	
61	TREATED WATER TANK (also FIREWATER STORAGE)	91' DIA X 24' HIGH / 1 MILLION GAL	6,500 SF
62	CHEMICAL FEED CANOPY	NOT FOUND	
63	NOT USED		
64	NOT USED		
65	NOT USED		
66	NOT USED		
70	NOT USED		
71	NOT USED		

TYPICAL
BLYTHE POWER BLOCK



TANGENT TRANSMISSION TOWER
NOT TO SCALE



DEAD END TRANSMISSION TOWER
NOT TO SCALE

Figure 2-14
(2-1-10)

TYPICAL 230KV STRUCTURE

SINGLE BUNDLE 2156KCMIL "BLUEBIRD"

NOT FOR CONSTRUCTION

Prepared for:

PALO VERDE I, LLC

AECOM USA, Inc. AECOM
440 STEVENS AVENUE
SUITE 250
SOLANA BEACH, CA 92075

REVISIONS

NO.	DATE	DESCRIPTION	BY	APPD.

BLYTHE SOLAR POWER PROJECT

RIVERSIDE COUNTY, CALIFORNIA

Figure 2-14
(2-1-10)

ELECTRICAL

TRANSMISSION TOWER DETAIL

PROJECT MANAGER: R. ARDOLINO	SCALE: NTS
DESIGNED BY: R. ALIYO	DATE: JAN. 18 2010
DRAWN BY: R.SCHUUMANN	AECOM PROJECT NO. 60100008
CHECKED BY:	
FILE LOCATION:	
DRAWING NO.	E-B-TWR2
SHEET NO. 1 OF	

ADAMS BROADWELL JOSEPH & CARDOZO
A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW
601 GATEWAY BOULEVARD, SUITE 1000
SOUTH SAN FRANCISCO, CA 94080-7037

TEL: (650) 589-1660
FAX: (650) 589-5062
ekiebaner@adamsbroadwell.com

DANIEL L. CARDOZO
THOMAS A. ENSLOW
TANYA A. GULESSERIAN
MARC D. JOSEPH
ELIZABETH KLEBANER
RACHAEL E. KOSS
LOULENA A. MILES
ROBYN C. PURCHIA

OF COUNSEL
THOMAS R. ADAMS
ANN BROADWELL
GLORIA D. SMITH

SACRAMENTO OFFICE
520 CAPITOL MALL, SUITE 350
SACRAMENTO, CA 95814-4715
TEL: (916) 444-6201
FAX: (916) 444-6209

March 15, 2010

VIA FACSIMILE and U.S. MAIL

Ed Cooper, Director
Riverside County
Airport Land Use Commission
Riverside County Administrative Center
4080 Lemon Street, 9th Floor
Riverside, CA 92501
Fax: (951) 955-0923

Re: Request for Notice and Meeting Agenda – Major Land Use Review for the Blythe Solar Power Project (California Energy Commission Docket No. 09-AFC-6)

Dear Mr. Cooper:

We write on behalf of California Unions for Reliable Energy (CURE) to request mailed notice of any meetings of the Riverside Airport Land Use Commission regarding the Application for Major Land Use Action Review submitted by Alice Harron, Senior Director of Project Development for the Blythe Solar Power Project, dated February 2010. This request is made under the Brown Act. (Government Code §§ 54954.1, 54956, 52956.5, 54954.1.)

In addition, we request a mailed copy of the agenda, or a copy of all the documents constituting the agenda packet, pursuant to Government Code section 54954.1.

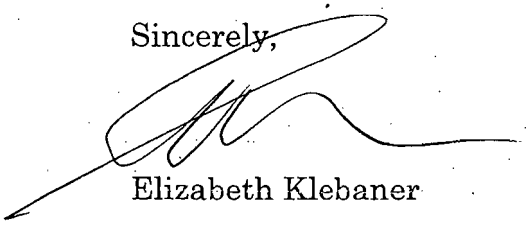
Please mail the requested items to the following address:

Elizabeth Klebaner
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

2398-016d

Thank you for your assistance with this matter.

Sincerely,



Elizabeth Klebaner

EK:bh

NOTICE OF PUBLIC HEARING
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION
4080 Lemon Street, 9th Floor
RIVERSIDE, CALIFORNIA 92502

A PUBLIC HEARING has been scheduled before the Riverside County Airport Land Use Commission (ALUC) to consider the application described below.

Any person may submit written comments to the ALUC before the hearing or may appear and be heard in support of or opposition to the project at the time of hearing. The proposed project application may be viewed at the Riverside County Administrative Center, 4080 Lemon Street, 9th Floor, Riverside, California 92501, Monday through Thursday from 8:00 a.m. to 5:00 p.m.

PLACE OF HEARING: Riverside County Administration Center
4080 Lemon St., Hearing Room (1st Floor)
Riverside, California

DATE OF HEARING: Thursday, April 8, 2010

TIME OF HEARING: 9:00 A.M.

CASE DESCRIPTION:

ZAP1006BL10 – Palo Verde Solar I, LLC – California Energy Commission Docket No. 09-AFC-6. The project proposes to construct a nominal 1,000 megawatt solar thermal electric generating facility on 9,400 acres of BLM managed land, including four units of north-south oriented tracking parabolic trough mirrors, four 120-foot tall air-cooled condensers, a 230 kV transmission line with maximum 145-foot tall monopoles, and a four-inch diameter 9.8-mile long natural gas pipeline. (Blythe Airport: Zones B1, C, D, and E).

FURTHER INFORMATION: Contact John Guerin at (951) 955-0982 or Russell Brady at (951) 955-0549. The ALUC holds hearings for local discretionary permits within the Airport Influence Areas, reviewing for aeronautical safety, noise and obstructions. All other concerns should be addressed to Mr. Alan Solomon, California Energy Commission, at (916) 653-8236.

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

UNKNOWN
P O BOX 800
ROSEMEAD, CA 91770

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

UNKNOWN
5232 VIA RINCON
NEWBURY PARK, CA 91320

UNKNOWN
4330 WISE RD NO 12
BULLHEAD CITY, AZ 86426

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

UNKNOWN
36 S STATE ST STE 1900
SALT LAKE CITY, UT 84111

UNKNOWN
10630 HICKORY CREST LN
COLUMBIA , MD 21044

UNKNOWN
3133 7TH ST
RIVERSIDE, CA 92501

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

UNKNOWN
35272 VISTA DE TODO
CAPISTRANO BEACH, CA 92624

UNKNOWN
46 THE COLONNADE
LONG BEACH, CA 90803

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

UNKNOWN
36 S STATE ST STE 1900
SALT LAKE CITY, UT 84111

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

810190003
US DEPT OF THE INTERIOR
WASHINGTON, DC 21401

LOWE
1051 SUNBURST DR
BEAUMONT , CA 92223

SCHNESE
1125 KITTIWAKE DR
VENICE , FL 34292

GAJE
1264 OAKHURST CT
BEAUMONT , CA 92223

FINNELL
13420 PANTERA RD
SAN DIEGO , CA 92130

FARMLAND RESERVE
139 E SOUTH TEMPLE STE 600
SALT LAKE CITY , UT 84111

REID
1402 SHADY GLEN RD
GLENDALE , CA 91208

ROMAN CATHOLIC ARCHBISHOP OF LOS ANGELES
1531 W NINTH ST
LOS ANGELES , CA 90015

COOLEY
15900 KENNEDY RD
LOS GATOS , CA 95052

SUN WORLD INTERNATIONAL
16350 DRIVER RD
BAKERSFIELD , CA 93308

SOARING VISTA PROP INC
1800 BERING DR STE 100
HOUSTON , TX 77057

STATE SCHOOL LANDS
1807 13TH ST
SACRAMENTO , CA 95814

RUZICKA
1820 IDLEWOOD RD
GLENDALE , CA 91202

STERLING
219 N SUNKIST ST
ANAHEIM , CA 92806

JORDAN DESERT PROP
235 E COLORADO BLV NO 5
PASADENA , CA 91101

HUBBARD
252 W KENNETH RD
GLENDALE , CA 91202

RIPPENKROEGER
2629 AVE J
FT MADISON , IA 52627

BICKFORD
2675 MISHLER RD
MIO , MI 48647

DENEWILER
27098 WENTWORTH DR
SUN CITY , CA 92586

BIRD
290 N WATEKA ST
SAN JACINTO , CA 92583

CASAVANT
29865 WHISPERING PALMS TR
CATHEDRAL CY , CA 92234

CASHIN
3008 THE STRAND
MANHATTAN BEACH , CA 90266

LUCKETT
301 S 4TH ST APT 3
FARMINGTON , IA 52626

FINE
3023 260TH AVE
MONTROSE , IA 52639

COUNTY OF RIVERSIDE
3133 7TH ST
RIVERSIDE , CA 92501

COUNTY OF RIVERSIDE
3133 MISSION INN AVE
RIVERSIDE , CA 92507

PETER SCHMIDT
3172 223RD AVE
MONTROSE , IA 52639

COUNTY OF RIVERSIDE
3525 14TH ST
RIVERSIDE , CA 92501

ASHTON
36 S STATE ST STE 1900
SALT LAKE CITY UT, UT 84111

THOMAS
3801 STANDARD ST
BAKERSFIELD , CA 93308

WILLIAMSON
4185 VIA SOLANO
PALOS VERDES , CA 90274

HOLLAND
4204 W ELY RD
HANNIBAL , MO 63401

PORTER
4330 WISE RD NO 12
BULLHEAD CITY , AZ 86426

MURPHEY
434 E LARKSPUR LN
TEMPO AZ, AZ 85281

BABIN
45156 VANDERBILT CT
INDIO CA, CA 92201

THOMPSON
48970 SOURDOUGH RD
EHRENBERG , AZ 85334

RIGBY
5610 PIONEERS BLV 283
LINCOLN , NE 68506

MANUEL
630 TALBOT AVE
ALBANY , CA 94706

BECKMANN
690 CHANDLER #404
GURNEE , IL 60031

STEWART
7922 LA CAPELA LN
CARLSBAD , CA 92009

RIDDLE
P O BOX 1915
BLYTHE , CA 92226

N R L L INC
P O BOX 2209
NEWPORT BEACH , CA 92659

LACY
P O BOX 2233
BLYTHE , CA 92226

STRAIT
P O BOX 2341
BLYTHE , CA 92226

DICKERHOFF
P O BOX 403
CHENEY , KS 67025

MADDOX
P O BOX 476
WALLACE , CA 95254

SMITH
P O BOX 850
JULIAN , CA 92036

LEON
P O BOX 867
EHRENBERG , AZ 85334

JOHNSON
RR 1 BOX 1E
BARING , MO 63531

Holly L. Roberts, Project Manager
Bureau of Land Management
Palm Springs-South Coast Field Office
1201 Bird Center Drive
Palm Springs, CA 92262

Holly L. Roberts, Project Manager
Bureau of Land Management
Palm Springs-South Coast Field Office
1201 Bird Center Drive
Palm Springs, CA 92262

Holly L. Roberts, Project Manager
Bureau of Land Management
Palm Springs-South Coast Field Office
1201 Bird Center Drive
Palm Springs, CA 92262

Holly L. Roberts, Project Manager
Bureau of Land Management
Palm Springs-South Coast Field Office
1201 Bird Center Drive
Palm Springs, CA 92262

Alice Harron
Palo Verde Solar I, LLC
1625 Shattuck Avenue, Ste. 270
Berkeley, CA 94709

Alice Harron
Palo Verde Solar I, LLC
1625 Shattuck Avenue, Ste. 270
Berkeley, CA 94709

Alice Harron
Palo Verde Solar I, LLC
1625 Shattuck Avenue, Ste. 270
Berkeley, CA 94709

Alice Harron
Palo Verde Solar I, LLC
1625 Shattuck Avenue, Ste. 270
Berkeley, CA 94709

Energy Resources Conservation & Development
Commission of the State of California
1516 Ninth Street
Sacramento, CA 95814
Docket 09-AFC-6

Energy Resources Conservation & Development
Commission of the State of California
1516 Ninth Street
Sacramento, CA 95814
Docket 09-AFC-6

Energy Resources Conservation & Development
Commission of the State of California
1516 Ninth Street
Sacramento, CA 95814
Docket 09-AFC-6

Energy Resources Conservation & Development
Commission of the State of California
1516 Ninth Street
Sacramento, CA 95814
Docket 09-AFC-6

APPLICATION FOR MAJOR LAND USE ACTION REVIEW
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

ALUC Identification No. ZAP1006BL10

PROJECT APPLICANT (TO BE COMPLETED BY APPLICANT)

Date of Application	2-19-2010		
Property Owner	Bureau of Land Management	Phone Number	760-833-7100
Mailing Address	Palm Springs South Coast Field Office		
	1201 Bird Center Drive Palm Springs, CA 92262		
Agent (if any)	Palo Verde Solar I, LLC	Phone Number	510-524-4517
Mailing Address	1625 Shattuck Avenue, Suite 270		
	Berkeley, CA 94709		

PROJECT LOCATION (TO BE COMPLETED BY APPLICANT)

Attach an accurately scaled plan showing the relationship of the project site to the airport boundary and runways.

Street Address	Site is ~8 miles west of Blythe and 2 mi north of Interstate I-10 (I-10) at exit #232, Airport/Mesa Dr - Attached Figure 5.7-5		
Assessor's Parcel No.	Please see attached Figure 2-12 - Parcel Map	Parcel Size	
Subdivision Name		Zoning Classification	
Lot Number			

PROJECT DESCRIPTION (TO BE COMPLETED BY APPLICANT)

If applicable, attach a detailed site plan showing ground elevations, the location of structures, open spaces and waterbodies, and the heights of structures and trees; include additional project description data as needed.

Existing Land Use (describe)	Please see attached Figure 5.7-6 - Riverside County Zoning	
Proposed Land Use (describe)	Nominal 1,000 MW Solar power plant, including 3 phase 230 kV line to deliver solar-generated electrical power to a SCE substation. The transmission line will consist of monopoles with a height of 145 ft and a nominal spacing of 1000 ft. For portions of the transmission line extending under the 14CFR 77 Horizontal Surface, pole heights will be constrained by underlying terrain and pole hights will be 90 ft with a nominal spacing of 800 ft.	
For Residential Uses	Number of Parcels or Units on Site (exclude secondary units)	Not applicable - non-residential use
For Other Land Uses (See Appendix C)	Hours of Use	Solar power plant operation will be 24 hours per day.
	Number of People on Site Maximum Number	No existing residential use
	Method of Calculation	Not applicable
Height Data	Height above Ground or Tallest Object (including antennas and trees)	See Attachment 1. 14 CFR 77 Height Analysis and FAA No Navigable Hazard Letters
	Highest Elevation (above sea level) of Any Object or Terrain on Site	
Flight Hazards	Does the project involve any characteristics which could create electrical interference, confusing lights, glare, smoke, or other electrical or visual hazards to aircraft flight?	☐ Yes ☐XX No
	If yes, describe	See Attachment 2 presenting the results of an analysis of potential aviation hazards posed by the BSPP including Electromagnetic Interference, Glare, Visible Vapor Plumes, Thermal Turbulence, and Bird Attraction.

REFERRING AGENCY (TO BE COMPLETED BY CITY/COUNTY)

Date Received: 2-25-10

Agency Name: California Energy Commission

Staff Contact: Alan Solomon

Phone Number: 916-653-8236

Agency's Project No.: 09-AFC-06

Type of Project
- ☐ General Plan Amendment
- ☐ Zoning Amendment or Variance
- ☐ Subdivision Approval
- ☐ Use Permit
- ☐ Public Facility
- ☐ Other

ALUC REVIEW (TO BE COMPLETED BY ALUC EXECUTIVE DIRECTOR)

Application Receipt

Date Received _____ By _____

Is Application Complete? ☐ Yes ☐ No

If No, cite reasons _____

Airport(s) Nearby

Primary Criteria Review

Compatibility Zone(s) ☐ A ☐ B1 ☐ B2 ☐ C ☐ D ☐ E ☐ Ht.

Allowable (not prohibited) Use? ☐ Yes ☐ No

Density/Intensity Acceptable? ☐ Yes ☐ No

Open Land Requirement Met? ☐ Yes ☐ No

Height Acceptable? ☐ Yes ☐ No

Easement/Deed Notice Provided? ☐ Yes ☐ No

Special Conditions

Describe: _____

Supplemental Criteria Review

Noise _____

Safety _____

Airspace Protection _____

Overflight _____

ACTIONS TAKEN (TO BE COMPLETED BY ALUC EXECUTIVE DIRECTOR)

ALUC Executive Director's Action

☐ Approve Date _____

☐ Refer to ALUC

ALUC Action

☐ Consistent Date _____

☐ Consistent with Conditions (list conditions/attach additional pages if needed)

☐ Inconsistent (list reasons/attach additional pages if needed)

Riverside County
Airport Land Use Commission
RCALUC

March 22, 2010

Palo Verde Solar I, LLC
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709

Subject: ZAP1006BL10 - Blythe Solar Millennium Project

County Administrative Center
4080 Lemon St., 9th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

We appreciate the submission of your application for the Riverside County Airport Land Use Commission's (ALUC) review of the proposed Solar Millennium Project (BSPP) as requested by the California Energy Commission (CEC). Based on our review of the application materials submitted and our list of concerns provided to the CEC in letters dated January 19, 2010 and March 1, 2010, following are our remaining concerns regarding the potential hazards to flight for the Blythe Airport that may be created by the proposed project:

Height of Structures

- Confirm by map/figure that ACC-4 is located outside of the AIA boundaries. If it is within the AIA, then it is inconsistent with maximum height requirements.
- Identify the height and number of proposed transmission poles relative to AIA Zones
- Update on FAA review of remaining transmission poles.

Radio Frequency Interference

- Detail how BSPP is comparable to the Palmdale Hybrid Power Project (PHPP) (i.e. total project acres, total MW, location related to distance from airport and to flight paths)
- What are the communication and navigation signals utilized by Blythe Airport?
- What would be the most likely maximum impact scenario involving line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions and the level of interference created?
- What are the "acceptable levels" for electric field generation and what are the typical impacts at certain distances at that level?

Reflectivity/Glare

- Detail how BSPP is comparable to the Victorville (VV2) project (i.e. total project acres, total MW, location related to distance from airport and to flight paths, orientation of panels)
- How are the over-flights conducted for the VV2 analysis comparable to the BSPP proposal related to flight path?

Thermal Plumes

- Based on what data is the CEC "not concerned with [the small auxiliary two-cell wet cooling towers] being a potential hazard to aviation? Is any data available for these similar to the dry cooling towers on temperature rise and upward velocity? How often, how long, and what time of day are these to be used?

Provision of open space within Zone D

- Clarify the project footprint area and area left as open space (free of most structures and other major obstacles such as walls, large trees or poles greater than 4 inches in diameter measured 4 feet above the ground, and overhead wires) for the project area located within Zone D.

Cumulative impacts of additional hazards to flight.

- Due to the amount of existing and proposed solar facilities located within the vicinity of the Blythe Municipal airport, does this project propose additional hazards to flight which considered individually may be insignificant, but cumulatively may be considered significant?

Without this information to determine the level of impacts on each of these issues, ALUC staff would be unable to prepare a report to the Commission determining this project to be consistent with the Blythe Airport Compatibility Plan or present significant hazards to flight or interfere with airport operations.

Sincerely,

Ed Cooper
Riverside County Airport Land Use Commission Director

AIRPORT LAND USE COMMISSION
RIVERSIDE COUNTY

County Administrative Center
4080 Lemon St., 9th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

January 19, 2010

California Energy Commission
Attn.: Alan Solomon, Project Manager
1516 Ninth Street
Sacramento CA 92225

RE: Blythe Solar Power Project (09-AFC-6)

Dear Mr. Solomon:

Thank you for providing the Riverside County Airport Land Use Commission (ALUC) with an opportunity to participate in the review of the above-referenced project.

A portion of the proposed power plant site is located within the Airport Influence Area of Blythe Airport, and a large portion of the transmission line between the proposed power plant and the proposed substation traverses the Airport Influence Area. If this project were not located on Federal land and if jurisdiction over its components were not preempted, the applicant would be required to submit the proposal to the Riverside County Airport Land Use Commission for formal review prior to its consideration by the local governing body, the Riverside County Board of Supervisors.

The Land Use section appropriately lists the applicable laws, ordinances, regulations, and standards administered and implemented by ALUC. The Riverside County Airport Land Use Commission is responsible for reviewing major land use projects subject to city, county, school district, or special purpose district permitting processes within Airport Influence Areas and determining whether these projects are consistent with the Compatibility Plan adopted by the Commission for the airport's environs. The purpose of the Airport Land Use Commission, pursuant to Section 21670(a)(2) of the State of California Public Utilities Code, is "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses." As such, the AFC states that "a review of airport land use compatibility with the Riverside County ALUC will be required," and we would welcome the opportunity to evaluate this project as a major land use action and provide an advisory compatibility determination. (As noted below, with respect to development on federal land, ALUC has no official jurisdiction.)

In the course of project review, the ALUC considers a number of factors, including housing density (for residential projects), population intensity (for nonresidential projects), noise sensitivity, airspace obstruction, overflight, and hazards to flight. This proposed project, in its operating stage, would clearly comply with population intensity standards, and is not noise-sensitive. We are concerned, however, that the proposed use could constitute a hazard to flight by reflecting sunlight towards aircraft approaching or departing from Blythe Airport. Uses that cause flashes of glare could distract aircraft operators, with devastating results.

Given the State's objective of increasing the proportion of electric power generated by renewable energy sources, along with the development intensity limitations imposed by

ALUCs, it is not surprising that landowners and entrepreneurs are increasingly likely to propose renewable energy facilities in the vicinity of airports. However, we are not aware of any publicly accessible information base addressing the visual effects of large-scale solar arrays as viewed from above. In this regard, we would recommend that the Energy Commission analyze the reflectivity of the proposed solar-tracking parabolic mirror system in comparison to the reflectivity of panels utilized at power generating facilities using alternative solar technologies. If the reflectivity using this technology is found to be significantly greater than the reflectivity of panels in, for example, a photovoltaic solar project, your agency should include among the alternatives in the environmental document a project that utilizes photovoltaic solar and a project with mixed solar (the applicant's proposal outside the Airport Influence Area and photovoltaic technology inside the Airport Influence Area). Neither the California Energy Commission nor the Bureau of Land Management should be constrained by the identity of the applicant in determining the type of project that would best serve the public objectives of "energy independence, environmental protection, and economic prosperity."

In reference to impacts on aircraft navigation, the cumulative effects of both solar projects and more traditional power plants should be considered, and the analysis should extend beyond projects on public land to include projects on privately owned properties in the City of Blythe and those portions of unincorporated Riverside County within a ten-mile radius. It should be noted that there are two existing "fossil fuel" power generation facilities located directly to the east of Blythe Airport. These facilities are located just beyond the easterly terminus of the east-west runway and generate visible plumes. Additionally, a photovoltaic solar energy project is proposed for location on airport property.

At some point, a question arises as to whether the cumulative effects of all these facilities would constitute too many distractions for pilots attempting to take off from, or land on, a Blythe Airport runway.

Pursuant to Policy 4.3.7 of the Countywide Policies of the 2004 Riverside County Airport Land Use Compatibility Plan:

"New land uses that may cause visual, electronic, or increased bird strike hazards to aircraft in flight shall not be permitted within any airport's influence area. Specific characteristics to be avoided include:

(a) Glare or distracting lights which could be mistaken for airport lights;

(b) Sources of dust, steam, or smoke which may impair pilot visibility;

(c) Sources of electrical interference with aircraft communications or navigation;

(d) Any proposed use, especially landfills and certain agricultural uses, that creates an increased attraction for large flocks of birds. (Refer to FAA Order 5200.5A, *Waste Disposal Sites on or Near Airports* and Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants On or Near Airports.*)"

This policy is implemented through the application of the following "standard" condition:

The following uses shall be **prohibited**:

(a) Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved

navigational signal light or visual approach slope indicator.

(b) Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.

(c) Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area.

(d) Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

Given these provisions, the Energy Commission should determine whether the project, as proposed, would cause the reflection of sunlight toward aircraft engaged in the highlighted maneuvers following takeoff or prior to landing. If such an effect is likely, the project would not be in compliance with our agency's substantive requirements.

Airport Land Use Commissions have no jurisdiction over federal lands; nevertheless, ALUC review of individual projects in an advisory capacity can serve to enhance their compatibility with airport activity.

In the event that the Energy Commission decides to refer the applicant to ALUC for advisory project review, or in the event of a voluntary review, the applicant shall submit a complete ALUC application packet for review. The ALUC application form is available at www.rcaluc.org (click Forms).

In the event that the Energy Commission and/or the Bureau of Land Management decide to conduct airport compatibility review for this project without utilizing the ALUC review process, ALUC staff would recommend that the project be subject to the above "standard" condition, supplemented by the following special conditions:

> If the mirrors are mounted on a framework, such framework shall have a flat or matte finish so as to minimize reflection of sunlight.
>
> In the event that any incidence of glare or electrical interference affecting the safety of air navigation occurs as a result of project operation, the permittee shall be required to take all measures necessary to eliminate such glare or interference.

Thank you for the opportunity to provide comments. If you have any questions, please contact me at (951) 955-0982.

RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

John J. G. Guerin, Principal Planner

Cc: Blythe Airport – Attn.: Jim Rodkey, City of Blythe Director of Public Works
CALTRANS Division of Aeronautics – Attn.: Sandy Hesnard
Riverside County Economic Development Agency – Attn.: Chad Davies
Marie McLean, CEC
James Adams, CEC

Riverside County
Airport Land Use Commission

RCALUC

March 1, 2010

Mr. David Flores
California Energy Commission
1516 9th Street,
Sacramento, CA 95814

ATTN: Marie McLean

Subject: Blythe Solar Millennium Project

Dear David and Marie:

Thank you for taking the "time out" to stop by, meet with us, and discuss the Blythe Solar Millennium Project. I know your schedule in the area was a hectic one, and we appreciated the opportunity you provided to us to discuss our local concerns with the proposed Solar Millennium Project within the Blythe Airport Influence Area (AIA).

On the surface, Solar Power applications have the "potential" to achieve one of the most important ALUC criteria for development within AIAs, namely low people density development. The problem 'starts' with the fact that there is much about solar technology that is unknown at present. Furthermore, not all solar technologies (photovoltaic, thermal, etc) may be equal in terms of their ability to co-exist successfully in the airport environ.

As we discussed in our meeting, and as condensed below, these are some of RCALUC's major concerns regarding the potential hazards to flight for the Blythe Airport that may be created by the proposed project. In answering these concerns, we firmly believe that the burden of proof is on the applicant to show no incompatibility exists, and to provide qualitative, quantitative science (studies) to review in this regard, rather than generalities:

- Reflectivity and temporary flash occurrences;
    - There appears to be some body of literature out there on this subject, http://www.sandia.gov/solar/CSP_papers/Advanced/Glint_Glare_SolarPACES_2009.pdf that can be used to analyze the potential reflection from a specific type of solar array and its impact on aircraft approaching a runway. Factors would include the physical location of the arrays in relation to the runaway; tracking movement of the panels themselves; the nature and type of solar being proposed. Certainly more scientific that the parking lot full of car analogy we have been given.
- Radio frequency emissions from electrical motors (servo) or other on-site equipment (transmission lines) and the potential for interference;
- The height and velocity of thermal plumes from the dry cooling units;
    - analyze in relation to local flight patterns and single events;
    - physical properties; visual; invisible; lack of oxygen within the vented plume
- Height and location of structures, including the dry cooling units and power poles and lines;

County Administrative Center
4080 Lemon St., 9th Floor.
Riverside, CA 92501
(951) 955-5132

www.rcaluc.org

- Provision of adequate open space within any portion of the project potentially within Compatibility Zone D; and

- The cumulative impacts of additional hazards to flight considering the amount of existing and proposed solar (and conventional energy generating) facilities surrounding the Blythe Airport.

    - perhaps the most difficult of questions; which distraction becomes the one-to-many for pilots in an obstruction filled airspace.

Without measurable data to determine the level of impacts on each of these issues, we are unable to determine whether this project would be consistent with the Blythe Airport Compatibility Plan ... or present significant hazards to flight that could interfere with airport operations.

Sincerely,
RIVERSIDE COUNTY AIRPORT LAND USE COMMISSION

_____
Edward C. Cooper, Director

Cc: George Johnson – Riverside County TLMA Director
Ron Goldman – Riverside County Planning Director
Alan Solomon – California Energy Commission
James Adams – California Energy Commission
Sandy Hesnard – CALTRANS, Division of Aeronautics
Chad Davies - Riverside County EDA
Jim Rodkey – Blythe Airport
ALUC Staff

BLYTHE SOLAR POWER PROJECT (09-AFC-6)
RESPONSE TO ALUC COMMENTS OF MARCH 22, 2010
ON ALUC APPLICATION AND SUBSEQUENT CORRESPONDENCE
BY EMAIL ON APRIL 13, 2010

Response Date: May 4, 2010

HEIGHT OF STRUCTURES

Comment 1:

Confirm by map/figure that ACC-4 is located outside of the AIA boundaries. If it is within the AIA, then it is inconsistent with maximum height requirements.

Response:

The southeastern corner of the Air Cooled Condenser 4 (ACC-4) is approximately 135 feet outside of the boundary of the Airport Influence Area. Figure 1 presents a graphic showing Power Block 4, the location of ACC-4, and the 14,000 ft limit of the AIA. The Applicant commits that the ACC-4 and auxiliary cooling tower will remain outside the Airport Influence Area in the final project plan.

Comment 2:

Identify the height and number of proposed transmission poles relative to AIA Zones.

Response:

See Table 1 for a listing of each pole, their height, and the Compatibility Zone in which each is located. Figure 2 provides a map of the locations of the power poles in the separate Compatibility Zones for the Blythe Airport. Based on ALUC comments, the Applicant is modifying the Gen-Tie line route to avoid crossing Compatibility Zone B1 and commits that the new route will both avoid Zone B1 and will have transmission poles no higher than 70 ft for that portion of the revised route that crosses Zone C. Graphics of the proposed route are not available but the Applicant commits to have submitted all new FAA notifications by the May 13 Commission Meeting and will have information on specific pole locations available at that time.

Comment 3:

Update on FAA review of remaining transmission poles.

Response:

See Table 1 for a listing of each pole and its current FAA status as of 04/19/2010. Figure 3 presents a color coded map illustrating the status of each transmission line pole for which an FAA Form 7460 application has been submitted. AECOM contacted Ms. Karen McDonald of the FAA on April 14 to enquire as to the status of their review. Ms. McDonald stated that all seven review departments have finished their analyses and she is now compiling the review comments prior to issuing a determination. She cannot commit to a completion date for her review and issuance of the determinations. She did say that regulations may dictate that some of the cases will require public notice prior to final determination.

As part of the evolving design of the project plan, the Applicant is proposing to relocate that portion of the transmission line that is south of Interstate 10 and to avoid Compatibility Zone B1. The existing transmission line route and the proposed modification of that power line route are given in Figure 4. New FAA Forms 7460 will be submitted for those power poles requiring new FAA review because of the new alignment of the transmission line.

On April 19, the FAA provided a determination of no hazard to air navigation for Pole PB2.3-3. This pole is located within the BSPP project boundary, well away from the Blythe Airport, and is associated with Power Block 2. A copy of this determination is attached.

Comment 4:

> At the April 8 meeting, the Commission Chairman advised that he would not be inclined to support aboveground transmission lines crossing through Zones B1 and C directly westerly of the east-west runway at Blythe Airport, especially since the approach from the east is already constrained by aboveground lines just east of the Zone A boundary.

Response:

The FAA has issued a determination letter of No Hazard to Aviation for Pole 26 which is proposed to be located in Compatibility Zone B1, almost exactly along the extended centerline of Runway 26 (See attachment 1). It is puzzling that the FAA has concluded that a 90 ft transmission pole on the extended centerline of Runway 26 does not constitute a hazard to air navigation while the ALUC indicates that they may consider such a pole a non-recommended use in Zone B1.

The published pattern altitude for the Blythe Airport is 800 ft, approximately the same height as the McCoy Mountains to the west of extended Runway 26. Aircraft departing on Runway 26 will need to gain altitude to clear the McCoy Mountains if they continue straight west after take-off. Aircraft approaching Runway 26 from the east, if they abort their landing, would also need to gain altitude to clear the McCoy Mountains if they had a straight out departure. Because the McCoy Mountains are less than a mile from the proposed transmission line route, pilots will already be ascending as they pass over the transmission line if they maintain a heading to the west.

As noted above, the Applicant is proposing to reroute the transmission line to avoid crossing Compatibility Zone B1. Figure 5 presents the elevation profile for the newly proposed Gen-Tie route that avoids Compatibility Zone B1. Note that the figure is oriented with west to the top of the figure.

There is limited room to move the transmission line further to the west to avoid crossing all of Zone C due to rising terrain to the west of the current proposed location. Such a path would put the transmission line in or near the McCoy Mountains at a much higher base elevation than at the proposed locations of the poles. The higher base elevation with poles extending higher still would in itself potentially pose a greater hazard to aviation than that posed by the proposed pole locations in Zones B1 and C. The previously proposed Gen-Tie route is located approximately 4,400 feet west of the future end of Runway 26 at an elevation of 502 feet for pole 26, to be located approximately on the extended centerline of the runway. Figure 6 presents an east-west profile of terrain elevations extending west from the end of Runway 26. The terrain rises gradually, then steeply to approximately 780 feet elevation at 10,000 feet west of the runway, the extent of compatibility zone C.

Figure 7 presents a series of north-south elevation profiles spaced approximately 2,000 feet apart west of the end of Runway 26. Each successive profile west is higher than the proceeding profile. Only at the 12,000 profile does the terrain fall on the far side of the McCoy Mountains. Figure 8 presents a map showing the locations of the east-west profile and the north-south profiles. The Transmission line would have to be located to the west of the McCoy Mountains for it to not pass over zone C. However, the routing for such a transmission corridor would be problematic since it would have to cross over the McCoy Mountains to allow the poles to the west of the runway to be on the far side of the mountain.

The Applicant fails to see the hazard associated with 90 ft transmission poles in Zones C and B1, given the distance of the transmission line poles from the end of Runway 26 and their nearness to the McCoy Mountains and the fact that the FAA has already determined that Pole 26 does not constitute a hazard to air navigation. However, in response to ALUC concerns, the Applicant is modifying the proposed transmission line route within the B1 zones to address ALUC comments. The proposed routing will not pass through Zone B1 and will comply with requested height limitations in Zone C.

The cost of burying a 230KV transmission line in dry desert sands is prohibitively expensive (on the order of $10 million or more). In addition, heat transfer issues associated with the dissipation of heat from the power line into the surrounding dry sands would seriously reduce the amount of power able to be transmitted along the underground segment of the transmission line during the hottest days of the summer, precisely the time of the peak summer load on the California power grid.

RADIO FREQUENCY INTERFERENCE

Comment 5:

> Detail how BSPP is comparable to the Palmdale Hybrid Power Project (PHPP) (i.e. total project acres, total MW, location related to distance from airport and to flight paths)

Response:

The Palmdale Hybrid Power Project (PHPP) is located immediately adjacent to the north side of the departure end of Runway 25 at the Palmdale Regional Airport/Air Force Plant 42. The PHPP plant site shares a boundary with Plant 42. The PHPP is located on a 337 acre site and is composed of two natural gas fired combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), and one steam turbine generator (STG), and a 250 acre solar thermal mirror array with parabolic trough mirrors. The power rating of the solar thermal mirror array is a nominal 50 MW. The overall power rating of the PHPP is 570 MW. Figure 9 presents a map showing the location of the PHPP project and Plant 42. At a nominal 1,000 MW, the BSPP is considerably larger than the solar field for the PHPP, but the BSPP mirrors are much farther away from the Blythe Airport and its traffic patterns (approximately 8,200 ft from Runway 35) compared to the distance from the PHPP project to the Plant 42 runways and traffic patterns (approximately 1,500 ft from Runway 25).

Comment 6:

> What are the communications and navigation signal utilized by the Blythe Airport?

Response:

Blythe airport (KBLH) has one navigational aid. It is a VORTAC (very high frequency omni directional range) transmitter at 117.40MHz. Pilot to ground communications at Blythe Airport are as follows:

CTAF/UNICOM	122.8 MHz
WX ASOS	120.175 MHz
APCH/DEP	128.15 and 285.60 MHz (provided by Los Angeles ARTCC)
Blythe VORTAC	117.40 MHz, 14E
Parker VORTAC	117.98 MHz, 15E

As discussed below, radio interference at around 117 MHz from BSPP power lines will be very weak and any potential radio interference around this frequency is not expected to significantly hamper air-ground communications at the Blythe Airport.

Comment 7:

> What would be the most likely maximum impact scenario involving line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions and the level of interference created?

Response:

There will be no impact from the radio noise produced by the proposed facility on the VORTAC navigational aid at the Blythe airport.

There are two sources of radio noise from the proposed facility: corona from the conductors and gap noise from the hardware. Corona noise is typically a foul (rain) weather phenomenon that results from the breakdown of air at the surface of the conductor due to the stress on the electric field on air molecules. One of the key measures of that stress is the electric field gradient on the surface of the conductor. This gradient is in-turn directly affected by the impressed line to ground voltage conductor and the diameter of the conductor (as well as bundling of the conductor). The proposed facility will have a line to ground voltage of approximately 130kV and a conductor with a diameter of 1.762 inches. There is one conductor, and hence no bundling. This conductor is larger than typical for a 230kV facility as it is needed to carry a fairly large power flow over a short distance; one of the side benefits of this selection is improved corona performance. These configuration details results in a very low conductor surface gradient (9kV/cm), significantly below typical corona inception level of 17.5kV/cm. Further at a frequency of 117MHz corona noise is not productive even at higher surface gradient.

Unlike interference to AM radio (which is broadcasting between 0.520 MHz–1.610 MHz), which one might experience while passing under a 230kV transmission line in a car, at 117MHz power line radio noise corona is very weak (less than 4dBμV/m) even directly under this facility. Radio interference from gap noise typically occurs in fair, dry weather from the transmission line hardware (e.g. insulators). The sources of this noise are surface imperfections on the hardware and dust (or other solid air pollution). This facility will be constructed with polymer insulators and other hardware for high pollution areas. This will emulate to the greatest extent possible the surface tracking that would occur and reduce the levels of radio noise; which is negligible at 230kV in any case. This will increase the reliability of the circuit under the condition of dryness with sand and other airborne particulates.

The Blythe VORTAC (like all VORs) is used to locate the airport during mid-flight and is not an instrument landing device (there are none at Blythe). The pertinent factor for its successful use is that signal to noise ratio at the aircraft is high enough to allow the on-board instrument to decode the signal and provide bearings for mid-fight location and identification of nearby airports with similar VORs. VOR use is appropriate above 500ft. At that distance radio noise from the facility (which has been shown to very low in any case) is nearly immeasurable (calculated to be less than 0.5dBμV/m). Therefore the facility will not impact the use of VOR at the Blythe airport.

Comment 8:

What are the "acceptable levels" for electric field generation and what are typical impacts at certain distance at that level?

Response:

The electric field profile for this facility was provided in the Application for Certification (AFC), Table 5.14-9. The maximum field level is indicated as 1.85 kV/m at a distance of 75 ft from the centerline of the transmission structure. This result assumes an expected lowest clearance of the conductor to ground of 28 ft. The impacts are evaluated based on the electric shock that could occur from induction of current by the transmission line's electric field on metallic objects (e.g. trucks) at those locations and the reaction of people who might come in contact with those objects under those circumstances. Using these parameters, the current induced on a vehicle the size of a large semi-truck is less than 0.05 milliamps which is imperceptible to people. Beyond consideration of induced current and its effects there are no objective standards to evaluate the electric field and the State of California has not set a regulatory limit for electric and magnetic field levels. There are no human health effects based standards in place as the foundation for them as not been established. However the levels of fields expected from this facility are remarkably below most high voltage power lines in use today and are certainly typical for all 230kV line in-service.

REFLECTIVITY/GLARE

Comment 9:

Detail how BSPP is comparable to the Victorville (VV2) project (i.e. total project acres, total MW, location related to distance from airport and to flight paths, orientation of panels)

Response:

The Victorville II Project (VV2) is very similar in design to the PHPP and is located immediately adjacent to the north and east of the departure end of Runway 35 at the Southern California Logistic Airport (SCLA). The VV2 plant site shares a boundary with the SCLA. The VV2 plant is proposed for a 275 acre site and is composed of two natural gas fired combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), and one steam turbine generator (STG), and a 250 acre solar thermal mirror array with parabolic trough mirrors. The power rating of the solar thermal mirror array is a nominal 50 MW. The overall power rating of the VV2 project is 570 MW. Figure 10 presents a map showing the location of the VV2 project and the SCLA. At a nominal 1,000 MW, the BSPP is considerably larger than the solar field for VV2, but it is farther away from the Blythe Airport and its traffic patterns (approximately 8,200 ft from Runway 35) compared to the distance from the VV2 project to the SCLA runways and traffic patterns (approximately 5,000 ft from the departure end of Runway 35).

Comment 10:

How are the over-flights conducted for the VV2 analysis comparable to the BSPP proposal related to flight path?

Response:

As background, the production of glare from the mirror array, or in more accurate terminology, specular reflection, is not due to direct reflection of the sun by the parabolic mirror but is due to three sources of light of much lower intensity:

- The reflection of incoming sunlight from a small linear area along the front of the Heat Conducting Element (HCE) that is normal (perpendicular) to the sun and intercepts and reflects a small portion of the incoming sunlight.
- Direct reflection of light from metal components of the parabolic mirror array such as connectors along the HCE tube and structural elements.
- Light that is first refracted and scattered by the glass tube of the HCE that then strikes the mirror and is subsequently reflected outwards in a columnar beam, but at a greatly reduced intensity.

Specular reflection must obey the Law of Reflection, derived from Snell's Law, in which the incoming and outgoing light rays form the same angle of incidence from the normal to the reflecting surface. The mirror arrays at all solar trough power plants are aligned north-south to allow east-west tracking of the sun. The normals for any given HCE tube are therefore east and west of the solar array, and therefore reflections can only occur to the east and west. See Attachment 1 for a simple set of graphics that illustrate the geometry of the optics of a solar mirror array and the potential reflections that may occur from the array, including the geometry for a pilot landing on Runway 17.

The orientations of the mirror arrays at the BSPP, the VV2 project, and the Harper Lake project are all north-south, to allow an east-west tracking of the sun. The overflight of the Harper Lake solar array[1] for which pictures were submitted with the ALUC Application occurred in the morning as the flight path was east of the Harper Lake solar array. The approach simulation documented by the pilot was for an approach in the afternoon to Runway 17 at the SCLA with the solar array to the east of the extended runway. This would be equivalent to a morning approach to Runway 17 at the Blythe Airport since the mirror arrays at the BSPP are to the west of the Blythe Airport.

Runway 17/35 at the Blythe Airport is the runway with the greatest potential to be affected by glare. As Runway 17/35 is to the east of the BSPP solar arrays, you could only experience glare when operating from this runway when you were looking west with the sun to your back. Consequently, pilots at the Blythe Airport would potentially experience glare when departing to the north on Runway 35 in the morning, or when landing to the south on Runway 17 in the morning. Obviously, these operations would not be likely to occur in close proximity.

To be observed by a ground level observer, the sun's rays must be low on the horizon. Consequently, the only time specular reflection can occur from the BSPP mirror array and be visible by a ground level observer is in the early morning or late afternoon, the observer is to the east or west of the mirror, the sun is to the back of the observer and slightly over the observer's shoulder, and the observer is looking at the point where a perpendicular line from the observer to the HCE intersects the HCE. This means that a

[1] Note: In the BSPP Application to the ALUC, the solar mirror facility for which overflight photographs were provided was referericed as the Kramer Junction solar project but was actually the Harper Lake solar project.

pilot on the ground at the Blythe Airport will not be able to observe any glare since no location on the airport will be perpendicular to the HCE tubing. In addition, the facility will have 30 ft tall wind fencing on the east and west sides of the facility which are taller than the mirror arrays and will effectively limit observation of glare by a ground level observer to the east or west of the facility.

For a properly situated ground level observer, the only time glare would be visible is in the first few hours after sunrise, or before sunset, when the sun is low on the horizon. The McCoy Mountains are to the west of the BSPP and will prevent low angle of incidence sunlight from striking the BSPP mirrors in the late afternoon hours. The general public (other than hikers in the McCoy Mountains) will only be exposed to the potential specular reflections in the morning when located to the east of the mirror arrays. After the sun rises in the sky during the morning and the mirrors begin tracking the sun, Snell's Law will not allow a ground level observer to observe the reflection. And to reiterate, the reflection (glare) is specular reflection from the HCE tube, not reflection of the sun from the parabolic mirror.

The only geometry that allows for pilots to observe potential flashes of light from the BSPP solar array will be when the pilot is east or west of the solar array and in an approximate direct line from the sun and the solar array. In addition, the intensity of the glare, or specular reflection, is subject to inverse square attenuation with distance from the glare source. The farther the pilot is from the solar array, the weaker the glare becomes by the square of the distance. Beyond a certain distance that will depend on a number of factors including time of day, pilot altitude, clarity of the air, and cloudiness, among other factors), the glare will be so dissipated as to blend into and contribute to the general glow from the linear HCEs. As was documented in the project Application for Certification submitted to the California Energy Commissions (CEC), including observations by a CEC staff member (James Adams), from a distance, the solar array looks like a body of water and there is no indication of point sources of glare.

Pilots would potentially be able to observe glare from the solar arrays when east or west of the BSPP, as discussed above. Since the McCoy Mountains are to the west of the BSPP, aircraft are likely to be several miles from the BSPP solar arrays if they are to the west of the airport. Because of this distance, the drop-off in intensity of any potential glare will be significant due the inverse square attenuation and there is unlikely to be any significant glare that would potentially be hazardous. This leaves only aircraft operating from or near Runway 17/35 that would potentially be affected by glare.

Table 2 below presents an analysis of the projected Year 2020 flight operations at the Blythe Airport, as contained in the Riverside County Airport Land Use Compatibility Plan. From Table 2, there will be an estimated average of 68 flight operations per day for Runway 17/35 in year 2020, of which 88% would be daytime operations. Assuming that the daytime flights are spread evenly over a 12-hour day, this results in approximately five aircraft operations involving Runway 17/35 in any given daytime hour. Given that these operations will tend to follow a set pattern on either arrival or departure, the pattern height and approach glide slope could be used to define the solar geometry (i.e., time of day) at which glare could possibly be observed. Such a geometry of sun-flight profile is unlikely to persist for more than a single hour. Thus, a very small number of pilots could potentially expose themselves to glare at the airport on any given day, and the times and locations of exposure could easily be computed by the geometry of the pattern height, glide slope, day of year, and sun angle (time of day), and noted as a NOTAM. It is less likely that a pilot would be subject to glare from the solar field than what a pilot would experience from non-solar field reflective surfaces such as a building window in the vicinity of the airport and from windshields, mirrors, and flat surfaces of vehicles traveling along Interstate 10.

Table 2. Projected Daily Operations in 2020 at Blythe Municipal Airport by Runway and Aircraft Type

	Piston Engine	Turboprop	Business Jets	Totals
Runway 8	7.4	0.2	0.2	8
Runway 26	73.9	3.6	4.1	82
Runway 17	44.4	0.5	0.2	45
Runway 35	22.2	0.5	0.2	23
Helicopters				2
Totals	148	5	5	159

Source: Riverside County Airport Land Use Compatibility Plan, October 2004. Volume 3. Blythe Municipal Airport.

THERMAL PLUMES

Comment 11:

> Based on what data is the CEC "not concerned with [the small auxiliary two-cell wet cooling towers] being a potential hazard to aviation? Is any data available for these similar to the dry cooling towers on temperature rise and upward velocity? How often, how long, and what time of day are these to be used?

Response:

The CEC is not concerned about potential aviation hazards produced by the BSPP auxiliary cooling towers as demonstrated by the fact that the auxiliary cooling towers were not even mentioned in the Traffic and Transportation section of the Staff Assessment for the BSPP.

The small auxiliary cooling tower for each BSPP power block provides cooling for equipment not directly a part of the steam cycle. These auxiliary cooling towers are much smaller in all aspects than the steam cycle cooling towers proposed for the PHPP and VV2 facilities and that which exists at the Blythe Energy Project. The specifications for the auxiliary cooling tower and the proposed PHPP cooling tower are given below in Table 3. Each BSPP auxiliary cooling tower will be designed to operate 24 hours per day, 8,760 hours per year. However, the load on the cooling tower will be lower at night than during the day.

The entire auxiliary cooling tower of two cells is roughly equivalent to one of the ten cells in a steam cycle cooling tower for a 570 MW power plant such as PHPP (or VV2) that rejects 440 MW of thermal energy to the atmosphere through the wet cooling tower. The temperature of the exhaust air from the auxiliary cooling tower would be comparable to that for the steam cycle cooling tower since both plumes would essentially be saturated with water upon release and the temperature would be determined by the ambient temperature and relative humidity.

One of the BSPP auxiliary cooling towers has a water circulating rate of approximately 6,000 gallons per minute (gpm). By comparison, the steam cycle cooling towers proposed for the PHPP and VV2 projects each have a water circulation rate of 130,000 gpm, a factor over 20 times larger, while the airflow through the tower is a factor of eight times larger for the PHPP and VV2 towers. As turbulence produced by a

cooling tower is a function of both the air flow rate and the heat rejection (a function of the water circulation rate), the potential for turbulence and visible plumes above the auxiliary cooling tower is much less than that for the much larger PHPP (or BEP) steam cycle cooling tower.

Table 3. Comparison of BSPP Auxiliary Cooling Tower with the PHPP Steam Cycle Cooling Tower

Parameter	Units	BSEP Auxiliary Cooling Tower	PHPP Steam Cycle Cooling Tower	Ratio PHPP to BSPP Value
Number of Cells	-	2	10	5
Daily Operation	hours	24	24	1.0
Annual Operation	hours	8,760	8,760	1.0
Water Circulation Rate	gpm	6,034	130,000	21.5
Air Flow Rate (per cell for PHPP)	cfm	180,500	1,528,000	8.5
Fan Diameter	ft	12	28	2.3
Fan Exit Velocity	m/s	8.2	12.6	1.5
Tower Footprint	sq ft	1,320	34,200	26
Tower Height	ft	32	62	1.9

There is a potential for the plume from the ACC-4 to drift into the Airport Compatibility Zone. Figure 11 presents the location of the Project, the compatibility zone, and a wind rose. A wind rose is a meteorological diagram that graphically displays the frequency of occurrence of the distribution of wind speed and wind direction at a measurement location. In the wind rose, the individual barbs represent the wind blowing from a given direction, with the length proportional to the frequency of wind flow from that direction. For example, in Figure 11, the wind barb at the top of the figure represents the frequency of time the wind blows from the north to the south. Since the length of the wind barb extends to the 6% circle, the frequency of winds blowing from the north at the Blythe Airport is 6%. Encoded on the wind barb by color are the relative frequencies of winds of various speeds for that given direction.

Approximately 20% of the time, the wind as measured at the Blythe airport (2002-2004) could cause any plume from ACC-4 to advect to the south and southeast over the AIA. For the remaining approximately 80% of the time, the ACC plume will either rise vertically due to calm winds or will advect in a general northward direction away from the AIA. Please note that the blue, red, and green colors on the wind rose in Figure 11 represent occurrences of wind speeds 7 knots and greater. At these speeds, wind shear across any ACC plume will tend to rapidly dissipate the plume and will reduce or eliminate any potential for turbulence in the plume to affect aircraft operations. Consequently, the frequency of occurrence of ACC plumes that could advect into the AIA and potentially pose a hazard to aviation is well less than 20%. The most problematic time for potential turbulence from the ACCS will be during periods of calm winds, which generally occur at night and in the early morning hours.

PROVISION OF OPEN SPACE WITHIN ZONE D

Comment 12:

Clarify the project footprint area and area left as open space (free of most structures and other major obstacles such as walls, large trees or poles greater than 4 inches in diameter measured 4 feet above the ground, and overhead wires) for the project area located within Zone D.

Response:

Figure 12 presents a map showing the Airport Influence Area for Blythe Airport and the Right of Way and Area of Disturbance for the BSPP. Approximately 555 acres of the BSPP project area are located within Compatibility Zone D. Within Zone D, mirrors will be located on approximately 31.6 acres, or 5.6% of the total project area within Zone D. In addition to the small 31.6 acre footprint of the mirror arrays in Zone D, there will be small footprints for approximately three power poles.

CUMULATIVE IMPACTS OF ADDITIONAL HAZARDS TO FLIGHT.

Comment 13:

Due to the amount of existing and proposed solar facilities located within the vicinity of the Blythe Municipal airport, does this project propose additional hazards to flight which considered individually may be insignificant, but cumulatively may be considered significant?

Response:

The Air Cooled Condensers (ACCs) at the BSPP are well outside of the flight pattern for the Blythe Airport and are not expected to produce a hazard to aviation. The four ACCs are 120 ft high with base elevations of approximately 580 ft, 530 ft, 470 ft, and 400 ft Mean Sea Level (MSL), compared to the base elevation of the Blythe Airport at approximately 400 ft MSL. The pattern altitude for the airport is approximately 1,200 ft MSL. Consequently, aircraft in the terminal area will be approximately 620 feet or higher above any given ACC if the aircraft are at pattern altitude and are highly unlikely to experience any significant flight hazards associated with the ACCs. In addition, the impacts of any potential turbulence associated with an individual ACC will be limited to the immediate airspace above the units and will therefore not contribute to any cumulative impact. The ACCs are spaced more than a mile apart and therefore are unlikely to produce a cumulative impact between individual ACCs.

The glare, or specular reflection, from the mirror arrays is highly localized due to the geometry of the optics that creates the glare. To be observed, the observer must be on a straight line between the sun and this line must be on a perpendicular (normal) to the HCE tubes. This limits the potential locations where glare can be observed to the east of the mirror arrays in the morning and the west of the mirror arrays in the afternoon. The intensity of any glare generated will fall off as the square of the distance, and thus, is localized near an individual mirror array. As noted in the pictures of the Harper Lake solar facility overflight submitted with the ALUC application, only a portion of a solar array diffuse glow is visible from a

given pilot observation point, and the portion of the array where glow is observable will move as the aircraft moves. Because of the geometry of the optics involved, it is highly unlikely that multiple solar fields would all present the same view of glare to a pilot at a given location, and even if such perfect alignment would occur, the intensity of the distant solar array would have fallen such that it would appear as only the diffuse glow noted in the overflight photographs. And as discussed above in the response for Glare, on average, approximately five aircraft operations per day in Year 2020 would likely be in a position to observe potential glare from the solar array while operating from Runway 17/35.

The proposed U.S. Solar power plant would not employ parabolic mirrors but rather arrays of photovoltaic cells. The optical properties of such cells are completely different from those for a parabolic mirror and have not been addressed as part of the analysis for the BSPP. However, photovoltaic panels are designed to absorb, rather than reflect, sunlight, and so any reflections from solar panels is expected to be small. In addition, as with all light sources, the intensity of any such glare or reflections from a photovoltaic array would fall off as the square of the distance from the observer. As the U.S. Solar project is proposed for several miles from the BSPP, it is unlikely that there would be a significant cumulative interaction with the BSPP, given the distance between the two proposed projects and the low reflectivity of photovoltaic panels.

The most probable cumulative impact of construction of the BSPP is that it would add one more facility to the vicinity of the airport for which pilots would need to observe and avoid objects at their discretion.

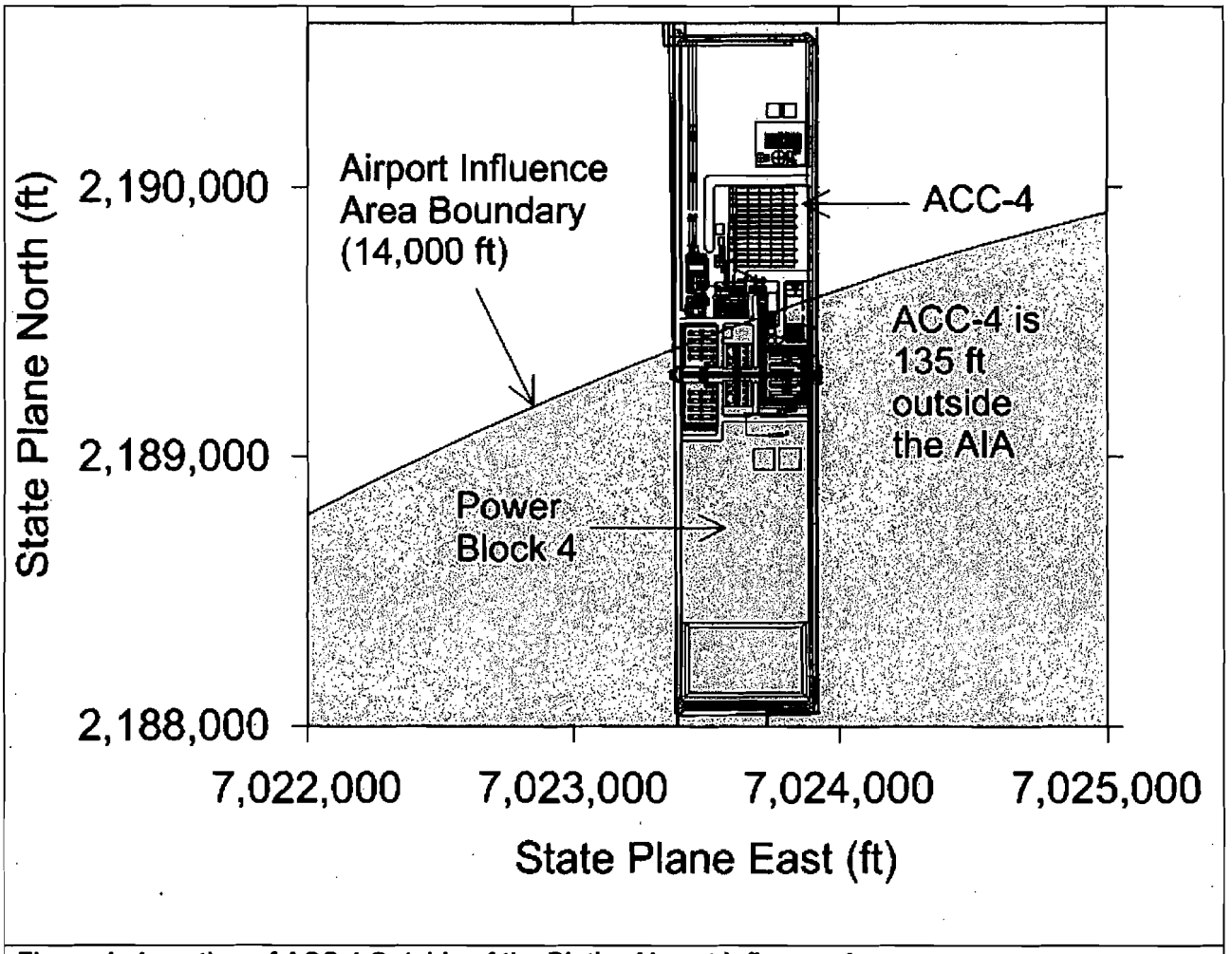


Figure 1. Location of ACC-4 Outside of the Blythe Airport Influence Area.

BLYTHE SOLAR POWER PROJECT (09-AFC-6)
RESPONSE TO ALUC COMMENTS OF MARCH 22, 2010
ON ALUC APPLICATION AND SUBSEQUENT CORRESPONDENCE
BY EMAIL ON APRIL 13, 2010

Response Date: May 4, 2010

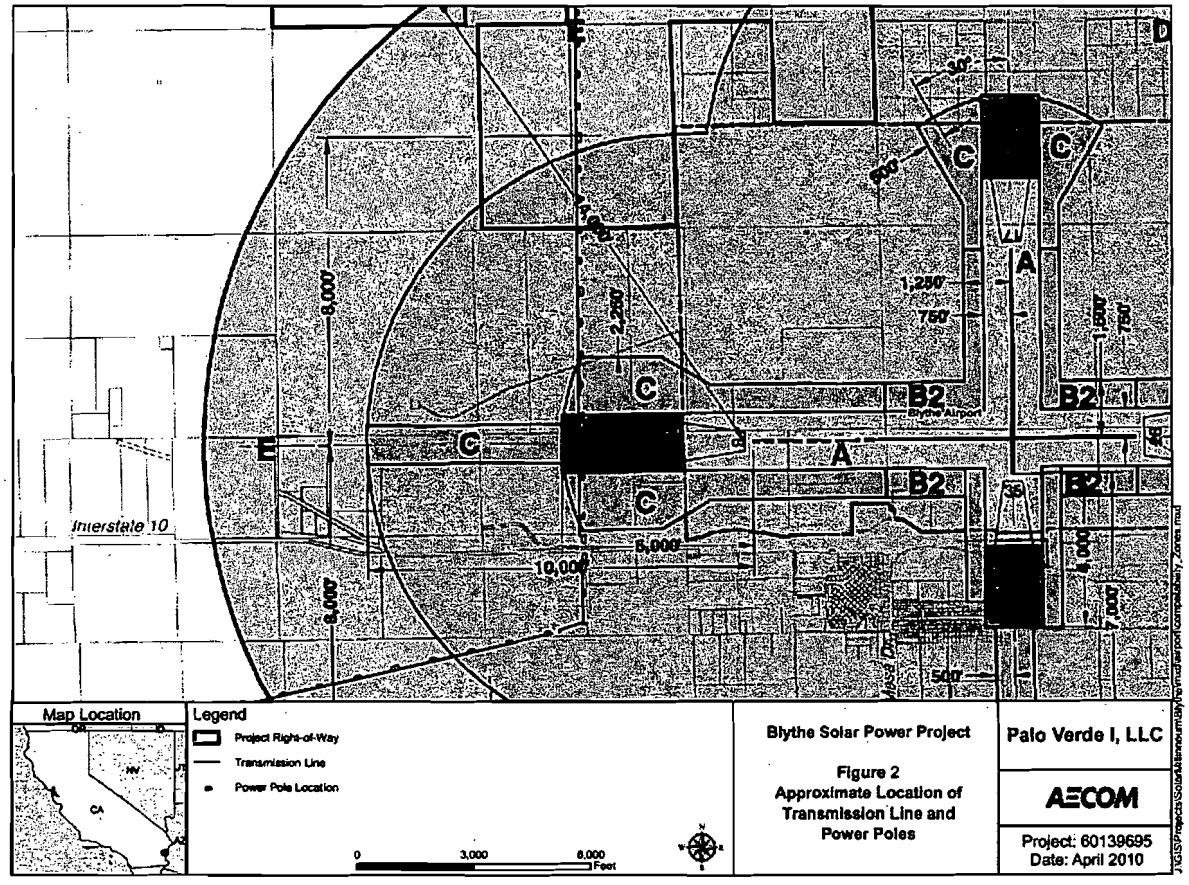


Figure 2. Map Showing the Original Locations of Power Poles within the Airport Influence Area and the Compatibility Zones Filed with FAA in November 2009.

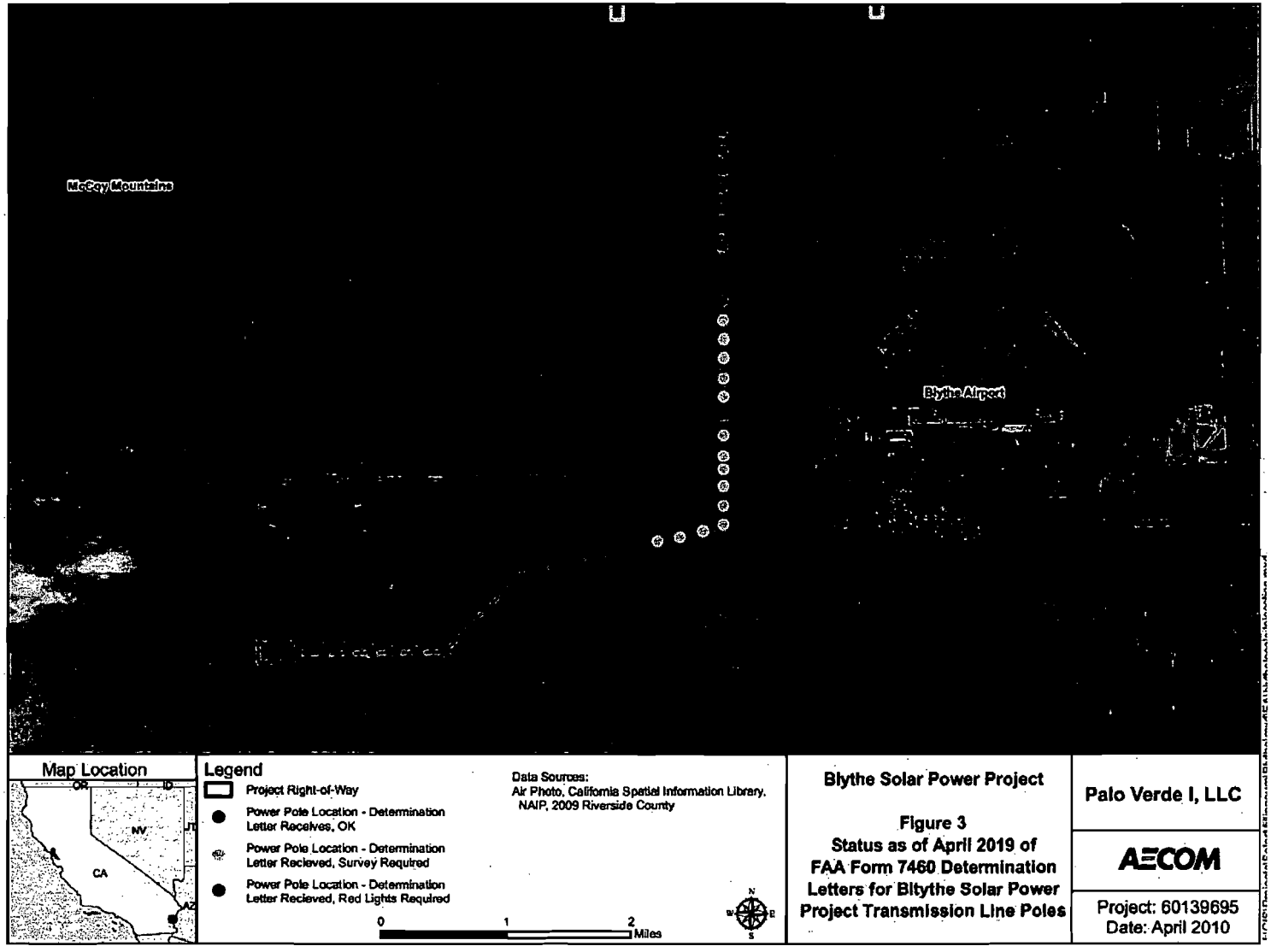


Figure 3. Map Showing the Status of FAA Form 7460 Applications to the FAA.

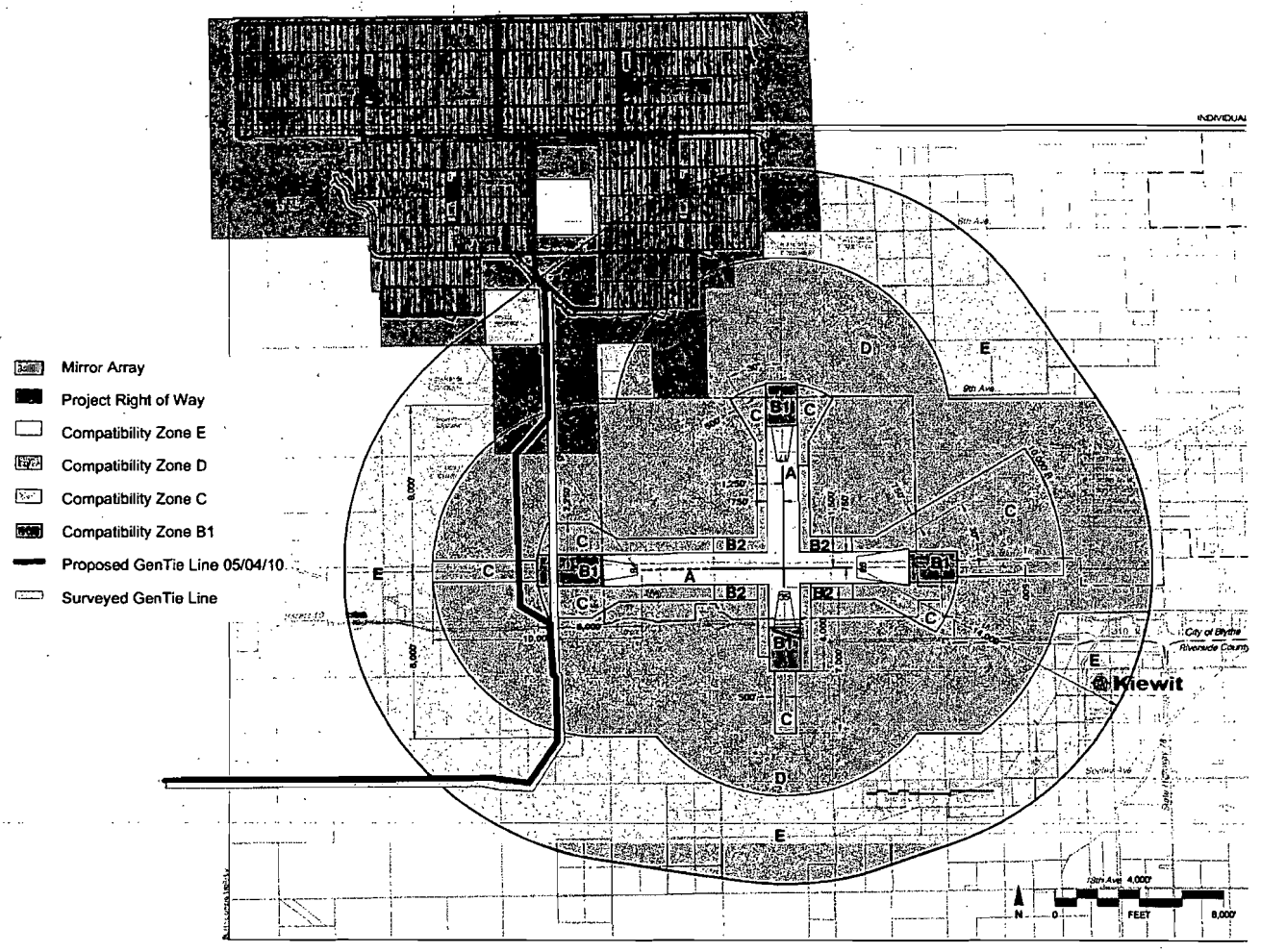
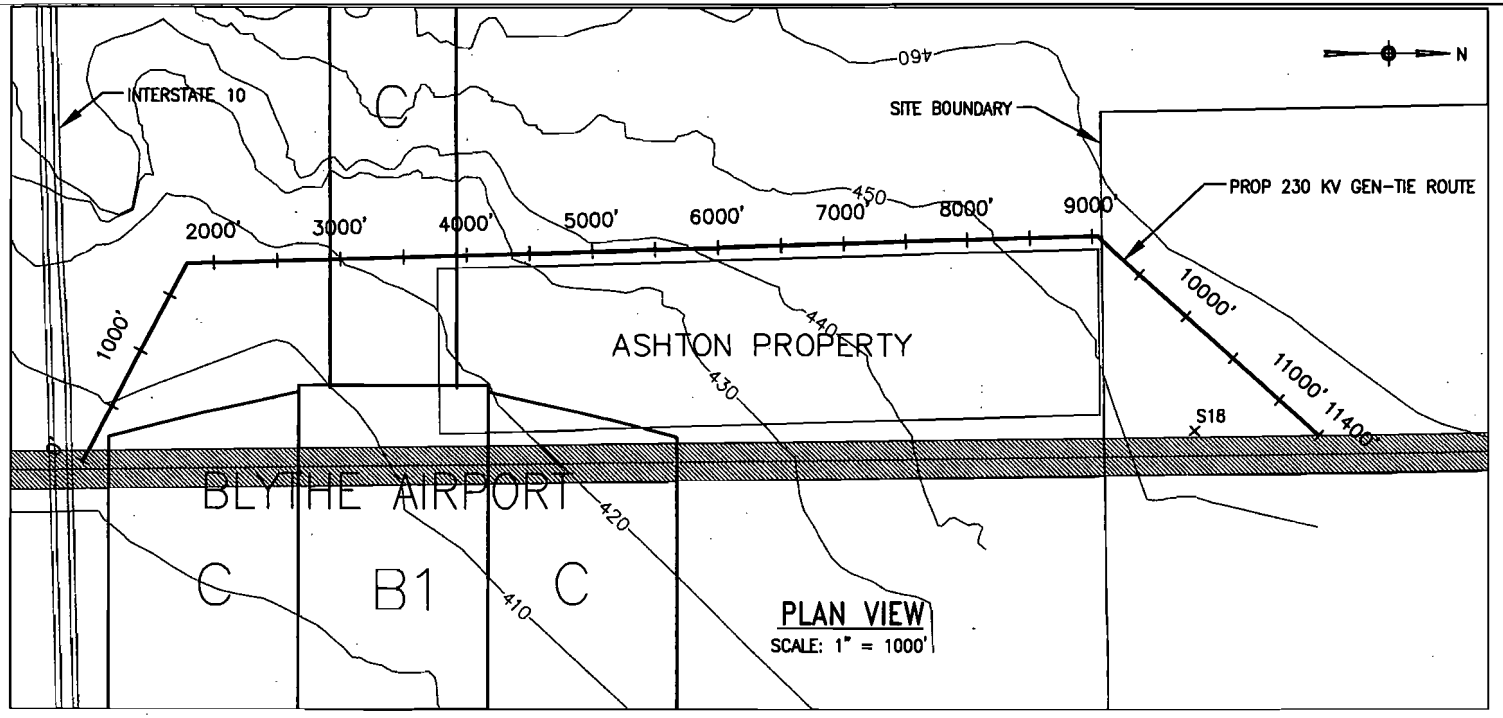


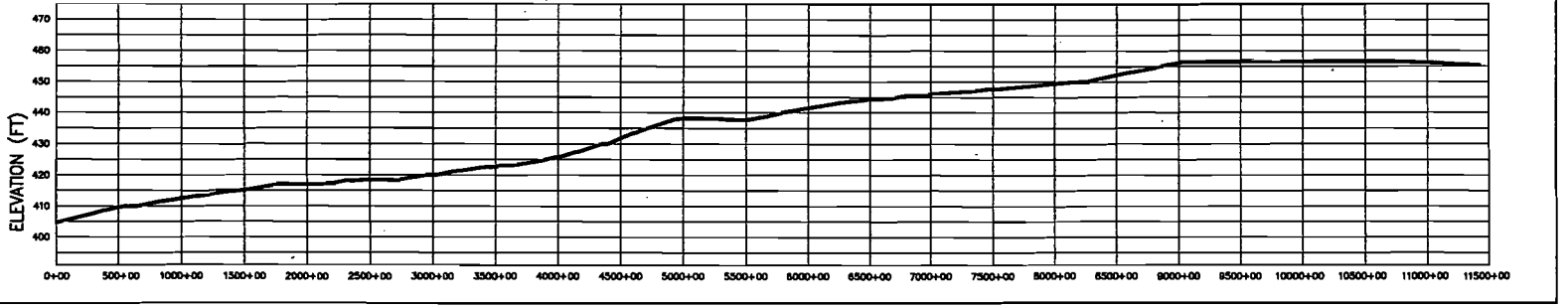
Figure 4. Submitted and Proposed New Transmission Line Corridor and Open Space within Compatibility Zone D



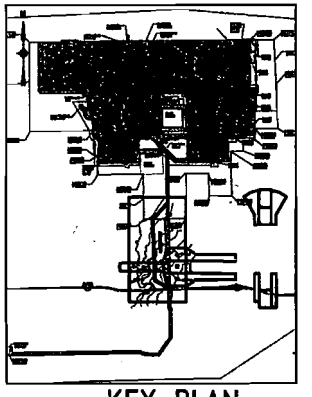
PLAN VIEW
SCALE: 1" = 1000'

NOTES:
POLE LOCATIONS TO BE DETERMINED.

Figure 5. Revised Gen-Tie Line Route, 05/04/10



TERRAIN PROFILE
SCALE: HORIZ: 1" = 1000'
VERT: 1" = 40'



KEY PLAN
N.T.S.

NO.	DATE	REVISION	BY	APP.	APP.	NOTES	DESCRIPTION	COST ACCOUNT

APPROVAL	DATE	SCALE: AS SHOWN	DATE
		DESIGNED BY	04/29/10
		DRAWN BY	
		CHECKED BY	
		APPROVED BY	
		APPROVED BY	

AECOM
AECOM
2101 WEBSTER STREET
SUITE 1000
OAKLAND, CALIFORNIA 94612

BLYTHE SOLAR POWER PROJECT
REVISED 230 KV GEN-TIE ROUTE: OPTION 1

JOB NO. | DWG NO. SK-1 | R-1

Figure 6 Elevation Profile, East to West

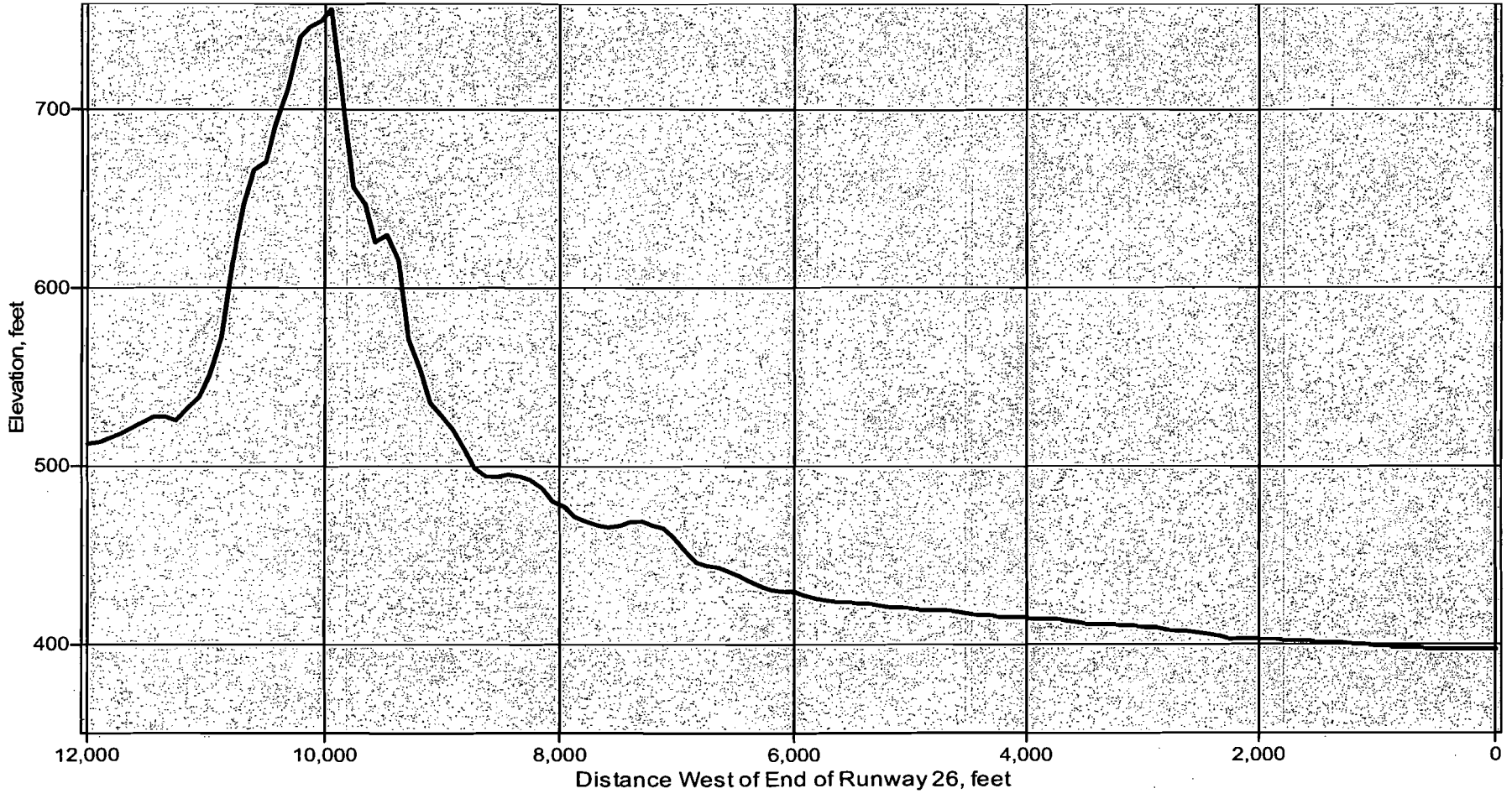
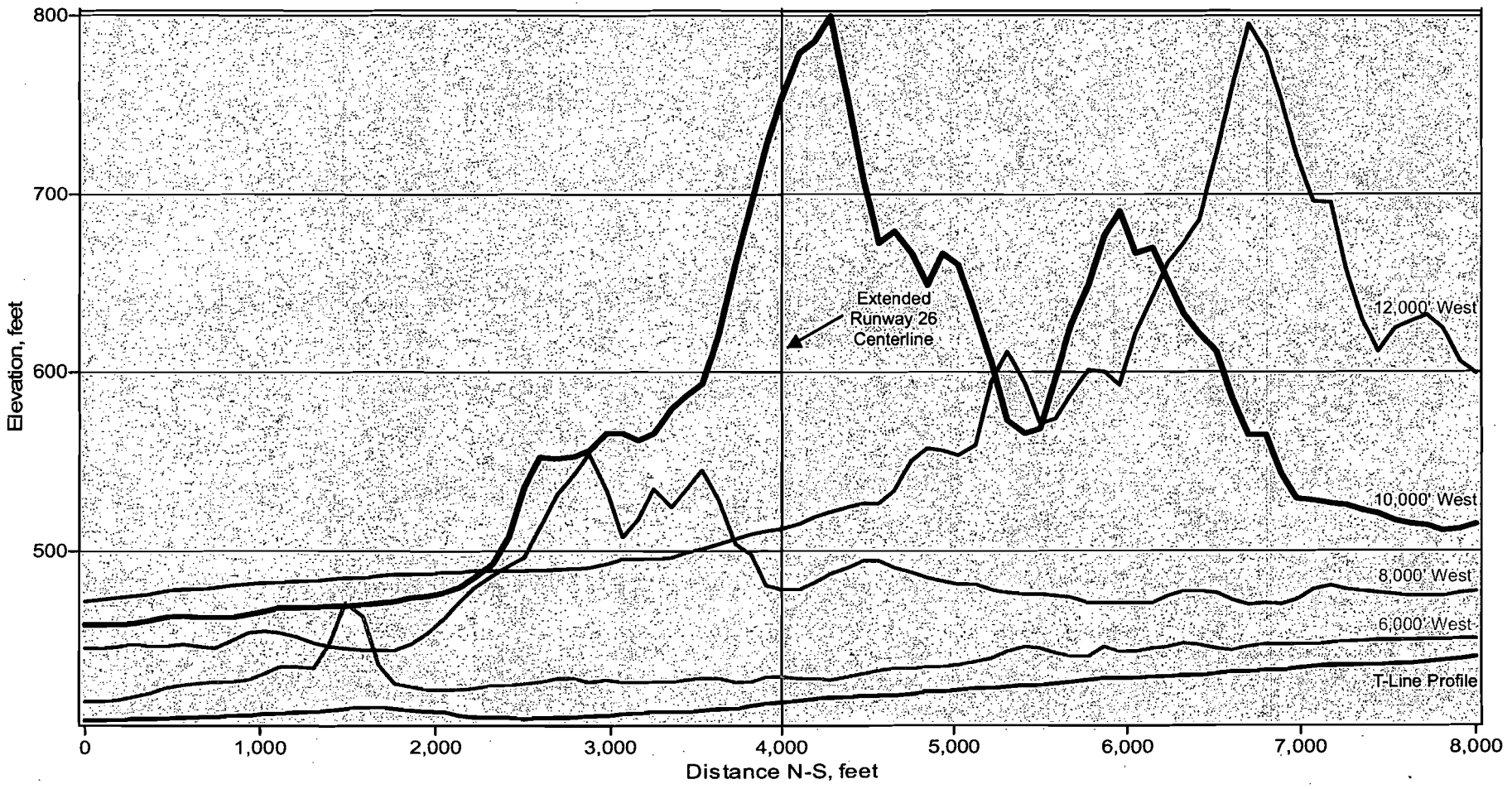
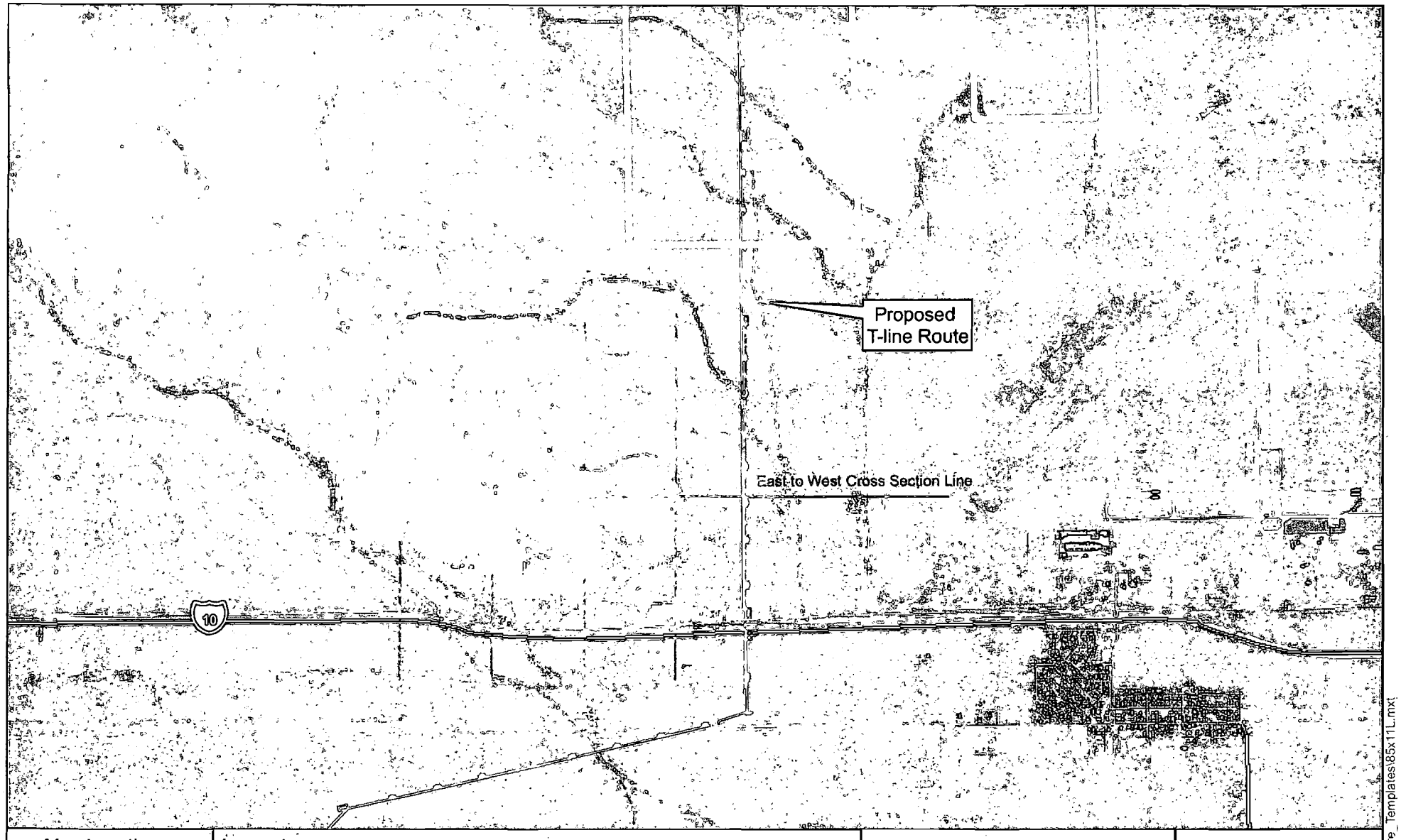
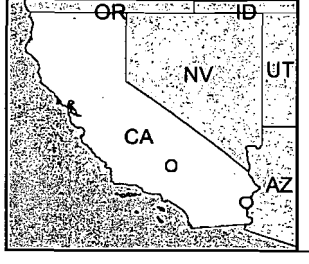


Figure 7 Elevation Profiles West of Extended Runway 26 Centerline





Map Location



Legend

1 inch = 3,000 feet

0 3,000 6,000 Feet

N W E S

Source:

BSPP

Figure 8
Cross Section Location Map

AECOM

Project: #
Date: April 2010

Y:\Projects\Solar_Millennium\Figure_Templates\85x11L.mxt

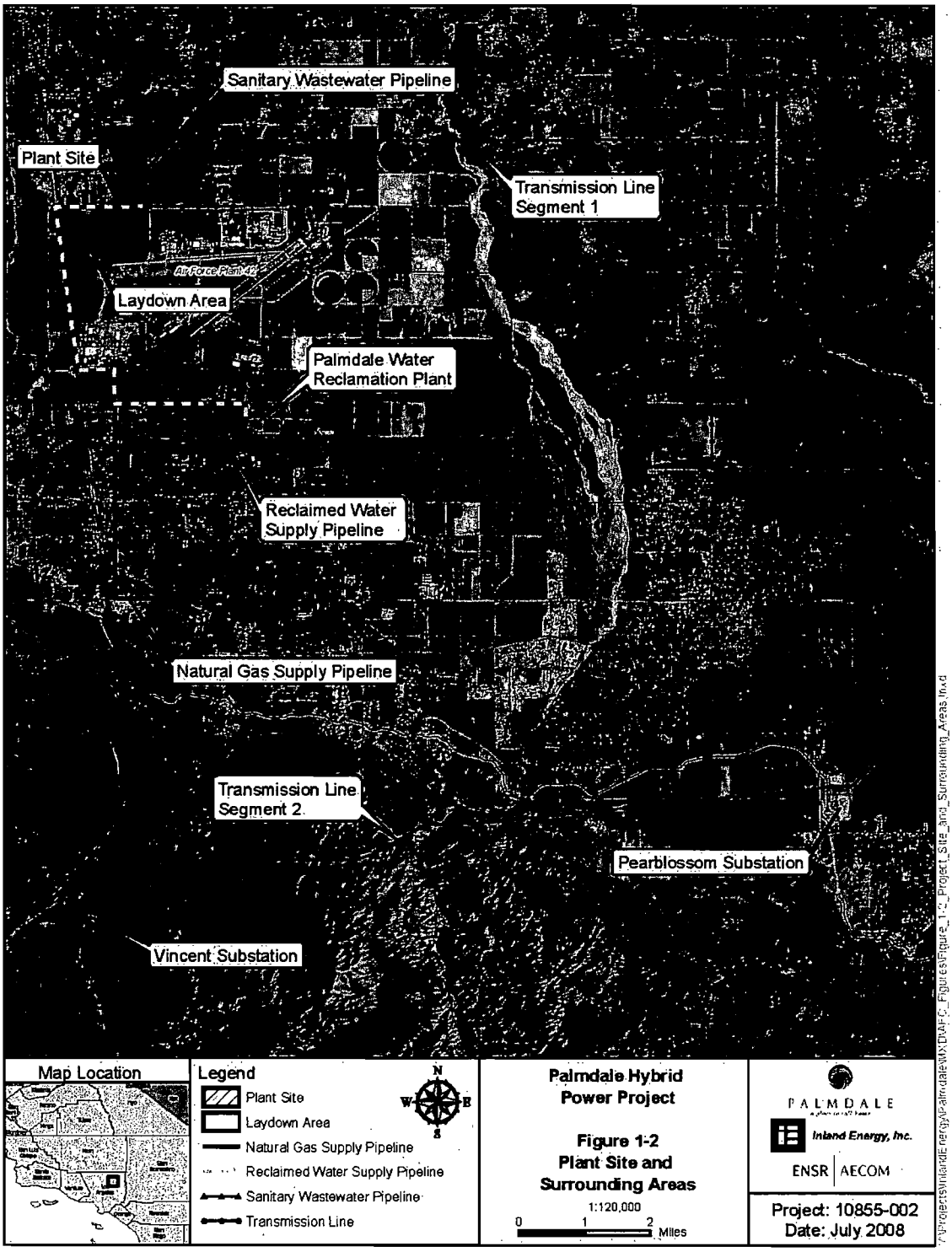


Figure 9. Location of the Palmdale Hybrid Power Plant with respect to Air Force Plant 42

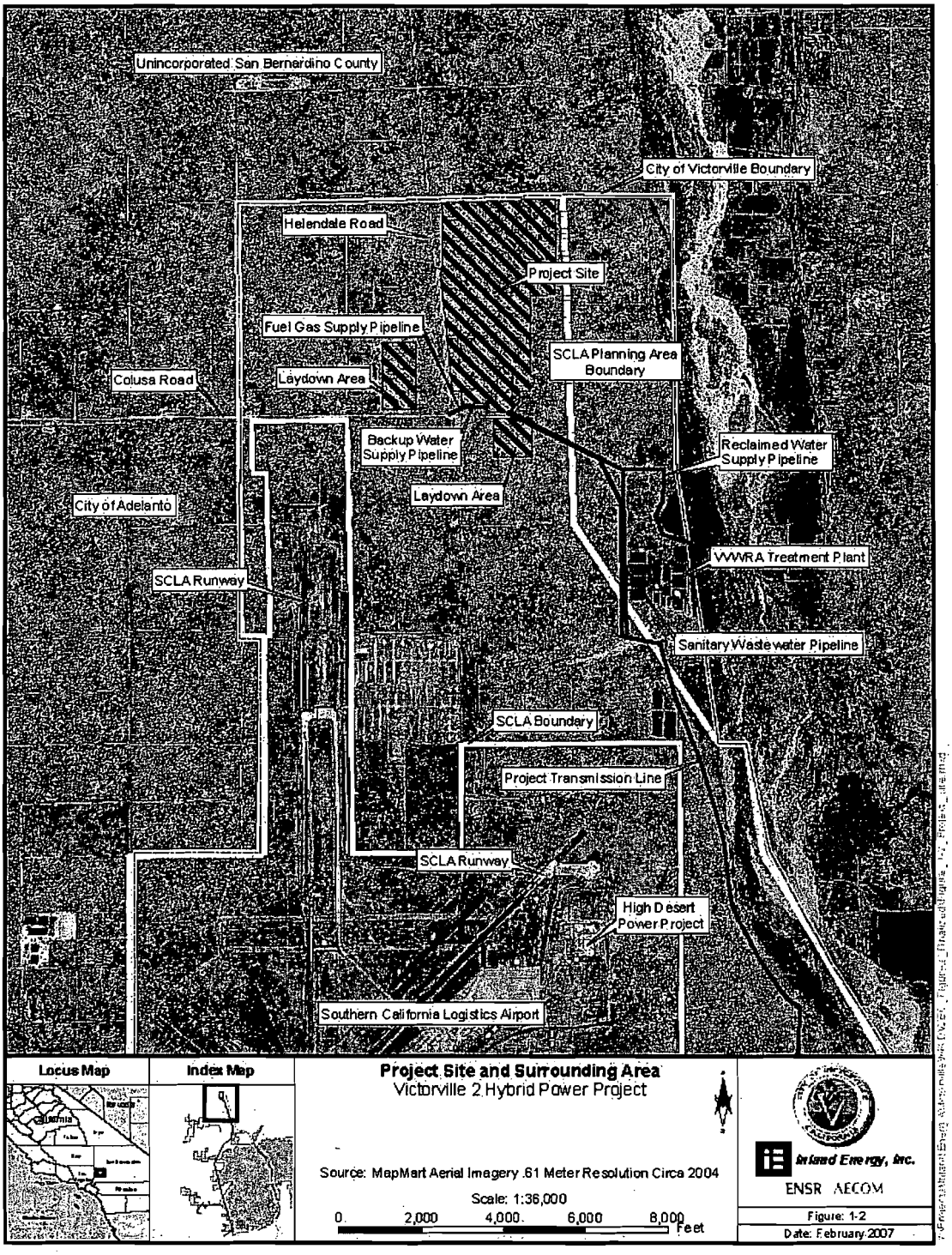
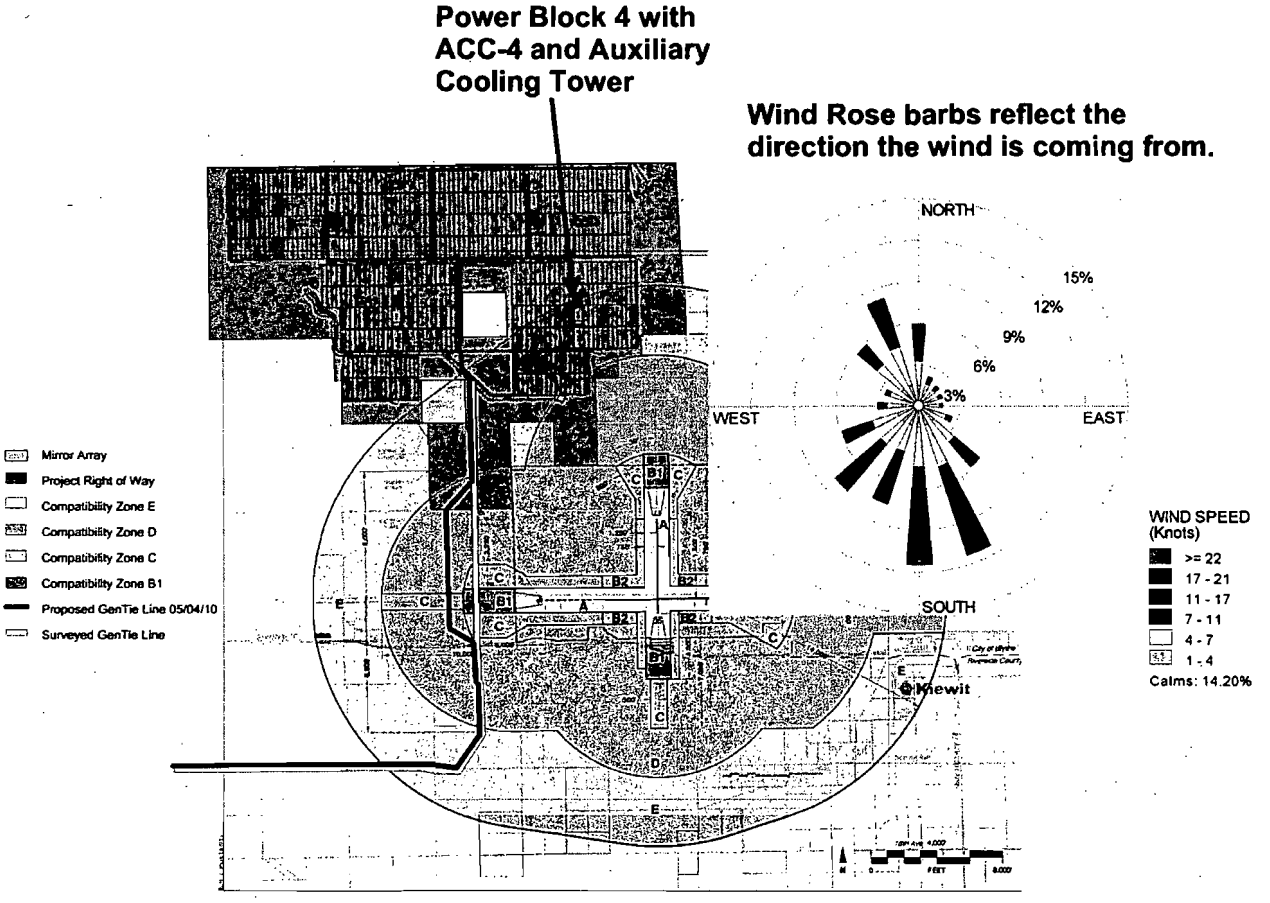


Figure 10. Location of the Victorville 2 Project Site with respect to the Southern California Logistics Airport



Approximately 20% of the time, the wind could cause the plume from ACC-4 to advect southward over the Airport Compatibility Zone. For the remaining time, the ACC plume will not advect (calm winds) or will advect northward away from the Compatibility Zone.

Figure 11. Power Block 4, Airport Compatibility Zone, and Wind Rose for Blythe Airport

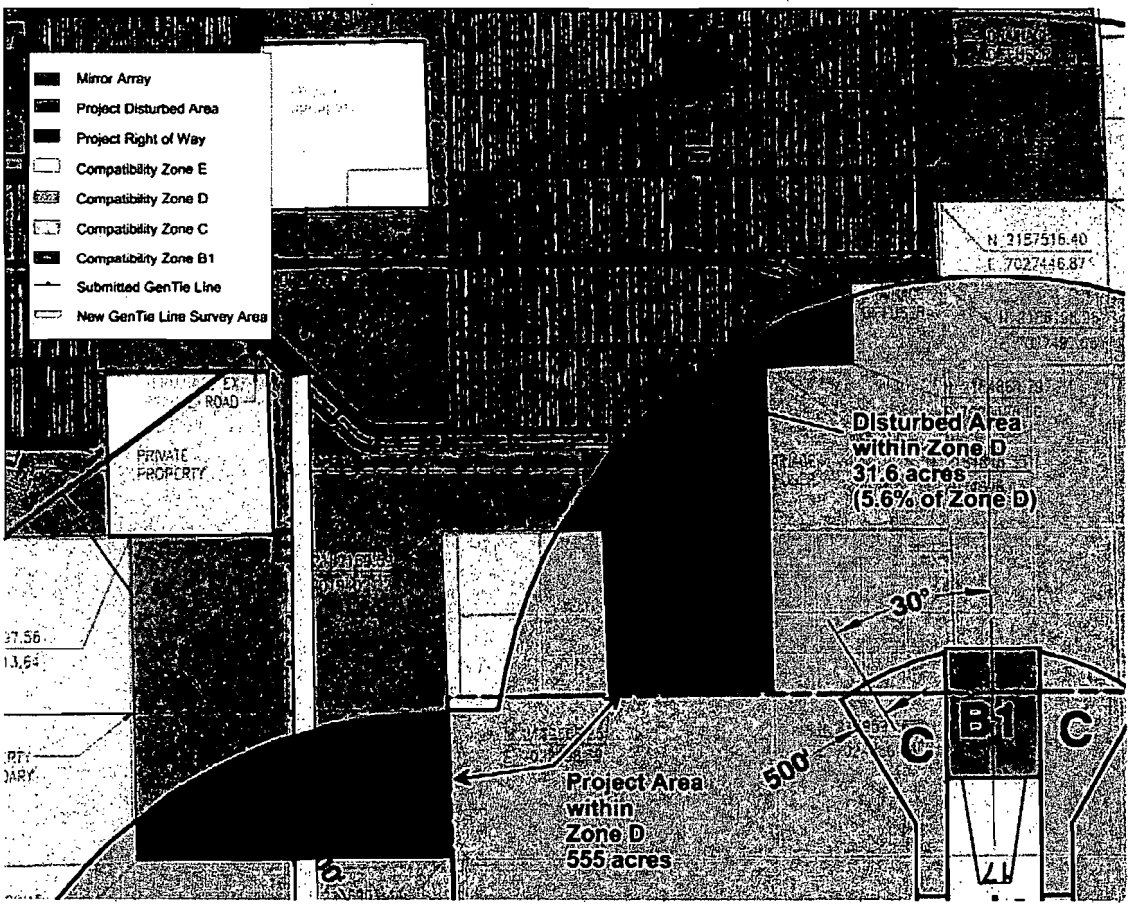


Figure 12. Mirror Array Disturbed Area in Compatibility Zone D and Total Project Area in Zone D

Table 1. Status of FAA Form 7460 Power Pole Applications and ALUC Compatibility Zone Designation as of 19 April 2010

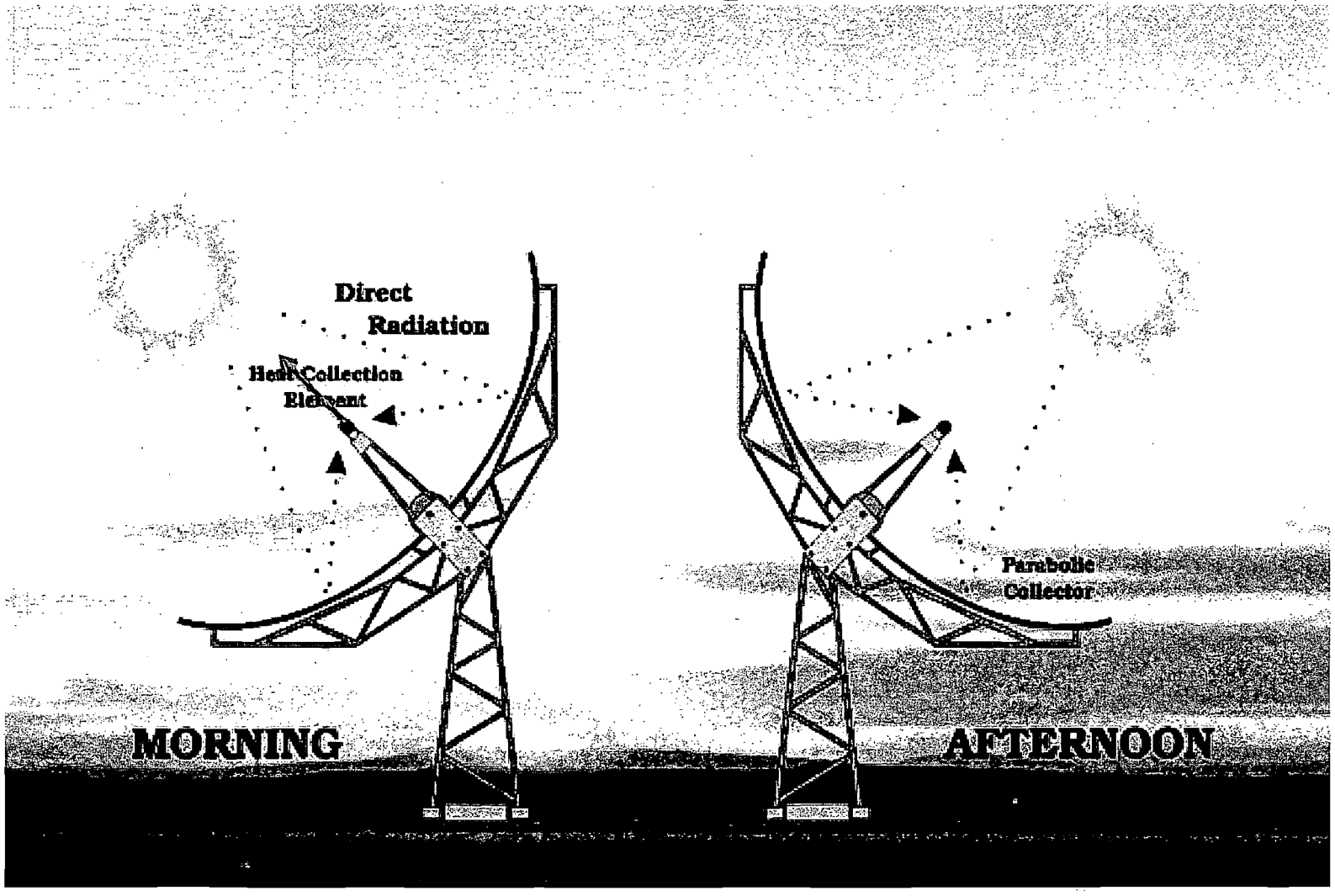
Pole	Height (ft)	ALUC Compatibility Zone	FAA Determination Letter Status
Pole 1	145	-	Determination of No Hazard
Pole 2	145	-	Determination of No Hazard
Pole 3	145	-	Determination of No Hazard
Pole 4	145	-	Determination of No Hazard
Pole 5	145	E	Determination of No Hazard
Pole 6	145	E	Determination of No Hazard
Pole 7	145	E	Determination of No Hazard
Pole 8	145	E	Determination of No Hazard
Pole 9	145	E	Determination of No Hazard
Pole 10	145	E	Determination of No Hazard
Pole 11	145	E	Determination of No Hazard
Pole 12	145	E	Determination of No Hazard
Pole 13	145	E	Determination of No Hazard
Pole 14	145	E	Determination of No Hazard
Pole 15	90	E	Determination of No Hazard
Pole 16	90	E	Determination of No Hazard
Pole 17	90	D	Determination of No Hazard
Pole 18	90	D	Determination Received, Red Lights Required
Pole 19	90	D	Determination Received, Red Lights Required
Pole 20	90	D	Determination of No Hazard
Pole 21	90	D	Add Letter Received, Survey Required
Pole 22	90	D	Add Letter Received, Survey Required
Pole 23	90	C	Add Letter Received, Survey Required
Pole 24	90	C	Add Letter Received, Survey Required
Pole 25	90	B1	Add Letter Received, Survey Required
Pole 26	90	B1	Determination of No Hazard
Pole 27	90	B1	Add Letter Received, Survey Required
Pole 28	90	C	Add Letter Received, Survey Required
Pole 29	90	D	Add Letter Received, Survey Required
Pole 30	90	D	Add Letter Received, Survey Required
Pole 31	145	D	Add Letter Received, Survey Required
Pole 32	145	D	Add Letter Received, Survey Required

Table 1. Status of FAA Form 7460 Power Pole Applications and ALUC Compatibility Zone Designation as of 19 April 2010

Pole	Height (ft)	ALUC Compatibility Zone	FAA Determination Letter Status
Pole 33 [A]	145	D	Add Letter Received, Survey Required
Pole 34 [A]	145	D	Add Letter Received, Survey Required
Pole 35 [A]	145	D	Add Letter Received, Survey Required
Pole 36 [A]	145	E	Determination of No Hazard
Pole 37 [A]	145	E	Determination of No Hazard
Pole 38 [A]	145	E	Determination of No Hazard
Pole 39 [A]	145	E	Determination of No Hazard
Pole 40 [A]	145	E	Determination of No Hazard
Pole 41 [A]	145	E	Determination of No Hazard
Pole 42 [A]	145	E	Determination of No Hazard
Pole 43 [A]	145	E	Determination of No Hazard
Pole 44 [A]	145	-	Determination of No Hazard
Pole 45	145	-	Determination of No Hazard
Pole 46	145	-	Determination of No Hazard
Pole 47	145	-	Determination of No Hazard
Pole 48	145	-	Determination of No Hazard
Pole 49	145	-	Determination of No Hazard
Pole 50	145	-	Determination of No Hazard
Pole 51	145	-	Determination of No Hazard
Pole 2.3-3	145	-	Determination of No Hazard

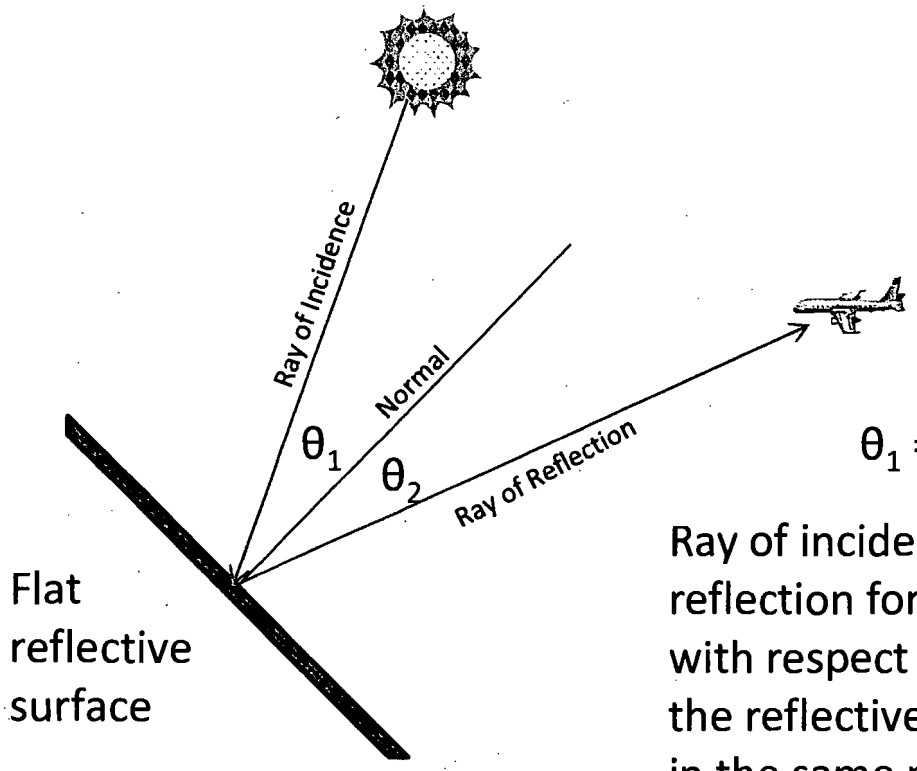
[A] Transmission Line Route is being revised south of Interstate 10. These poles will require resubmittal of FAA Form 7460. Additional poles may also require resubmittal of FAA Form 7460 depending on the land survey just completed and the ultimate placement of individual poles.

Solar Trough Mirror



Note: Rays from the sun are parallel and not as reflected in this cartoon

Snell's Law (Law of Reflection)

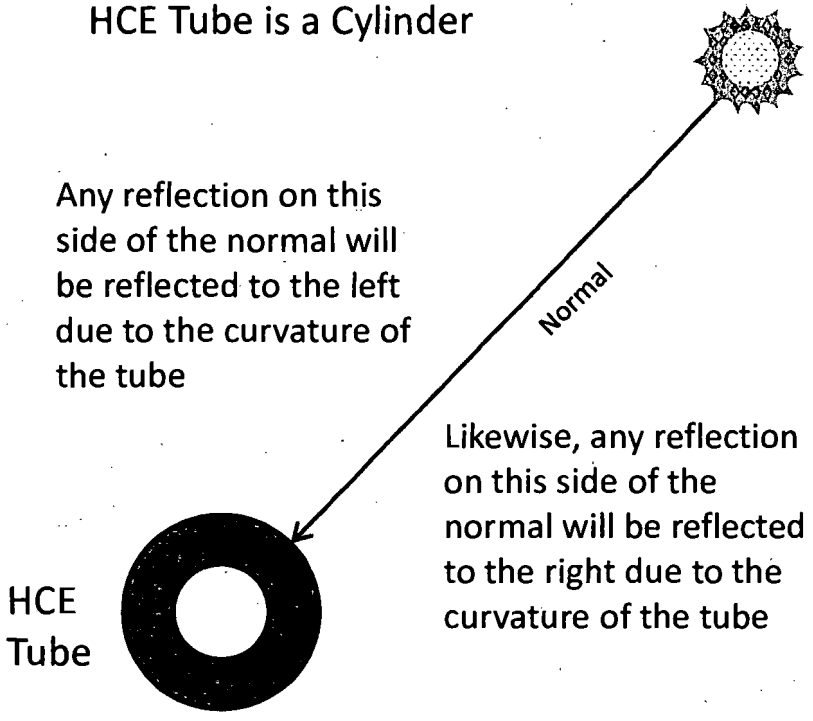


$\theta_1 = \theta_2$

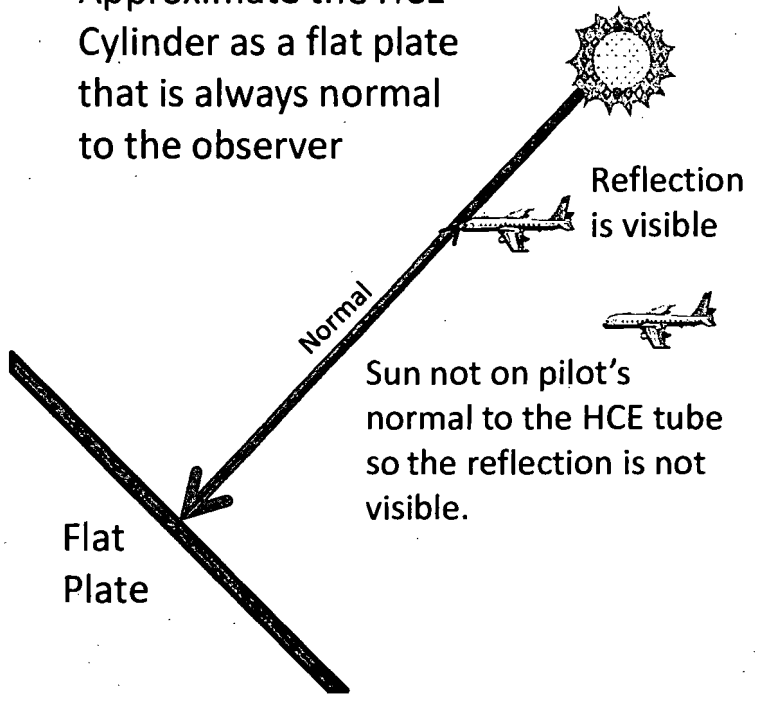
Ray of incidence and ray of reflection form the same angle with respect to the normal of the reflective surface and are in the same plane

Simplify the Geometry to a flat plate that is always normal to the observer

HCE Tube is a Cylinder



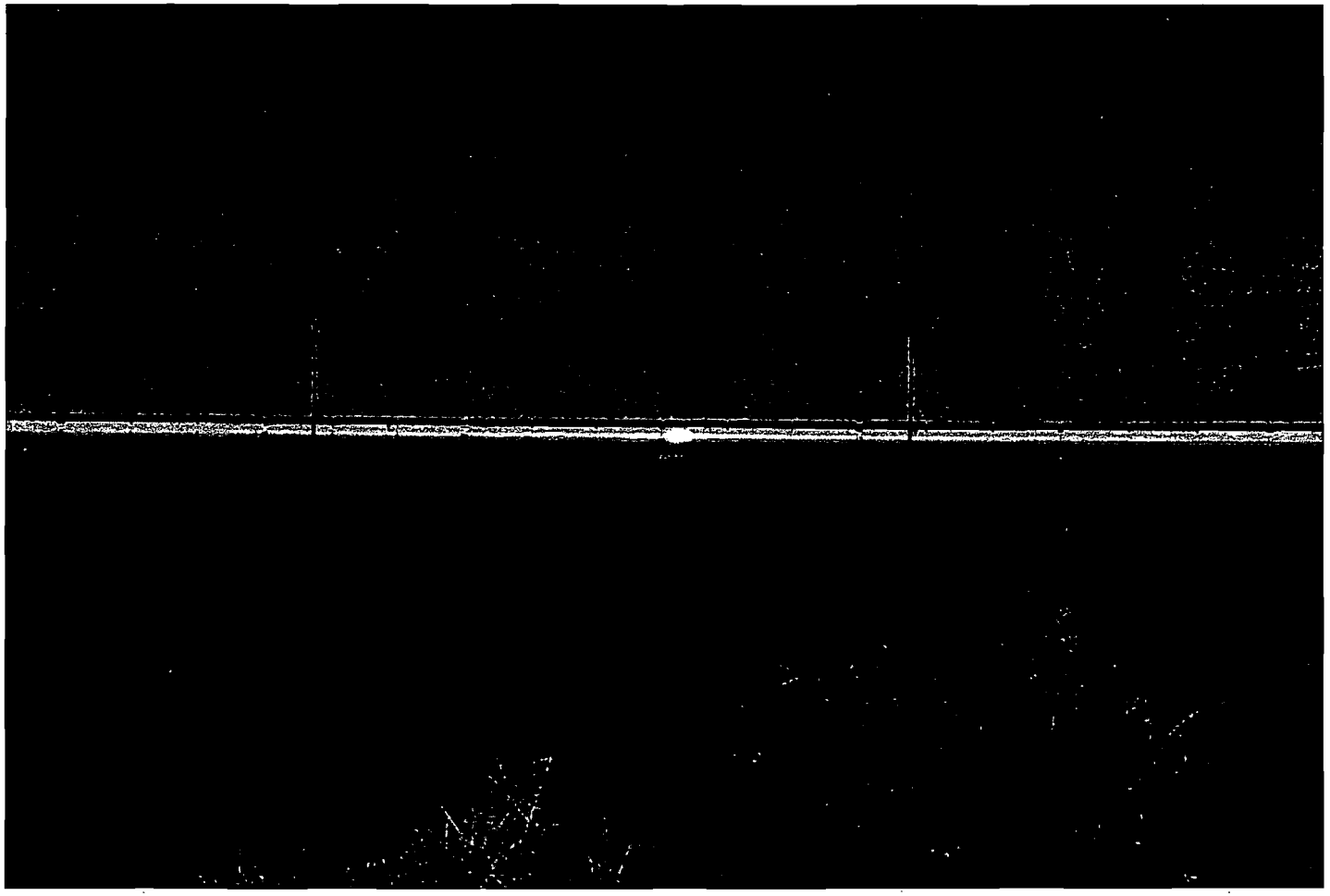
Approximate the HCE Cylinder as a flat plate that is always normal to the observer



The strongest reflection that an observer can see is from the point normal to the cylinder with respect to the observer

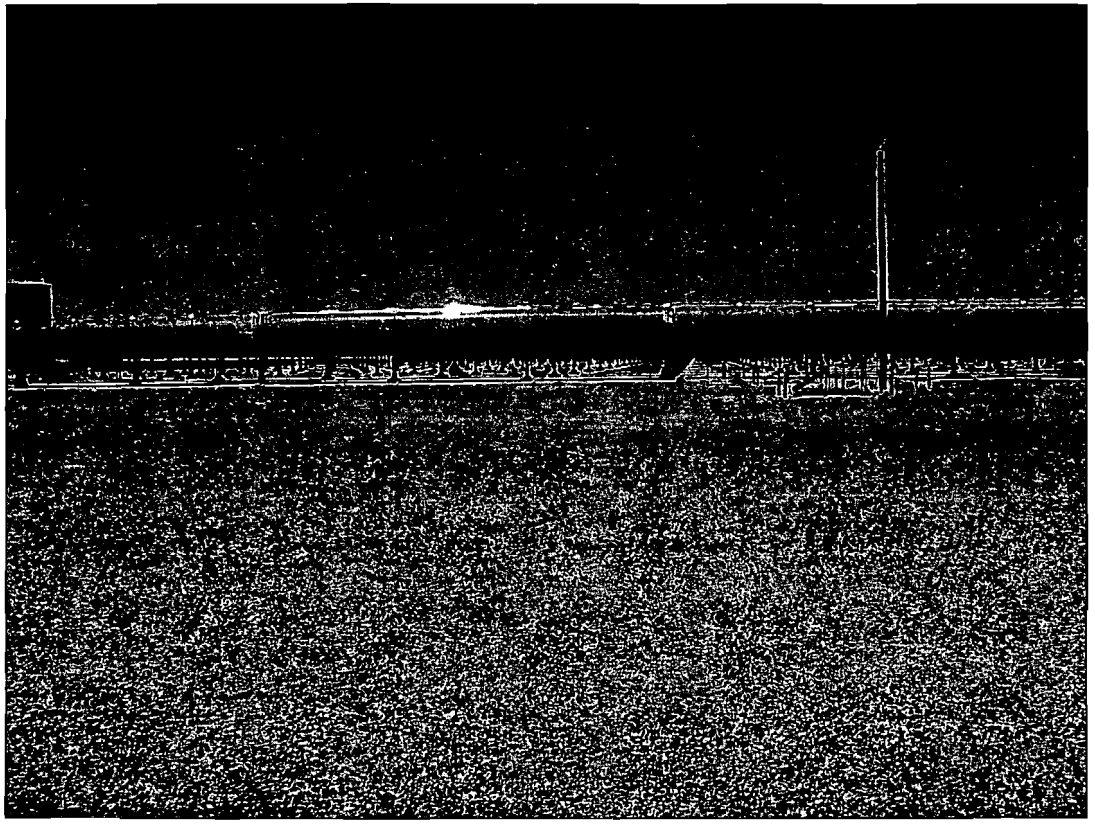
The pilot will experience the strongest reflection only when the HCE tube, the pilot, and the sun are all in a direct line.

The reflection occurs only from a single point on the HCE tube normal to the observer



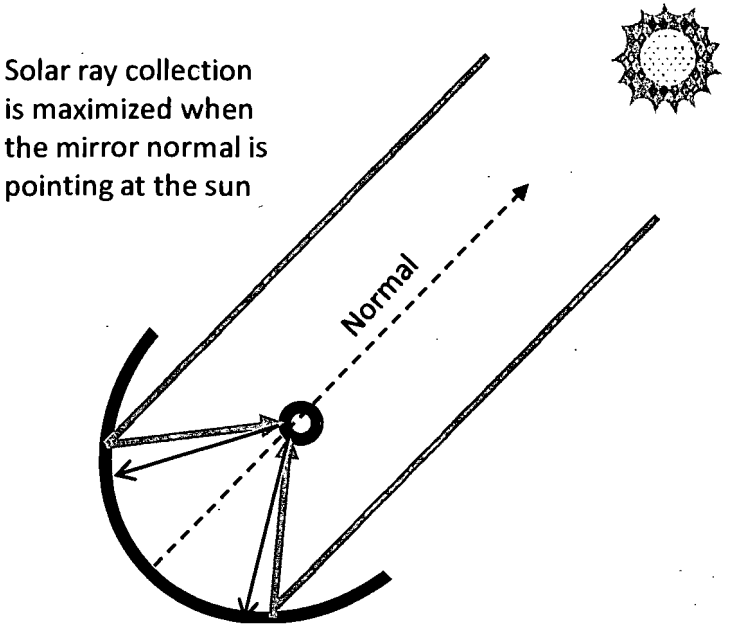
Kramer Junction solar power plant, looking east, 04/25/2009, 8:44 AM, Nikon D200, 1/80, f 32.0. View not representative of BSPP as BSPP will have a 30-ft wind fence on the eastern and western side of the facility that prevent such ground level views of glare.

The HCE tube is a minor source of light

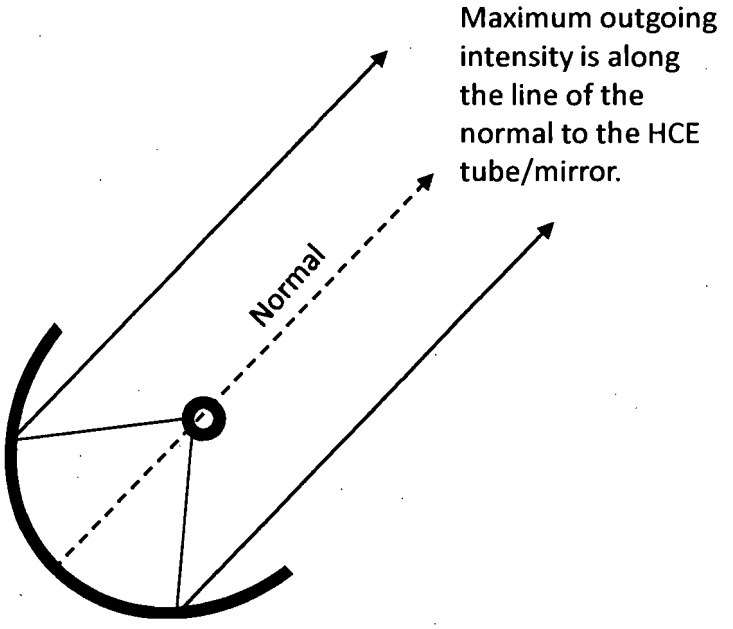


In this photograph, the mirrors are pointed vertically. The most intense reflection is from a joint connector on the normal to the observer. Reflections off the individual joints in the HCE tube are visible. Note the limited extent of glow and lack of reflection from the operating HCE tube visible on either side of the normal.

The HCE tube can act as a weak source of light that is reflected in the parabolic mirror producing "glow"



Parallel suns rays strike the parabolic mirror and are reflected to the HCE tube at the mirror line of focus. Most light striking the HCE tube is absorbed by the heat transfer fluid in the HCE. However, a small portion of the incident light is reflected, scattered, or refracted by the HCE tube downward towards the mirror.



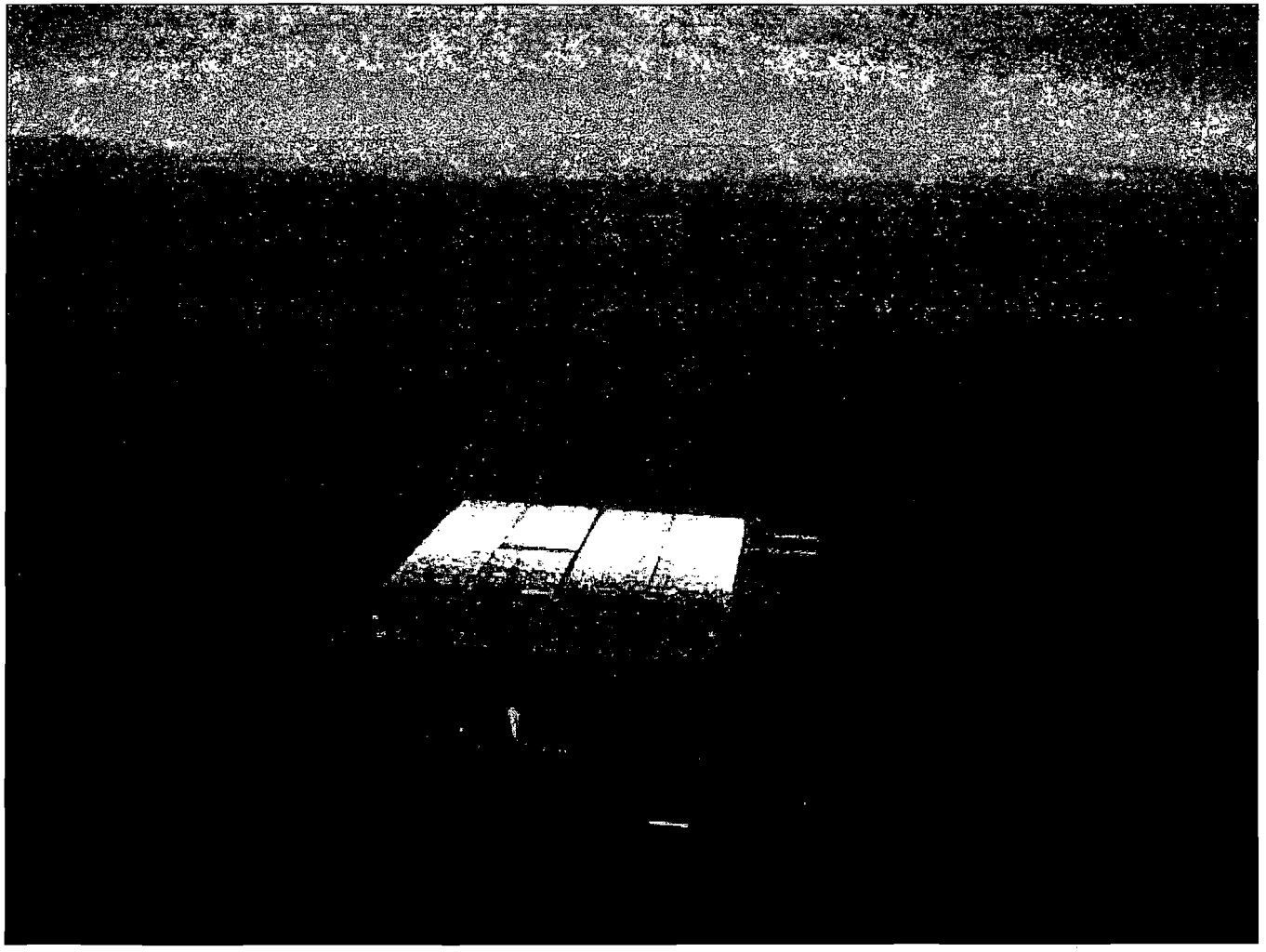
The HCE tube becomes a weak light source whose light is reflected by the mirror outward in a columnar beam. This is the source of glow from the mirror. The intensity of the reflected light is greatest on the line normal to the HCE tube. Thus, the mirror must be pointed at the observer to observe the strongest glow or reflection.

Solar Mirror Array "Glow"

Only a portion of the solar array glows due to the geometric constraints for observing light from a parabolic mirror.

Note the cooling tower plume shadow indicating the sun is directly behind the observer.

The speckle on the edges of the bright array are from individual troughs separated by non-visible background.



Harper Junction solar array, September 24, 2007 at approximately 10:15 looking west-northwest. Solar elevation angle is ~ 50° above the horizon.

AECOM

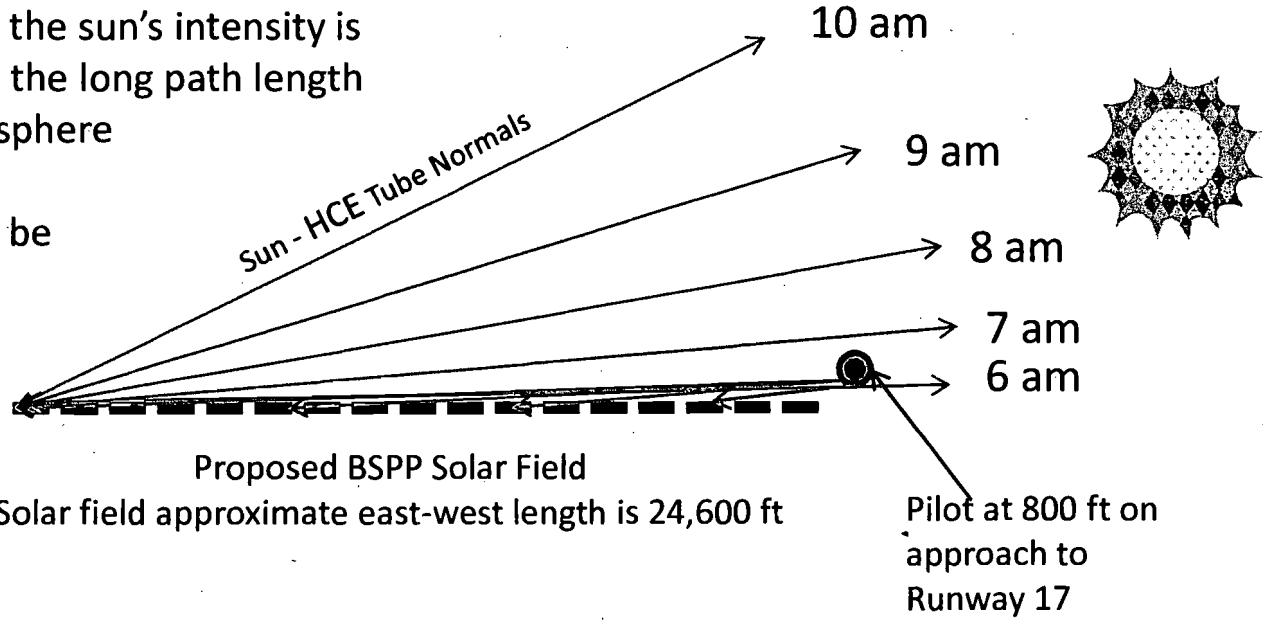
Geometry of Pilot Approaching Runway 17 at 800 ft Pattern Altitude

For a pilot at 800 ft, the view angle to the solar field is less than approximately 5-10 degrees

The sun is at or below 10 degrees elevation only within the first few hours of sunrise

At low sun angles, the sun's intensity is attenuated due to the long path length through the atmosphere

Any reflection will be of attenuated sunlight



AECOM

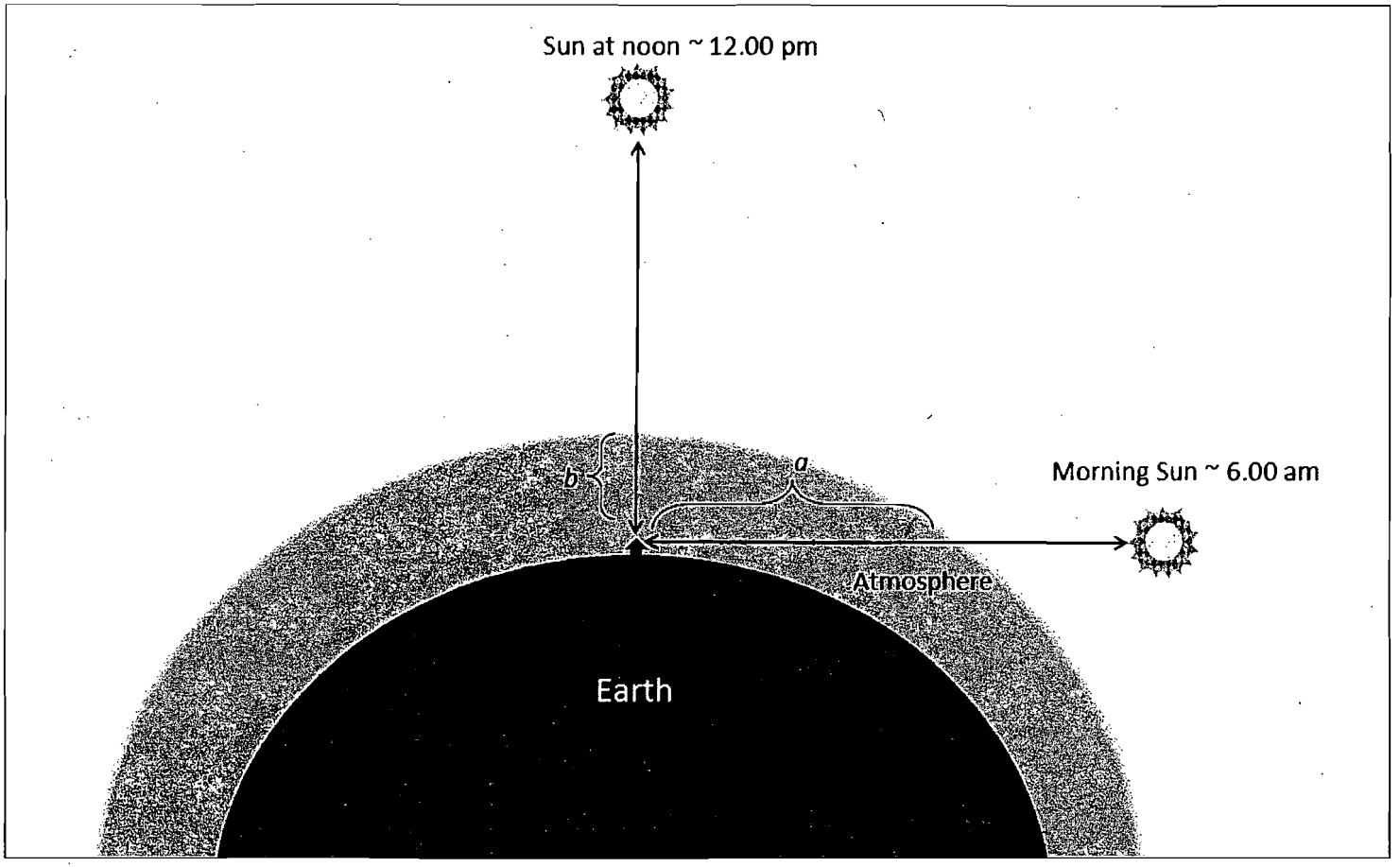
Time of Potential Visible Glare for Pilot Approaching Runway 17 at 800 ft Pattern Altitude

Pilot Horizontal Distance from Array (ft)	Pilot View Angle of Array (Downward from Horizontal)	Time For Sun at Same Elevation Angle[1]	
		Dec 20 (PST)	Jun 20 (PDT)
24,600	1.9	6:50	5:40
15,000	3.1	7:00	5:50
10,000	4.6	7:10	6:00
5,000	9.1	7:40	6:20
1,000	38	Not possible[2]	8:50

[1] Time to the nearest 10 minutes
[2]Maximum solar elevation angle approximately 33 degrees at noon.

There is a period of approximately one hour per day in the early morning during which glare could be visible by a pilot approach Runway 17. There is a lower probability of seeing the glare from the nearest mirror (1,000 ft horizontal distance) due to optical geometric constraints. There will be more opportunity for the proper geometry from mirrors in the middle of the solar field, and hence higher probability of glare.

Sunlight is Attenuated in Early Morning Hours Due to Long Path Length through Atmosphere



BLYTHE SOLAR POWER PROJECT (09-AFC-6)
RESPONSE TO ALUC COMMENTS OF MARCH 22, 2010 ON ALUC APPLICATION AND SUBSEQUENT CORRESPONDENCE BY EMAIL ON APRIL 13, 2010

Response Date: April 20, 2010

HEIGHT OF STRUCTURES

Comment:

Confirm by map/figure that ACC-4 is located outside of the AIA boundaries. If it is within the AIA, then it is inconsistent with maximum height requirements.

Response:

The southeastern corner of the Air Cooled Condenser 4 (ACC-4) is approximately 135 feet outside of the boundary of the Airport Influence Area. Figure 1 presents a graphic showing Power Block 4, the location of ACC-4, and the 14,000 ft limit of the AIA. There is currently a minor amount of uncertainty in the location as field survey results of Bureau of Land Management Section corners have not yet been incorporated into the AutoCad files for the project. Such surveying has been completed but the AutoCad drawings have not yet been updated. The Applicant commits that the ACC-4 will remain outside the Airport Influence Area in the final project plan.

Comment:

Identify the height and number of proposed transmission poles relative to AIA Zones.

Response:

See Table 1 for a listing of each pole, their height, and the Compatibility Zone in which each is located. Figure 2 provides a map of the locations of the power poles in the separate Compatibility Zones for the Blythe Airport, including those poles located in Compatibility Zones C and B1.

Comment:

Update on FAA review of remaining transmission poles.

Response:

See Table 1 for a listing of each pole and its current FAA status as of 04/19/2010. Figure 3 presents a color coded map illustrating the status of each transmission line pole for which an FAA Form 7460 application has been submitted. AECOM contacted Ms. Karen McDonald of the FAA on April 14 to enquire as to the status of their review. Ms. McDonald stated that all seven review departments have finished their analyses and she is now compiling the review comments prior to issuing a determination. She cannot commit to a completion date for her review and issuance of the determinations. She did say that regulations may dictate that some of the cases will require public notice prior to final determination.

As part of the evolving design of the project plan, the Applicant is proposing to relocate that portion of the transmission line that is south of Interstate 10. The existing transmission line route and the proposed modification of that power line route are given in Figure 4. Field surveying of that portion of the 300-ft wide transmission line corridor south of Interstate 10 has been completed. However, selection of new pole locations has not been accomplished. New FAA Forms 7460 will be submitted for those power poles requiring new FAA review because of the new alignment of the transmission line. All new pole locations will be in Compatibility Zones D and E, or outside the AIA (See Figure 4).

BLYTHE SOLAR POWER PROJECT (09-AFC-6)
RESPONSE TO ALUC COMMENTS OF MARCH 22, 2010
ON ALUC APPLICATION AND SUBSEQUENT CORRESPONDENCE
BY EMAIL ON APRIL 13, 2010

Response Date: April 20, 2010

On April 19, the FAA provided a determination of no hazard to air navigation for Pole PB2.3-3. This pole is located within the BSPP project boundary, well away from the Blythe Airport, and is associated with Power Block 2. A copy of this determination is attached. This is the last unresolved determination within the project area. All determinations within the project site, except two, are no hazard to air navigation with no special requirements. There are two poles within the southern part of the project site that will require navigation lighting, as shown in Figure 3. All remaining unresolved determinations are west of Runway 26.

Comment:

> At the April 8 meeting, the Commission Chairman advised that he would not be inclined to support aboveground transmission lines crossing through Zones B1 and C directly westerly of the east-west runway at Blythe Airport, especially since the approach from the east is already constrained by aboveground lines just east of the Zone A boundary.

Response:

The FAA has issued a determination letter of No Hazard to Aviation for Pole 26 which is proposed to be located in Compatibility Zone B1, almost exactly along the extended centerline of Runway 26 (See attachment 1). It is puzzling that the FAA has concluded that a 90 ft transmission pole on the extended centerline of Runway 26 does not constitute a hazard to air navigation while the ALUC indicates that they may consider such a pole a non-conforming use in Zone B1.

The published pattern altitude for the Blythe Airport is 800 ft, approximately the same height as the McCoy Mountains to the west of extended Runway 26. Aircraft departing on Runway 26 will need to gain altitude to clear the McCoy Mountains if they continue straight west after take-off. Aircraft approaching Runway 26 from the east, if they abort their landing, would also need to gain altitude to clear the McCoy Mountains if they had a straight out departure. Because the McCoy Mountains are less than a mile from the proposed transmission line route, pilots will already be ascending as they pass over the transmission line if they maintain a heading to the east.

It is potentially counter-productive to move the transmission line further to the west to avoid crossing Zone C. Such a path would put the transmission line in or near the McCoy Mountains at a much higher base elevation than at the proposed locations of the poles. The higher base elevation with poles extending higher still would in itself potentially pose a greater hazard to aviation than that posed by the proposed pole locations in Zones B1 and C.

The Applicant fails to see the hazard associated with 90 ft transmission poles in Zones C and B1, given the distance of the transmission line poles from the end of Runway 26 and their nearness to the McCoy Mountains and the fact that the FAA has already determined that Pole 26 does not constitute a hazard to air navigation.

The cost of installing a 230KV transmission line in dry desert sands is prohibitively expensive. In addition, heat transfer issues associated with the dissipation of heat from the power line into the surrounding dry sands would seriously reduce the amount of power able to be transmitted along the underground segment of the transmission line during the hottest days of the summer, precisely the time of the peak summer load on the California power grid.

RADIO FREQUENCY INTERFERENCE

Comment:

Detail how BSPP is comparable to the Palmdale Hybrid Power Project (PHPP) (i.e. total project acres, total MW, location related to distance from airport and to flight paths)

Response:

The Palmdale Hybrid Power Project (PHPP) is located immediately adjacent to the north side of the departure end of Runway 25 at the Palmdale Regional Airport/Air Force Plant 42. The PHPP plant site shares a boundary with Plant 42. The PHPP is located on a 337 acre site and is composed of two natural gas fired combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), and one steam turbine generator (STG), and a 250 acre solar thermal mirror array with parabolic trough mirrors. The power rating of the solar thermal mirror array is a nominal 50 MW. The overall power rating of the PHPP is 570 MW. Figure 5 presents a map showing the location of the PHPP project and Plant 42. At a nominal 1,000 MW, the BSPP is considerably larger than the solar field for the PHPP, but the BSPP mirrors are much farther away from the Blythe Airport and its traffic patterns (approximately 8,200 ft from Runway 35) compared to the distance from the PHPP project to the Plant 42 runways and traffic patterns (approximately 1,500 ft from Runway 25).

Comment:

What are the communications and navigation signal utilized by the Blythe Airport?

Response:

Blythe airport (KBLH) has one navigational aid. It is a VORTAC (very high frequency omni directional range) transmitter at 117.40MHz.

Comment:

What would be the most likely maximum impact scenario involving line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions and the level of interference created?

Response:

There will be no impact from the radio noise produced by the proposed facility on the VORTAC navigational aid at the Blythe airport.

There are two sources of radio noise from the proposed facility: corona from the conductors and gap noise from the hardware. Corona noise is typically a foul (rain) weather phenomenon that results from the breakdown of air at the surface of the conductor due to the stress on the electric field on air molecules. One of the key measures of that stress is the electric field gradient on the surface of the conductor. This gradient is in-turn directly affected by the impressed line to ground voltage conductor and the diameter of the conductor (as well as bundling of the conductor). The proposed facility will have a line to ground voltage of approximately 130kV and a conductor with a diameter of 1.762 inches. There is one conductor, and hence no bundling. This conductor is larger than typical for a 230kV facility as it is needed

to carry a fairly large power flow over a short distance; one of the side benefits of this selection is improved corona performance. These configuration details results in a very low conductor surface gradient (9kV/cm), significantly below typical corona inception level of 17.5kV/cm. Further at a frequency of 117MHz corona noise is not productive even at higher surface gradient.

Unlike interference to AM radio (which is broadcasting between 0.520 MHz–1.610 MHz), which one might experience while passing under a 230kV transmission line in a car, at 117MHz power line radio noise corona is very weak (less than 4dBμV/m) even directly under this facility. Radio interference from gap noise typically occurs in fair, dry weather from the transmission line hardware (e.g. insulators). The sources of this noise are surface imperfections on the hardware and dust (or other solid air pollution). This facility will be constructed with polymer insulators and other hardware for high pollution areas. This will emulate to the greatest extent possible the surface tracking that would occur and reduce the levels of radio noise; which is negligible at 230kV in any case. This will increase the reliability of the circuit under the condition of dryness with sand and other airborne particulates.

The Blythe VORTAC (like all VORs) is used to locate the airport during mid-flight and is not an instrument landing device (there are none at Blythe). The pertinent factor for its successful use is that signal to noise ratio at the aircraft is high enough to allow the on-board instrument to decode the signal and provide bearings for mid-fight location and identification of nearby airports with similar VORs. VOR use is appropriate above 500ft. At that distance radio noise from the facility (which has been shown to very low in any case) is nearly immeasurable (calculated to be less than 0.5dBμV/m). Therefore the facility will not impact the use of VOR at the Blythe airport.

Comment:

> What are the "acceptable levels" for electric field generation and what are typical impacts at certain distance at that level?

Response:

The electric field profile for this facility was provided in the Application for Certification (AFC), Table 5.14-9. The maximum field level is indicated as 1.85 kV/m at a distance of 75 ft from the centerline of the transmission structure. This result assumes an expected lowest clearance of the conductor to ground of 28 ft. The impacts are evaluated based on the electric shock that could occur from induction of current by the transmission line's electric field on metallic objects (e.g. trucks) at those locations and the reaction of people who might come in contact with those objects under those circumstances. Using these parameters, the current induced on a vehicle the size of a large semi-truck is less than 0.05 milliamps which is imperceptible to people. Beyond consideration of induced current and its effects there are no objective standards to evaluate the electric field and the State of California has not set a regulatory limit for electric and magnetic field levels. There are no human health effects based standards in place as the foundation for them as not been established. However the levels of fields expected from this facility are remarkably below most high voltage power lines in use today and are certainly typical for all 230kV line in-service.

REFLECTIVITY/GLARE

Comment:

Detail how BSPP is comparable to the Victorville (VV2) project (i.e. total project acres, total MW, location related to distance from airport and to flight paths, orientation of panels)

Response:

The Victorville Hybrid Power Project (PHPP) is very similar in design to the PHPP and is located immediately adjacent to the north and east of the departure end of Runway 35 at the Southern California Logistic Airport (SCLA). The VV2 plant site shares a boundary with the SCLA. The VV2 plant is proposed for a 275 acre site and is composed of two natural gas fired combustion turbine generators (CTGs), two heat recovery steam generators (HRSGs), and one steam turbine generator (STG), and a 250 acre solar thermal mirror array with parabolic trough mirrors. The power rating of the solar thermal mirror array is a nominal 50 MW. The overall power rating of the VV2 project is 570 MW. Figure 6 presents a map showing the location of the VV2 project and the SCLA. At a nominal 1,000 MW, the BSPP is considerably larger than the solar field for VV2, but it is farther away from the Blythe Airport and its traffic patterns (approximately 8,200 ft from Runway 35) compared to the distance from the VV2 project to the SCLA runways and traffic patterns (approximately 5,000 ft from the departure end of Runway 35).

Comment:

How are the over-flights conducted for the VV2 analysis comparable to the BSPP proposal related to flight path?

Response:

As background, the production of glare from the mirror array, or in more accurate terminology, specular reflection, is not due to direct reflection of the sun by the parabolic mirror but is due to three sources of light of much lower intensity:

- The reflection of incoming sunlight from a small linear area along the front of the Heat Conducting Element (HCE) that is normal (perpendicular) to the sun and intercepts and reflects a small portion of the incoming sunlight.
- Direct reflection of light from metal components of the parabolic mirror array such as connectors along the HCE tube and structural elements.
- Light that is first refracted and scattered by the glass tube of the HCE that then strikes the mirror and is subsequently reflected outwards in a columnar beam, but at a greatly reduced intensity.

Specular reflection must obey the Law of Reflection, derived from Snell's Law, in which the incoming and outgoing light rays form the same angle of incidence from the normal to the reflecting surface. The mirror arrays at all solar trough power plants are aligned north-south to allow east-west tracking of the sun. The normals for any given HCE tube are therefore east and west of the solar array, and therefore reflections can only occur to the east and west.

The orientations of the mirror arrays at the BSPP, the VV2 project, and the Harper Lake project are all north-south, to allow an east-west tracking of the sun. The overflight of the Harper Lake solar array[1] for which pictures were submitted with the ALUC Application occurred in the morning as the flight path was east of the Harper Lake solar array. The approach simulation documented by the pilot was for an approach in the afternoon to Runway 17 at the SCLA with the solar array to the east of the extended runway. This would be equivalent to a morning approach to Runway 17 at the Blythe Airport since the mirror arrays at the BSPP are to the west of the Blythe Airport.

Runway 17/35 at the Blythe Airport is the runway with the greatest potential to be affected by glare. As Runway 17/35 is to the east of the BSPP solar arrays, you could only experience glare when operating from this runway when you were looking west with the sun to your back. Consequently, pilots at the Blythe Airport would potentially experience glare when departing to the north on Runway 35 in the morning, or when landing to the south on Runway 17 in the morning. Obviously, these operations would not be likely to occur in close proximity.

To be observed by a ground level observer, the sun's rays must be low on the horizon. Consequently, the only time specular reflection can occur from the BSPP mirror array and be visible by a ground level observer is in the early morning or late afternoon, the observer is to the east or west of the mirror, the sun is to the back of the observer and slightly over the observer's shoulder, and the observer is looking at the point where a perpendicular line from the observer to the HCE intersects the HCE. This means that a pilot on the ground at the Blythe Airport will not be able to observe any glare since no location on the airport will be perpendicular to the HCE tubing.

For a properly situated ground level observer, the only time glare would be visible is in the first few hours after sunrise, or before sunset, when the sun is low on the horizon. The McCoy Mountains are to the west of the BSPP and will prevent low angle of incidence sunlight from striking the BSPP mirrors in the late afternoon hours. The general public (other than hikers in the McCoy Mountains) will only be exposed to the potential specular reflections in the morning when located to the east of the mirror arrays. After the sun rises in the sky during the morning and the mirrors begin tracking the sun, Snell's Law will not allow a ground level observer to observe the reflection. And to reiterate, the reflection (glare) is specular reflection from the HCE tube, not reflection of the sun from the parabolic mirror.

The only geometry that allows for pilots to observe potential flashes of light from the BSPP solar array will be when the pilot is east or west of the solar array and in an approximate direct line from the sun and the solar array. In addition, the intensity of the glare, or specular reflection, is subject to inverse square attenuation with distance from the glare source. The farther the pilot is from the solar array, the weaker the glare becomes by the square of the distance. Beyond a certain distance that will depend on a number of factors including time of day, pilot altitude, clarity of the air, and cloudiness, among other factors), the glare will be so dissipated as to blend into and contribute to the general glow from the linear HCEs. As was documented in the project Application for Certification submitted to the California Energy Commissions (CEC), including observations by a CEC staff member (James Adams), from a distance, the solar array looks like a body of water and there is no indication of point sources of glare.

Pilots would potentially be able to observe glare from the solar arrays when east or west of the BSPP, as discussed above. Since the McCoy Mountains are to the west of the BSPP, aircraft are likely to be several miles from the BSPP solar arrays if they are to the west of the airport. Because of this distance, the drop-off in intensity of any potential glare will be significant due the inverse square attenuation and

[1] Note: In the BSPP Application to the ALUC, the solar mirror facility for which overflight photographs were provided was referenced as the Kramer Junction solar project but was actually the Harper Lake solar project.

there is unlikely to be any significant glare that would potentially be hazardous. This leaves only aircraft operating from or near Runway 17/35 that would potentially be affected by glare.

Table 2 below presents an analysis of the projected Year 2020 flight operations at the Blythe Airport, as contained in the Riverside County Airport Land Use Compatibility Plan. From Table 2, there will be an estimated average of 68 flight operations per day for Runway 17/35 in year 2020, of which 88% would be daytime operations. Assuming that the daytime flights are spread evenly over a 12-hour day, this results in approximately five aircraft operations involving Runway 17/35 in any given daytime hour. Given that these operations will tend to follow a set pattern on either arrival or departure, the pattern height and approach glide slope could be used to define the solar geometry (i.e., time of day) at which glare could possibly be observed. Such a geometry of sun-flight profile is unlikely to persist for more than a single hour. Thus, a very small number of pilots could potentially expose themselves to glare at the airport on any given day, and the times and locations of exposure could easily be computed by the geometry of the pattern height, glide slope, day of year, and sun angle (time of day), and noted as a NOTAM. It is less likely that a pilot would be subject to glare from the solar field than what a pilot would experience from non-solar field reflective surfaces such as a building window in the vicinity of the airport and from windshields, mirrors, and flat surfaces of vehicles traveling along Interstate 10.

Table 2. Projected Daily Operations in 2020 at Blythe Municipal Airport by Runway and Aircraft Type

	Piston Engine	Turboprop	Business Jets	Totals
Runway 8	7.4	0.2	0.2	8
Runway 26	73.9	3.6	4.1	82
Runway 17	44.4	0.5	0.2	45
Runway 35	22.2	0.5	0.2	23
Helicopters				2
Totals	148	5	5	159
Source: Riverside County Air Port Land Use Compatibility Plan, October 2004. Volume 3. Blythe Municipal Airport.				

THERMAL PLUMES

Comment:

> Based on what data is the CEC "not concerned with [the small auxiliary two-cell wet cooling towers] being a potential hazard to aviation? Is any data available for these similar to the dry cooling towers on temperature rise and upward velocity? How often, how long, and what time of day are these to be used?

Response:

The CEC is not concerned about potential aviation hazards produced by the BSPP auxiliary cooling towers as demonstrated by the fact that the auxiliary cooling towers were not even mentioned in the Traffic and Transportation section of the Staff Assessment for the BSPP.

The small auxiliary cooling tower for each BSPP power block provides cooling for equipment not directly a part of the steam cycle. These auxiliary cooling towers are much smaller in all aspects than the steam cycle cooling towers proposed for the PHPP and VV2 facilities and that which exists at the Blythe Energy Project. The specifications for the auxiliary cooling tower and the proposed PHPP cooling tower are given below in Table 3. Each BSPP auxiliary cooling tower will operate for a maximum of 16 hours per day and not more than 3,700 hours per year.

The entire auxiliary cooling tower of two cells is roughly equivalent to one of the ten cells in a steam cycle cooling tower for a 570 MW power plant such as PHPP (or VV2) that rejects 440 MW of thermal energy to the atmosphere through the wet cooling tower. The temperature of the exhaust air from the auxiliary cooling tower would be comparable to that for the steam cycle cooling tower since both plumes would essentially be saturated with water upon release and the temperature would be determined by the ambient temperature and relative humidity.

One of the BSPP auxiliary cooling towers has a water circulating rate of approximately 6,000 gallons per minute (gpm). By comparison, the steam cycle cooling towers proposed for the PHPP and VV2 projects each have a water circulation rate of 130,000 gpm, a factor over 20 times larger, while the airflow through the tower is a factor of eight times larger for the PHPP and VV2 towers. As turbulence produced by a cooling tower is a function of both the air flow rate and the heat rejection (a function of the water circulation rate), the potential for turbulence and visible plumes above the auxiliary cooling tower is much less than that for the much larger PHPP (or BEP) steam cycle cooling tower.

Table 3. Comparison of BSPP Auxiliary Cooling Tower with the PHPP Steam Cycle Cooling Tower

Parameter	Units	BSEP Auxiliary Cooling Tower	PHPP Steam Cycle Cooling Tower	Ratio PHPP to BSPP Value
Number of Cells	-	2	10	5
Daily Operation	hours	16	24	1.5
Annual Operation	hours	3,700	8,760	2.4
Water Circulation Rate	gpm	6,034	130,000	21.5
Air Flow Rate (per cell for PHPP)	cfm	180,500	1,528,000	8.5
Fan Diameter	ft	12	28	2.3
Fan Exit Velocity	m/s	8.2	12.6	1.5
Tower Footprint	sq ft	1,320	34,200	26
Tower Height	ft	32	62	1.9

PROVISION OF OPEN SPACE WITHIN ZONE D

Comment:

Clarify the project footprint area and area left as open space (free of most structures and other major obstacles such as walls, large trees or poles greater than 4 inches in diameter measured 4 feet above the ground, and overhead wires) for the project area located within Zone D.

Response:

Figure 4 presents a map showing the Airport Influence Area for Blythe Airport and the Right of Way and Area of Disturbance for the BSPP. Approximately 335 acres of the BSPP right of way are located within Compatibility Zone D. However, only approximately 202 acres within that portion of the Right of Way within Zone D will be disturbed (approximately 60% of the Right of Way acreage within Zone D). Of the disturbed land, only about 31 acres (approximately 9% of the Right of Way acreage within Zone D) will have solar panels. In addition to the small 31 acre footprint of the mirror arrays in Zone D, there will be small footprints for approximately three power poles.

CUMULATIVE IMPACTS OF ADDITIONAL HAZARDS TO FLIGHT.

Comment:

Due to the amount of existing and proposed solar facilities located within the vicinity of the Blythe Municipal airport, does this project propose additional hazards to flight which considered individually may be insignificant, but cumulatively may be considered significant?

Response:

The Air Cooled Condensers (ACCs) at the BSPP are well outside of the flight pattern for the Blythe Airport and are not expected to produce a hazard to aviation. The four ACCs are 120 ft high with base elevations of approximately 580 ft, 530 ft, 470 ft, and 400 ft Mean Sea Level (MSL), compared to the base elevation of the Blythe Airport at approximately 400 ft MSL. The pattern altitude for the airport is approximately 1,200 ft MSL. Consequently, aircraft in the terminal area will be approximately 620 feet or higher above any given ACC if the aircraft are at pattern altitude and are highly unlikely to experience any significant flight hazards associated with the ACCs. In addition, the impacts of any potential turbulence associated with an individual ACC will be limited to the immediate airspace above the units and will therefore not contribute to any cumulative impact. The ACCs are spaced more than a mile apart and therefore are unlikely to produce a cumulative impact between individual ACCs.

The glare, or specular reflection, from the mirror arrays is highly localized due to the geometry of the optics that creates the glare. To be observed, the observer must be on a straight line between the sun and this line must be on a perpendicular (normal) to the HCE tubes. This limits the potential locations where glare can be observed to the east of the mirror arrays in the morning and the west of the mirror arrays in the afternoon. The intensity of any glare generated will fall off as the square of the distance, and

thus, is localized near an individual mirror array. As noted in the pictures of the Harper Lake solar facility overflight submitted with the ALUC application, only a portion of a solar array diffuse glow is visible from a given pilot observation point, and the portion of the array where glow is observable will move as the aircraft moves. Because of the geometry of the optics involved, it is highly unlikely that multiple solar fields would all present the same view of glare to a pilot at a given location, and even if such perfect alignment would occur, the intensity of the distant solar array would have fallen such that it would appear as only the diffuse glow noted in the overflight photographs. And as discussed above in the response for Glare, on average, approximately five aircraft operations per day in Year 2020 would likely be in a position to observe potential glare from the solar array while operating from Runway 17/35.

The proposed Solar One power plant would not employ parabolic mirrors but rather arrays of photovoltaic cells. The optical properties of such cells are completely different from those for a parabolic mirror and have not been addressed as part of the analysis for the BSPP. However, photovoltaic panels are designed to absorb, rather than reflect, sunlight, and so any reflections from solar panels is expected to be small. In addition, the intensity of any such glare or reflections from a photovoltaic array would fall off as the square of the distance from the observer. As the Solar One project is proposed for several miles from the BSPP, it is unlikely that there would be a significant cumulative interaction with the BSPP, given the distance between the two proposed projects and the low reflectivity of photovoltaic panels.

The most probable cumulative impact of construction of the BSPP is that it would add one more facility to the vicinity of the airport for which pilots would need to observe and avoid objects at their discretion.

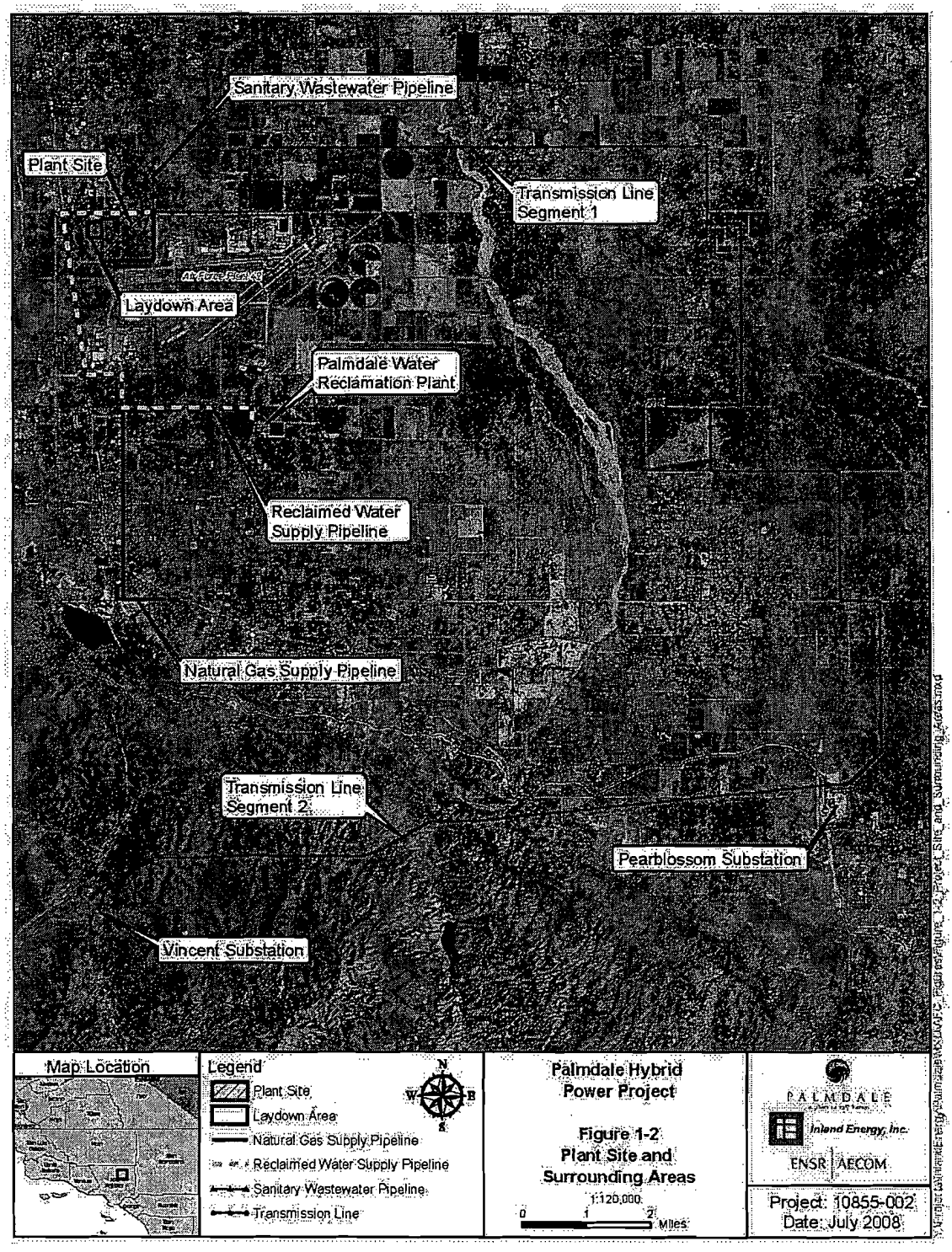


Figure 5. Location of the Palmdale Hybrid Power Plant with respect to Air Force Plant 42

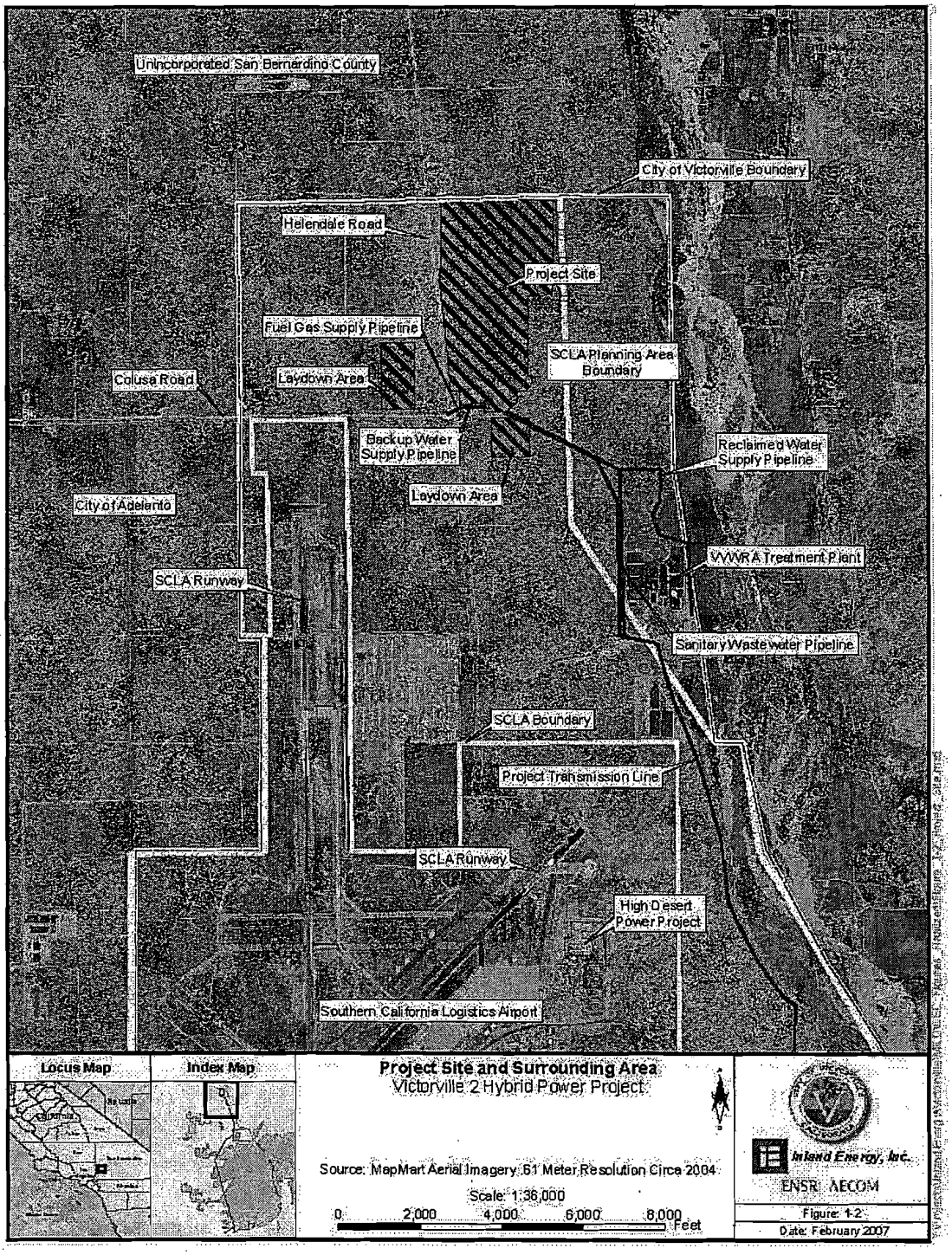


Figure 6. Location of the Victorville 2 Project Site with respect to the Southern California Logistics Airport

Table 1. Status of FAA Form 7460 Power Pole Applications and ALUC Compatibility Zone Designation as of 19 April 2010

Pole	Height (ft)	ALUC Compatibility Zone	FAA Determination Letter Status
Pole 1	145	-	Determination of No Hazard
Pole 2	145	-	Determination of No Hazard
Pole 3	145	-	Determination of No Hazard
Pole 4	145	-	Determination of No Hazard
Pole 5	145	E	Determination of No Hazard
Pole 6	145	E	Determination of No Hazard
Pole 7	145	E	Determination of No Hazard
Pole 8	145	E	Determination of No Hazard
Pole 9	145	E	Determination of No Hazard
Pole 10	145	E	Determination of No Hazard
Pole 11	145	E	Determination of No Hazard
Pole 12	145	E	Determination of No Hazard
Pole 13	145	E	Determination of No Hazard
Pole 14	145	E	Determination of No Hazard
Pole 15	90	E	Determination of No Hazard
Pole 16	90	E	Determination of No Hazard
Pole 17	90	D	Determination of No Hazard
Pole 18	90	D	Determination Received, Red Lights Required
Pole 19	90	D	Determination Received, Red Lights Required
Pole 20	90	D	Determination of No Hazard
Pole 21	90	D	Add Letter Received, Survey Required
Pole 22	90	D	Add Letter Received, Survey Required
Pole 23	90	C	Add Letter Received, Survey Required
Pole 24	90	C	Add Letter Received, Survey Required
Pole 25	90	B1	Add Letter Received, Survey Required
Pole 26	90	B1	Determination of No Hazard
Pole 27	90	B1	Add Letter Received, Survey Required
Pole 28	90	C	Add Letter Received, Survey Required
Pole 29	90	D	Add Letter Received, Survey Required
Pole 30	90	D	Add Letter Received, Survey Required
Pole 31	145	D	Add Letter Received, Survey Required
Pole 32	145	D	Add Letter Received, Survey Required

Table 1. Status of FAA Form 7460 Power Pole Applications and ALUC Compatibility Zone Designation as of 19 April 2010

Pole	Height (ft)	ALUC Compatibility Zone	FAA Determination Letter Status
Pole 33 [A]	145	D	Add Letter Received, Survey Required
Pole 34 [A]	145	D	Add Letter Received, Survey Required
Pole 35 [A]	145	D	Add Letter Received, Survey Required
Pole 36 [A]	145	E	Determination of No Hazard
Pole 37 [A]	145	E	Determination of No Hazard
Pole 38 [A]	145	E	Determination of No Hazard
Pole 39 [A]	145	E	Determination of No Hazard
Pole 40 [A]	145	E	Determination of No Hazard
Pole 41 [A]	145	E	Determination of No Hazard
Pole 42 [A]	145	E	Determination of No Hazard
Pole 43 [A]	145	E	Determination of No Hazard
Pole 44 [A]	145	-	Determination of No Hazard
Pole 45	145	-	Determination of No Hazard
Pole 46	145	-	Determination of No Hazard
Pole 47	145	-	Determination of No Hazard
Pole 48	145	-	Determination of No Hazard
Pole 49	145	-	Determination of No Hazard
Pole 50	145	-	Determination of No Hazard
Pole 51	145	-	Determination of No Hazard
Pole 2.3-3	145	-	Determination of No Hazard

[A] Transmission Line Route is being revised south of Interstate 10. These poles will require resubmittal of FAA Form 7460. Additional poles may also require resubmittal of FAA Form 7460 depending on the land survey just completed and the ultimate placement of individual poles.

Summary: Application for Major Land Use Review – Riverside Country ALUC
24 Feb 2010

Application Roadmap/Summary

Palo Verde Solar I, LLC, is submitting this Application for Major Land Use Review to the Riverside County Airport Land Use Commission (ALUC) for the proposed Blythe Solar Power Project (BSPP or Project), a 1,000 MW solar thermal electric generating facility. The Project is proposed for development on public lands managed by the Bureau of Land Management (BLM) on a site approximately one mile northwest of the Blythe Municipal Airport.

The Property Owner is the Bureau of Land Management, located in the Palm Springs-South Coast Field Office, 1201 Bird Center Drive, Palm Springs, CA, 92262.

The Referring Agency is the California Energy Commission (CEC). The CEC project officer is Mr. Alan Solomon (916-653-8236). The CEC project number is 09-AFC-06. The complete Application for Certification submitted to the CEC, including data responses, is contained on the DVD accompanying this Application.

Primary Criteria Review

Compatibility Zones. The application is provided so that the ALUC can perform a land use review of the BSPP and evaluate its potential compatibility with the Master Plan for the Blythe Municipal Airport. Figure 1 presents the compatibility zones for the Blythe Airport obtained from the Riverside County Airport Land Use Compatibility Plan (downloaded from the ALUC website on February 16, 2010). Figure 1 also shows the Project's boundaries, the locations within the Project site of the four air-cooled condensers, and the route of the 230-kV transmission line that will extend from the Project site to Southern California Edison's (SCE) Colorado River Substation, approximately five miles southwest of the BSPP plant site. As shown in Figure 1, the Project encroaches on Airport Compatibility Zones B1, C, D, E, and Height. The southeastern portion of the Project encroaches on Zones D and E while the 230 kV transmission line passes through Compatibility Zones B1, C, D, and E.

Allowable (not prohibited) Use. The Airport Land Use Compatibility Plan identifies allowable and prohibited uses for the different compatibility zones surrounding the airport. Table 1 below, extracted from Appendix D of the Airport Land Use Compatibility Plan, summarizes the compatible land uses by Zone for Transportation, Communications, and Utilities - Electrical Substations, Power Plants, and Power Lines. The Project's proposed uses are "Generally Compatible" or "Potentially Compatible with Restrictions". Prohibited uses consist of activities that would produce hazards to flight and require further analyses that are documented elsewhere in this Application.

Table 1. Compatible Land Use for the BSPP						
Project Component	**Zone A**	**Zone B1**	**Zone B2**	**Zone C**	**Zone D**	**Zone E**
Electrical Substations	–	0	0	0	0	+
Power Plants	–	–	–	0	0	+
Power Lines	–	0	0	0	0	+
– Generally Incompatible 0 Potentially compatible with restrictions (see Table 2A) + Generally Compatible						
Source: Riverside County Airport Land Use Compatibility Plan, Appendix D, December 2004.						

There are no Project electrical substations within the airport Compatibility Zone. The power plant disturbance area extends into Zones E (a compatible land use), and Zone D (potentially compatible but requiring the review of structures greater than 70 feet in elevation). Project transmission lines extend into Zone B1, requiring airspace review for structures greater than 35 feet in elevation, Zones C and D, requiring an airspace review for structures greater than 70 feet in elevation, and Zone E, requiring an airspace review for structures greater than 100 feet in elevation.

Based on Table 2A in Volume 1 of the Airport Land Use Compatibility Plan, land uses that create "Hazards to Flight" are prohibited in Compatibility Zones B1, C, D, and E. Hazards to Flight are defined in footnote 9 to Table 2A to include physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations. Land use development that may cause an increase in the level of attraction to birds is also prohibited. Potential physical, visual, and electronic forms of interference associated with the BSPP were reviewed and it was concluded that the Project would not pose a hazard to flight safety. While there are elevated structures at a solar thermal power plant on which birds could perch, the nature of the facility and the structures are such that they are not attractants to birds.

Density/Intensity. There are no density/intensity criteria or open land requirements that apply to the intended land use.

Height Acceptable. The height of project structures requires §14 CFR 77 FAA review. Such a review is underway. The Project's tallest structures will be four Air Cooled Condensers (ACC also referred to as dry cooling towers), each 120 feet in height. None of the ACCs will be located within the Blythe Airport's Compatibility Zone. The Project's transmission line will consist of monopoles 145 feet in height. For that portion of the transmission route where FAA §14 CFR 77 Horizontal Surface restrictions limit structure height to approximately 90 feet, the height of the monopoles will be 90 feet. Form 7460 has been submitted to the FAA for review for each of 58 Project structures that is subject to §14 CFR 77 height restrictions. To date, the FAA has issued Determination of No Hazard to Air Navigation letters for the two ACCs subject to review (ACC-1 and ACC-4) and for 39 transmission poles. The FAA has requested additional information for 15 poles while FAA review of the two remaining poles is in

progress. The height assessment for the Project is discussed in Attachment 1 to this Application. The FAA Letters of Determination and Requests for Additional Information are contained in the DVD accompanying this Application.

Easement/Deed Notice Provided. Easement/Deed Notice have been obtained from the Owner, the Bureau of Land Management and documented in the Application for Certification submitted to the California Energy Commissions.

Supplemental Criteria Review

Potential hazards to flight were addressed in the August 2009 Application for Certification submitted to the CEC and in the responses to subsequent Data Requests issued by CEC and BLM staff. Potential hazards addressed included potential electromagnetic interference from the power plant and transmission lines, potential glare from the parabolic mirrors used to collect solar energy, potential vapor plumes emitted from Project cooling towers, potential thermal turbulence created by thermal releases from Project cooling towers, and bird attraction. The analyses are documented in Attachment 2 of this Application. In summary, the detailed review of each of the potential hazards to flight has concluded that the proposed Blythe Solar Power Project will not pose a significant hazard to flight at or near the Blythe Municipal airport.

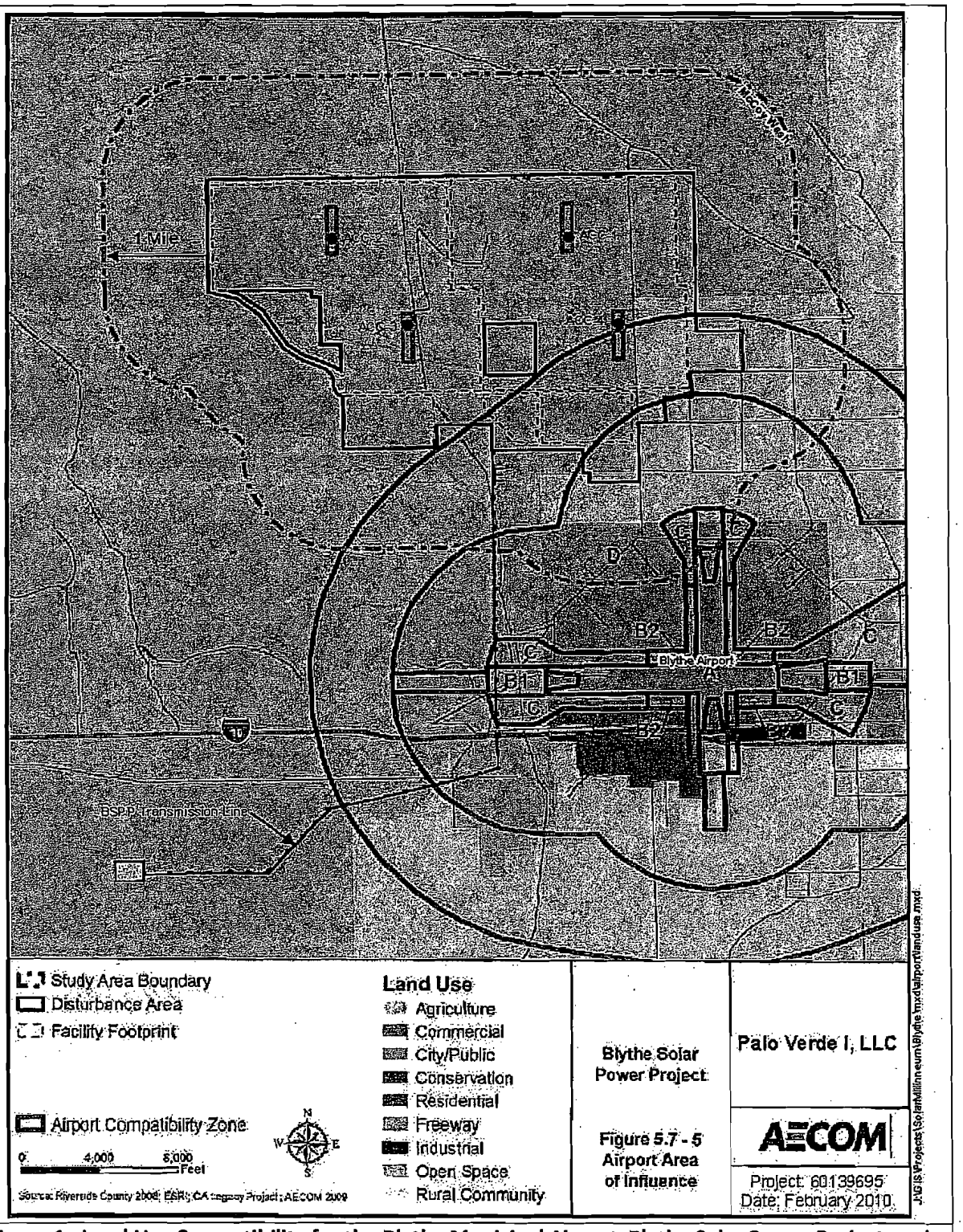
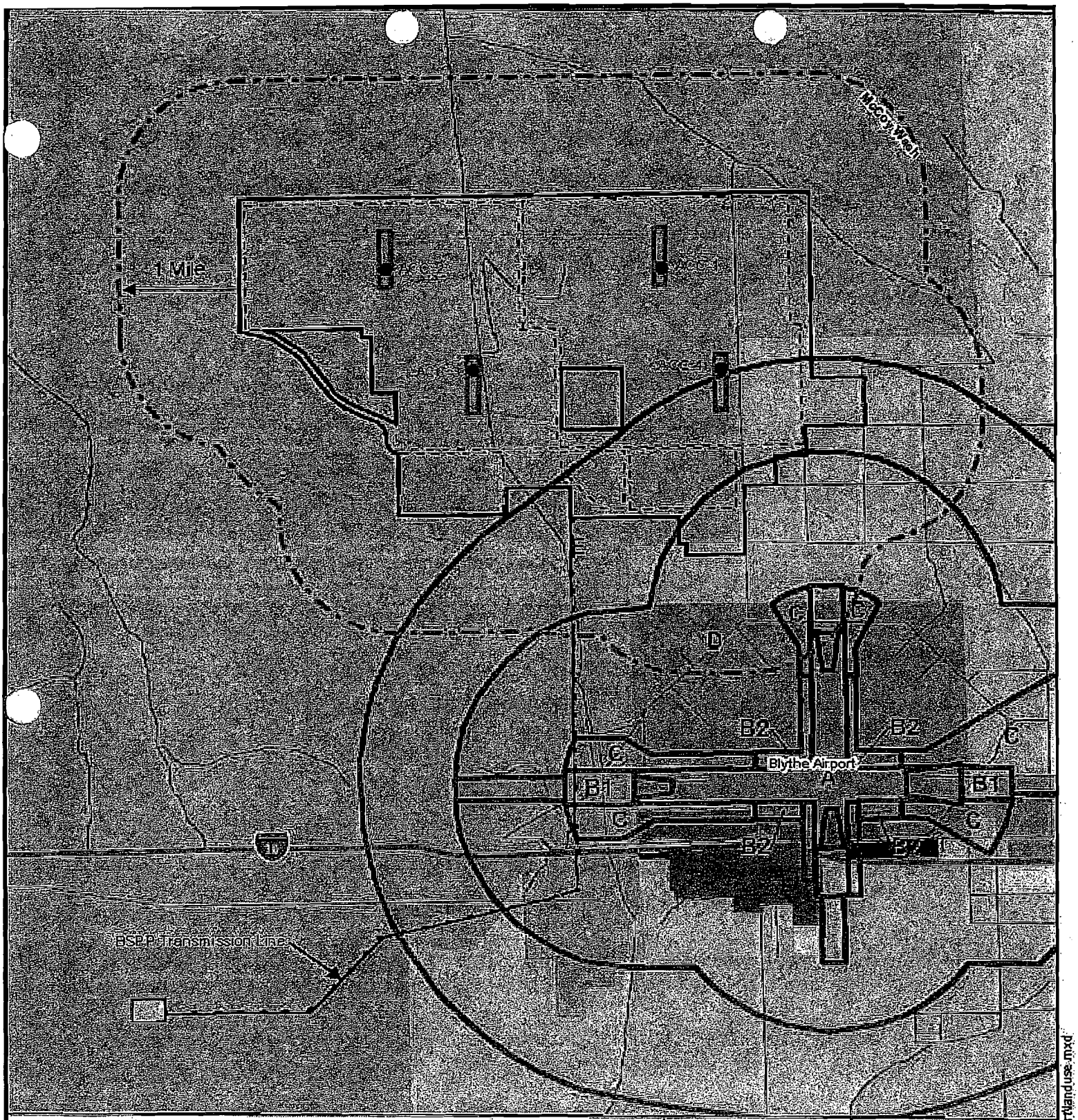


Figure 1. Land Use Compatibility for the Blythe Municipal Airport, Blythe Solar Power Project, and Location of the Air Cooled Condensers and Transmission Line



Study Area Boundary
Disturbance Area
Facility Footprint

Airport Compatibility Zone

0 4,000 8,000 Feet

N
W E
S

Source: Riverside County 2008; ESRI; CA Legacy Project; AECOM 2009

Land Use
- Agriculture
- Commercial
- City/Public
- Conservation
- Residential
- Freeway
- Industrial
- Open Space
- Rural Community

Blythe Solar Power Project

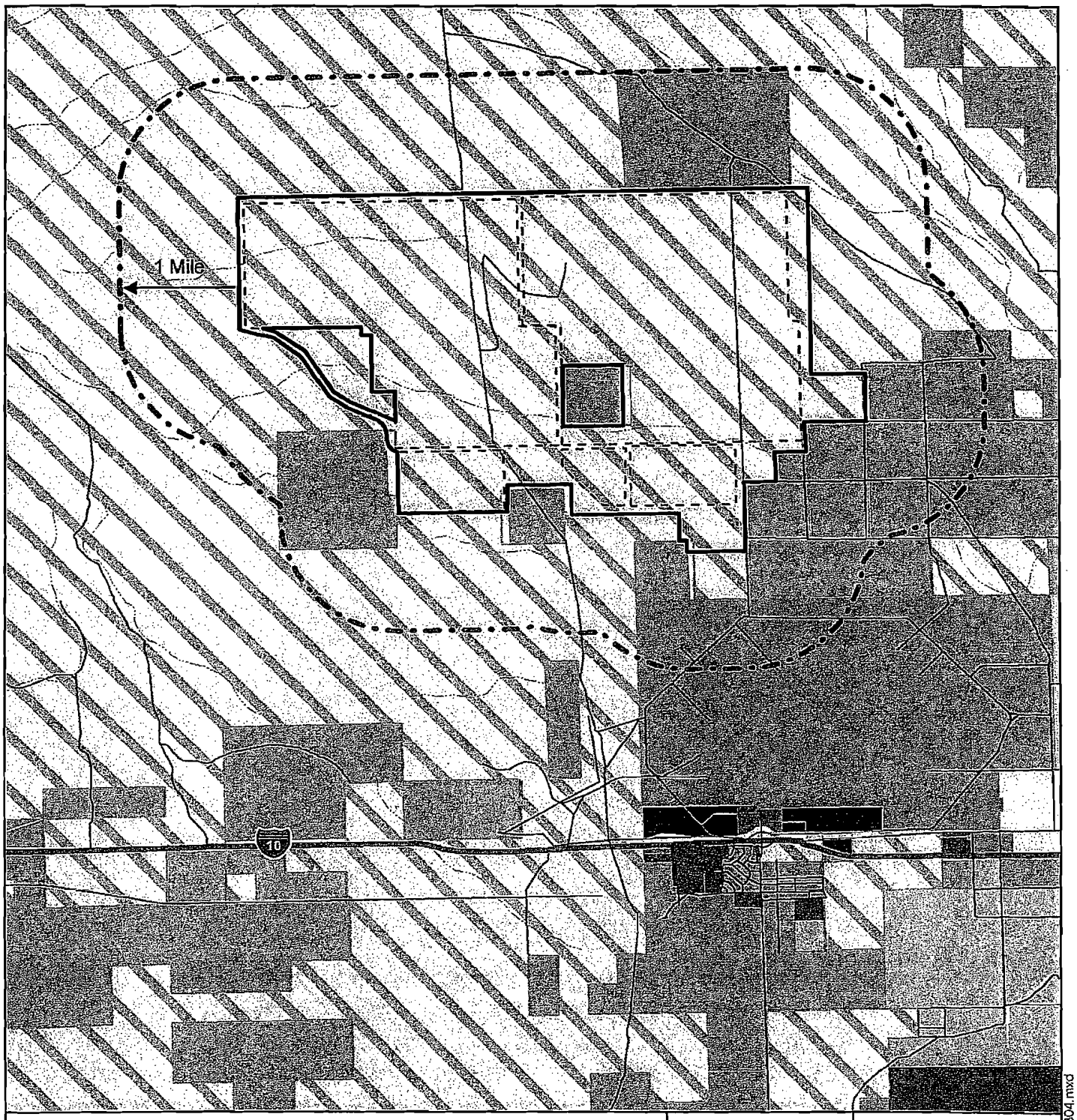
Figure 5.7 - 5
Airport Area of Influence

Palo Verde I, LLC

AECOM

Project: 60139695
Date: February 2010

J:\GIS\Projects\SolarMillinneum\Blythe.mxd\airportlanduse.mxd



Disturbance Area
Study Area Boundary
Facility Footprint

Ownership
BLM

Zoning
Agriculture
Commercial
Industrial
Manufacturing
Natural Assets
Residential
Controlled Development

N
W
E
S

0 4,000 8,000 Feet

Source: Riverside County 2008; ESRI; CA Legacy Project ; AECOM 2009

Blythe Solar Power Project

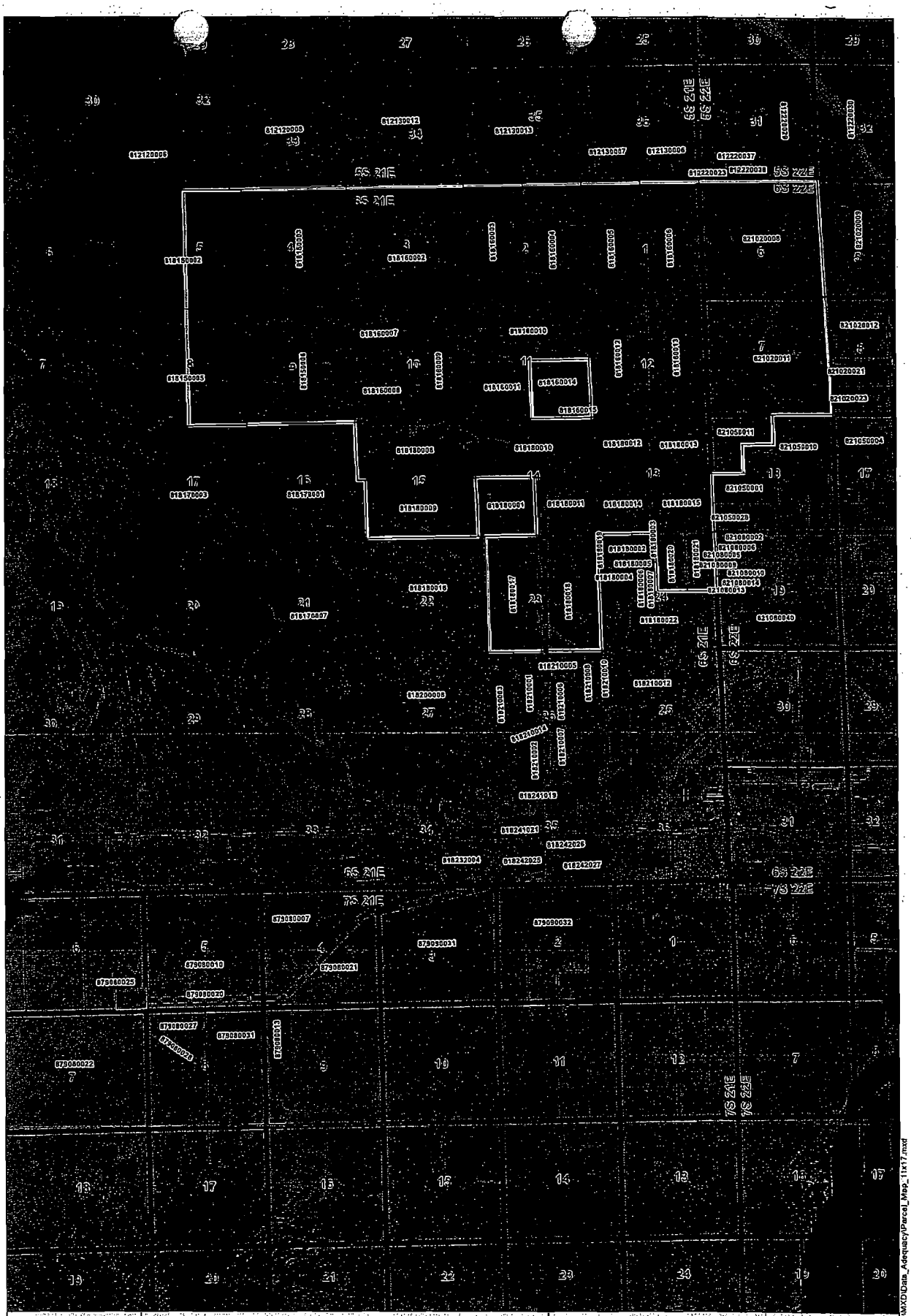
Figure 5.7 - 6
Riverside County Zoning

Solar Millennium

AECOM

Date: August 2009

L:\GIS\sol_mil\ArcMap\blythe\blythe_Zoning_090804.mxd


6S 21E
6S 22E
7S 21E
7S 22E
Map Location
Legend
Project Right-of-Way
Project Transmission Line
Parcel Boundary
Section/Township/Range
Substation
1 inch = 4,000 feet
0 2,000 4,000 8,000 Feet
Blythe Solar Power Project
Figure 2-12
Parcel Map with Section
Township and Range
Solar Millennium
AECOM
Date: October 2009
Y:\Projects\Solar_Millennium\Blythe\MXD\Data_Adequacy\Parcel_Map_11x17.mxd

Attachment 1.

AECOM

§14 CFR 77 Analysis of Allowable Heights for BSPP
19 Feb 2010

Allowable Heights of Structures

The structures proposed for the Blythe Solar Power Project (BSPP or Project) would be an incompatible land use with the Blythe Municipal Airport if the heights of the structures were to pose a hazard to air navigation near the airport. To ensure that no such hazard would be created by construction of the Project, the Applicant performed a §14 CFR 77 (Objects Affecting Navigable Airspace) analysis for the BSPP. This assessment included review of the potential compliance with §14 CFR 77 of all Project structures. All Project structures are less than 150 feet in elevation above ground level. The specific Project structures for which detailed review was performed are two Air Cooled Condensers (ACCs) (120 feet in height) and 56 high voltage transmission lines monopoles (145 feet and 90 feet in height). The transmission line will connect the Project to the Southern California Edison (SCE) system at the new Colorado River substation.

Figure 1 presents a graphical representation of the results of the Applicant's analysis of the allowable height of structures within the Part 77 Horizontal Surface boundary and the Conical Surface boundary. There is a portion of the transmission line route at which terrain will restrict the allowable height of the transmission line poles to a nominal 90 feet above ground level. Outside of this limited area, BSPP will limit the height of transmission poles to a nominal 145 feet above ground level. For that section of the transmission line route with pole height of 90 feet, the pole spacing will be a nominal 800 feet. For the rest of the transmission line route, the pole spacing will be a nominal 1,000 feet.

The Applicant submitted Federal Aviation Administration (FAA) Form 7460 (Notice of Proposed Construction and Alteration) to the FAA for those elements of the Project that are to be located within the compatibility zone requiring analysis under §14 CFR 77. These structures consist of the two eastern-most of the Project's four air cooled condensers (ACC-1 and ACC-4) and 56 transmission line poles. Both ACC-1 and ACC-4 are located to the north-northwest of the approach end of Runway 17. The remaining two air cooled condensers are outside the area subject to FAA review under §14 CFR 77.

To date, the FAA has issued Determination of No Hazard to Air Navigation letters for the two air cooled condensers subject to review (ACC-1 and ACC-4) and for 39 transmission line poles. The FAA has requested additional information for 15 poles while the FAA reviews of the two remaining poles are in progress. The FAA Determination of No Hazard to Air Navigation letters received to date are included on CD-ROM and are included with the Application package.

Attachment 1.

AECOM

§14 CFR 77 Analysis of Allowable Heights for BSPP
19 Feb 2010

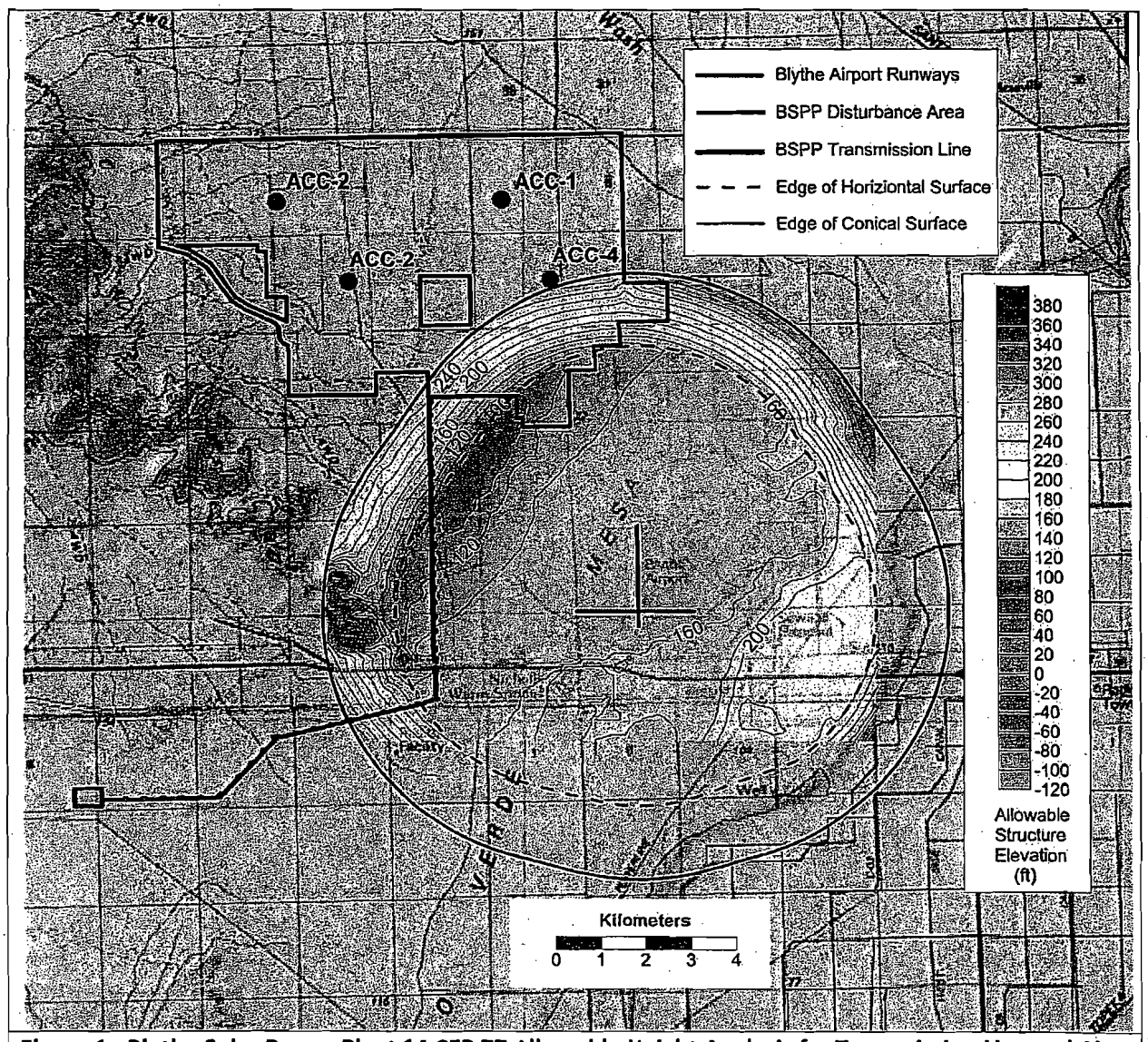


Figure 1. Blythe Solar Power Plant 14 CFR 77 Allowable Height Analysis for Transmission Line and Air Cooled Condensers (ACCs)

Attachment 2.

AECOM

Aircraft Safety Assessment for BSPP for submittal to Riverside County ALUC
23 Feb 2010

The Blythe Solar Power Project (BSPP or Project) is located approximately one mile northwest of the Blythe Municipal Airport and portions of the Project site fall within the Land Use Compatibility Zone established by the Riverside County Airport Land Use Commission. In a telephone conversation with Mr. John Guerin, ALCU Senior Planner, on 2/9/2010, Mr. Guerin indicated that the land use compatibility issues of concern to the ALCU for the BSPP were hazards to aviation consisting of electromagnetic interference, glare, visible plumes, turbulence from thermal plumes, bird attraction, and structure height. Structure height is addressed in Attachment 1. The remainder of this document addresses each of the remaining potential hazards to aviation posed by the BSPP.

Electromagnetic Interference

The electromagnetic signal/noise emanating from the BSPP due to operation of electrical equipment will be at base frequency of 60 hertz with less intense higher frequencies from harmonics. The sources and potential magnitude of electromagnetic radiation from the BSPP are expected to be comparable to that generated by the Palmdale Hybrid Power Project (PHPP). The proposed PHPP is a hybrid power generating facility that includes a solar thermal generation component comparable to that at the BSPP. The PHPP is proposed for construction on a site adjacent to the Air Force Plant 42/Palmdale Regional Airport in Palmdale, California. Both solar thermal projects will employ parabolic mirror troughs and will use generally similar electrical control systems and equipment. Navigation and aviation communication signals commonly employed at the AF Plant 42 airfield for control and guidance are in the range of 108 megahertz to 135 megahertz (VHF) and 225 megahertz to 400 megahertz (UHF). The California Energy Commissions did not express concern that electromagnetic signals generated by the PHPP would interfere with navigation signals at the Palmdale Airport (CEC Preliminary Staff Assessment Palmdale Hybrid Power Plant Project, Docket 08-AFC-9, Volume 1, Transmission Line Safety and Nuisance, December 29, 2009). Consequently, since the solar components of the PHPP and the BSPP are similar, there is no reason to suspect that the BSPP would produce significant electromagnetic interference at the Blythe Airport.

The BSPP proposes to construct a 230 kV circuit transmission line to connect the BSPP to the Southern California Edison (SCE) Colorado River substation to allow interconnection with the SCE system. Potential transmission line-related radio frequency interference is a potential indirect effect of transmission line operation and is produced by the physical interactions of line electric fields. Such interference is due to the radio noise produced by the action of the electric fields on the surface of the energized conductor. The process involved is known as corona discharge and can occur within gaps between the conductor and insulators or metal fittings. Since the level of interference depends on factors such as line voltage, distance from the line to the receiving device, orientation of the antenna, signal level, line configuration and weather conditions, maximum interference levels are not specified as design criteria for modern transmission lines. The level of any such interference usually depends on the

magnitude of the electric fields involved and the distance from the line. However, the potential for such impacts is minimized by reducing the line electric fields and locating the line away from inhabited areas.

The potential for such corona-related interference is usually of concern for lines of 345 kV and above. The BSPP transmission line will operate at 230 kV and will be designed in accordance with standard utility practices to reduce the electric field at energized surfaces to acceptable levels. Each transmission line circuit consists of three phases. Each phase conductor utilized will be bundled - two or more sub-conductors separated by 18 to 22 inches to make up one phase conductor - specifically to reduce electric fields at the conductor surface. In addition, electric field mitigation devices called corona rings will be mounted at conductor-hardware interface points at the end of the insulators to reduce the field levels at those locations. Radio frequency interference is therefore not expected to be a concern during operation of the transmission line.

Glare from Parabolic Trough Mirrors

Potential glare from parabolic trough mirrors was investigated during the California Energy Commission (CEC) licensing proceeding for the Victorville 2 (VV2) Hybrid Power Project (CEC Docket Number 07-AFC-1). The VV2 is a hybrid power generating facility that will use parabolic trough mirrors comparable to those proposed for the BSPP to generate a portion of its output. The VV2 project is proposed for construction adjacent to the Southern California Logistics Airport (SCLA). In the VV2 siting case, CEC Staff reviewed the information submitted by the applicant in support of the licensing proceeding, including light reflection and scattering optics in a parabolic mirror and the heat conduction element (HCE) at the focal point, and indicated that the VV2 project would not cause an impact to nearby flight operations at the SCLA (CEC, Final Staff Assessment, Victorville 2 Hybrid Solar Power Project, Docket 07-AFC-01, Traffic and Transportation, March 2008). Likewise, BSPP is not expected to have an impact on Blythe Municipal Airport flight operations

The mirrors proposed for the BSPP are in the form of a trough whose cross section has the shape of a section of a parabola. The primary feature of a parabola is that all incident light entering the parabola is focused on a single focal point. For a linear parabolic trough mirror, the focal point becomes a line of focus with the heat conducting element located along this line of focus. The HCE is 70 millimeter diameter glass tube running the length of the mirror containing a heat transfer fluid. Because all incident light striking the mirror is focused on the HCE tube, and almost all the focused light is absorbed upon striking the HCE, there is no direct reflection of sunlight by the mirror to an outside observer. Figure 1 presents a discussion of the optics associated with a parabolic mirror and a graphic presenting a visualization of the reflections within a parabolic mirror.

While there is no direct (or specular) reflection from a parabolic mirror other than that impinging on the line of focus, there are minor sources of specular reflection and diffuse scattering from light striking the HCE tube. Because the HCE is in front of the mirror, a small fraction of incoming sunlight directly

impinges on the HCE and this small amount of light is scattered or reflected away from the mirror. In addition, there is scattering, reflection, and refraction occurring along the entire line of focus on the side of the HCE facing the mirror. Due to these scattering and refraction effects, the HCE can be seen to glow when in service. In addition, metal surfaces within the solar trough array have the potential to produce specular reflections given the proper sun-mirror-observer geometry. Figure 2 presents a ground level view of the reflected light from the HCE. Note there is a primary reflection point and smaller reflections from joints in the HCE. Figure 3 presents a ground level view of the direct reflection from several points on the HCE tube plus the glow along the HCE from a working section of the mirror trough. In this instance, the glow is visible because of the uniform backdrop of the mirror, and constitutes most of what is what is generally seen from an aircraft looking down on a mirror array, given the proper geometry. The point reflections from the HCE tube are comparable to that from, for instance, a mirror or windshield from a passing truck, or broken glass along the highway. The BSPP will construct a 25-foot tall wind screen around the solar array fields and this wind screen will prevent such reflections from seriously impacting ground level observers outside the fence line of the facility.

The diffuse scattered and reflected light from the HCE, when viewed from aloft, has the appearance of the diffuse reflection from a body of water. Figure 4 presents three pictures of the diffuse light from an active solar trough array observed from an aircraft flying over the Kramer Junction SEGS solar power plant (Flight referenced in CEC Final Staff Assessment, Victorville 2 Hybrid Solar Power Project, Docket 07-AFC-01, Traffic and Transportation, March 2008). The glow from the diffuse scattering/refraction and direct reflection from the HCE elements is visible as a bright area in the solar trough array field. Note that as the observer position changes between frames, the area of the solar field producing the corresponding "lake surface" effect changes as the observer-mirror-sun geometry changes. The observed glow is not brilliant and can be easily observed steadily, as opposed to an intense specular reflection from a mirror.

Two aircraft were involved in the over-flight during which the pictures in Figure 4 were taken. Figures 5 and 6 are copies of emails from two persons involved in the over-flight, James Adams of the CEC, and Peter Soderquist, the SCLA Manger and pilot of one of the aircraft. Both Mr. Adams and Mr. Soderquist comment in their emails that there was no glare (i.e., intense specular reflection) observed from the solar trough mirrors during the fly-over (Flight referenced in CEC, Final Staff Assessment, Victorville 2 Hybrid Solar Power Project, Docket 07-AFC-01, Traffic and Transportation, March 2008).

Visible Plumes associated with Cooling Towers

The BSPP will use an air-cooled condenser (ACC) to reject waste heat from the steam cycle in each power block. An air cooled condenser is essentially a large open air radiator that dissipates heat to the atmosphere through air convection without the use of cooling water. Consequently, there is no water evaporation from an air cooled condenser nor is there any potential for formation of visible moisture plumes that could be a potential hazard to aviation.

The Project will also have four small auxiliary two-cell wet cooling towers, one for each of the four power blocks. The purpose of these auxiliary cooling towers is to reject waste heat from auxiliary boiler during startup and other non-routine operations. They are not designed to reject heat from the power plant steam cycle, as is the case for the much larger cooling tower at the nearby Blythe Power Plant. The California Energy Commission is not concerned with these small auxiliary cooling towers being a potential hazard to aviation and did not require a visible or thermal plume analysis for these auxiliary cooling towers as part of the licensing process for the BSPP (CEC, Final Staff Assessment Victorville 2 Hybrid Solar Power Project, Docket 07-AFC-01, Traffic and Transportation, March 2008.)

Turbulence Associated with Vertical Plumes from the Air Cooled Condenser

An air cooled condenser operates by using a rectangular array of fans to blow large amounts of air through cooling fins to allow steam to condense as part of the steam cycle for the power plant. The heat released by the condensation of the steam is transferred by convection to the atmosphere and creates a buoyant plume of warm rising air above the ACC. This rising plume of warm air has the potential to create turbulence that could be a hazard to aviation.

Based on the design basis for the Project's ACCs, the heat transferred to the air blowing past the cooling fins in the ACC will raise the temperature of the air by less than 10°C (18°F). This is to be compared to a power plant exhaust plume where the plume temperature can be over 400°C (750°F) greater than the ambient temperature upon release from the stack. Thermal energy is the primary energy source in an exhaust stack plume that can produce turbulence above the release point. Consequently, the ACC plume, with only a 10°C increment over the surrounding air, has little potential energy available to create vertical turbulence that would be a hazard to general aviation. Based on the mass flow rate through the ACC produced by the fans and the dimensions of the structure, the average upward velocity through the ACC is 4.5 meter per second (m/s). This velocity, which will occur at the upper face of the ACC, can be compared to the vertical velocity of 4.3 m/s that is used by the CEC as a significance criterion for the potential for a thermal plume to produce turbulence that could interfere with aircraft operation (CEC, 2010. Preliminary Staff Assessment for Palmdale Hybrid Power Project, Docket 08-AFC-09, Traffic and Transportation, February 9, 2010). As there is a steady decrease in plume vertical velocity as the thermal plume rises, there is little potential for the ACC to produce significant turbulence that could affect aircraft flight safety, even if the aircraft were immediately above the ACC.

Figure 7 presents a diagram illustrating the Airport Influence Area Boundary for the Blythe Municipal Airport, the general aircraft traffic pattern envelope for the airport obtained from the airport Master Plan, and the location of the air cooled condensers within the BSPP project area. The concern for flight safety from thermal plumes is that aircraft on final approach could be subject to turbulence at low level with little room for recovery if hazardous turbulence were experienced. However, as shown in Figure 7, the typical patterns for final approach do not take aircraft over the air cooled condensers of the BSPP. ACC-4 is adjacent to the Influence Area Boundary, approximately 14,000 feet north-northwest from the

approach end of Runway 17, and slightly off the extended centerline of the extend runway. ACC-1 is further away, at approximately 19,000 feet north-northwest. None of the traffic pattern envelopes, which are considered to encompass 80 percent of all flights, approach the location of the BSPP air cooled condensers. While aircraft may pass over the air cooled condensers during some flight operations in the terminal area, these flights will be at higher altitude and not subject to the potential low-level of turbulence that may occur above the air cooled condensers.

In summary, there is not expected to be any significant impact on aircraft safety due to thermal plumes generated by the BSPP air cooled condensers due to

1. Flight patterns at the airport do not take aircraft over the air cooled condensers at low altitude, and
2. The magnitude of turbulence above the air cooled condensers is near the threshold level established by the CEC, and will diminish with altitude above the structures.

Bird Attraction

Birds are attracted to elevated structures for perching and water surfaces are attractants for migratory birds. There are no ponds associated with the BSPP that would be attractants to migratory birds. While there are elevated structures associated with the BSPP, the most significant ones can be easily excluded as bird attractants. Birds are unlikely to perch on the parabolic mirror arrays because of the local glare/scattered light near the mirrors and heat conduction element and the continuous motion of the mirrors. Likewise, birds are unlikely to perch on the air cooled condensers because of the fan noise and the relatively large vertical air flow (approximately 4.5 meter per second, or 10.0 miles per hour).

???

Figure 1. Parabolic Trough Mirror Design

Parabolic Trough Mirror Design

Prevents Escape of Reflected Incident Rays

The design of VV2's single axis solar collector essentially prevents the escape of incident rays that directly strike the surface of the mirror. This is accomplished by the fundamental physics of the parabolic reflector as shown at Figure A in EXHIBIT I (attached). All rays entering the parabolic reflector are concentrated at single point (the focal point), located ½ the distance of the arc's radius, shown as Fp in Figure A. A Parabolic Trough Mirror type solar array is engineered so as to place the Heat Collection Element (HCE) precisely at the Fp (see also Figure B, on the attached EXHIBIT I).

The solar array will track the East to West movement of the sun with an accuracy of 0.1 degrees. The concentrated area of the sun's reflected incident rays will be magnitudes smaller than the 70MM diameter of the HCE. The HCE positioned in this direct line of sight with the sun will block or absorb all entering direct incident or reflected incident rays. As a result, aircraft flying over the array will generally not be exposed to reflected incident rays of sunlight -- in other words, the sun itself (or any portions thereof) will not appear to pilots as a reflection in a mirror.

It is important to note that the HCE is encased in glass and will be a minor source of reflection as described below (this is generally what accounts for the "glittering" effect of parabolic trough solar arrays, often described as similar to flying over a body of water):

1) The HCE is designed to absorb and collect incident rays reflecting off the parabolic mirror but, of course, some incident rays will strike the HCE directly as it is located in front of the mirror. As a result, there will be some reflections from the glass coating the HCE; however, these reflections will be minor as the HCEs are designed to absorb sunlight, not reflect it.

2) The reflected incident rays of the sun will generally be directed to the lower portion of the HCE glass encasement by design and will produce a glow from the reflected scattered beams as they enter the collector. If an aircraft were positioned at exactly the right angle above the array, this "glow" phenomenon could be visible along the entire length of the collector element for an individual row of mirrors. However, there are no reflected incident rays of sunlight associated with this glow and the brilliance/intensity of the light is much less by comparison to reflected sunlight.

In summary

Based on practical experience and the laws of physics, solar arrays using the parabolic trough mirror design do not produce significant glare or reflection that would pose a distraction to aviation. The fundamental reason for this conclusioncan be found in the design of the parabolic trough mirror. The focal point created by the parabolic mirror will not allow any concentrated rays to escape the solar field. As a result, descriptions by pilots over flying a solar thermal facility (SEGS) indicate that, with regard to reflective glare, the general appearance of the array from the air is similar to flying over a body of water (see for example, the attached e-mail from Peter Soderquist of SCLA describing a recent overflight of the existing SEGS plants).

Figure 1. Parabolic Trough Mirror Design (Continued)

EXHIBIT 1: Parabolic reflectivity

Fp = Focal Point = A point located ½ the distance of the arc's radius

C = Center of Arc

Incident Ray = Separate and continuous bombardment of sunlight

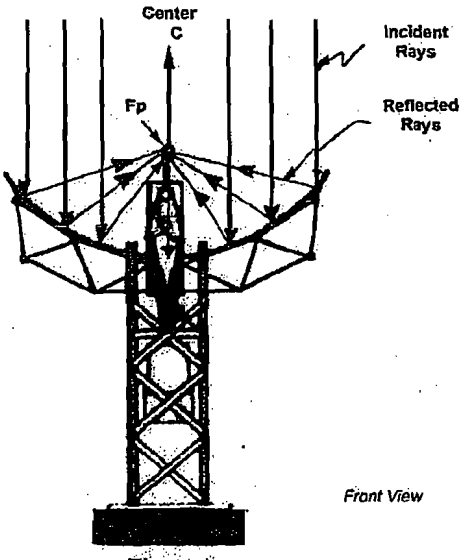


Figure A

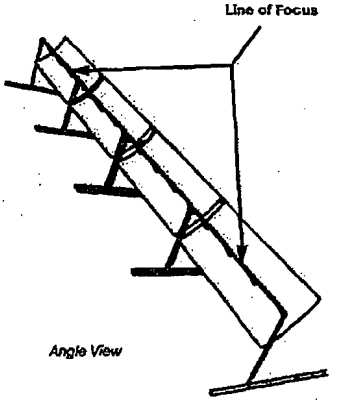


Figure B

A parabolic reflective surface (Figure A) will precisely direct an Incident Ray of light (Ir) to a focal point (Fp) ½ the distance from the center (C) of the arc. There is a "line of focus" (Figure B) created by the parabolic trough that will travel the full length of the mirror.

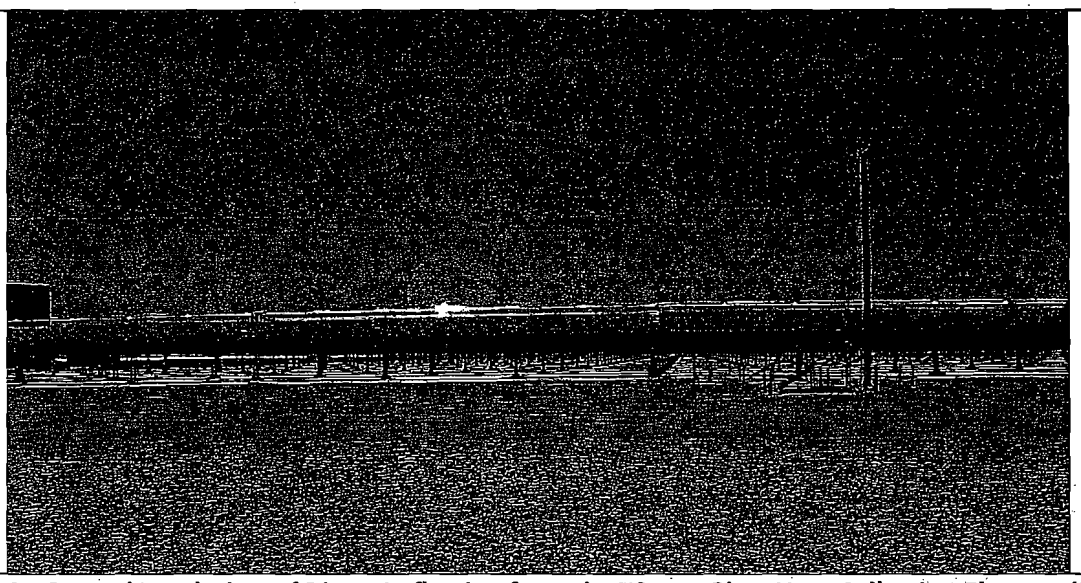


Figure 2. Ground Level View of Direct Reflection from the 70 mm Glass Heat Collection Element (HCE) at the Focus of the Parabolic Mirror at the SEGS Power Plant. There will be a wind fence surrounding the facility that will prevent most such reflections from being visible from a ground level observer.

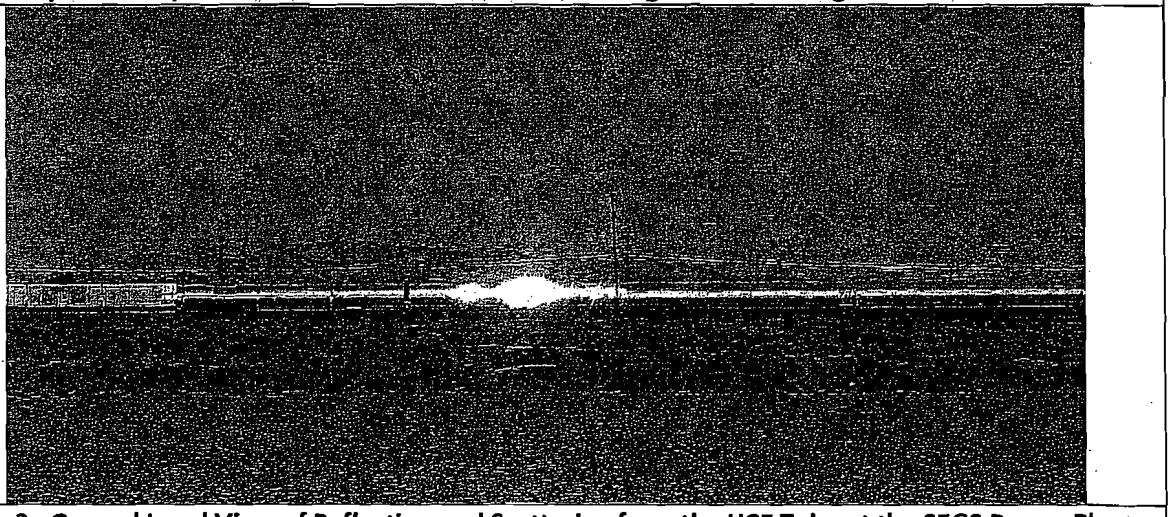
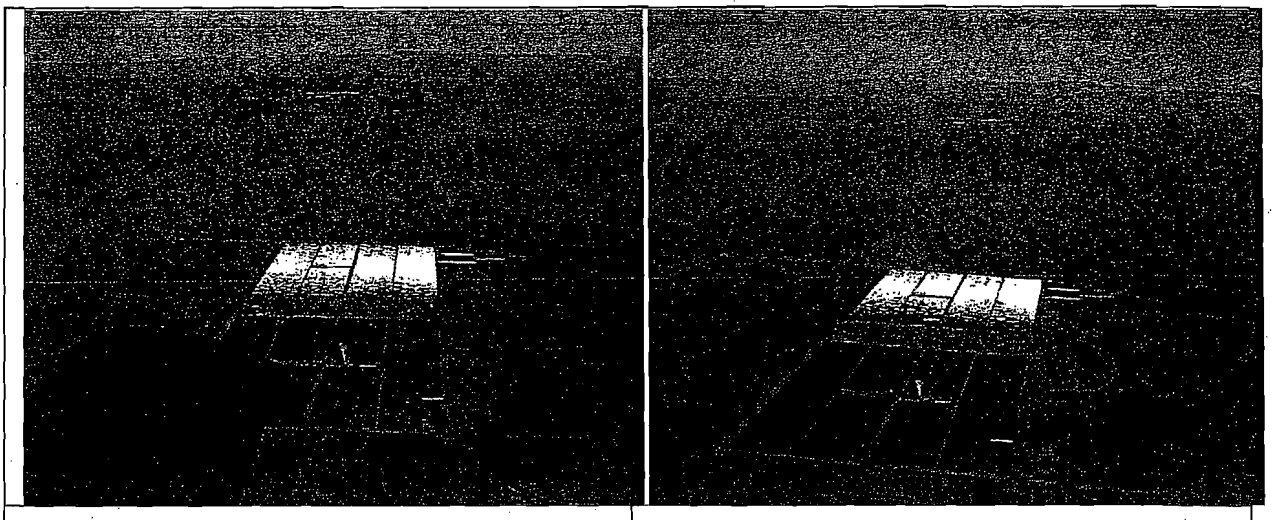


Figure 3. Ground Level View of Reflection and Scattering from the HCE Tube at the SEGS Power Plant. Note the Diffuse Glow due to Scattering Along the Entire Length of the HCE Tube. There will be a wind fence surrounding the facility that will prevent most such reflections from being visible from a ground level observer.



Three views of the Solar Array at Kramer Junction showing the "glow" of scattered and diffuse reflected sunlight from the solar trough array. The source and intensity of such light is dependent upon the geometry between the viewer, the solar trough, and the sun. Glow from the foreground array and portions of the background array are not visible because the observer-mirror-sun geometry is not correct. The observed light is comparable to the diffuse reflected light off a surface of water. There is no difficultly in looking directly at the solar array as the observed light is mostly due to diffuse scattering processes rather than direct, specular reflection of sunlight from a mirror.

Figure 4. Aerial Photographs of Observed Scattered and Diffuse Reflected Sunlight from the Solar Trough Array at Kramer Junction, September 24, 2007.

*
From: Jim Adams [mailto:Jadams@energy.state.ca.us]
Sent: Friday, October 12, 2007 3:07 PM
To: Barnett, Tom
Cc: John Kessler
Subject: Re: Solar Design

Tom,

Peter flews us over the arrays at Kramer Junction and Harper Lake on September 24 between 10-10:30 AM. From a distance the facilities look like a lake or big pond. We started off at 4,000 feet AGL and got down to 1,500. We simulated doing an approach for landing and kept the facility in sight off to our left. I managed to take some pictures with my digital camera even though it was a bumpy ride. There was no glare at any time. Curt and a colleague from Caltrans Aeronautics flew similar overflights in another plane. They didn't see any glare either. I will be getting a letter from them soon. I also talked to Mark Mehos with NREL and he sent me an e-mail noting that all the sun rays are captured by the parabolic collector. Worst case scenario is when a collector is not "on sun" in which case the reflected light drops to ambient levels (same intensity as would be reflected off a flat mirrored surface). I will continue to research this and plan on contacting parabolic collector manufacturers for additional info on the potential for glare. We'll discuss this at the PSA workshop and I'll revisit in the FSA.

Regards,

Jim

James S. Adams, MA
Planner II
Environmental Office, MS 40
California Energy Commission
1516 9th Street
Sacramento, CA 95814-5504
916-653-0702
jadams@energy.state.ca.us

Figure 5. Email documenting observation of lack of reflected glare from parabolic trough mirrors during a flyby at a solar thermal power plant, September 24, 2007.

From: Peter Soderquist [mailto:PSoderquist@CI.VICTORVILLE.CA.US]
Sent: Friday, October 05, 2007 11:23 AM
To: Barnett, Tom
Subject: RE: Solar Glare follow Up

Note to file regarding a "photo flight" over the solar arrays at Kramer Junction and Harper Lake.

On September 28, I received an email from Jim Adams regarding using my plane to fly him up to Kramer Junction and Harper Lake to take aerial photos of the solar arrays. The note began with: "We don't have a problem with using your plane. We should arrive about 10 AM on Thursday and will need to get airborne ASAP. I'm forwarding this e-mail from Kurt with the google earth points and hold harmless agreement. You need to tell the military guys that your flight is a substitute for the Caltrans approved flight."

I coordinated with Sport Radar (the military), advising them that I was making the flight instead of CALTRANS.

Jim, Kurt Houkel, and Gwyn Rees (also from CALTRANS arrived). After I explained that I had switched planes (as directed by Jim) Kurt noted his displeasure with this and expressed his strong desire to go. We ended up taking two aircraft. Jim was with me and Kurt and Gwyn went in the CALTRANS airplane.

We took off at around 10:15 and flew up to Kramer Junction. On the way up, Jim pointed out a lake in the distance and asked what that was. I said that was the Kramer Junction solar array. I asked him if he could see the lake at our 2:00 position. He did. I told him that was the Harper Lake array.

At Jim's request, we flew by the Kramer Junction array on the east side at 1,500' AGL. We turned west and simulated an approach to land (as though we were landing at SCLA with the solar array off our left wing). The only time "glare" appeared was when we were heading north on the east side of the array. The "glare" was thin, glinting lines that "moved" north over the array as the aircraft moved north. They were not offensive. While one could not stare at the sun, one could stare at these lines. I did not see the "glare" after turning west or while flying south to "land." My observations were from 1,500 AGL to 500' AGL.

After "landing" we headed direct to the Harper Lake solar array. On the way to Harper Lake, I asked Jim what he thought of Kramer Junction. His response was noncommittal.

As we approached Harper lake, again, it looked like water. There was no reflection at all – no glare. We remained south of the array and after passing it to the east, we headed back to SCLA.

On the way back, I asked Jim if he could see the glare off my left wing. He could not as it was close to the fuselage. I was attempting to show him that the glare from the sun off my wing was offensive. Unlike the "glare" we saw at Kramer Junction which one could look at, you could not look at the sun's glare on the wing.

While overflying Silver Lakes, I attempted to identify the glare that pilots commonly see reflecting from

lakes. There was no visible glare because the water was too choppy.

As we approached to land at SCLA, I pointed out to Jim that the "solar array" on our left was passing by under our wing and was only partially visible.
After landing, the four of us reconvened briefly in the theater (Kurt wanted to make a quick departure to avoid incoming weather/winds). During that time, Kurt mentioned several times that he did not see a problem with what he saw/experienced.

Jim was less noncommittal in the conference room. Though he did not specifically make the statement that the glare was not offensive, his comments suggested that it his mind, it was not. He stated that his report would probably recommend the power plant utilize the newer technology mirrors that are being used at Fresno as they are apparently designed to minimize glare.

To sum, I thought the flight demonstrated to Jim that the glare that that was reflected off the Kramer Junction solar array was visible but not offensive. I use the expression *"...the glare that was reflected..."* to remind us that while the flight around the Kramer Junction array took several minutes, the only time these wispy lines of glare appeared was while we were passing by it on the east side. The rest of the time, the array was non-reflective.

Peter Soderquist

Figure 6. Email by Pilot Peter Soderquist Documenting His Observation of Lack of Reflected Glare from the Parabolic Trough Mirrors during a Flyby at a Solar Thermal Power Plant, September 24, 2007.

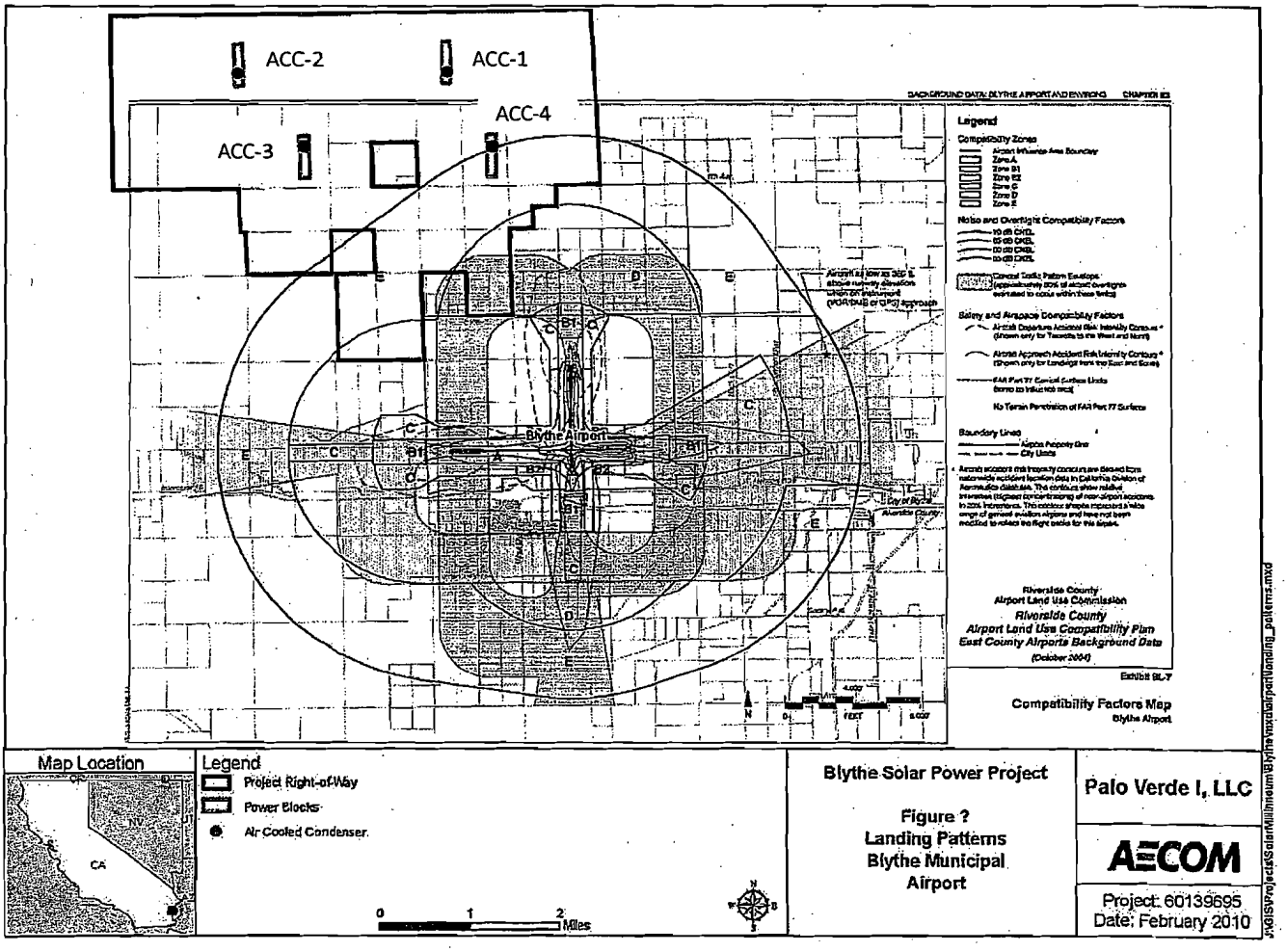
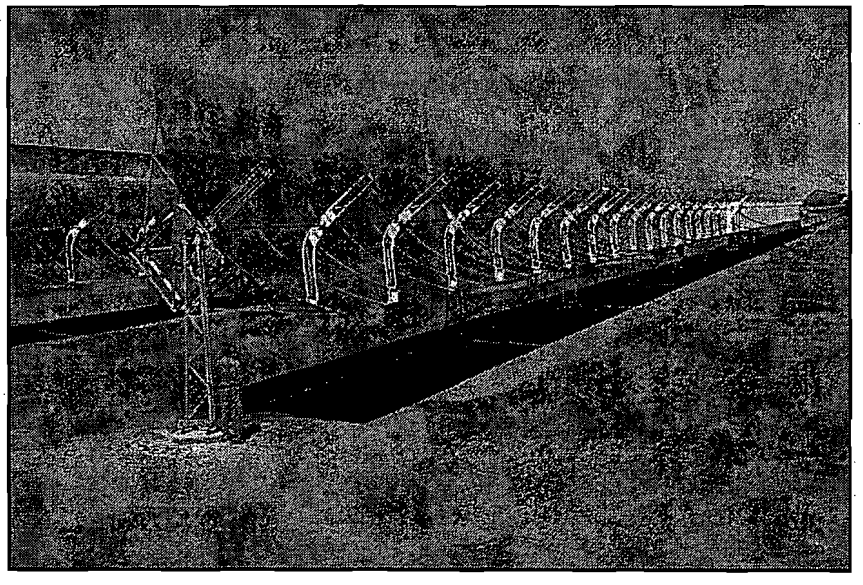


Figure 7. Blythe Municipal Airport Traffic Patterns, Blythe Solar Power Project Boundary, and Location of Air Cooled Condensers and Transmission Line

Staff Assessment and Draft
Environmental Impact Statement

BLYTHE SOLAR POWER PROJECT

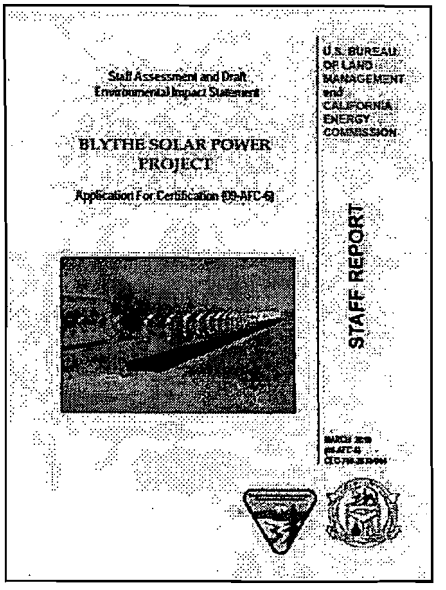
Application For Certification (09-AFC-6)



U.S. BUREAU OF LAND MANAGEMENT and CALIFORNIA ENERGY COMMISSION

STAFF REPORT

MARCH 2010
(09-AFC-6)
CEC-700-2010-004



CALIFORNIA ENERGY COMMISSION

Alan Solomon
Project Manager

Eileen Allen
Siting Office Manager

Terrence O'Brien
Deputy Director
SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION

Melissa Jones
Executive Director

BLYTHE SOLAR POWER PROJECT (09-AFC-6)
STAFF ASSESSMENT / DRAFT ENVIROMENTAL IMPACT STATEMENT

EXECUTIVE SUMMARY

A. INTRODUCTION

B. DESCRIPTION OF THE PROPOSED PROJECT AND ALTERNATIVES

- B.1 PROPOSED PROJECT
- B.2. ALTERNATIVES EVALUATED
- B.3 CUMULATIVE SCENARIO

C. ENVIRONMENTAL ANALYSIS

- C.1 AIR QUALITY
- C.2 BIOLOGICAL RESOURCES
- C.3 CULTURAL RESOURCES AND NATIVE AMERICAN VALUES
- C.4 HAZARDOUS MATERIALS MANAGEMENT
- C.5 HEALTH AND SAFETY
- C.6 LAND USE, RECREATION, AND WILDERNESS
- C.7 NOISE AND VIBRATION
- C.8 SOCIOECONOMIC AND ENVIRONMENTAL JUSTICE
- C.9 SOIL AND WATER RESOURCES
- C.10 TRAFFIC AND TRANSPORTATION
- C.11 TRANSMISSION LINE SAFETY AND NUISANCE
- C.12 VISUAL RESOURCES
- C.13 WASTE MANAGEMENT
- C.14 WORKER SAFETY & FIRE PROTECTION

D. ENGINEERING ASSESSMENT

- D.1 FACILITY DESIGN
- D.2 GEOLOGY, PALEONTOLOGY, AND MINERALS
- D.3 POWER PLANT EFFICIENCY
- D.4 POWER PLANT RELIABILITY
- D.5 TRANSMISSION SYSTEM ENGINEERING

E. GENERAL CONDITIONS

F. LIST OF PREPARERS

G. WITNESS QUALIFICATIONS AND DECLARATIONS

B.1 DESCRIPTION OF THE PROPOSED PROJECT

Alan Solomon

B.1 PROPOSED PROJECT

B.1.1 INTRODUCTION

On March 16, 2007, the Bureau of Land Management (BLM) received an Application for Transportation and Utility Systems and Facilities on Federal Lands to construct, operate, and maintain the Blythe Solar Power Plant Project (BSPP). On August 24, 2009, the California Energy Commission received an Application For Certification (AFC) from the applicant to construct and operate the BSPP in Riverside County. On October 26, 2009, a Supplement to the AFC was received and evaluated by staff. Subsequently, at the Energy Commission's November 18, 2009 Business Meeting, the AFC was deemed complete, beginning staff's analysis of the proposed project.

The project is proposed to be located in the California inland desert, approximately eight miles west of the city of Blythe and two miles north of the Interstate-10 freeway in Riverside County, California. The applicants are seeking a right-of-way grant for approximately 9,400 acres of land administered by the BLM. Construction and operation of the project would disturb a total of about 7,030 acres.

B.1.2 DESCRIPTION

BSPP would consist of four adjacent, independent, and identical units of 250 megawatt (MW) nominal capacity each for a total nominal capacity of 1,000 MW.

The Blythe project would utilize solar parabolic trough technology to generate electricity. With this technology, arrays of parabolic mirrors collect heat energy from the sun and refocus the radiation on a receiver tube located at the focal point of the parabola. A heat transfer fluid (HTF) is heated to high temperature (750°F) as it circulates through the receiver tubes. The heated HTF is then piped through a series of heat exchangers where it releases its stored heat to generate high pressure steam. The steam is then fed to a traditional steam turbine generator where electricity is produced.

Each of the four solar field systems operates under the control of its Field Supervisor Controller (FSC), which is a computer located in the central control room.

The FSC collects information from each Solar Collector Assemblies (SCA) and issues instructions to the SCA's. Some of its functions include deploying the solar field during the day when weather and facility availability permit, and stows it at night and during high winds (in high wind conditions, the solar field must be stowed).

A weather station located in the power block areas provides real-time measurements of weather conditions that affect the solar field operation. Radiation data is used to determine the performance of the solar field.

The FSC communicates all relevant conditions to the plant's distributed control system (DCS). The DCS coordinates and integrates power block, HTF system, and solar field operation.

Individual Components of the Proposed Project

Solar Collector Assemblies - The project's SCAs are oriented north-south to rotate east-west to track the sun as it moves across the sky throughout the day. The SCAs collect heat by means of linear troughs of parabolic reflectors, which focus sunlight onto a straight line of heat collection elements (HCEs) welded along the focus of the parabolic "trough".

Parabolic Trough Collector Loop - Each of the collector loops consist of two adjacent rows of SCAs, each row is about 1,300 feet long. The two rows are connected by a crossover pipe. HTF is heated in the loop and enters the header, which returns hot HTF from all loops to the power block where the power generating equipment is located.

Mirrors - The parabolic mirrors to be used in the Project are low-iron glass mirrors. Typical life spans of the reflective mirrors are expected to be 30 years or more.

Heat Collection Elements - The HCEs of the four solar plants are comprised of a steel tube surrounded by an evacuated glass tube insulator. The steel tube has a coated surface, which enhances its heat transfer properties with a high absorptivity for direct solar radiation, accompanied by low emissivity.

Glass-to-metal seals and metal bellows are incorporated into the HCE to ensure a vacuum-tight enclosure. The enclosure protects the coated surface and reduces heat losses by acting as an insulator.

HTF System - In addition to the HTF piping in the solar field, each of the four HTF systems includes three elements: 1) the HTF heater, 2) the HTF expansion vessel and overflow vessel, and 3) the HTF ullage system. To eliminate the problem of HTF freezing, an HTF heater would be installed and used to ensure system temperature stays above 54°F (12°C) whenever the unit is offline. A surge tank is required to accommodate the volumetric change that occurs when heating the HTF to the operating temperature.

During plant operation, HTF would degrade into components of high and low boilers (substances with high and low boiling points). The low boilers are removed from the process through the ullage system. HTF is removed from the HTF surge tank and flashed, leaving behind high boilers and residual HTF. The flashed vapors are condensed and collected in the ullage system.

Solar Steam Generator System - At each of the four units, the SSG system transfers the sensible heat from the HTF to the feedwater. The steam generated in the SSG is piped to a Rankine-cycle reheat steam turbine. Heat exchangers are included as part of the SSG system to preheat and boil the condensate, superheat the steam, and reheat the steam.

Steam Turbine Generator - The STG receives steam from the SSG. The steam expands through the STG turbine blades to drive the steam turbine, which then drives the generator, converting mechanical energy to electrical energy. Each of the Project's STGs would be a three-stage casing type with high pressure (HP) intermediate pressure (IP), and low pressure (LP) steam sections. The STG is equipped with the following accessories:

- Steam stop and control valves,
- Gland seal system,
- Lubricating and jacking oil systems,
- Thermal insulation, and
- Control instrumentation.

Operational of the Solar Fields

At each solar field, a DCS containing several automation units controls the HTF and steam loops and all auxiliary plant systems, and determines the appropriate operating sequences for them. It also monitors and records the primary operating parameters and functions as the primary interface for system control.

The DCS communicates with all subsystem controls, including electrical system equipment, steam cycle controllers, variable frequency drives and balance-of-plant system controllers via serial data communication. It receives analog and digital inputs/outputs from all instruments and equipment not served directly by dedicated local controllers. The DCS controls both the steam and HTF cycles directly, operating rotating equipment via relevant electrical panels. It includes a graphical user interface at an operator console in the main control room. Day-to-day, the following operation modes would occur in the HTF system:

- Warm up,
- Solar field mode (heat transfer from solar field to power block),
- Shutdown, and
- Freeze protection.

Warm up

Usually in the morning, the warm up mode brings the HTF flow rate and temperatures up to their steadystate operating conditions. It does this by positioning all required valves, starting the required number of HTF main pumps for establishing a minimum flow within the solar field and tracking the solar field collectors into the sun.

At the beginning of warm up at each of the four units, HTF is circulated through a bypass around the power block heat exchangers until the outlet temperature reaches the residual steam temperature in the heat exchangers. HTF is then circulated through the heat exchangers and the bypass is closed. As the HTF temperature at the solar field outlet continues to rise, steam pressure builds up in the heat exchangers until the minimum turbine inlet conditions are reached, upon which the turbine can be started and run up to speed. The turbine is synchronized and loaded according to the design specification until its power output matches the full steady state solar field thermal output.

Solar Field Control Mode
The DCS enters solar field control mode automatically after completing warm-up mode. It regulates the flow by controlling the HTF main pump speeds to maintain the design solar field outlet temperature.

Several HTF pumps would generally be operated in parallel, at the speed required to provide the required flow in the field. If the thermal output of the solar field is higher than the design capacity of the steam generation system, collectors within the solar field are de-focused to maintain design operating temperatures.

Shutdown
If the minimal thermal input to the turbine required by the project's operating strategy cannot be met under the prevalent weather conditions, then shutdown is indicated. Operators would track all solar collectors into the stow position, reduce the number of HTF main pumps to a minimum, and stop the HTF flow to the power block heat exchangers.

Major Project Components
The major components and features of the proposed Blythe project include:

- Power Block Unit #1 (northeast);
- Power Block Unit #2 (northwest);
- Power Block Unit #3 (southwest);
- Power Block Unit #4 (southeast);
- Access road from I-10 frontage road to onsite office;
- Office and parking;
- Land Treatment Unit (LTU) for bioremediation/land farming of HTF-contaminated soil;
- Warehouse/maintenance building and laydown area;
- Onsite transmission facilities, including central internal switchyard;
- Dry wash rerouting; and
- Groundwater wells used for water supply.

The four power blocks are identical in design, except for water treatment systems and water tanks for dust control, which are only found in the power blocks of Unit #1 and Unit #3. Otherwise, the descriptions below apply to all four power blocks in all four units. Major components of the power block include:

- Steam generation heat exchangers;
- HTF overflow and expansion vessels;
- One HTF freeze protection heat exchanger;
- One auxiliary boiler;
- One steam turbine-generator (STG);
- One generator step up transformer (GSU);
- Air Cooled Condenser (ACC);
- One small wet cooling tower for ancillary equipment;
- Reverse osmosis (RO) concentrate/dust control water storage tank;
- Treated water tank;

- Water treatment system;
- Water, natural gas, and HTF pipelines exiting the power block;
- Operations and maintenance buildings; and
- Transmission and telecommunications lines exiting the power block.

Fuel Supply and Use
The auxiliary boiler and HTF heaters for each unit would be fueled by natural gas. The gas for the entire project would be supplied from a new 10-mile (two miles offsite) four-inch diameter pipeline connected to an existing SCG main pipeline south of I-10. Natural gas delivered to the project site would be delivered via an SCG custody transfer station consisting of filtering equipment, pressure regulating valves, and a fiscal flow meter. Pressure limiting equipment would be provided to ensure the downstream piping would be protected from overpressure. The estimated maximum natural gas usage per unit is 70 MMBtu/hr when the HTF heater is in use on cold winter nights.

Water Supply and Use
The project would be dry cooled. The project's water uses include solar mirror washing, feedwater makeup, fire water supply, onsite domestic use, cooling water for auxiliary equipment, heat rejection, and dust control.

Water Requirements
The average total annual water usage for all four units combined is estimated to be about 600 acre-feet per year (afy), which corresponds to an average flow rate of about 388 gallons per minute (gpm). Usage rates would vary during the year and would be higher in the summer months when the peak maximum flow rate could be as much as about 50% higher (about 568 gpm).

Water Source and Quality
The project water needs would be met by use of groundwater pumped from one of two wells on the plant site. Water for domestic uses by project employees would also be provided by onsite groundwater treated to potable water standards.

It is expected that two new water supply wells in the power blocks of the project site would adequately serve the entire project. A second well would provide redundancy and backup water supply in the event of outages or maintenance of the first well.

Solar Mirror Washing Water
At each solar field, to facilitate dust and contaminant removal, water from the primary desalination process, reverse osmosis (RO) water, would be used to spray clean the solar collectors. The collectors would be cleaned once or twice per week, determined by the reflectivity monitoring program. This mirror washing operation would be done at night and involves a water truck spraying treated water on the mirrors in a drive-by fashion. The applicant expects that the mirrors would be washed weekly in winter and twice weekly from mid spring through mid fall. Because the mirrors are angled down for washing, water does not accumulate on the mirrors; instead, it would fall from the mirrors to the ground and, due to the small volume, is expected to soak in with no

appreciable runoff. Any remaining rinse water from the washing operation would be expected to evaporate on the mirror surface. The treated water production facilities would be sized to accommodate the solar mirror washing demand of about 230 afy.

Cooling Systems
Each of the four power plant units includes two cooling systems: 1) the air-cooled steam cycle heat rejection system and, 2) the closed cooling water system for ancillary equipment cooling:

Steam Cycle Heat Rejection System
The cooling system for heat rejection from the steam cycle consists of a forced draft air-cooled condenser, or dry cooling system. At each power block, the dry cooling system receives exhaust steam from the LP section of the STG and condenses it to liquid for return to the SSG.

Auxiliary Cooling Water System
The auxiliary cooling water systems use small wet cooling towers for cooling plant equipment, including the STG lubrication oil cooler, the STG generator cooler, steam cycle sample coolers, large pumps, etc. The water picks up heat from the various equipment items being cooled and rejects the heat to the cooling tower. This auxiliary cooling system would allow critical equipment such as the generator and HTF pumps to operate at their design ratings during hot summer months when the project's power output is most valuable. An average of 146,000 gallons of water per day (160 afy) would be consumed by the auxiliary cooling water system; the maximum rate of consumption is 223,000 gallons per day in summer.

Waste Generation and Management
Project wastes would be comprised of non-hazardous wastes including solids and liquids and lesser amounts of hazardous wastes and universal wastes. The non-hazardous solid waste primarily would consist of construction and office wastes, as well as liquid and solid wastes from the water treatment system. The non-hazardous solid wastes would be trucked to the nearest Class II or III landfill. Non-hazardous liquid wastes would consist primarily of domestic sewage, and reusable water streams such as RO system reject water, boiler blowdown, and auxiliary cooling tower blowdown. A septic tank and leach field system would be installed to manage domestic sewage.

Wastewater
The Blythe project would produce two primary wastewater streams:

- Non-reusable sanitary wastewater produced from administrative centers and operator stations.
- Reusable streams including: blowdown from the cooling tower for the ancillary equipment heat rejection system, RO reject water, and boiler blowdown.

Sanitary wastewater production would consist of domestic water use. Maximum domestic water use is expected to be less than 332,000 gallons per month (11,000 gallons per day). It is anticipated that the wastewater would be consistent with domestic sanitary wastewater and would have biochemical oxygen demand and total suspended solids in the range of 150 to 250 mg/L.

Wastewater Treatment
Sanitary wastes would be collected for treatment in septic tanks and disposed via leach fields located at the four power blocks as well as at the administration area and warehouse area. Smaller septic systems would be provided for the control room buildings to receive sanitary wastes at those locations. Based on the current estimate of 11,000 gallons of sanitary wastewater production per day for the entire site, a total leach field area of approximately 22,000 square feet would be required spread out among several locations.

Construction Wastewater
Sanitary wastes produced during construction would be held in chemical toilets and transported offsite for disposal by a commercial chemical toilet service. Any other wastewater produced during construction such as equipment rinse water would be collected by the construction contractor in Baker tanks and transported off site for disposal in a manner consistent with applicable regulatory requirements.

On-Site Land Treatment Unit
The four solar fields to be installed at the project would share two LTUs to bioremediate or land farm soil contaminated from releases of HTF. Each LTU would be designed in accordance with Colorado River Basin Regional Water Quality Control Board (RWQCB) requirements and is expected to comprise an area of about 360,000 square feet (8.3 acres). The bioremediation facility would utilize indigenous bacteria to metabolize hydrocarbons contained in non-hazardous HTF contaminated soil. A combination of nutrients, water, and aeration facilitates the bacterial activity where microbes restore contaminated soil within two to four months. The California Department of Toxic Substances Control (DTSC) has determined for a similar thermal solar power plant that soil contaminated with up to 10,000 mg/kg of HTF is classified as a non-hazardous waste. However, the DTSC has further indicated that site-specific data would be required to provide a classification of the waste. Soil contaminated with HTF levels of between 100 and 1,000 mg/kg would be land farmed at the LTU, meaning that the soil would be aerated but no nutrients would be added.

Other Non-Hazardous Solid Waste
Non-hazardous solid wastes may be generated by construction, operation, and maintenance of the project which are typical of power generation facilities. These wastes may include scrap metal, plastic, insulation material, glass, paper, empty containers, and other solid wastes. Disposal of these wastes would be accomplished by contracted solid refuse collection and recycling services.

Hazardous Solid and Liquid Waste
Limited hazardous wastes would be generated during construction and operation. During construction, these wastes may include substances such as paint and paint-related wastes (e.g., primer, paint thinner, and other solvents), equipment cleaning wastes and spent batteries. During project operation, these wastes may include used oils, hydraulic fluids, greases, filters, spent cleaning solutions, spent batteries, and spent activated carbon. Both construction and operation-phase hazardous waste would be recycled and reused to the maximum extent possible. All wastes that cannot be recycled and any waste remaining after recycling would be disposed of in accordance with all applicable laws, ordinances, regulations and standards (LORS).

Hazardous Materials Management

There would be a variety of hazardous materials used and stored during construction and operation of the project. Hazardous materials that would be used during construction include gasoline, diesel fuel, oil, lubricants, and small quantities of solvents and paints. All hazardous materials used during construction and operation would be stored onsite in storage tanks/vessels/containers that are specifically designed for the characteristics of the materials to be stored; as appropriate, the storage facilities would include the needed secondary containment in case of tank/vessel failure. Aboveground carbon steel tanks (300 gallons) also would be used to store diesel fuel at each power block. Secondary containment would be provided for these tanks.

Fire Protection

Fire protection systems are provided to limit personnel injury, property loss, and project downtime resulting from a fire. The systems include a fire protection water system, foam generators, carbon dioxide fire protection systems, and portable fire extinguishers. The location of the project is such that it would fall under the jurisdiction of the Riverside County Fire Department.

Firewater would be supplied from the one million-gallon treated water (permeate) storage tanks located at the four power blocks on the site. One electric and one diesel-fueled backup firewater pump, each with a capacity of 5,000 gpm, would deliver water to the fire protection piping network.

The piping network would be configured in a loop so that a piping failure can be quickly isolated with shutoff valves without interrupting water supply to other areas in the loop. Fire hydrants would be placed at intervals throughout the project site that would be supplied with water from the supply loop. The water supply loop would also supply firewater to a sprinkler deluge system at each unit transformer, HTF expansion tank and circulating pump area and sprinkler systems at the steam turbine generator and in the administration building. Fire protection for each solar field would be provided by zoned isolation of the HTF lines in the event of a rupture that results in a fire.

Telecommunications and Telemetry

The project would have telecommunications service from providers who serve the Blythe area. Voice and data communications would be supported by a new fiber optic line which is anticipated to follow, and be within, the new transmission line alignment. This would be augmented with wireless telecom equipment, particularly to support communication with staff dispersed throughout the project site. Regarding telemetry, the project would utilize electronic systems to control equipment and facilities operations over the site.

Lighting System

The project's lighting system would provide operations and maintenance personnel with illumination in normal and emergency conditions. AC lighting would be the primary form of illumination, but DC lighting would be included for activities or emergency egress required during an outage of the plant's AC system.

HTF Freeze Protection System
At each unit, a freeze protection system would be used to prevent freezing of the HTF piping systems during cooler winter nights. Since the HTF freezes at a relatively high temperature (54°F or 12°C), HTF would be routinely circulated at low flow rates throughout the solar field using hot HTF from the storage vessel as a source. During winter, a natural gas-fired HTF heater would be used when weather conditions dictate (i.e. on cold nights).

HTF Leak Detection
Leak detection of HTF would be accomplished in various ways. Visual inspection throughout the solar field on a daily basis would detect small leaks occurring at ball joints or other connections; additionally, the configuration of the looped system allows different sections of the loops to be isolated.

Detection of large leaks is being proposed by using remote pressure sensing equipment and remote operating valves to allow for isolation of large areas of the loops in the solar field.

Water Storage Tanks
There would be six covered water tanks on the site: two 300,000-gallon RO concentrate/dust control storage tanks located in Unit #1 and Unit #3 and four one million-gallon treated water storage tanks, one in each power block. Water storage tanks would be vertical, cylindrical, field-erected steel tanks supported on foundations consisting of either a reinforced concrete mat or a reinforced concrete ring wall with an interior bearing layer of compacted sand supporting the tank bottom.

Roads, Fencing, and Security
Access to the Blythe project site would be via the public road heading north from the frontage road, Black Rock Road, along I-10, accessed from the Airport/Mesa Drive exit. Improvements to some segments of the public road would be required.

Only a small portion of the overall project site would be paved, primarily the site access road, the service roads to the power blocks, and portions of the power blocks (paved parking lot and roads encircling the STG and SSG areas). The remaining portions of each power block would be gravel surfaced. In total, each power block area would be approximately 18.4 acres each, with approximately six acres of paved area. The solar fields would remain unpaved and without a gravel surface in order to prevent rock damage from mirror wash vehicle traffic; an approved dust suppression coating would be used on the dirt roadways within and around the solar fields. Roads and parking areas located within the power block areas and adjacent to the administration building and warehouses would be paved with asphalt.

The project solar fields and support facilities' perimeter would be secured with a combination of chain link and wind fencing. Chainlink metal fabric security fencing consists of eight-foot tall fencing with one-foot barbed wire or razor wire on top along the north and south sides of the facilities. Thirty-foot tall wind fencing, comprised of A-frames and wire mesh, would be installed along the east and west sides of each solar

field. Desert Tortoise exclusion fencing would be included. Controlled access gates would be located at the site entrance. As discussed below, the drainage channels would be outside the plant and the security fencing but still within the project ROW.

Drainage and Earthwork
The existing topographic conditions of the project site show an average slope of approximately one foot in 80 feet (1.25%) toward the east on the west side of the site and approximately one foot in 200 feet (0.50%) toward the southeast on the east side of the site. The project site lies in the Palo Verde Mesa east of the McCoy Mountains. The general stormwater flow pattern is from the higher elevations in the mountains located three miles west of the site to the lower elevations in the McCoy
Wash to the east of the site.

The applicants filed a Streambed Alteration Agreement for the purposes of altering the terrain and installing channels. This application is currently being reviewed.

B.1.3 CONSTRUCTION

Project construction is expected to occur over a total of 69 months. Project construction would require an average of 604 employees over the entire 69-month construction period, with manpower requirements peaking at approximately 1,004 workers in Month 16 of construction. The construction workforce would consist of a range of laborers, craftsmen, supervisory personnel, support personnel, and management personnel.

Temporary construction parking areas would be provided within the project site adjacent to the laydown area. The plant laydown area would be utilized throughout the build out of the four solar units. The construction sequence for power plant construction includes the following general steps:

Site Preparation: this includes detailed construction surveys, mobilization of construction staff, grading, and preparation of drainage features. Grading for the solar fields, power blocks, and drainage channels would be completed during the first 55-months of the construction schedule.

Linears: this includes the site access road, telecommunication line, and transmission line. The site access road and telecommunication line for Unit #1 would be constructed during the first nine months of the construction schedule in conjunction with plant site preparation activities. The natural gas pipeline, electric transmission lines, and telecommunications lines would be constructed during the first 18 months of the construction schedule.

Foundations: this includes excavations for large equipment (STG, SSG, GSU, etc.), footings for the solar field, and ancillary foundations in the power block.

Major Equipment Installation: once the foundations are complete, the larger equipment would be installed. The solar field components would be assembled in an onsite erection facility and installed on their foundations.

B.1.3.1 CONSTRUCTION WATER

Construction water requirements cover all construction related activities including:

- Dust control for areas experiencing construction work as well as mobilization and demobilization,
- Dust control for roadways,
- Water for grading activities associated with both cut and fill work,
- Water for soil compaction in the utility and infrastructure trenches,
- Water for soil compaction of the site grading activities,
- Water for stockpile sites,
- Water for the various building pads, and
- Water for concrete pours on site.

The predominant use of water would be for grading activities which would have a steady rate of work each month. The grading schedule for the site has been spread to cover the total construction period and there should be no definable peak but rather a steady state condition of water use. The average water use for the project is estimated to be about 499,000 gallons per working day. Total water use for the duration of project construction is estimated to be about 3,100 acre feet. Construction water would be sourced from onsite wells. Potable water during construction would be brought on site in trucks and held in day tanks.

B.1.4. OPERATION AND MAINTENANCE

While electrical power is to be generated only during daylight hours, BSPP would be staffed 24 hours a day, seven days per week. A total estimated workforce of 221 full time employees would be needed with all four units operating.

B.1.4.1. NATURAL GAS PIPELINE CONSTRUCTION

A new four-inch diameter, 9.8-mile long natural gas pipeline would be constructed by SCG to connect the Blythe project to an existing SCG pipeline situated south of I-10.

Approximately eight miles would be within the plant site boundary and two miles outside the plant site boundary. The line would be buried with a minimum three feet of cover depending on location. The gas line route takes off from an existing SCG line 1,800 feet south of I-10. The alignment of the pipeline is directly north to the project site.

Construction of the gas pipeline would be the responsibility of SCG and is anticipated to take three to six months. Most major pieces of pipeline construction equipment would remain along the pipeline ROW during construction with storage and staging of equipment and supplies located at the Blythe project site or other acceptable site selected by SCG at the time construction is underway. Excavated earth material would be stored within the construction ROW.

B.1.4.2. TRANSMISSION SYSTEM

The BSPP facility would be connected to the SCE transmission system at the new Colorado River substation planned by SCE approximately five miles southwest of the Blythe project site. The proposed generator-tie line would consist of a bundled double circuit 230 kV line.

B.1.4.3. TRANSMISSION LINE ROUTE

Although the route has not been finalized, the gen-tie line is expected to proceed directly south from the project site power block, eventually both crossing I-10 and turning westward to SCE's planned Colorado River substation.

B.1.5 DECOMMISSIONING AND RESTORATION

The planned operational life of the project is 30 years, but the facility conceivably could operate for a longer or shorter period depending on economic or other circumstances. If the project remains economically viable, it could operate for more than 30 years. However, if the facility were to become economically non-viable before 30 years of operation, permanent closure could occur sooner. In any case, a Decommissioning Plan would be prepared and put into effect when permanent closure occurs.

The procedures provided in the decommissioning plan would be developed to ensure compliance with applicable LORS, and to ensure public health and safety and protection of the environment. The Decommissioning Plan would be submitted to the CEC and BLM for review and approval prior to a planned closure.

C.6 LAND USE, RECREATION AND WILDERNESS

Testimony of James Adams

C.6.1 SUMMARY OF CONCLUSIONS

The applicant has submitted an application to the U.S Bureau of Land Management (BLM) requesting a right-of-way (ROW) grant of 9,400 acres to construct the proposed project and its related facilities. Pursuant to the California Desert Conservation Area (CDCA) Plan (1980, as amended), sites associated with power generation or transmission not identified in the CDCA Plan are considered through the Plan Amendment process. Therefore, the proposed project would require a BLM ROW grant and a project-specific CDCA Plan Amendment. This section addresses land use issues related to agriculture and rangeland resources, wilderness and recreation resources, wild horses and burros, and compatibility with existing land uses and conformance with applicable laws, ordinances, regulations, and standards (LORS). Implementation of the proposed Blythe Solar Power Project (Blythe Solar or "proposed project") would not result in any adverse impacts to agricultural or rangeland resources.

For purposes of CEQA compliance, the level of significance of each impact of the proposed project on land use resources has been determined and is discussed in detail in Section C.6.4.3 (CEQA Level of Significance). In summary, impacts on agricultural lands and rangelands would be less-than-significant, and there would be no impacts related to Williamson Act contracts. Impacts to recreation and wilderness resources would be less-than-significant. Impacts to horse and burro management areas would be less-than-significant. Riverside Airport Land Use Commission staff has raised concerns about the project's potential impact on Blythe Airport operations.

Proposed developments near the project site that would have the potential to induce cumulative impacts include five transmission line projects, thirteen solar energy generation projects, and numerous residential developments. In consideration of cumulative land use compatibility impacts, the implementation of renewable projects in Southern California would occur mostly in undeveloped desert lands or areas of rural development, and therefore, would not create physical divisions of established residential communities. Nonetheless, over one million acres of land are proposed for solar and wind energy development in Southern California desert. The development of these projects would limit the opportunities for BLM to exercise multiple use on public lands (i.e., recreation, grazing, open space, etc.), and therefore could result in significant cumulative impacts.

Staff has considered two project alternatives and three no project/no action alternatives. One alternative would have less-than-significant land use impacts on the existing project site and the other would reduce the projects' impact on 1,200 acres of existing open space land. The no Action/no project alternatives could involve other solar projects on the Blythe Solar project site or on other BLM-administered lands. These projects would have similar land use impacts when compared to the Blythe Solar project.

C.6.2 INTRODUCTION

The land use analysis focuses on the project's consistency with existing land use resources, land use plans, ordinances, regulations, policies, and the project's compatibility with existing or reasonably foreseeable land uses. In addition, an energy generating system and its related facilities generally have the potential to create impacts in the areas of air quality, noise, dust, public health, traffic and transportation, and visual resources. These individual resource areas are discussed in detail in separate sections of this document.

C.6.3 METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

The analysis of proposed project effects must comply with both CEQA and NEPA requirements given the respective power plant licensing and land jurisdictions of the California Energy Commission and U.S. Bureau of Land Management (BLM). CEQA requires that the significance of individual effects be determined by the Lead Agency; however, the use of specific significance criteria is not required by NEPA.

Because this document is intended to meet the requirements of both NEPA and CEQA, the methodology used for determining environmental impacts of the proposed project includes a consideration of guidance provided by both laws.

CEQA requires a list of criteria that are used to determine the significance of identified impacts. A significant impact is defined by CEQA as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project" (State CEQA Guidelines Section 15382).

In comparison, NEPA states that "'Significantly' as used in NEPA requires considerations of both context and intensity..." (40 CFR 1508.27). Therefore, thresholds serve as a benchmark for determining if a project action will result in a significant adverse environmental impact when evaluated against the baseline. NEPA requires that an Environmental Impact Statement (EIS) is prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment."

Thresholds for determining significance in this section are based on Appendix G of the CEQA Guidelines (CCR 2009) and performance standards or thresholds identified by the Energy Commission staff. In addition, staff's evaluation of the environmental effects of the proposed project on land uses (i.e., those listed below) includes an assessment of the context and intensity of the impacts, as defined in the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the NEPA (see 40 CFR Part 1508.27).

Effects of the proposed project on the land uses and the environment (and in compliance with both CEQA and NEPA) have been determined using the thresholds listed below.

AGRICULTURAL LANDS AND RANGELAND MANAGEMENT

- Conversion of Farmland or Rangeland Management
  - Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the conflict with existing zoning for agricultural use, or a Williamson Act contract.
  - Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural uses.
  - Currently, livestock grazing is not an authorized use in the project area, and there is no established grazing allotment within the project area.

WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) AND RECREATION

- Directly or indirectly disrupt activities in established federal, state, or local recreation areas and/or wilderness areas.
- Substantially reduce the scenic, biological, cultural, geologic, or other important factors that contribute to the value of federal, state, local, or private recreational facilities or wilderness areas.

HORSES AND BURROS

- Involve changes in the existing environment which, due to their nature or location, result in interference with BLM's management of Herd Management Areas (HMAs).
- There are no HAs or HMAs in the project area.

LAND USE COMPATIBILITY AND LORS COMPLIANCE

- Directly or indirectly divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction, or that would normally have jurisdiction, over the project adopted for the purpose of avoiding or mitigating environmental effects.
- Cause unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or preclude or unduly restrict existing or future uses.

CUMULATIVE LAND USE EFFECTS

- Individual environmental effects, which, when considered with other impacts from the same project or in conjunction with impacts from other closely related past, present, and reasonably foreseeable future projects, are considerable, compound, or increase other environmental impacts.

C.8.4 PROPOSED PROJECT

C.8.4.1 SETTING AND EXISTING CONDITIONS

Proposed Project

The proposed Blythe Solar site is in eastern Riverside County approximately two miles north of U.S. Interstate -10 (I-10) and about eight miles west of the city of Blythe. The project footprint would encompass about 5,950 acres within a 9,400 acre right-of-way (ROW) application pending before the BLM. The site includes about 7,030 acres that would be disturbed in some manner during construction and operation of the Blythe Solar project (Solar Millennium 2009a, pg. 1-1). The northern and western boundaries of the proposed project site abut vacant desert lands. Blythe Airport is about one mile south, and irrigated lands (640 acres) are located approximately one mile east of the proposed site (Solar Millennium 2009a pg. 5.7-15).

The Blythe Solar site currently consists of undeveloped land composed of desert scrub. Two residences are located within one mile of the proposed site; one is located south east of the proposed site outside the 7,030-acre area of disturbance, and the other is located between the southern boundary of the site and north of Blythe Airport. There are no known recreational uses (other than OHV use on designated open routes), the site has not been farmed, and BLM has not leased the land for livestock grazing (Solar Millennium 2009a pg. 5.7-15).

Facilities associated with the proposed project (the majority of which are located on the proposed project site or construction laydown area), include:

- four units (power block and solar field) utilizing solar parabolic trough technology to generate 250 mw of electricity from each unit;
- each unit would occupy approximately 1,600 acres;
- laydown areas and construction parking would be located onsite;
- a 7-mile long transmission line would head south from the Blythe Solar site until crossing I-10 and would turn west to hook-up to SCE's proposed Colorado River substation; and
- a 2-mile long 4-inch diameter natural gas pipeline would head south from the proposed site and connect to an existing Southern California Gas main pipeline south of I-10

Surrounding Area

The proposed project site is located in the Colorado Desert in eastern Riverside County. The surrounding area consists of undeveloped desert land with small rural communities in the vicinity with a mixture of public and private lands. There are federal wilderness areas located on mountainous land to the west, northeast, south and southwest of the project site. Additional land uses in the study area include Open-Space-Rural, Agricultural and Public Facility (Solar Millennium 2009a pg. 5.17-4).

Agricultural Lands and Rangelands

According to the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (DOC), the majority of the county's existing agricultural land within a five mile radius is located east of the project site as depicted in **Land Use Figure 1**. The southeast corner of the site and land to the southeast is "Farmland of Local Importance," and approximately one mile east of the Blythe Solar site is "Prime Farmland" and "Farmland of Statewide Importance. Much of the project site and areas to the west and south are designated Conservation (see **Land Use Figure 2**) No rangeland allotments exist within this part of eastern Riverside County.

Wilderness, Areas of Critical Environmental Concern (ACEC) and Recreation

Wilderness land in Riverside County is administered by the BLM. According to the federal Wilderness Act, a designated Wilderness Area is defined as having four primary characteristics, including the following:

- a natural and undisturbed landscape;
- extensive opportunities for solitude and unconfined recreation;
- at least 5,000 contiguous acres; and
- feature(s) of scientific, educational, scenic, and/or historic value (US Code 2009).

The wilderness areas closest to the proposed project site are the Palen/McCoy Wilderness which is about five miles west of the project site.

The Mule Mountain ACEC is located approximately seven miles south of the project site, and the Chuckwalla Valley Dune Thicket ACEC is located approximately eight miles southwest of the project site.

There are no recreational areas within a five mile radius of the project site. However, recreational OHV use does occur in the project area but is restricted to only designated open routes.

Horses and Burros

The BLM administers wild horses and burros as guided by the Wild and Free-Roaming Horse and Burro Act of 1971. This includes the management of Herd Areas (HA) which are geographic areas where wild horse or burro populations were found at the passage of the Act in 1971 (BLM 2009e) and Herd Management Areas (HMAs) which are designated by BLM during land use planning. There are no HA or HMA on the project site on in the wilderness areas identified above (BLM 2010).

Applicable Land Use LORS

The majority of the proposed project site (5,950 acres) is located within the "Limited Use" category of the BLM's CDCA Plan Multiple Use Categories, and 320 acres of the private lands within the site are under Riverside County jurisdiction. **LAND USE Table 1**

provides a general description of the land use LORS applicable to the proposed project and surrounding lands. The project's consistency with these LORS is discussed in **LAND USE Table 2.**

LAND USE Table 1
Laws, Ordinances, Regulations, and Standards (LORS)

Applicable LORS	Description
Federal	
Federal Land Policy and Management Act (FLPMA), 1976 – 43 CFR 1600, Sec. 501. [43 U.S.C. 1761]	Establishes public land policy; guidelines for administration; and provides for the management, protection, development, and enhancement of public lands. In particular, the FLPMA's relevance to the proposed project is that Title V, Section 501 establishes BLM's authority to grant rights-of-way for generation, transmission, and distribution of electrical energy (FLPMA 2001).
Bureau of Land Management -California Desert Conservation Area (CDCA) Plan, 1980 as Amended (BLM 1980) Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan	The 25 million-acre CDCA contains over 12 million acres of public lands spread within the area known as the California Desert, which includes the following three deserts: the Mojave, the Sonoran, and a small portion of the Great Basin. The 12 million acres of public lands administered by the BLM are half of the CDCA. The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The plan's goals and actions for each resource are established in its 12 elements. Each of the plan elements provides both a desert-wide perspective of the planning decisions for one major resource or issue of public concern as well as more specific interpretation of multiple-use class guidelines for a given resource and its associated activities. The NECO plan is a landscape-scale planning effort for most of the California portion of the Sonoran Desert ecosystem. The planning area encompasses over five million acres. The NECO Plan amended the CDCA plan in 2002 and is currently undergoing evaluation for further amendment. The CDCA Plan/NECO is related to the Draft Solar Energy Programmatic Environmental Impact Statement which is expected to be leased in 2011 and could give guidance as to how and where solar projects can be built on BLM lands.
Wild and Free-Roaming Horse and Burro Act (1971) (BLM 2009h)	The BLM protects, manages, and controls wild horses and burros under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 (Act) to ensure that healthy herds thrive on healthy rangelands. The BLM manages these animals as part of its multiple-use mission under the 1976 Federal Land Policy and Management Act. One of the BLM's key responsibilities under the Act is to determine the "appropriate management level" (AML) of wild horses and burros on the public rangelands.
Local	
Riverside County General Plan and Vision, Land Use Element Open Space-Rural Policies:	The Land Use Element designates the general distribution, location, and extent of land uses, such as housing, business, industry, open space, agriculture, natural resources, recreation, and public/quasi-public uses. The Land Use section of the Palo Verde Valley Area Plan discusses the city of Blythe Airport Influence Area. The Land Use designation is Open Space Rural. The "Open Space Rural" land use designation is applied to remote privately owned open space areas with limited access and a lack of public services.

Applicable LORS	Description
LU 20.1	Require that structures be designed to maintain the environmental character in which they are located.
LU 20.4	Ensure that development does not adversely impact the open space and rural character of the surrounding area
Palo Verde Valley Area Plan – Land Use (2003) Blythe Airport Influence Area	Land uses, concentrations of population, and height of proposed development within this airport influence area are restricted in certain areas. There are a number of safety zones within the Blythe Airport Influence Area. The project would affect Zones E, D, C, and B1.
Land Use Designation	The project area is designated rural desert.
Multipurpose Open Space- LU Policies LU.20.1 and 20.4 noted above would also apply	Require that structures be designed to maintain the environmental character in which they are located. Ensure that development does not adversely impact the open space and rural character of the surrounding area
Riverside County Land Use Ordinance	Assigns zones to land within unincorporated areas in the County, describes land uses allowed in each zone, and generally includes direction for implementing the County general plan.
Riverside County Airport Land Use Compatibility Plan	Contains land use compatibility guidelines for the Blythe Airport. The Riverside County Airport Land Use Commission (RCALUC) must review major land use projects within the Airport Influence Area to determine if they are consistent with the Compatibility Plan adopted by the RCALUC for the airports environs.

C.6.4.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

Construction and Operation

Agricultural Lands and Rangeland Management

According to the AFC, "The project site has no history of agricultural use. It has not been mapped for agricultural purposes, and no special agricultural land use designations have been assigned pursuant to the FMMP or the Williamson Act" (Solar Millennium 2009a, pg. 5.7-7). Staff conducted analysis of agricultural land and rangeland to verify the Applicant's assessment.

Multiple governmental agencies at the federal, state, and local level have information regarding the lands relating to the proposed project and the surrounding area. To summarize, the following is a list of the various designations or categorizations these multiple governmental agencies have provided for the proposed project site and construction laydown area:

- **California DOC:** Under the standard FMMP mapping criteria, a small portion of the project site, which is within the survey boundaries, is considered "Farm Land of Local Importance" (Land Use **Figure 1**).
- **BLM**: According to the CDCA Plan/NECO, the project site (plant site and linears, with the exception of privately owned parcels) is designated L-Limited Use (Solar Millennium 2009a, pg. 5.7-4).

- **Riverside County:** There are two private parcels in close proximity to the site that are designated Open Space Rural according to the County of Riverside General Plan (Riverside County 2003).
- **Williamson Act**: The project site is not located in an area that is under a Williamson Act contract (Solar Millennium 2009a pg. 5.7-7).

In addition, the proposed project's linear components include a seven mile transmission line and a two mile gas pipeline line. Portions of these linear facilities would traverse areas designated as agricultural and open space land and construction of these facilities would not result in significant impacts to these lands. The gas line and transmission line would be constructed within existing ROWs and construction impacts would be temporary. Therefore, no farmland conversion impacts are expected as a result of linear facilities' construction, and the project would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural uses.

In regards to rangeland management, there are no livestock grazing allotments within the vicinity of the proposed project site. Therefore, no conversion of rangelands would occur, and they would not be adversely affected by construction or operation of the proposed project.

Wilderness, Areas of Critical Environmental Concern (ACEC) and Recreation

With respect to potential impacts to wilderness areas and ACECs, the project would not be constructed on ACEC or wilderness lands and the closest wilderness area is five miles west of the Blythe Solar site.

Horses and Burros

There are no HAs or HMAs on the project site or in any wilderness or ACEC areas identified above. As such, the proposed project would not contain or traverse any established HMAs or HAs.

Land Use Compatibility and LORS Compliance

Physical Division of an Existing Community

The project would not physically divide an established community[1], because the proposed project and associated linear facilities would be located on undeveloped lands (and adjacent to existing utility ROWs) administered by the BLM or under the jurisdiction of Riverside County. In addition, the proposed project would not be located within or near an established community. Neither the size nor the nature of the project would result in a physical division or disruption of an established community. As noted earlier, there are two residences within one mile of the project site. They are located on land designated as Open Space by Riverside County. In addition, no existing roadways or pathways within an established community would be blocked. Due to the temporary nature of construction activities, construction generated nuisances such as dust and noise are not expected to adversely affect land uses in the area.

[1] An established community usually refers to a residential community.

As mentioned above, the project site is located a mile north of the Blythe Airport and is within the Blythe Airport Influence Area. The Riverside County ALUC has raised some concerns about the project reflectivity and glare from the solar arrays. More specifically, the project could violate Policy 4.3.7 of the Countywide Policies of the 2004 Riverside County Airport Land Use Compatibility Plan which prohibits land uses that generate glare or distracting lights, or cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport. RCALUC staff has requested that the applicant submit an application to the ALUC to determine if the project is compatible with Blythe Airport operations (RCALUC 2010a) [see the **Traffic and Transportation** section of this Staff Assessment for more information].

Conflict with any Applicable Land Use Plan, Policy, or Regulation

As required by California Code of Regulations, Title 20, Section 1744, Energy Commission staff evaluates the information provided by the project owner in the AFC (and any amendments), project design, site location, and operational components to determine if elements of the proposed project would conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project, or that would normally have jurisdiction over the project except for the Energy Commission's exclusive authority. As part of the licensing process, the Energy Commission must determine whether a proposed facility complies with all applicable state, regional, and local LORS (Public Resources Code section 25523[d][1]). The Energy Commission must either find that a project conforms to all applicable LORS or make specific findings that a project's approval is justified even where the project is not in conformity with all applicable LORS (Public Resources Code section 25525).

In addition, the applicant has submitted an application to the BLM requesting a ROW to construct the proposed project and its related facilities. Pursuant to the California Desert Conservation Area (CDCA) Plan (1980, as amended), sites associated with power generation or transmission not identified in the CDCA Plan are considered through the Plan Amendment process. Under Federal law, BLM is responsible for processing requests for ROWs to authorize such proposed projects and associated transmission lines and other appurtenant facilities on land it administers. The CDCA Plan, while recognizing the potential compatibility of solar generation facilities on public lands, requires that all sites associated with power generation or transmission not identified in the Plan be considered through the Plan Amendment process (FR 2008). BLM would use the following Planning Criteria during the Plan Amendment process:

- The plan amendment process would be completed in accordance with the Federal Land Policy and Management Act (FLPMA) and the BLM Planning Regulations (43 CFR Part 1600), NEPA and the CEQ Regulations (40 CFR Parts 1500 – 1508)and their respective BLM Handbooks (H-1601-1 and H-1790-1), as well as all other relevant Federal law, Executive orders, and management policies of the BLM;
- The plan amendment process would include an EIS (i.e., this joint Energy Commission Staff Assessment/BLM EIS) to comply with NEPA standards;
- Where existing planning decisions are still valid, those decisions may remain unchanged and be incorporated into the new plan amendment;

- The plan amendment would recognize valid existing rights;
- Native American Tribal consultations would be conducted in accordance with policy, and Tribal concerns would be given due consideration. The plan amendment process would include the consideration of any impacts on Indian trust assets (please see the **Cultural Resources** section);
- Consultation with the State Office of Historic Preservation (SHPO) would be conducted throughout the plan amendment process (please see the **Cultural Resources** section); and
- Consultation with the US Fish and Wildlife Service (USFWS) would be conducted throughout the plan amendment process (please see the **Biological Resources** section).
- If the ROW and proposed land use plan amendment are approved by BLM, the proposed solar thermal power plant facility on public lands would be authorized in accordance with Title V of the FLMPA of 1976 and the Federal Regulations at 43 CFR part 2800. This Environmental Impact Statement (EIS) acts as the mechanism for meeting NEPA requirements, and also provides the analysis required to support a Plan Amendment.

Staff's analysis of the proposed project's consistency with the applicable federal and local land use LORS identified in LAND USE Table 1 is presented in LAND USE Table 2 below. Based on staff's independent review of applicable LORS documents, the proposed project would be consistent with applicable federal land use LORS but its consistency with Riverside County's ALUC guidelines is undetermined at this time. Riverside County planning staff has raised an issue regarding the Palo Verde Valley General Plan Land Use concern about the project protecting the Blythe Airport Influence Area.

Restricts existing or future uses

As noted above, the project is located on land designated open space and rural desert. The project would convert almost 6,000 acres to industrial solar. This would restrict existing uses and other future uses such as recreation and grazing. However, there are large acreages of open space and recreational lands in the surrounding area that would not be impacted by the BSPP. The project would be a compatible land use within the BLM's multiple use designation. Please see other technical area sections of this staff assessment (**Noise, Traffic and Transportation, Public Health**) for further discussion about compatibility issues.

As noted in the Setting section of this analysis, Blythe Airport is about one mile south of the project site. The applicant acknowledges that the project footprint would be within the Blythe Airport Influence Zone (Area) and would extend into airport safety zones E and D of the Blythe Airport Compatibility Zone (Solar Millennium 2009a, pg. 5.7-7). Zone D is considered the primary traffic patterns and buffer area while Zone E is called the other airport environs. Zone D requires airspace review by the Riverside Airport Land Use Commission (ALUC) for objects greater than 70 feet in height. Zone E requires airspace review for objects greater than 100 feet in height. In addition, the transmission line would penetrate zones E, D, C and B1. Zone C is the extended

approach/departure area which requires airspace review for objects greater than 70 feet in height, and Zone B1 is the inner approach/departure area which requires airspace review for objects greater than 35 feet in height (Riverside County 2004). The applicant is preparing an application for submittal to the Riverside ALUC for an airport compatibility review (CEC 2010b). Staff anticipates comments from Riverside County staff on this staff assessment related to the projects compliance with the Palo Verde Valley Area General Plans' Land Use Element.

Project Closure and Decommissioning

According to Section 3 of the applicant's AFC, the solar generating facility is expected to have a lifespan of 30 years. At any point during this time, temporary or permanent closure of the solar facility could occur. Temporary closure is defined as stopping operations longer than would be required for routine maintenance, overhaul, or replacement of major plant equipment. This could be caused by facility damage from natural occurrences (e.g., earthquake) fire, or for short term economic reasons. Permanent closure is defined as stopping operations with no intention of restarting. This could occur from a combination of facility age and economic considerations, from damage considered beyond repair or other reasons

A permanent closure would require the applicant to submit to the Energy Commission a decommissioning plan. A decommissioning plan would be implemented to ensure compliance with applicable LORS, removal of equipment and shutdown procedures, site restoration, potential decommissioning alternatives, and the costs and source of funds associated with decommissioning activities. Both temporary and permanent closure would require security on 24-hour basis and proper notification of the Energy Commission, the BLM, and other pertinent agencies (Solar Millennium 2009a, pp. 3-1 & 3-2).

Upon closure of the facility or decommissioning, it is likely that the applicant would be required to restore lands affected by the project to their pre-project state. Given the fact that the proposed project site is located on undeveloped land, staff anticipates that project decommissioning would have impacts similar in nature to proposed project construction activities. Therefore, given the temporary nature of decommissioning activities and the eventual return of the lands to their current state, the effects of decommissioning on land use is not expected to be adverse.

LAND USE Table 2
Project Compliance with Adopted Land Use LORS

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Federal			
Bureau of Land Management - California Desert Conservation Area (CDCA) Plan, 1980 as Amended (BLM 1980	The CDCA Plan is a comprehensive, long-range plan with goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA, and it is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality, and its associated activities.	Yes	The BLM may amend the CDCA Plan to allow for the project since it was not identified in the existing Plan. However the project is consistent with the Plan's goals and specific actions for the management, use, development, and protection of the resources and public lands within the CDCA.
	Chapter 2 – Multiple-Use Classes MULTIPLE-USE CLASS GUIDELINES MULTIPLE-USE CLASS L Limited Use	Yes Undetermined	The project is consistent because electrical generation facilities (wind/solar) are a designated use in this classification. However, the routes for the transmission line and gas pipeline have not been finalized but are expected to occur within the same utility corridor leaving the project site. Therefore, consistency for the linears is undetermined.
	Chapter 3 Wild Horse and Burros Element	Yes	The proposed project site is not in the vicinity of an HMA; therefore, the project site and surrounding area are not notable for the presence of wild horses or burros. Therefore, the proposed project would not result in any interference with BLM's management of an HMA, and would be consistent with this element of the CDCA Plan.
	Chapter 3 Energy Production and Utility Element	Yes	The proposed project's linear facilities would either use, or be adjacent to, existing and established utility ROWs. The proposed seven mile long 500-kv transmission line and the two mile natural gas pipeline would traverse unincorporated Riverside County land. Therefore, the proposed project and would be consistent with this element of the CDCA Plan.
Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan	The NECO plan is a landscape-scale planning effort for most of the California portion of the Sonoran Desert ecosystem. The planning area encompasses over five million acres.	Yes	The project is consistent with CDCA Plan/NECO and the BLM Multiple Use Class L-Limited site designation which would allow carefully controlled multiple uses of resources such as electrical generating stations and transmission lines.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
Wild and Free-Roaming Horse and Burro Act	Establishes BLM's authority to protect, manage, and control wild horses and burros to ensure that healthy herds thrive on healthy rangelands. BLM determines the "appropriate management level" (AML) of wild horses and burros on the public rangelands.	Yes	As discussed above in detail in Section C.8.4.2, the proposed project would not contain or traverse an established HA or HMA. As such, the proposed project would be consistent with this Act.
Local			
Riverside County General Plan, Land Use Element (2003)	Policy LU 1.8 As required by the Airport Land Use Law, submit certain proposed actions to the Riverside County Airport Land Use Commission (RCALUC) review.	Undetermined	The applicant intends to file an application with the RCALUC for review and a compatibility determination.
	Private lands near the project area are designated Open Space-Rural	Yes	The transmission line that would cross over about seven miles of land under the jurisdiction of Riverside County and would be placed in an existing utility right-of-way. It would not adversely impact the open space and rural character of the surrounding area.
Riverside County ALUCP	Contains land use compatibility guidelines for the Blythe Airport. The ALUC must review major land use projects within the Airport Influence Area to determine if they are consistent with the Compatibility Plan adopted by the ALUC for the airports environs.	Undetermined	Portions of the project would be located in several Blythe Airport safety zones. Therefore, Energy Commission staff will require the applicant to file an application with the RCALUC to determine consistency with the ALUCP.
Palo Verde Valley Area Plan (2003)	The Land Use section of the Palo Verde Valley Area Plan discusses the city of Blythe Airport Influence Area which would include a portion of the project site.	Undetermined	Portions of the project would be located in several Blythe Airport safety zones. Therefore, Energy Commission staff will require the applicant to file an application with the RCALUC to determine consistency with the ALUCP.
	Land Use Designation	Yes	The project is consistent with the Rural Desert designation.

Applicable LORS	Description of Applicable LORS	Consistent?	Basis for Consistency
	Multipurpose Open Space- LU Policies LU.20.1 and 20.4 noted in **LAND USE Table** 1 above would also apply.	Yes	Most of the project structures are on BLM land. However, the transmission line and natural gas pipeline would traverse land under the jurisdiction of Riverside County. Staff believes these linears would be consistent with the Land Use Element in terms of commercial development in Open Space areas.
Riverside County Land Use Ordinance	Article 1- Land Use Ordinance Article XV – W-2 Zone Section 15.1 – Uses Permitted in W-2 Zone – e. Public Utilities Use (2) Structures and the pertinent facilities necessary and incidental to the development and transmission of electric al power and gas such as hydroelectric power plants, booster or conversion plants, transmission lines, pipe lines and the like.	Yes	The proposed Blythe Solar project will include a 7-mile transmission line and a 2-mile gas pipeline that will traverse land under the jurisdiction of Riverside County. These linears would be consistent with item (2) of subsection e within the W-2 zone.

C.6.4.3 CEQA LEVEL OF SIGNIFICANCE

For the purposes of CEQA compliance, the significance of each identified impact of the proposed project has been determined. The CEQA Lead Agency is responsible for determining whether an impact is significant and is required to adopt feasible mitigation measures to minimize or avoid each significant impact. Conclusions in this section are presented to identify the level of significance of each identified impact (as required by CEQA) as follows: less-than-significant (i.e., adverse, but not significant); less-than-significant with mitigation (i.e., can be mitigated to a level that is not significant); or significant and unavoidable (i.e., cannot be mitigated to a level that is not significant).

Agricultural Lands and Rangeland Management

As discussed above in detail in Section C.6.4.2 (under the subsection entitled "Agricultural Lands and Rangeland Management") the project does not affect any agricultural lands. In addition, construction of the proposed project and its associated linear facilities would be temporary, and the project would not involve other changes in the existing environment which could result in conversion of Farmland, to non-agricultural uses. Therefore, proposed project impacts on agricultural lands would be less-than-significant.

In regards to rangeland management, as noted in the "Setting and Exiting Conditions," no livestock grazing allotments are within the vicinity of the proposed project site. Therefore, no conversion of rangelands would occur. Therefore, impacts to rangeland management due to construction or operation of the proposed project would be less-than-significant.

Finally, the project site is not located in an area that is under a Williamson Act Contract and impacts due to conflicts with Williamson Act contracts or existing zoning for agricultural use would be less-than-significant.

Wilderness, Areas of Critical Environmental Concern (ACEC) and Recreation

As discussed above in detail in Section C.6.4.2 (under the subsection entitled "Wilderness, Areas of Critical Environmental Concern and Recreation"), the project does not involve wilderness lands or areas of environmental concern.

Horses and Burros

As discussed above in detail in Section C.6.4.2 (under the subsection entitled "Horses and Burros"), the proposed project would not contain or traverse any established HA or HMA. Therefore, the proposed project would not result in any interference with BLM's management of an HA or HMA. Impacts would be less-than-significant.

Land Use Compatibility and LORS Compliance

As discussed above in detail in Section C.6.4.2 (under the subsection entitled "Land Use Compatibility"), the project would not physically divide or disrupt an established

community. Impacts would be less-than-significant with the exception of the Riverside County LORS regarding the Blythe Airport. Staff's analysis of the proposed project's consistency with applicable federal and local land use LORS is presented in **LAND USE Table 2.** The proposed project would be consistent with applicable federal land state and use LORS. With BLM's issuance of a project-specific CDCA Plan Amendment, the proposed project would fully comply with the plan.

As noted in the **Visual Resources** section of this staff assessment, staff concludes that the BSPP would result in a substantial adverse impact to existing resource values as seen from several viewing areas and Key Observation Points in the project vicinity. These visual impacts would be significant and could not be mitigated to less than significant levels and would result in unavoidable impacts under CEQA. Therefore, staff concludes that the proposed project would be incompatible with surrounding land uses because it would cause significant and unavoidable visual impacts.

Based on staff's independent review of applicable LORS documents, the proposed project may conflict with applicable Riverside County land use LORS regarding the project's impact on Blythe Airport operations. Staff is still investigating this issue and a final determination will be made in the supplement to the Staff Assessment.

C.6.5 RECONFIGURED ALTERNATIVE

The Reconfigured Alternative would be a 1,000 MW solar facility that would retain use of the proposed solar Units 1, 2, and 4 (the two northern solar fields, and the southeastern solar field) at their proposed locations as shown on Figure DR-ALT-43-1. The proposed Unit 3 (the southwestern solar field) would be relocated approximately 0.8 miles south of its proposed location. This alternative is analyzed because (1) It would retain the 1,000 MW generation capacity defined for the proposed project and the engineering is defined by Solar Millennium as feasible, and (2) it minimizes impacts to state waters and to desert dry wash woodlands, a vegetation community classified as sensitive by the BLM and CDFG. Approximately 480 acres of the Reconfigured Alternative would be outside of the ROW application area but the alternative would remain entirely within BLM-managed lands. The Reconfigured Alternative is shown in **Alternatives Figure 1**.

C.6.5.1 Setting and Existing Conditions

This alternative includes the Units 1, 2, and 4 as proposed for the Blythe Solar Power Project as well as a reconfigured Unit 3. The setting for Units 1, 2, and 4 would not change from that for the proposed project. Unit 3 would be relocated approximately 0.8 miles south of the proposed location. The relocated Unit 3 includes the use of 480 acres of BLM land immediately south of the proposed ROW. [Include any additional information not already addressed for the proposed project that would be included in the additional 480 acres. For most disciplines, the new information should be minor.

As with the proposed configuration, the Reconfigured Alternative would be located within the NECO boundaries and would not be located on Desert Wildlife Management Areas or on Areas of Critical Environmental Concern. The Reconfigured Alternative

would be located on lands designated L – Limited Use (Solar Millennium 2009a). The Reconfigured Alternative has not been mapped for agricultural purposes and has not been used for agricultural production at any time in the past. The Reconfigured Alternative is not located within a grazing allotment.

C.6.5.2 Assessment of Impacts and Discussion of Mitigation

The primary change would be moving Unit 3 0.8 miles south of its proposed location though it would still be located on BLM land. This would require amending the ROW application to account for approximately 480 acres of the Reconfigured Alternative that would be outside the boundaries of the current ROW application. There are no agricultural or recreation lands on the alternative Unit 3 site, and there are no HAs, HMAs or livestock grazing allotments on the alternate Unit 3 site.

C.6.5.3 CEQA Level of Significance

Agricultural Lands and Rangeland Management

As discussed above in subsection C.6.5.2, and similar to the proposed project, impacts resulting from this alternative on agricultural and rangeland management would be less-than-significant.

Wilderness, Areas of Critical Environmental Concern (ACEC) and Recreation

As discussed above in subsection C.6.5.2, and similar to the proposed project, impacts resulting from this alternative to wilderness, ACECs and recreation would be less-than-significant with implementation of Condition of Certification

Horses and Burros

As discussed above in subsection C.6.5.2, and similar to the proposed project, impacts resulting from this alternative on horses and burros would be less-than-significant.

Land Use Compatibility and LORS Compliance

As discussed above in subsection C.6.5.2, and similar to the proposed project, this alternative would comply with federal LORS. Therefore, impacts would be less-than-significant.

C.6.6 REDUCED ACREAGE ALTERNATIVE

The Reduced Acreage Alternative would essentially be Units 1, 2, and 4 of the proposed project, and would be a 750 MW solar facility located within the boundaries of the proposed project as defined by Solar Millennium. This alternative is analyzed for two major reasons: (1) it eliminates about 25% of the proposed project area so all impacts are reduced, and (2) by removing the southwestern solar field, which is located on flowing desert washes, this alternative minimizes impacts to state waters and to desert dry wash woodlands, a vegetation community classified as sensitive by the BLM and CDFG, and to wildlife movement corridors.. The boundaries of the Reduced Acreage Alternative are shown in **Alternatives Figure 2.**

C.6.6.1 Setting and Existing Conditions

This alternative is located entirely within the boundaries of the proposed project. As a result, the environmental setting consists of the northern and eastern portions of the proposed project, as well as the area affected by the linear project components. The land is currently designated as open space.

C.6.6.2 Assessment of Impacts and Discussion of Mitigation

The only impact is the elimination of the southwestern unit comprised of 1,200 acres from the original project design. The southwestern 250 MW solar field would not be constructed and this unit would remain in its existing condition. No mitigation is necessary.

C.6.6.3 CEQA Level of Significance

Agricultural Lands and Rangeland Management

As discussed above in subsection C.6.5.2, and similar to the proposed project, impacts resulting from this alternative on agricultural and rangeland management would be less-than-significant.

Wilderness, Areas of Critical Environmental Concern (ACEC) and Recreation

As discussed above in subsection C.6.5.2, and similar to the proposed project, impacts resulting from this alternative to wilderness, ACECs and recreation would be less-than-significant.

Horses and Burros

As discussed above in subsection C.6.5.2, and similar to the proposed project, impacts resulting from this alternative on horses and burros would be less-than-significant.

Land Use Compatibility and LORS Compliance

As discussed above in subsection C.6.5.2, and similar to the proposed project, this alternative would comply with federal LORS. Therefore, impacts would be less-than-significant.

C.6.7 NO PROJECT/NO ACTION ALTERNATIVES

There are three No Project/No Action Alternatives for land use evaluated in this section.

No Project/No Action Alternative #1:

No Action on Blythe Solar Power project application and on CDCA land use plan amendment

Under this alternative, the proposed Blythe Solar Power Project would not be approved by the CEC and BLM and BLM would not amend the CDCA Plan. As a result, the proposed solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no land disturbance. As a result, the land use-related impacts of the Blythe Solar Power project would not occur at the proposed site, including the conversion of 5,900 acres of land and any resulting impacts to existing uses. Additionally, a project-specific land use plan amendment would not be required. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

No Project/No Action Alternative #2:

No Action on Blythe Solar Power project and amend the CDCA land use plan to make the area available for future solar development

Under this alternative, the proposed Blythe Solar Power Project would not be approved by the CEC and BLM and BLM would amend the CDCA Land Use Plan of 1980, as amended, to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. Different solar technologies require the use of different amounts of land; however, it is expected that all utility solar technologies would require the use of large amount of the site. As a result, construction and operation of the solar technology would likely result in the conversion of 5,900 acres of land and would create impacts to existing uses of the land. As such, this No Project/No Action Alternative could result in the conversion of 5,900 acres of land similar to under the proposed project.

No Project/No Action Alternative #3:

No Action on Blythe Solar Power project application and amend the CDCA land use plan to make the area unavailable for future solar development

Under this alternative, the proposed Blythe Solar Power Project would not be approved by the CEC and BLM and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar development. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because the CDCA Plan would be amended to make the area unavailable for future solar development, it is expected that the site would continue to remain in its existing condition, and the conversion of 5,900 acres of land as a result of the proposed project would not occur. As a result, the use of the site is not expected to change noticeably from existing conditions and, as such, this No Project/No Action Alternative would not

result in impacts from the conversion of 5,900 acres of land at the project site. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

C.6.8 CUMULATIVE IMPACT ANALYSIS

C.6.8.1 AGRICULTURAL LANDS AND RANGELAND MANAGEMENT

Geographic Extent

The geographic scope for the analysis of cumulative impacts related to agricultural lands and rangeland management includes agricultural land within Riverside County and rangeland administered by BLM throughout the eastern Riverside County region. Cumulative impacts include the conversion of agricultural land and/or rangelands that would conflict with existing land uses. Projects related to agriculture and rangeland management consist of all construction activities, and residential, and industrial developments within the region. For the purpose of this analysis, in addition to the projects listed in **CUMULATIVE IMPACTS Tables 2 and 3,** data obtained from the NRCS, the U.S. Census, and the BLM's online GIS maps were considered when identifying activities that could contribute to cumulative impacts.

Existing Cumulative Conditions

A wide variety of past and present development projects contribute to the cumulative conditions for agricultural lands. As noted above in the "Setting and Existing Conditions" subsection for agricultural lands, the majority of the county's agricultural land is surrounded by the county's largest urban areas. According to the DOC, from 2006 to 2008, approximately 3% of Riverside County agricultural land was converted to non-agricultural uses (DOC 2008). This is an example of the steady decline in agricultural acreage throughout this portion of Riverside County. As a result, past and present residential, commercial, and industrial development has contributed to the conversion of existing rural and open space land uses, including agriculture, to other land uses.

In regards to rangeland management, three livestock grazing allotments are located within Riverside County. The BLM grazing allotment closest to the project site is the Keough allotment north of the proposed project. Past and present projects contribute to the cumulative conditions for rangeland management, including industrial and military developments.

Future Foreseeable Projects

As shown in **CUMULATIVE IMPACTS Tables 1, 2 and 3** renewable energy projects are proposed throughout the California desert lands. According to **CUMULATIVE ANALYSIS Table 1**, a total of 72 projects and 649,440 acres of solar energy and 61 projects and 433,721 acres of wind energy are currently proposed for development in the California desert lands. This represents a worst-case scenario and not all of these projects would be ultimately developed.

Conclusion

The proposed project would convert no agricultural land to a nonagricultural use. The cumulative impacts of additional development projects that would convert the county's agricultural land to non-agricultural uses and conflict with agricultural operations could be cumulatively considerable over time. BSPP, in conjunction with other foreseeable projects, would convert open space lands to industrial solar and would restrict other existing or future land uses such as recreation and grazing. However, all development projects must go through environmental review and be in compliance with all applicable LORS. Although the proposed project by itself would not convert any agricultural land to nonagricultural uses, the conversion of lands due to past and present projects, and the potential development of the approximately one million acres of land in the southern California desert, would all combine to result in adverse effects on agricultural lands (one of the state's most important resources). Therefore, although the development of renewable resources in compliance with federal and state mandates is important and required, the conversion of thousands of acres of open space (including areas with high soil quality and agricultural resources) would result in a significant and unavoidable impact under CEQA. However, BSPP's contribution to this cumulative impact is less than significant.

Cumulative impacts to BLM livestock grazing allotments would be minimal since few solar or wind energy applications have been proposed in or near any allotments.

C.6.8.2 WILDERNESS, AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC) AND RECREATION

Geographic Extent

The geographic scope for the analysis of cumulative impacts related to wilderness ACECs and recreation includes the local and regional wilderness areas and recreation facilities in the eastern Riverside County. Recreational facilities primarily include OHV and camping sites located throughout the county. Likewise, wilderness areas are located throughout Riverside County, along with a number of BLM designated ACECs.

Existing Cumulative Conditions

Existing recreation and wilderness areas throughout the county are abundant and maintained by the BLM and California State Parks. However, past and present developments, in particular BLM ACECs, occupy significant portions of areas that could be used for recreation activities.

Future Foreseeable Projects

As shown in **CUMULATIVE IMPACTS Tables 1 and 2** renewable energy projects are proposed throughout the BLM's California Desert District. According to **CUMULATIVE ANALYSIS Table 1**, a total of 72 projects and 649,440 acres of solar energy and 61 projects and 433,721 acres of wind energy are proposed for development.

Conclusion

In addition to the proposed Blythe project, there are many past, present, or reasonably foreseeable future actions that contribute to impacts in recreation and wilderness areas. Development of highway access to the region has provided direct vehicular access to open desert scenery for residents throughout Southern California. This increased access improved the recreational experience for some users by making the area more accessible and detracted from the recreational experience for other users who preferred remote camping, hiking, and hunting away from populated areas. Presently, as noted above, numerous energy-related development projects, including the proposed project, would remove large acreages of land from potential recreational use, and would have adverse effects on the viewscape that would result in some users seeking out other areas of the desert for their activities (see the cumulative analysis in the **Visual Resources** section). Similarly, within wilderness areas, the attraction of hiking, camping, and other outdoor activities is likely to decrease due to the existing and proposed large-scale industrial uses in the region, and its consequent impact of development on the viewscape. The proposed project would change the nature of land use at the proposed project site from Multiple Use Category L to intensive utility for the generation of power for 30 years or more. Although the proposed project's effects on recreation would be less-than-significant, the combined effect of the overall cumulative past, present, and proposed and reasonably foreseeable projects in eastern Riverside County would adversely affect recreation and wilderness resources. Therefore, BSPP's contribution to the cumulative impact would be significant and unavoidable under CEQA.

C.6.8.3 HORSES AND BURROS

Geographic Extent

As there are no HAs and HMAs that would be affected by the proposed project, the geographic scope for the analysis of cumulative impacts related to horses and burros includes the eastern Riverside County region. Cumulative impacts would result in changes in the existing environment which, due to their nature or location, would result in interference with BLM's management of HAs and HMAs. The cumulative analysis of wild horses and burros was conducted using BLM maps of HAs and HMAs.

Existing Cumulative Conditions

The Chocolate-Mule Mountains HMA is the closest herd management area, which is located southwest of the project site near the California-Arizona border. This area is not notable for significant past or present development.

Future Foreseeable Projects

As shown in **CUMULATIVE IMPACTS Figures 1 and 2,** one other energy application is proposed in areas surrounding the Chocolate-Mule Mountains HMA.

Conclusion

Although the proposed facility would not adversely impact horses or burros, there are other present or reasonably foreseeable future actions that could contribute to impacts to HAs and HMAs within the region. Authorized and unauthorized vehicle use, and maintenance and construction of utility rights-of-way can have a slight impact to burros by removal of vegetation utilized for forage and the danger of vehicles colliding with burros. The impact of the proposed and probable development projects would cumulatively remove and isolate potential grazing sites for burros. However, in areas of close proximity to HAs and HMAs, development projects would be required to consider impacts related to wild horses and burros. Therefore cumulative impacts would not be adverse.

C.6.8.4 LAND USE COMPATIBILITY AND LORS COMPLIANCE

Geographic Extent

The geographic scope for the analysis of cumulative impacts related to land use compatibility and LORS compliance are the local and regional communities and sensitive receptors. Cumulative impacts could result from the physical division of an established community or from conflict with any applicable land use plan, policies, or regulation adopted for the purposed of avoiding or mitigating environmental impacts.

Existing Cumulative Conditions

Past and present projects occurring in the vicinity of the proposed project site include recreational activities proposed by the BLM, energy development in and around Blythe, and development of the existing state prisons south of I-10.

Future Foreseeable Projects

Foreseeable Renewable Projects in the California and Arizona Desert

As shown in **CUMULATIVE IMPACTS Tables 1 and 2** renewable energy projects are proposed throughout the BLM's California Desert District. According to **CUMULATIVE ANALYSIS Table 1**, a total of 72 projects and 649,440 acres solar energy and 61 projects and 433,721 acres of wind energy are proposed for development.

Conclusion

Proposed developments near the project site that would have the potential to induce cumulative impacts in combination with the BSPP include five transmission line projects, thirteen solar energy generation projects, and numerous residential developments. In consideration of cumulative land use compatibility impacts, the implementation of renewable projects in Southern California would occur mostly in undeveloped desert lands or areas of rural development, and therefore, would not create physical divisions of established residential communities. Nonetheless, as noted above, over one million acres of land are proposed for solar and wind energy development in the southern California desert lands. The conversion of these lands would preclude numerous existing land uses including recreation, wilderness, rangeland, and open space, and therefore, BSPP's contribution to these cumulative impacts would be significant.

C.6.9 COMPLIANCE WITH LORS

A detailed discussion of the proposed project's compliance with LORS applicable to land use, recreation, and wilderness is provided above in subsection C.6.4.2, and **LAND USE Table 2** (Project Compliance with Adopted Land Use LORS).

C.6.10 NOTEWORTHY PUBLIC BENEFITS

For the life of the proposed project, the nature of the land use at the site would change from publicly- and privately-owned open space lands to an intensive utility for the generation of power. Therefore, from a land use perspective, development of the proposed project would not result in any noteworthy public benefits because:

- the Blythe Solar Power Project site would be developed with parabolic solar arrays and associated ancillary facilities and linears, which would result in approximately 5,950 acres of total permanent surface disturbance. Construction would result in temporary surface disturbance of approximately 7,100 acres. Once constructed, the Blythe Solar Power Project would result in the total conversion of 5,950 acres of BLM-administered land Open Space land use, to solar energy capture and energy conversion apparatus, attendant outbuildings, supporting structures, roadways, and parking lots; and
- the proposed project would affect both private lands within the jurisdiction of Riverside County and BLM-administered lands.

Therefore, although the development of the proposed project is intended to address the requirements of federal and state mandates for renewable energy, the land conversion and associated land use impacts would not yield any noteworthy public benefits related to land use, recreation, or wilderness.

C.6.11 PROPOSED CONDITIONS OF CERTIFICATION/MITIGATION MEASURES

Staff is not proposing a condition of certification for land use at this time.

C.6.12 CONCLUSIONS

- No farmland conversion impacts are expected as a result of linear facilities' construction, and the proposed project would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural uses.
- No conversion of rangeland management would occur, and rangelands would not be adversely affected by construction or operation of the proposed project.
- The conversion of 5,950 acres of land to support the proposed project's components and activities would not disrupt current recreational activities in established federal, state, and local recreation areas, and would not result in adverse effects on

recreational users of these lands. The proposed project would not impact any ACEC or wilderness values of these areas.

- The proposed project would not contain or traverse any established BLM HAs or HMAs. In addition, following construction, fencing around the site would keep any burros outside of the proposed project location. Therefore, the proposed project would not result in any interference with BLM's management of an HMA or HA.
- Staff's Visual Resource analysis shows that the BSPP would result in substantial adverse and unavoidable impacts to visual resources under CEQA. Also, at this time, staff cannot conclude that the BSPP would be consistent with the Riverside County Airport Land Use Compatibility Plan for the Blythe Airport. Therefore, staff concludes that the proposed project would be incompatible with surrounding land uses.
- The applicant has submitted an application to the BLM requesting a right-of-way (ROW) to construct the proposed project and its related facilities. Pursuant to the California Desert Conservation Area (CDCA) Plan (1980, as amended), sites associated with power generation or transmission not identified in the CDCA Plan are considered through the Plan Amendment process. Under Federal law, BLM is responsible for processing requests for ROWs to authorize such proposed projects and associated transmission lines and other appurtenant facilities on land it manages. If the ROW and proposed CDCA land use plan amendment are approved by BLM, the proposed solar thermal power plant facility on public lands could be authorized in accordance with Title V of the FLMPA of 1976 and the Federal Regulations at 43 CFR part 2800.
- Based on staff's independent review of applicable federal and state LORS, and applicable documents, the proposed project would be consistent with applicable federal and state land use LORS. A consistency determination with local LORS regarding the Riverside County Airport Land Use Compatibility Plan for the Blythe Airport cannot be made at this time.
- For purposes of CEQA compliance, the level of significance of each impact of the proposed project on land use resources has been determined and is discussed in detail in Section C.6.4.3 (CEQA Level of Significance). In summary, impacts on agricultural lands and rangeland management would be less-than-significant, and there would be no impacts related to Williamson Act contracts. Impacts to recreation and wilderness resources would be less-than-significant. Impacts to horses and burros would be less-than-significant.
- BSPP would not contribute to a significant cumulative impact on agricultural lands but would have a significant cumulative impact on recreational and open space resources. Cumulative impacts to approximately one million acres of land in the southern California desert would all combine to result in adverse effects on agricultural lands and recreational resources and would result in a significant and unavoidable impact. In consideration of cumulative land use compatibility impacts, the implementation of renewable projects in Southern California would occur mostly in undeveloped desert lands or areas of rural development, and therefore, would not create physical divisions of established residential communities. Nonetheless,

approximately one million acres of land are proposed for solar and wind energy development in the Southern California desert lands. The conversion of these lands would preclude numerous existing land uses including recreation, wilderness, rangeland, and open space, and therefore, would result in a significant immitigable cumulative impact.

C.6.13 REFERENCES

BLM 1980. U.S. Bureau of Land Management - California Desert Conservation (CDCA) Plan, 1980 as Amended.

BLM 2009a. U.S. Bureau of Land Management – Rangeland Administration System. [online]: http://www.blm.gov/ras/. Access May 14, 2009.

BLM 2009e. U.S. Bureau of Land Management – Wild Horses and Burros. [online]: http://www.blm.gov/ca/st/en/prog/wild_horse_and_burro.1.html. Accessed March 30, 2009

BLM 2009f. U.S. Bureau of Land Management – Wild Horses and Burros. [online]: http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro/Fact_Sheet/herd_area_and_herd.html. Accessed March 30, 2009

BLM 2009g. U.S. Bureau of Land Management – GeoCommunicator. [online]: http://www.geocommunicator.gov/blmMap/Map.jsp?MAP=GA. Accessed May 11, 2009.

BLM 2009h. U.S. Bureau of Land Management – Wild Horses and Burros. [online]: http://www.blm.gov/wo/st/en/prog/wild_horse_and_burro.html#. Accessed March 30, 2009

CEC 2010a- CEC/J.Adams, (tn54900). E-mail from the city of Blythe, Department of Public works, dated 1/20/10.

CCR 2006. California Code of Regulations, Title 14, Chapter 3 (CEQA Guidelines), §§15000-15387, as amended July 11, 2006.

DOC 2006. California Department of Conservation – Riverside County Important Farmland 2006 Map. [online]: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2006/imp06.pdf. Accessed May 8, 2009.

FLPMA 2001. Federal Land Policy and Management Act, As Amended. Revised October 2001. [online]: http://www.blm.gov/flpma/index.html. Accessed May15, 2009.

Palo Verde Valley Area Plan. Accessed on 1/28/2010.

Riverside County 2004. Riverside County Airport Land Use Compatibility Plan Policy Document. Adopted October 2004.

Riverside County 2007. Riverside County – General Plan, Land Use Map. Revised November 2007.

Riverside County 2008a. Riverside County – General Plan, Land Use Element. Revised January 29, 2008.

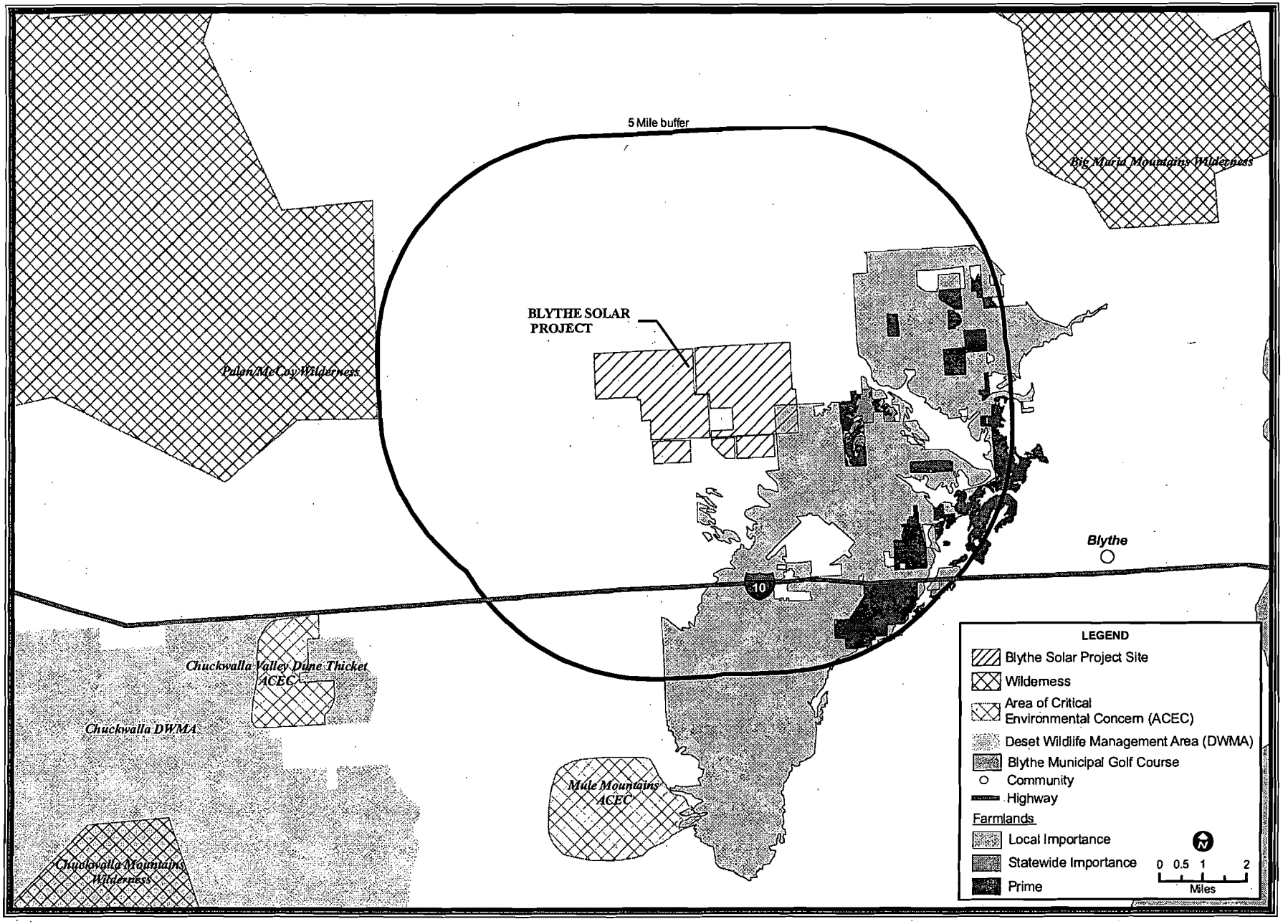
Riverside County 2008b. Riverside County – Land Use Ordinance, Title 9. Amended January 29, 2008.

RCALUC2010a- Riverside County Airport Land Use Commission, (tn: 54932). Letter from the Riverside County Airport Land Use Commission, dated 1/19/2010.

Solar Millennium2009a- (tn: 52937). Application for Certification Vol 1&2, dated 8/242009.

LAND USE - FIGURE 1

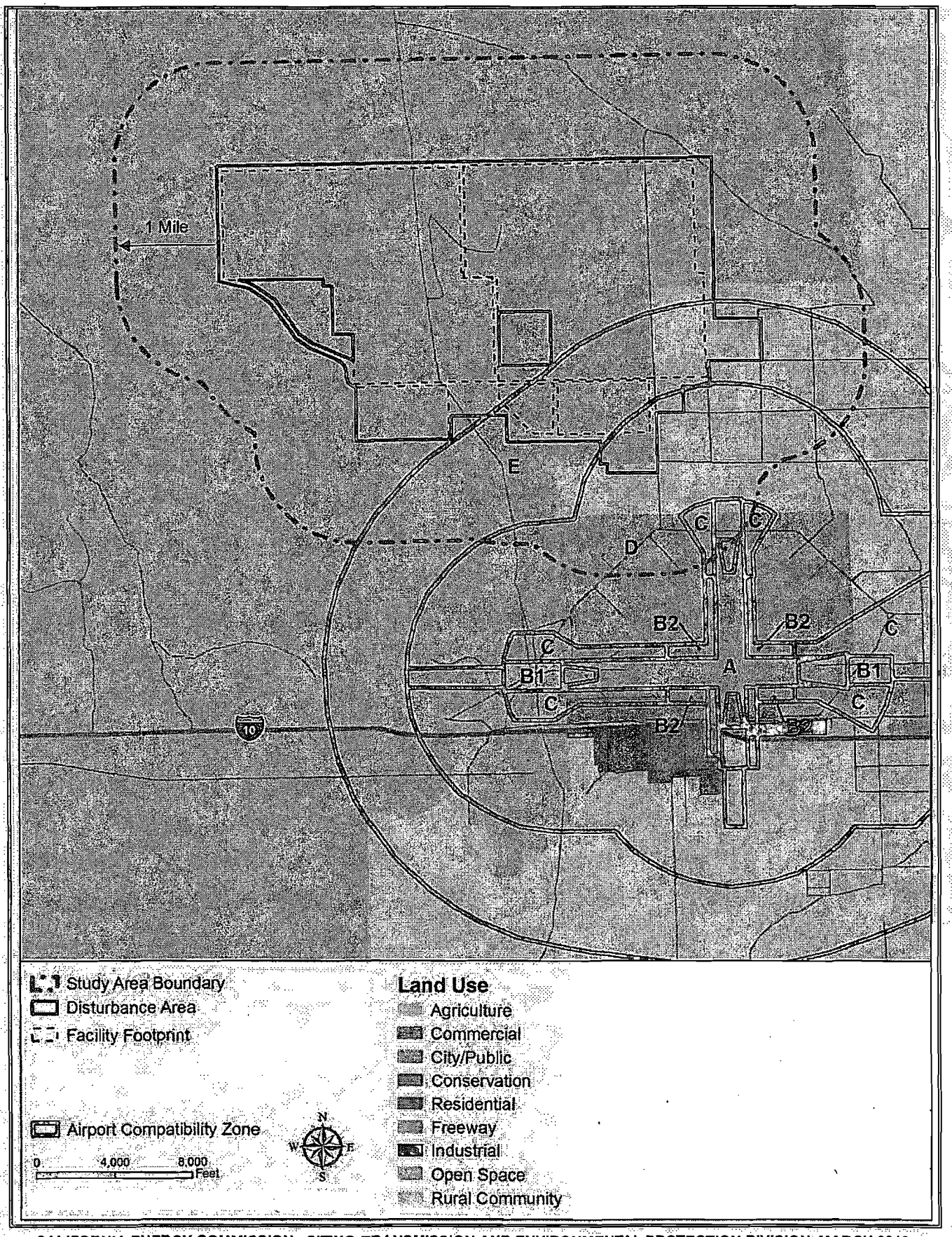
Blythe Solar Power Project - Farmland of Local Importance, Statewide Importance & Prime - 5 mile Buffer



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: California Energy Commission, Bureau of Land Management, Dept. of Conservation Farmland Mapping

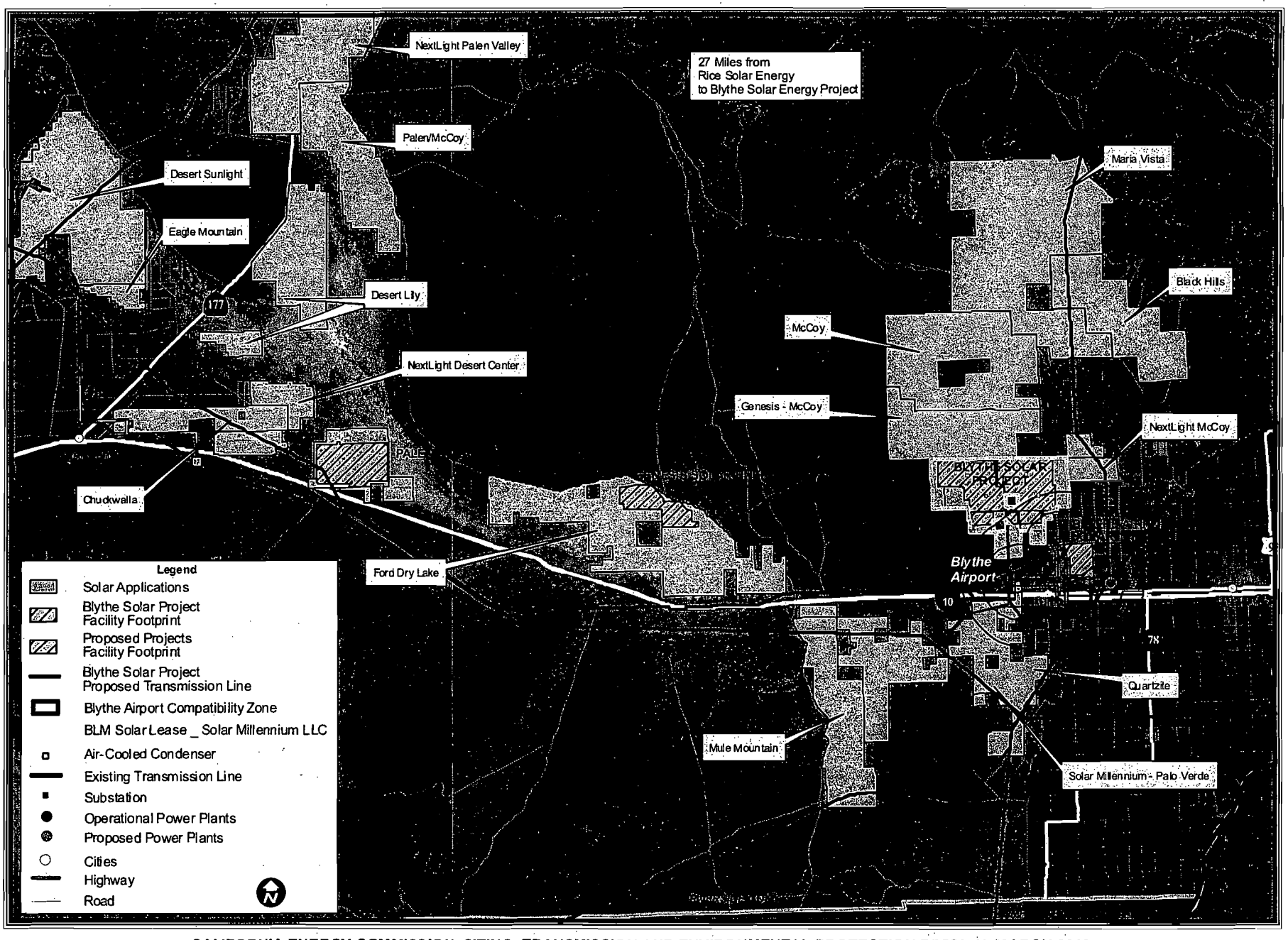
LAND USE - FIGURE 2
Blythe Solar Power Project - Airport Area of Influence



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010
SOURCE: AFC Figure 5.7-5

TRAFFIC AND TRANSPORTATION - FIGURE 4

Blythe Solar Power Project - Project Cumulative Impacts



CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: California Energy Commission and Solar Millennium LLC

C.10 TRAFFIC AND TRANSPORTATION

Testimony of Marie McLean and William Walters, P.E.

C.10.1 SUMMARY OF CONCLUSIONS

As currently proposed the Blythe Solar Power Project (BSPP) has the potential to severely impact the operation of the Blythe Airport because of its location in Blythe Airport Compatibility Zones located within the Airport Influence Area Boundary.[1] This airport influence boundary is defined by the outer edge of the Federal Aviation Regulation (FAR) Part 77, Conical Surface, which is designed to, among other things, chart new man-made or natural objects.

Staff used this regulation as well as the Blythe Airport Compatibility Plan to determine impacts of the proposed BSPP on the Blythe Airport. As indicated below, the impacts of some BSPP components cannot be determined at this time. Impacts of other components can be determined and for those impacts, mitigation is recommended.

1. **Transmission line**. Mitigable by rerouting or lowering height. Transmission line is not in conformance with FAA regulations and is located in four compatibility zones, including B, C, D, and E.
2. **Parabolic Troughs**. Undetermined. Parabolic troughs located in two compatibility zones, E and D. Those troughs could present a hazard to aviation. Staff continues to evaluate impacts and if significant, will propose mitigation.
3. **Air-cooled Condenser.** Undetermined. An air-cooled condenser may be located on the perimeter of Zone D Area of Influence of the Blythe Airport. This air-cooled condenser produces plumes that could be a hazard to pilots. Staff continues to evaluate the location of this air-cooled condenser and will propose mitigation if required.
4. **Radio frequency interference.** Mitigable by installing appropriate devices. Facility control systems and transmission lines located four compatibility zones, including zones B, C, D, and E, could, if not mitigated, present a hazard to aviation. Staff is investigating mitigation measures and at this time.

For additional information, see "Interference with Airport Operations" in the **Direct Impacts and Mitigation** Section of this document.

C.10.2 INTRODUCTION

In the Traffic and Transportation analysis, staff focuses on:

1. Whether construction and operation of the Blythe Solar Power Project (BSPP) would result in traffic and transportation impacts under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA)
2. If the project would be in compliance with applicable laws, ordinances, regulations, and standards (LORS)

[1] See 2004 Riverside County Airport Land Use Compatibility Plan for Blythe Airport.

In its analysis, staff identifies potential impacts related to the construction and operation of BSPP on the surrounding transportation systems and roadways and, when applicable, proposes mitigation measures.

C.10.2.1 PROJECT DESCRIPTION

The Blythe Solar Power Project (BSPP), a joint-project of Solar Millennium LLC and Chevron Energy Solutions, is designed to use solar parabolic trough technology to generate electricity. BSPP would consist of four nearly identical and independent units, 250 MW each, resulting in a nominal output of 1,000 MW when fully operational.

If approved, the units would be constructed in phases, with construction scheduled to begin in late 2010 and continue through the middle of 2016. Commercial operation of the first unit is scheduled to begin in mid-2013 with subsequent units coming online in six-to-twelve month intervals.

The proposed project is to be located in the southern California inland desert, approximately eight miles west of the city of Blythe and two miles north of the Interstate-10 (I-10) freeway in Riverside County, California. The land on which the project is to be sited consists of 9,400 acres of federally-owned land, which is managed by the Bureau of Land Management. Construction and operation of the BSPP would disturb approximately 7,030 acres.

As proposed, the project is also located in four Airport Compatibility Zones as defined by the Riverside County Airport Land Use Commission and the *Airport Master Plan* as adopted by the Riverside County Board of Supervisors in 2001.

Access to the BSPP would be off I-10 to Mesa Drive either by Exit 232 (West) or Mesa Drive (East) interchange. Travelers would drive northerly about 300 feet to Black Rock Road, then westerly on Black Rock Road to a new driveway extending northerly into the site.

The four-legged intersection of Black Rock, Hobsonway, and Mesa Drive is controlled with stop signs on the Hobsonway and Black Rock approaches. See **Traffic and Transportation Figure 1,** Local Transportation Access.

C.10.3 METHODOLOGY AND THRESHOLDS FOR DETERMINING ENVIRONMENTAL CONSEQUENCES

Significance criteria are based on three items:

1. California Environmental Quality Act (CEQA) Guidelines
2. CEQA Environmental Checklist
3. Performance standards and thresholds established by interested agencies

A project may have a significant effect if it would:

1. Cause a substantial increase in traffic in relation to the existing traffic load or capacity of the street system.

2. Exceed an established level of service standard applicable for the designated roads or highways.
3. Alter existing patterns of circulation or the movement of people or goods or both.
4. Alter waterborne, rail, or air traffic.
5. Increase traffic hazards to motor vehicles, bicyclists, or pedestrians.
6. Result in inadequate emergency access or parking capacity or both.
7. Conflict with existing policies, plans, or programs

Level of Service

When evaluating the project-related impacts on the local transportation system, staff bases its analysis on level of service (LOS) determinations. *Level of service* is a generally accepted measure used by traffic engineers, planners, and decision-makers to describe and quantify the congestion level on a particular roadway or intersection in terms *speed*, *travel time,* and *delay.*

The *Highway Capacity Manual 2000,* published by the Transportation Research Board, Committee on Highway Capacity and Quality of Service, includes six levels of service for roadways or intersections ranging from LOS A—the best operating conditions—to LOS F—the worst.

Riverside County and the State of California use the LOS criteria to assess the performance of its street and highway system and the capacity of roadway segments. The county's as well as the state's threshold standards policy requires that LOS C or better be maintained on roadway segments under their jurisdiction.

In addition, operations of intersections were evaluated using methodology contained in the *Highway Capacity Manual 2000.* This methodology is used to assess delays at an unsignalized intersection for movements operating under traffic control—a stop sign, for example. For an intersection at which the only stop-sign is placed at a side street, delay would be reported for movements controlled by the stop sign. The delay is then assigned a corresponding letter grade to represent the overall condition of the intersection or level of service. These grades range from LOS A, free-flow, to LOS F, poor progression.

The level-of-service standards for the Blythe Solar Power Project as required by Riverside County and the State of California are as follows:

1. LOS C or better on Riverside County roads and conventional highways.
2. LOS C or better on Interstate 10, the primary access road to the project site.

A significant impact would exist if the BSPP were to cause intersection operations to exceed the accepted LOS standards on a state, county, or federal roadway.

C.10.4 PROPOSED PROJECT

This section consists of the following two topics:

1. C.10.4.1, Setting and Existing Conditions
2. C.10.4.2, Assessment of Impacts and Discussion of Mitigation

C.10.4.1 SETTING AND EXISTING CONDITIONS

The project site is located approximately eight miles west of the city of Blythe and approximately two miles north of Interstate 10 (I-10) in Riverside County. In the project area, I-10 is a primary east/west regional arterial extending easterly from the Los Angeles area to Phoenix, Arizona, before it turns south and continues to Tucson, Arizona. In the project area, I-10 is classified as a freeway with two lanes in each direction. Access to the site from I-10 is through Exit 232, the Airport/Mesa Drive interchange at Mesa Drive. See **Traffic and Transportation Figure 2,** Local Transportation Network.

Local Highways and Roads

The following roads are located in the vicinity of the project, Interstate 10, Black Rock Road, Mesa Drive, and Hobson Way. Information about each road follows.

Interstate 10 (I-10)

Interstate 10 (I-10), the southernmost, east-to-west, coast-to-coast interstate highway in the United States, begins in Santa Monica and ends in Jacksonville, Florida. Access from I-10 to the project site is provided through Mesa Drive. At this location I-10 consists of two lanes in each direction. According to Caltrans, the average annual daily traffic count for the highway within the vicinity of this interchange in 2008 was 22,500 vehicles (Caltrans2008a).

Black Rock Road

Black Rock Road, a two lane, two-way roadway, extends westerly from Mesa Drive parallel to and on the north side of I-10. Its paved width is approximately 24 feet; the road has graded shoulders on both sides.

Black Rock Road intersects Mesa Drive opposite Hobsonway approximately 300 feet north of the intersection of the westbound I-10 ramps with Mesa Drive. The four-legged intersection of Black Rock, Hobsonway, and Mesa Drive is controlled with stop signs on the Hobsonway and Black Rock approaches.

Access Road

Access to the project site will be from Black Rock Road via a driveway leading to the site. Currently, the driveway is unpaved. Staff has proposed Condition of Certification **TRANS-1** to ensure that an all-weather access road is constructed to that meet all county and local requirements, including those for access of emergency vehicles, including fire trucks and ambulances.

Mesa Drive

Mesa Drive is a two lane, two-way roadway extending north and south from I-10 at the easterly edge of the Blythe Airport. The paved section of Mesa Drive north of I-10 currently ends at the intersection of Black Rock Road and Hobsonway. Between I-10 and Hobsonway, Mesa Drive is a paved road approximately 30 feet wide. From

Hobsonway, Mesa Drive is a paved road approximately 70 feet wide which extends approximately 1,000 feet north before ending in a cul-de-sac adjacent to the Blythe Airport.

Hobsonway

Black Rock Road continues as Hobsonway east of Mesa Drive. Hobsonway continues east for approximately 11 miles then turns southwest as Riviera Drive. Riviera Drive continues for approximately two miles before terminating at US Route 95. According to the *City of Blythe General Plan*, Chapter 4, Circulation Element, Hobsonway is considered the city of Blythe's "Main Street."

PUBLIC TRANSPORTATION

Public transportation consists of rail services, bicycle and pedestrian facilities, and airports. Information about those forms of public transportation follows.

Rail Service

At the time this Application for Certification was being prepared, the Arizona & California Railroad Company, which provided rail service to Blythe, sought from the Surface Transportation Board permission to abandon rail service in San Bernardino County and Riverside County. The Surface Transportation Board is federal economic regulatory agency charged with resolving railroad rate and service disputes and reviewing proposed rail mergers, rail line purchases, constructions and abandonments.

The petition to abandon service was filed on March 12, 2009. An Offer of Financial Assistance (OFA) stayed the decision until January 13, 2010. On that date, the Surface Transportation Board ruled that the Arizona & California Railroad Company could abandon service in San Bernardino County and Riverside County. Consequently, no rail service is available in Blythe at this time. Information about the traffic and transportation implications of this decision is included in the Construction Impacts and Mitigation section of this document.

In addition, no regional passenger railroad transportation exists in the immediate project area. The nearest rail passenger service is an Amtrak Station in Palm Springs to the west or Yuma, Arizona to the east. Local bus transportation is provided by the Palo Verde Valley Transit Agency (PVVTA).

Palo Verde Valley Transit Agency operates three fixed bus routes as well as a dial-a-ride service. National bus service is provided by Greyhound Lines, which has a station in Blythe.

Bicycle and Pedestrian facilities

Neither bicycle nor pedestrian facilities are located in the project vicinity. Instead, bicycle and pedestrian circulation is limited to shoulders of rural highway and county roads and is not allowed on freeways such as I-10.

However, Hobsonway from Mesa Drive east toward the city of Blythe is designated as a Class II Bikeway in the Circulation Element of the Blythe General Plan. Mesa Drive and Black Rock Road are not designated bikeways.

Airports

Two airport facilities are located in the general vicinity of the BSPP site: Blythe Airport (operational) and Desert Center Airport (now used for emergencies only). The location and general characteristics of these aircraft facilities are described briefly below.

Blythe Airport

Blythe Airport is a public facility located approximately six miles west of the city of Blythe and approximately one mile south and east of the project site. The airfield has been opened since 1940 when it was known as Bishop Army Airfield. The airport later became a part of Muroc Army Air Field, now known as Edwards Air Force Base.

Blythe Airport has two operating runways, Runway 8-26 (oriented east-west), the primary runway, is 6,562 feet long, 150 feet wide. Runway 17-35 (oriented north-south) is 5,820 feet long, 100 feet wide. Today Blythe Airport is primarily used for general aviation; that is, flights other than military and regularly scheduled airline service and regular cargo flights.

Current Operations

Current operations at Blythe Airport are limited. For the 12-month period ending in 2006, aircraft operations averaged 69 takeoffs or landings per day or more than 25,000 operations per year. Of these, 50% were characterized as transient general aviation, 50% local general aviation and less than 1% military.

According to the *Palo Verde Valley Area Plan*, which is an extension of the Riverside County General Plan, the Blythe Airport is also used as a base for crop spraying operations, airplane rentals, and flight instruction.

The Riverside County Airport Land Use Commission (ALUC) is charged to carry out the statutory responsibilities required by Sections 21670 et seq. of the California *Public Utilities Code* (PUC). According to the statutes, the commission's responsibilities are to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

Future Operations

To carry out its responsibilities, the ALUC published an airport compatibility plan This compatibility plan is based on the Airport Master Plan adopted by the Riverside County Board of Supervisors in 2001. The plan is based on an assumption of long-range future activity of 58,100 annual aircraft operations, including up to 2,200 airline aircraft operations.

The theoretical ultimate airport activity as envisioned in the plan includes a large number of large jet transport aircraft operations. Accordingly, the Airport Master Plan includes a proposal for extending Runway 8-16 to 3,450 feet westward for a total length of 10,012 feet. Staff considered this information when preparing its analysis.

Riverside County General Plan and Palo Verde Valley Area Plan

The operation of the Blythe Airport is governed by the Riverside County General Plan and the Palo Verde Area Plan. To ensure conformance with land use plans, Riverside County has created the Riverside County Airport Land Use Commission to help protect and promote the safety and welfare of residents of the airport vicinity and users of the airport and to ensure the continued operation of the airports.

Specifically, those land-use plans seek to protect the public from the adverse effects of aircraft noise and ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents and no structures or activities encroach upon or adversely affect the use of navigable airspace.

The County of Riverside General Plan as well as the Palo Verde Valley Area Plan includes compatibility guidelines for airport safety zones, including Blythe Airport. According to the plan, the following uses are prohibited in airport safety zones:

1. Any use that would encroach on airspace in designated airport compatibility zones.
2. Any use that would direct a steady light or flashing light or red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA approved navigational signal light or visual approach slope indicator.
3. Any use that would cause sunlight to be reflected toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport.
4. Any use that would generate smoke or water vapor or which would attract large concentrations or birds, or which may otherwise affect safe air navigation within the area.
5. Any use that would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

Staff considered those prohibited uses in its analysis.

In addition, the Riverside County Airport Land Use Commission (ALUC) is charged to carry out the statutory responsibilities required by Sections 21670 et seq. of the California *Public Utilities Code* (PUC). According to the statutes, the ALUC's responsibilities are to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses."

As indicated in a January 19, 2010, letter to the California Energy Commission from the ALUC, a portion of the BSPP site is located within the Airport Influence Area of Blythe Airport and a large portion of the transmission line between the proposed power plant and the proposed substation traverses the Airport Influence Area.

In addition, the ALUC identified Policy 4.3.7 of the countywide policies of the 2004 Riverside County Airport Land Use Compatibility Plan as pertaining to the BSPP:

New land uses that may cause visual, electronic, or increased bird strike hazards to aircraft in flight shall not be permitted within any airport's influence area. Specific characteristics to be avoided include:

a. Glare or distracting lights which could be mistaken for airport lights
b. Sources of dust, steam, or smoke which may impair pilot visibility
c. Sources of electrical interference with aircraft communications or navigation
d. Any proposed use, especially landfills and certain agricultural uses, that creates an increased attraction for large flocks of birds. (Refer to FAA Order 5200.5A, *Waste Disposal Sites on or Near Airports* and Advisory Circular 150/5200-33A, *Hazardous Wildlife Attractants On or Near Airports.*)

According to the ALUC, that policy is implemented through the application of the following "standard" condition:

The following uses shall be prohibited:

a. Any use which would direct a steady light or flashing light of red, white, green, or amber colors associated with airport operations toward an aircraft engaged in an initial straight climb following takeoff or toward an aircraft engaged in a straight final approach toward a landing at an airport, other than an FAA-approved navigational signal light or visual approach slope indicator.
b. Any use which would cause sunlight to be reflected towards an aircraft engaged in an initial straight climb following takeoff or towards an aircraft engaged in a straight final approach towards a landing at an airport.
c. Any use which would generate smoke or water vapor or which would attract large concentrations of birds, or which may otherwise affect safe air navigation within the area.
d. Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation.

The ALUC also indicated that the applicant should be subject to a special condition requiring the applicant to take all measures necessary to eliminate such glare or interference.

In addition, on February 25, 2010, Energy Commission staff met with staff and several members of the ALUC. As a result of that meeting, the commission sent a letter to staff indicating its major concerns regarding the potential hazards to flight for the Blythe Airport.

Those hazards included the following:

1. Reflectivity and temporary flash occurrences

2. Radio frequency emissions for electrical motors or other on-site equio\pment (transmission lines) and the potential for interference
3. Height and velocity of thermal plumes from the dry cooling units
4. Height and location of structures, including the dry cooling units and power poles and lines
5. Provision of adequate open space within any portion of the project potentially within Compatibility Zone D
6. The cumulative impacts of additional hazards to flight considering the amount of existing and proposed solar (and conventional energy generating) facilities surrounding the Blythe Airport.

Staff considered the ALUC's comments in its analysis. See **Traffic and Transportation Figure 3,** Blythe Airport Areas of Influence.

Desert Center Airport

Desert Center Airport is a former airport located at the end of an unnamed road approximately one mile east of Route 177 (Rice Road), five miles northeast of the town of Desert Center, and approximately 35 miles west of the Project site.

The airport was built in the early 1940s as Desert Center Army Airfield and used as a support base for the Air Technical Services Command. At that time, it had 5,500-foot runways with taxiways, a parking apron, and more than 40 buildings. Following the end of World War II, the airfield was turned over to Riverside County and used as a civil airport, although most of the buildings were dismantled. In 1946, the airfield was turned over to the Army Corp of Engineers and the buildings were auctioned off to the public.

Riverside County reopened and operated the airport for a period of time. However, the county sold the airport to a private party. Today, the airport is no longer licensed as a public-use airport, this is, one that is available for use by any member of the public. Instead, it is a privately-owned, private-use airport with use restricted to the owner and such other persons as the owner may permit to use it.

C.10.4.2 ASSESSMENT OF IMPACTS AND DISCUSSION OF MITIGATION

The direct and indirect impacts of the proposed BSPP on the transportation system are examined in this section. The assessment of transportation-related impacts is based on evaluations and technical analyses designed to compare the pre-BSPP conditions to the post-BSPP conditions, including the following:

1. Study intersection/road segment locations
2. Direct/indirect impacts and mitigation
3. Construction period impacts and mitigation
4. Operations impact and mitigation
5. Emergency services vehicle access

6. Water, rail, and air traffic
7. Impact of glare on motorists
8. Parking capacity
9. Transportation of hazardous materials
10. Laws, ordinances, regulations, and standards (LORS)
11. Conflict with policies, plans, or programs

Studied Intersection and Road Segment Locations

The following locations on the surrounding roadway network were reviewed:

1. Interstate 10, approximately 40 miles east of the project site
2. Interstate 10, approximately 40 miles west of the project site
3. Interstate 10, Westbound ramps, east of project site
4. Interstate 10, Eastbound ramps, Mesa Drive
5. Blackrock Road
6. Mesa Drive
7. Hobsonway

Direct/Indirect Impacts and Mitigation

Determinations of the direct and indirect impacts of the BSPP are based on the relevant laws, ordinances, regulations, and standards (LORS) pertaining to this project. See the LORS section of this document. To address direct and indirect impacts and mitigation, two project scenarios have been evaluated:

1. **Construction Period Impacts and Mitigation.**
2. **Operations Impacts and Mitigation.**

Construction Period Impacts and Mitigation

Potential traffic impacts associated with the construction of BSPP were evaluated for both construction workforce traffic and construction truck traffic.

Construction Workforce

Construction of the BSPP would be completed over an approximately 69-month period beginning in late 2010. The construction work force would peak during month 16 at approximately 1,000 workers per day and average approximately 600 workers over the course of construction. Construction of the transmission line is expected to require a limited crew with fewer than 25 workers during peak periods. However, the transmission line construction schedule would not coincide with the peak of plant site construction employment.

A worst-case scenario, where all workers commute in automobiles with only one occupant per vehicle, yields a peak trip generation of approximately 1,000 inbound trips during the morning peak period and another 1,000 outbound trips during the evening peak hour.

One-way worker trips would peak at 2,000 trips per day and an average of 1,200 one-way trips per day. Construction would also generate an average of approximately 15 to 20 one-way, truck trips per day with a peak of approximately 50 to 75 truck trips per day. The peak time for truck travel would occur during the construction of the foundation for the plant site and would not coincide with the peak onsite worker commute timeframe (month 16 in early 2012).

A temporary parking area of approximately eight acres would be required for construction personnel parking (assuming 350 square feet per vehicle) with additional area required for the staging and laydown of equipment, materials, and supplies. The project would include onsite laydown and parking areas during construction. Those areas would be relocated around the site as construction progresses. Safety and efficiency concerns require on-site parking and laydown areas. That is, a traffic hazard could occur if workers were to park on public roadways or if public roadways were used for the staging and laydown of equipment, materials, and supplies. Such a hazard could adversely impact the level of service (LOS) on I-10 as well as the safety of the workers and drivers. Consequently, to ensure adequate on-site and off-site parking areas as well as staging areas for all phases of project construction, staff recommends Condition of Certification **TRANS-2**. [2]

The construction workforce would be drawn from the surrounding local and regional area, including a small number from the greater Los Angeles Basin. Project construction traffic from the Los Angeles, Palm Springs, and Indio areas is expected to follow I-10 east to the project site. Workers traveling from Blythe and the Arizona towns of Quartzsite, Ehrenberg, and Cibola would follow I-10 west to the project site.

A portion of the construction workforce is expected to come from or at least be temporarily housed in the Indio area (including Coachella, Thermal, and Mecca). These workers would also approach the project site following I-10 from the west. Traffic approaching from Blythe itself would generally follow I-10 westerly to Mesa Drive where they would exit to the north and follow Blackrock Road west to the site. However, some workers are likely to follow Hobsonway west directly to Blackrock Road.

Traffic from the Brawley/ El Centro area is expected to follow State Route 78 north to I-10 and I-10 west to Mesa Drive. Traffic from the Indio/ Palm Springs area and points west would follow I-10 east to Mesa Drive and the project site.

[2] See the Cumulative Impacts section of this document. In this cumulative section staff has analyzed the impacts of three projects, Blythe, Palen, and Genesis, whose construction schedules overlap. These projects are located along Interstate 10 in relatively close proximity to each other. Consequently, staff has proposed Conditions of Certification TRANS-1 and Condition of Certification TRANS-2 to require all three projects to minimize traffic on I-10 through off-site park and ride programs along with staggered work hours or other methods of reducing traffic on I-10. Those programs are designed to ensure that at least LOS C is maintained on I-10 during overlapping construction periods.

See the following Traffic and Transportation tables for information about traffic volumes for roads and intersections used to access the project site:

1. **Traffic and Transportation Table 1**, 2010 Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service Without Project
2. **Traffic and Transportation Table 2**, 2012 Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service With Project
3. **Traffic and Transportation Table 3**, Existing Peak Hour Intersection Levels of Service Without Project
4. **Traffic and Transportation Table 4**, 2012 Peak Hour Intersection Levels of Service With Project (With Mitigation)

As indicated in the Table 1 and Table 2, levels of service (LOS) for Interstate 10 east and west of the project site would operate at LOS A before and during peak hour construction conditions. As Indicated in **Traffic and Transportation Table 3** and **Traffic and Transportation Table 4**, intersections would operate at LOS A with applicant-recommended staggered travel times for construction workers. Staggered travel times are important for these intersections because movement of traffic is controlled by stop signs. As a result, vehicle traffic could easily become backed-up or stacked as drivers exit I-10 to the project site.

However, the construction of the BSPP is scheduled to overlap with the construction schedules of two other solar projects in the area, Palen Solar Power Project (PSPP) and Genesis Solar Energy Project (GSEP). Those three projects would result in approximately 3,133 workers travelling on I-10 to their work sites at the same time.

Consequently, while the applicant-proposed condition to divide the workforce in shifts and stagger travel times would be a suitable mitigation for the BSPP project alone, it would not reduce the cumulative impacts on I-10 of the three projects. Therefore, staff proposes Condition of Certification **TRANS-3**, to require the applicant to work with Genesis Solar LLC/NextEra to formulate a transportation control plan for the BSPP that would include a park-and-ride program along with staggered work hours or other methods of reducing traffic on I-10 for all three projects.[3]

TRAFFIC AND TRANSPORTATION Table 1
2010 Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service Without Project

Roadway/Segment	Existing Conditions			
	Travel Lanes	Volume	Capacity	LOS
I-10 West of Project Site	4	3,278	8,000	A
I-10 East of Project Site	4	3,278	8,000	A

Notes: Baseline information from Caltrans 2009 data. Capacity represents approximate two-way capacity in vehicles per hour.

[3] Solar Millennium LLC, the applicant for the BSPP, is also the applicant for the Palen Solar Power Project (PSPP).

TRAFFIC AND TRANSPORTATION Table 2
2012 Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service With Project

Roadway/Segment	2012 Conditions			
	Travel Lanes	Volume	Capacity	LOS
I-10 West of Project Site	4	4,278	8,000	A
I-10 East of Project Site	4	4,178	8,000	A

Notes: Baseline information from Caltrans 2009 data. Year 2009 traffic volumes expanded to Year 2012 at historical rates from year 2002 to 2007 (4.275 percent per year). Capacity represents approximate two-way capacity in vehicles per hour.

TRAFFIC AND TRANSPORTATION Table 3
Existing Peak Hour Intersection Levels of Service Without Project

Intersection	Existing Conditions			
	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
I-10 Westbound Ramps/Mesa Drive	1.7	A	2.4	A
I-10 Eastbound Ramps/Mesa Drive	3.2	A	3.7	A
Black Rock Road/Mesa Drive/Hobson Way	2.7	A	3.4	A

Notes: Existing conditions data from Wilson Engineering, 2009. Year 2009 traffic volumes expanded to Year 2012 at historical rates from years 2002 through 2007 or 4.275 percent per year. Average vehicle delay is in seconds. LOS pertains to intersection as a whole. LOS for intersection as a whole.

TRAFFIC AND TRANSPORTATION Table 4
2012 Peak Hour Intersection Levels of Service With Project (With Mitigation)

Intersection	Year 2012 and 500 Workers			
	AM Peak Hour		PM Peak Hour	
	Delay (in seconds)	LOS	Delay (in seconds)	LOS
I-10 Westbound Ramps/Mesa Drive	5	A	1.1	A
I-10 Eastbound Ramps/Mesa Drive	8	A	6.4	A
Black Rock Road/Mesa Drive/Hobson Way	11.3	B	9.1	A

Notes: Year 2009 traffic volumes expanded to Year 2012 at historical rates from years 2002 through 2007 or 4.275 percent per year. LOS assumes 1,000 person workforce split in two shifts of 500 employees arriving and departing one hour apart. LOS for intersection as a whole.

In addition, several pieces of equipment that exceed roadway load or size limits would need to be transported to the BSPP site via I-10 during construction. This equipment includes the steam turbine generator and main transformers. The equipment would be transported using multiaxle trucks.

To transport this equipment, the applicant must obtain special permits from Caltrans to move oversized or overweight materials. In addition, the applicant must ensure proper routes are followed; proper time is scheduled for the delivery; and proper escorts, including advanced warning and trailing vehicles as well as law enforcement control are available, if necessary. Consequently, staff is recommending Condition of Certification **TRANS- 4** to ensure the project owner would comply with vehicle size and weight limitations imposed by Caltrans and other relevant jurisdictions; Condition of Certification **TRANS-5** to ensure the applicant complies with Caltrans' and other relevant jurisdictions' limitations on encroachments into public rights of way; and Condition of Certification **TRANS-6** to ensure that the project owner would restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities. Repairs shall be of the kind to restore the roads, easements, and rights-of-way to their original or near-original condition.

Operation Impacts and Mitigation

Operation of the BSPP would result in a small amount of vehicular traffic. Operational workforce is estimated to be 221 workers. The arrival and departure time of those workers would be staggered in three eight-hour shifts to over operations on a 24-hour, seven-day-a-week basis. Consequently, peak weekday traffic would be less than 150 vehicles even if every employee were to commute in his or her own vehicle.

As indicated in **Traffic and Transportation Table 5** and **Table 6**, which follow, surrounding roadways and intersections are projected to operate well below capacity when BSPP is operational in 2016. Projections have taken into account continued local and regional growth as well as the completion of Palen Solar Power Project located 35 miles west of Blythe. Consequently, the addition of 221 workers arriving at the plant in staggered shifts over a 24-hour period would not alter existing or future roadway operating characteristics (LOS).

In addition, BSPP operations would require approximately 12 truck trips per day for the delivery of materials and supplies as well as for offsite shipment of wastes.

Truck travel as well as other non-employee site visits would be very small and would typically occur during non-peak periods. Consequently, cumulative operational impacts would not be significant and not require mitigation.

TRAFFIC AND TRANSPORTATION Table 5
2016 Peak Hour Roadway Traffic Volumes, Design Capacities, and Levels of Service

Roadway Segment	2016 Conditions Plus Project Operations		
	Volume	Capacity	LOS
I-10 West of Project Site	3,899	8.000	A
I-10 East of Project Site	3,960	8.000	A

Notes: Year 2009 traffic volumes expanded to Year 2016 (project completion) at historical rates from years 2002 to 2007 or 4.275 per year. Capacity is approximately two-way capacity in vehicles per hour. Completion Palen Solar Power Project north of I-10 assumed in calculations.

TRAFFIC AND TRANSPORTATION Table 6
2016 Peak Hour Intersections Levels of Service

Intersection	2016 Conditions Plus Project Operations			
	AM Peak Hour		PM Peak Hour	
	Delay	LOS	Delay	LOS
I-10 Westbound Ramps/Mesa Drive	3.5	A	2.2	A
I-10 Eastbound Ramps/Mesa Drive	4.3	A	5.1	A
Black Rock Road/Mesa Drive/Hobson Way	5.4	A	5.6	A

Notes: Year 2009 traffic volumes expanded to Year 2016 at historical rates from years 2002 through 2007 or 4.275 percent per year Average vehicle delay is in seconds.

Emergency Services Vehicle Access

The applicant proposes to build an access road to the site. Staff is proposing Condition of Certification **TRANS-1** to ensure the road built by the applicant is an all-weather access road built to county and fire code requirements for adequate access for emergency vehicles. Once that road is built, regional access to the site will be adequate given that an emergency vehicle can access the site directly from I-10 using the access road to be built by the applicant. In addition, emergency vehicles can approach the site from adjacent cities using I-10. Roads also will be built to county and fire code requirements for adequate access for emergency vehicles. Please see the **Hazardous Materials Management** section of this staff assessment for additional information.

Water and Rail Obstructions

The proposed BSPP is not located adjacent to a navigable body of water; therefore, the BSPP is not expected to alter water-related transportation. In addition, the proposed project is not located near a crossing of a railroad line.

Interference with Airport Operations

Two airports are located in the vicinity of the proposed BSPP site, Desert Center and Blythe. Desert Center is approximately 36 miles northwest from the project site, consequently the project would not affect air traffic at Desert Center. Blythe Airport is operational and is located approximately one mile southeast of the project site. The Blythe Airport has two operating runways, Runway 8-26 (oriented east-west), the primary runway, is 6,562 feet long, 150 feet wide. Runway 17-35 (oriented north-south) is 5,820 feet long, 100 feet wide. Today Blythe Airport is primarily used for general aviation.

At Blythe Airport, for the 12-month period ending in 2006, aircraft operations averaged 69 takeoffs or landings per day. Of these, 50% were characterized as transient general aviation; 50% local, general aviation.

As proposed, the BSPP could pose a hazard to air traffic because several of the BSPP's components are located in Blythe Airport Influence Areas, including an

overhead 230-kV transmission line and poles; air-cooled condenser; and parabolic troughs.

Because of the location of the transmission line and other objects in Blythe Airport Compatibility Zones, review by both the FAA and the Riverside County Airport Land Use Commission is required.[4]

Information about those components follows.

230 kV Transmission Line and Poles

An overhead 230-kV single circuit, three-phase transmission line and steel monopoles, ranging from 90 feet to a maximum of 145 feet in height and spanning less than ten miles, will proceed on a route directly south from the BSPP power block and eventually crossing I-10 and turning westward to SCE's planned Colorado River substation. See **Traffic and Transportation Figure 1** and **Traffic and Transportation Figure 4.**

The lines and monopoles will be placed both inside and outside the facility boundary. The construction corridor will be about 80 feet wide with a final easement width of 175 feet. Transmission towers immediately west of Blythe Airport must be limited in height to 90 feet according to FAA regulations. In addition, the transmission line and poles pass through several airport compatibility zones, including Zone E, Zone D, Zone C, and Zone B1. See **Traffic and Transportation Figure 3** and **Traffic and Transportation Figure 4.**

Zone E requires airspace review by the ALUC for objects greater than 100 feet in height and Zone D requires airspace review for objects greater than 70 feet in height. Zone C is the extended approach/departure area which requires airspace review for objects greater than 70 feet in height, and Zone B1 is the inner approach/departure area which requires airspace review for objects greater than 35 feet in height (Riverside County 2004).

Consequently, staff has determined that the impacts of the transmission line are mitigable if made to conform to FAA and the Riverside County Airport Land Use Commission's requirements.

Air-Cooled Condensers

As currently proposed by the applicant, one of BSPP's four 120-foot tall, air-cooled condensers may be located in Blythe Airport Area of Influence Zone E. This air-cooled condenser could result in upward air plumes exceeding 4.3 m/s[5] at heights as much as

---

[4] FAA regulations (CFR Title 14, Part 77) require that any construction or alteration that exceeds a 100:1 surface from any point on the runway of each airport with at least one runway more than 3,200 feet must be reviewed by the FAA. The transmission line would be located in Blythe Airport Compatibility Zone E, Zone D, Zone C, and Zone B1. Zone E requires review for objects greater than 100 feet in height; Zone C, for objects greater than 70 feet in height; and Zone B, the inner approach/departure area, requires review for objects greater than 35 feet in height.

[5] The 4.3 m/s velocity threshold is based on staff's review of a 2004 safety circular (AC 139-05(0)), prepared by the Australian Government Civil Aviation Safety Authority, that noted "aviation authorities have established that an exhaust plume with a vertical velocity in excess of 4.3 meters per second (m/s) may cause damage to an aircraft airframe or upset an aircraft when flying at low levels" (CASA 2004). In their safety study on thermal plumes the FAA noted that they "do not necessarily approve/disapprove or warrant the data contained in the CASA AC 139-05." The safety team accepted "the information and data contained in AC 139-05 as a valid representation of hazardous exhaust velocities" (FAA 2006).

approximately 1,670 feet above ground level (AGL). Plumes of this velocity could cause turbulence and therefore affect aircraft maneuverability above the BSPP site. A plume velocity analysis was conducted for the BSPP and is presented in detail as **APPENDIX TT-1** of this document. See **Traffic and Transportation Figure 3.**

Consequently, staff has determined that the impacts of the air-cooled condenser may present a hazard to air safety and is in the process of obtaining additional information to determine the impact of the plumes resulting from the placement of this one air-cooled condenser.

Impact of Flash of Light on Pilots

The Visual Resources section of this document includes general information about the impacts of glare. This traffic and transportation section contains information about flashes of light as they relate to pilots.

Parabolic trough solar collector arrays would be installed on 5,600 acres of the project site immediately southeast of the project. A parabolic trough is a type of a solar thermal energy collector. Constructed as a long parabolic mirror, a Dewar tube runs its length at the focal point. Sunlight is reflected by the mirror and focused on the Dewar tube. The trough is usually aligned on a north-south axis and rotated to track the sun as it moves across the sky each day. Troughs are stowed facing the ground, a position from which no glare occurs.

When a parabolic trough rotates from the stowed position into the tracking position, a flash of brightness can occur for a short period of time. This rotation occurs at the beginning and end of daily operations. This flash of brightness can be classified as an intrusive bright nuisance and as an optical hazard at short distances.

Some parabolic troughs will be located in the Blythe Airport Areas of Influence. **See Traffic and Transportation Figure 3.**

Blythe Airport lies to the immediate southeast of the project. The field of mirrors as a whole will not pose a problem to aviation based on experience with other solar trough projects. However, staff believes that bright spots on the mirrors could prove to be a problem for pilots taxiing, landing, or taking off from the Blythe Airport and, as a result, lead to pilot error. Consequently, staff is continuing to investigate the significance of these impacts of the parabolic troughs and will recommend appropriate mitigation if necessary.

Impact of Flash of Light on Motorists

The Visual Resources section of this document includes general information about the impacts of glare. This traffic and transportation section contains information about flashes of brightness as they relate to motorists.

Parabolic trough solar collector arrays would be installed on 5,600 acres of the project site immediately southeast of the project. A parabolic trough is a type of a solar thermal energy collector. Constructed as a long parabolic mirror, a Dewar tube runs its length at the focal point. Sunlight is reflected by the mirror and focused on the Dewar tube. The

trough is usually aligned on a north-south axis and rotated to track the sun as it moves across the sky each day. Troughs are stowed facing the ground, a position from which no glare occurs.

When a parabolic trough rotates from the stowed position into the tracking position, a flash of brightness can occur for a short period of time. This rotation occurs at the beginning and end of daily operations. This flash of brightness can be classified as an intrusive bright nuisance and as an optical hazard at short distances. Given the operational characteristics of a parabolic trough solar collector arrays and the BSPP's two-mile distance from I-10, staff has determined that the impact of the flash of brightness or intrusive bright nuisance to motorists is not significant.

Interference from Electronic Frequencies

BSPP's transmission lines and facility control systems use specific electronic frequencies that could interfere with aircraft communications or avionics (radio frequency interference or RFI).

Both FAA regulations as well as the Riverside County Airport Land Use Commission's Airport Land Use Compatibility Plan includes a requirement for minimizing electronic interference.

Staff concludes that interference from electronic frequencies may be mitigable; continues to investigation mitigation measures; and will recommend mitigation if appropriate.

Parking Capacity

The project would include a temporary parking area of approximately eight acres for construction workers, based on the assumption of 350 square feet per vehicle. The parking area would be relocated around the site as construction progresses.

An additional area would be required for staging and laydown of equipment, materials, and supplies. That area would also be relocated around the site as construction progresses. Approximately 221 workers would be employed at the BSPP when it becomes operational. Those workers would park on-site.

With the proposed construction parking area on-site as well as on-site parking for operational employees, the project would not result in any parking spill-over to sensitive areas and would not create any adverse impacts. However, staff notes that with the Condition of Certification **TRANS-2**, the applicant's requirements for parking capacity for construction purposes may be modified.[6]

[6] See the Cumulative Impacts section of this document. In this cumulative section staff has analyzed the impacts of three projects, Blythe, Palen, and Genesis, whose construction schedules overlap. These projects are located along Interstate 10 in relatively close proximity. Consequently, staff has proposed conditions of certification to require all three projects to minimize traffic on I-10 through park and ride programs, staggered work hours, or other methods of reducing traffic on I-10 to ensure that at least LOS C is maintained on I-10 during overlapping construction periods.

Transportation of Hazardous Materials

Hazardous materials to be used by the BSPP consist of heat transfer fluid (Therminol VP-1™, a biphenyl) as well as diesel fuel, mineral insulating oil, and lube oil. Tanker trucks would use Interstate 10 two times a month to make deliveries to the BSPP site.

Federal and state regulations include specific procedures for transporting hazardous materials.[7] See **Traffic and Transportation Table 8** for information about these regulations. To ensure compliance with all applicable state and federal regulations pertaining to hazardous materials, staff recommends Condition of Certification **TRANS-7**, Transportation of Hazardous Materials.

Cumulative Impacts and Mitigation

In this section, staff analyzes the cumulative impacts of approximately 17 solar projects as well as the cumulative impacts to the Blythe Airport of the operation of the BSPP. See **Traffic and Transportation Figure 4**, Project Cumulative Impacts, and **Traffic and Transportation Figure 5**, I-10 Corridor Existing and Proposed Projects.

Solar Projects

Approximately 17 solar projects are projected to be built within approximately 100 miles of the I-10 corridor (Desert Center to Blythe). See **Traffic and Transportation Figure 5,** I-10 Corridor Existing and Proposed Projects. Three projects included in Figure 5, Blythe, Genesis, and Palen, are proposed solar plants currently being reviewed by the California Energy Commission (CEC) and Bureau of Land Management (BLM). The other projects included in Figure 5 are photovoltaic solar projects proposed to be constructed on BLM land and are currently being reviewed by BLM. Those projects do not come under the review of the CEC.

However, all projects included in Figure 5 have the potential to affect both the I-10 corridor between Desert Center and Blythe as well as the Blythe Airport. Information on those possible effects follows.

I-10 Corridor

The effects of those projects on the I-10 corridor has been organized by type, either parabolic trough or photovoltaic.

Parabolic Trough Projects

The three parabolic trough projects examined in this analysis include Blythe Solar Power Project (BSPP); Palen Solar Power Project (PSPP); and Genesis Solar Energy Project (GSEP).

Blythe will be constructed over an approximately 69-month period beginning in fourth quarter 2010 and ending in further quarter 2016. The construction of Palen would occur over an approximately 39-month period beginning further quarter of 2010 and ending in fourth quarter 2013. Construction on Genesis is expected to begin in 2012 and end in 2015.

[7] See Blythe Solar Power Project Application for Certification, Traffic and Transportation, page 5.13-16.

Without mitigation, the overlapping construction schedules of the three projects have the potential to result in cumulatively considerable impacts to I-10 as well as to local streets, highways, and intersections in the vicinity of the project area.

However, staff has recommended five conditions of certification designed to reduce the cumulative impacts of the three projects to less than significant. Those conditions of certification, which will apply to all three projects—Blythe, Palen, and Genesis—include:

1. Condition of Certification TRANS-1, designed to set aside parking and staging areas during construction to ensure that all project-0related parking occurs on-site or in designated off-site areas.
2. Condition of Certification TRANS-2, designed to result in a traffic control plan to ensure, among other things, that park-and-ride programs are in place for transporting workers to jobsites
3. Condition of Certification TRANS-3, designed to establish limits on size and weights of vehicles travelling to and from project sites
4. Condition of Certification TRANS-4, designed to result in applicants obtaining the proper permissions to use public rights-of-way
5. Condition of Certification TRANS-5, designed to result in the restoration of all public, roads, rights-of-way, and easements.

Photovoltaic Projects

Construction time for photovoltaic projects is generally shorter than the time needed to construct parabolic trough projects. In addition, construction of photovoltaic projects is generally accomplished in stages and requires fewer workers than construction of parabolic trough projects. For example, the California Public Utilities Commission (PUC) approved the 7.5 MW Blythe PV Solar Project in July 2008. By December 2009 the Blythe plant had been upgraded to 21 MW, making it the largest PV project to date in California. The upgrade from 7.5 MW to 21 MW took approximately three months.

However, in general, depending on size, construction of PV solar facilities can last from one month to a year and require from about 200 to 400 workers, depending on size and location.

The PV solar plants included in Traffic and Transportation Figure 4 are still in the planning stages. All of the projects are likely not to be constructed during the overlapping schedules of the Blythe, Palen, and Genesis projects. In addition, these projects will be constructed in phases over several years.

Because of the relatively short work schedules and the number of workers required by solar PV projects, staff concludes that these projects, combined with the Blythe Solar Power Project, would not result in a significant cumulative impact to local roadways, particularly since staff has recommended Condition of Certification TRANS-2, the implementation of a traffic control plan to ensure, among other things, that park-and-ride programs are in place for transporting workers to jobsites

Blythe Airport

Blythe Airport is a public facility located approximately six miles west of the city of Blythe and approximately one mile south and east of the project site. The airfield has been opened since 1940 when it was known as Bishop Army Airfield.

Blythe Airport has two operating runways, Runway 8-26 (oriented east-west), the primary runway, is 6,562 feet long, 150 feet wide. Runway 17-35 (oriented north-south) is 5,820 feet long, 100 feet wide. Aircraft using Runway 8-26, approaching from or departing to the east, fly over the already-existing Blythe Energy Project, BEP site. The Master Plan update considers extending Runway 8-26 by 1,180 feet to 7,000 feet in order to accommodate larger aircraft (Blythe Airport Master Plan, Table 3C, pg. 3-7).

The proposed BSPP would be located southwest of the existing Blythe Energy Project I BEPI, a 520 MW natural gas-fired, combined cycle facility, approved by the Energy Commission in 2001 in several airport compatibility zones. In addition, a PV solar facility, Blythe Airport Solar I is planned to be constructed in the same vicinity. And Blythe II, a 520 MW gas-fired plant, was approved by the Energy Commission in 2005 for construction on the same site as BEP I, but has not been constructed. See Traffic and Transportation Figure 4.

Consequently, the construction and operation of the BSPP would result in a significant cumulative impact. The operation of the existing BEP I project results in thermal and visible plumes. In addition, the proposed BEP II would create visible and thermal plumes; and the other proposed solar projects would create glare and thermal plumes. This concentration of hazards could complicate the airspace for pilots approaching or departing Blythe Airport.

LAWS, ORDINANCES, REGULATIONS, AND STANDARDS

Staff uses LORS as significance criteria to determine if the proposed BSPP would have a significant adverse impact on the environment. The federal, state, and local regulations applicable to the proposed BSPP are listed in **Traffic and Transportation Table 8**.

TRAFFIC AND TRANSPORTATION Table 8
Laws, Ordinances, Regulations, and Standards

Applicable Law	Description
Federal	
Code of Federal Regulations (CFR), Title 14, Aeronautics and Space; Part 77, Objects Affecting Navigable Airspace (14 CFR 77)	This regulation includes standards for determining physical obstructions to navigable airspace; information about requirements for notices, hearings, and requirements for aeronautical studies to determine the effect of physical obstructions to the safe and efficient use of airspace.
Code of Federal Regulations (CFR), Title 49, Subtitle B, Sections 171-177; Sections 350-399; Appendices A-G Other Regulations Relating to Transportation	49 CFR Subtitle B includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and as well as safety measures for motor carriers and motor vehicles operating on public highways.
State	
California Vehicle Code (CVC), Division 2, Chapter 2.5, Div. 6; Chap. 7, Div. 13; Chap.	These code sections pertain to licensing, size, weight, and load of vehicles operated on highways; safe operation of

5, Div. 14.1; Chap. 1 and 2, Div. 14.8, Div. 15	vehicles; and transporting hazardous materials.
California Streets and Highway Code, Section 117; Section 660-695; Section 700-711; Section 1450; 1460 et seq.; and 1480 et. Seq.	Pertain to regulating rights-of-way encroachments and granting permits for encroachment on state highways and freeways and on county roads.
California Health and Safety Code; Section 25160 et seq.	Pertain to operators of vehicles transporting hazardous materials
Local	
Riverside County General Plan, Circulation Element and Palo Verde Valley Area Plan, which is part of the Riverside County General Plan	Pertains to public policies and strategies for the transportation system in Riverside County, including those pertaining to transportation routes, terminals, and facilities; construction of extensions of existing streets; and levels of services (LOS), and airports.
Riverside County Municipal Code, Title 10, Vehicles and Traffic, Section 10.08	Pertains to requirements for oversize and overweight vehicles.
Riverside County Airport Land Use Compatibility Plan	Pertains to heights of projects as well as other restrictions in areas located near airports. All applicable policies and procedures in the Riverside plan are incorporated as part of the city of Blythe's policies.
City of Blythe General Plan 2025, Chapter 4, Circulation Element	Establishes regional transportation objectives, policies, and implementation measures for various modes of transportation as well as levels of service. Plan is also coordinated with Palo Verde Valley Area Plan and County of Riverside General Plan.
City of Blythe General Plan 2025, Chapter 7, Safety Element	Establishes policies pertaining to airport safety, including minimizing injury to aircraft occupants and preventing creation of hazards to flights. Guiding policies of this section include Blythe Airport Master Plan; Land Use Compatibility Plan; and Federal Aviation Regulations Part 77. Section also contains five guiding policies concerning hazards to airspace; visual disturbances involving light and glare; and electronic devices.
City of Blythe Municipal Code, Title 10, Section 19	Pertains to permit requirements for moving heavy loads and equipment on city streets.
Palo Verde Valley Area Plan	Includes height and other restrictions pertaining to the Blythe Airport.

Conflict with Policies, Plans, or Programs

With implementation of recommended conditions of certification, the Blythe Solar Power Project would not conflict with any formal policies, plans, or programs related to transportation aspects of the project.

C.10.5 Reconfigured Alternative

The Reconfigured Alternative would be a 1,000 MW solar facility that would retain use of the proposed solar Units 1, 2, and 4 (the two northern solar fields, and the southeastern solar field) at their proposed locations as shown on Figure DR-ALT-43-1. The proposed Unit 3 (the southwestern solar field) would be relocated approximately 0.8 miles south of its proposed location.

This alternative is analyzed because it would:

1. Retain the 1,000 MW generation capacity defined for the proposed project and the engineering is defined by Solar Millennium as feasible

2. Reduce some impacts to the McCoy Wash and desert dry wash woodlands. Approximately 480 acres of the Reconfigured Alternative would be outside of the ROW application area but the alternative would remain entirely within BLM managed lands.

The Reconfigured Alternative is illustrated in **Traffic and Transportation Figure 1**.

C.10.5.1 Setting and Existing Conditions

This alternative includes the Units 1, 2, and 4 as proposed for the Blythe Solar Power Project as well as a reconfigured Unit 3. The setting for Units 1, 2, and 4 would not change from that for the proposed project.

Unit 3 would be relocated approximately 0.8 mile south of the proposed location. The relocated Unit 3 includes the use of 480 acres of BLM land immediately south of the proposed ROW.

C.10.5.2 Assessment of Impacts and Discussion of Mitigation

The implementation of this alternative would not significantly affect the number of workers needed for the construction and operation of this project because it does not change the setting of the project or the necessity of the workers to travel on I-10. Traffic would still need to be mitigated to acceptable LOS.

In addition, when analyzed in connection with the other two solar projects with overlapping construction schedules in the area, the cumulative impact of the three projects on the roadways would still be significant and need to be mitigated to acceptable levels of service (LOS).

C.10.5.3 CEQA Level of Significance

The implementation of this alternative would not significantly affect the number of workers needed for the construction and operation of this project because it does not change the setting of the project or the necessity of the workers to travel on I-10. Traffic would still need to be mitigated to acceptable LOS.

In addition, when analyzed in connection with the other two solar projects (Palen Solar Power Project and the Genesis Solar Energy Project) with overlapping construction schedules in the area, the cumulative impact of the three projects on the roadways would still be significant and need to be mitigated to acceptable levels of service (LOS).

C.10.6 REDUCED ACREAGE ALTERNATIVE

The Reduced Acreage Alternative would consist of Units 1, 2, and 3 of the proposed project and operate as a 750 MW solar facility located within the boundaries of the proposed project as defined by Solar Millennium.

This alternative is analyzed for two reasons:

1. About 25% of the proposed project area is eliminated, so all impacts are reduced.

2. By removing the southwestern solar field, which is located on flowing desert washes, the impacts to the McCoy wash, desert dry wash woodlands, and wildlife movement corridors are reduced.

C.10.6.1 Setting and Existing Conditions

This alternative is located entirely within the boundaries of the proposed project. Implementation of this alternative eliminates effects to the southwestern 250 MW solar field (1,200 acres). As a result, the environmental setting consists of the northern and eastern portions of the proposed project, as well as the area affected by the linear project components.

C.10.6.2 Assessment of Impacts and Discussion of Mitigation

This alternative could result in a decrease in the amount of workers needed for the project. However, due to the overlapping traffic and transportation requirements of the Palen Solar Power Project and the Genesis Solar Energy Project—those projects have overlapping construction schedules with BSPP—the reduction in workers for the BSPP would not reduce LOS to unacceptable levels.

C.10.6.3 CEQA Level of Significance

This alternative could result in a decrease in the amount of workers needed for the project. However, due to the overlapping traffic and transportation requirements of the Palen Solar Power Project and the Genesis Solar Energy Project—those projects have overlapping construction schedules with BSPP—the reduction in workers for the BSPP would not reduce LOS to unacceptable levels..

C.10.7 NO PROJECT /NO ACTION ALTERNATIVES

No Project/No Action Alternative #1:

No Action on Blythe Solar Power project application and on CDCA land use plan amendment

Under this alternative, the proposed Blythe Solar Power Project would not be approved by the CEC and BLM and BLM would not amend the CDCA Plan. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because there would be no amendment to the CDCA Plan and no solar project approved for the site under this alternative, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site. As a result, the transportation and traffic related impacts of the Blythe Solar Power project would not occur at the proposed site. However, the land on which the project is proposed would become available to other uses that are consistent with BLM's land use plan, including another solar project requiring a land use plan amendment. In addition, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations

No Project/No Action Alternative #2:

No Action on Blythe Solar Power project and amend the CDCA land use plan to make the area available for future solar development

Under this alternative, the proposed Blythe Solar Power Project would not be approved by the CEC and BLM and BLM would amend the CDCA Land Use Plan of 1980, as amended, to allow for other solar projects on the site. As a result, it is possible that another solar energy project could be constructed on the project site.

Because the CDCA Plan would be amended, it is possible that the site would be developed with the same or a different solar technology. As a result, the increases in traffic from the construction and operation of the solar project would likely be similar to the transportation and traffic related impacts from the proposed project. As such, this No Project/No Action Alternative could result in impacts to traffic and transportation similar to the impacts under the proposed project.

No Project/No Action Alternative #3:

No Action on Blythe Solar Power project application and amend the CDCA land use plan to make the area unavailable for future solar development

Under this alternative, the proposed Blythe Solar Power Project would not be approved by the CEC and BLM and the BLM would amend the CDCA Plan to make the proposed site unavailable for future solar development. As a result, no solar energy project would be constructed on the project site and BLM would continue to manage the site consistent with the existing land use designation in the CDCA Land Use Plan of 1980, as amended.

Because the CDCA Plan would be amended to make the area unavailable for future solar development, it is expected that the site would continue to remain in its existing condition, with no new structures or facilities constructed or operated on the site and no increase in traffic. As a result, this No Project/No Action Alternative would not result in the impacts to traffic and transportation under the proposed project. However, in the absence of this project, other renewable energy projects may be constructed to meet State and Federal mandates, and those projects would have similar impacts in other locations.

C.10.8 CUMULATIVE IMPACT ANALYSIS

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. *Cumulatively considerable* is interpreted to mean that the incremental effects of an individual project are significant when viewed in connection with the effects of (1) past projects; (2) other current projects; and (3) probable future projects (California Code Regulation, Title 14, section 15130). According to the National Environmental Policy Act (NEPA), cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

The potential exists for substantial future development throughout the entire Southern California Desert Region as well as on the Interstate 10 (I-10) corridor in Eastern Riverside County. See the following map, **Traffic and Transportation Figure 5**, 1-10 Corridor Existing and Future Projects

In this document, staff has limited its traffic and transportation analysis to the I-10 corridor of Eastern Riverside County, the location of the proposed Blythe, Palen, and Genesis solar projects. These three projects were included in one cumulative analysis for the following reasons:

1. Access to all three projects is off I-10.
2. All three projects exist in close proximity to one another and construction schedules for all three projects would overlap. Construction schedules are projected to overlap beginning in fourth quarter 2010 through 2015. Consequently, to accurately reflect the cumulative impacts, the impacts of all three projects must be considered cumulatively. See **Traffic and Transportation Figure 5.** For a location of all four projects.

Analysis of cumulative impacts is based on data provided in the following maps and tables which are contained in the **Cumulative Scenario** section of this document.

The analysis in this section first defines the geographic area over which cumulative impacts to traffic and transportation could occur. The cumulative impact analysis itself contains information about the potential for cumulative impacts to occur as a result of implementation of the Blythe, Palen, and Genesis solar projects along the I-10 corridor in addition to the applicable local and regional projects listed in **Traffic and Transportation Figure 5.**

Geographic Scope of Analysis

Blythe Solar Power Project (BSPP), Palen Solar Power Project (PSPP), and Genesis Solar Energy Project (GSEP) are located within 45 miles of the city of Blythe on the I-10 corridor. The Bureau of Land Management has developed coordinated management plans for various areas in the California desert owned by the federal government. Those three proposed solar facilities are included in the Northern and Eastern Colorado Desert Coordinated Management Plan. See **Traffic and Transportation Figure 5** for locations of those facilities.

For this same I-10 corridor in which Blythe, Palen, and Genesis solar facilities are proposed, approximately 20 additional energy-related projects, including solar, wind, pumped storage, and transmission lines, are being considered or expected to be considered for development by the Federal Energy Regulatory Commission (FERC); Bureau of Land Management (BLM); and the California Energy Commission. In addition, local residential and commercial development is proposed during this period. As a result, traffic could be cumulatively affected.

Cumulative impacts could occur to both the local roadway network and the regional roadway network. Cumulative impacts to the local roadway network would occur if the impacts of the three projects are combined with impacts of projects already located or to be located within the same general vicinity of the Blythe, Palen, and Genesis solar projects. Local impacts include damage to local roadways; traffic delays due to road closures; and increased congestion from project-related traffic.

Cumulative impacts could also affect the regional roadway network if impacts were to occur on I-10. Interstate 10 provides primary access to the project sites. I-10 is the

southernmost east–west, coast-to-coast highway in the United States, stretching from Santa Monica, California, through Phoenix and Tucson, Arizona; New Mexico, Texas, Louisiana, Mississippi, Alabama, and connecting to Interstate 95 in Jacksonville, Florida.

In California, the Santa Monica Freeway comprises the western most segment of I-10. At some point I-10 merges with the Santa Monica Freeway and the San Bernardino Freeway and goes on to Riverside County, the location of these four solar projects examined in this analysis. Traffic on I-10 is significantly reduced as leads through Coachella and into the Mojave Desert.

In this analysis, staff concentrates on the cumulative impacts on traffic and transportation along I-10 for approximately 170 miles beginning near Indio, California, and ending approximately 50 miles west of Blythe, California. [8]

The three projects analyzed in this section expect to employ more than one thousand workers during the construction period. For all projects the construction workforce for all is expected to come from the surrounding local and regional area, including a limited number of workers from Los Angeles basin and the Phoenix, Arizona area. Those workers would follow I-10 east and I-10 west. However, the majority of construction workers for three projects are expected to live or reside temporarily in the Indio, Blythe, or Parker, Arizona area. Those workers would arrive at the project sites by traveling west on I-10 or from Parker, about 35 miles north of I-10.

This analysis of the regional cumulative impacts of these three projects does not include currently proposed solar and wind projects located more than 45 miles east and west and 30 miles north of Blythe Solar Power Project because the vast area over which these projects are spread.

In addition, different construction schedules; combined CEQA/NEPA requirements for accounting for significant cumulative impacts on traffic of those projects; and the conditions of certification for ensuring that no significant cumulative impacts result from the Blythe, Palen, and Genesis projects would preclude traffic from these projects to combine with and result in significant cumulative impacts.

Effects of Past and Present Projects

The projects most relevant to this cumulative analysis are the Blythe Solar Power Project, Palen Solar Power Project, and Genesis Solar Energy Project. These projects are most relevant because they are located on the I-10 corridor within 45 miles of each other. The traffic impacts of the overlapping construction schedules of these three projects can result in significant cumulative impacts if not mitigated.

Construction

Construction related commuter traffic and equipment deliveries for the Blythe, Palen, and Genesis solar projects are as follows:

[8] The Mojave Desert covers an area of approximately 25,000 square miles. In California, the Mojave Desert is bordered on the south by I-10; on the west by US 395. The desert's northern border is US 50, its southern border, I-15 in Nevada.

Blythe Solar Power Project

Construction of the BSPP would be completed over an approximately 69-month period, beginning in further quarter 2010 and ending in fourth quarter 2016. Construction work force would peak during month 16 at approximately 1,000 workers per day and average approximately 600 workers over the course of construction. Construction of the transmission line would require fewer than 25 workers during peak periods. The construction schedule would not coincide with the peak of plant site construction employment.

A worst-case scenario, where all workers commute in autos with only one occupant per vehicle, would result in approximately 1,000 inbound trips during the morning peak period and another 1,000 outbound trips during the evening peak hour. There would be a peak of 2,000 one-way worker commute trips per day and an average of 1,200 one-way trips per day.

In addition, construction is also forecast to generate an average of approximately 15 to 20 one-way, truck trips per day with a peak of approximately 50-75 truck trips per day; the peak truck travel would be during plant site foundation construction and would not coincide with the peak on-site worker commute times (month 16).

Without mitigation of traffic, particularly for the I-10 Mesa Drive Interchange, both westbound and eastbound ramps, the construction of Blythe could result in significant cumulative impact on traffic. Consequently, in this document staff has proposed Condition of Certification **TRANS-3** to require coordinated traffic plans for all three projects. The traffic plans could include staggered traffic and bus transportation to ensure acceptable loads on I-10 are maintained throughout the projects' construction period.

In this document staff has also proposed Condition of Certification **TRANS-6** to ensure that any damage done to roadways by deliveries of equipment and supplies is repaired.[9]

Palen Solar Power Project

Palen construction activities would occur over an approximate 39-month period, beginning in the fourth quarter of 2010 and ending in fourth quarter 2013. The number of construction workers would peak at month 17 at approximately 1, 141 per day and average about 566 workers over the course of construction. In addition, a transmission line extending from the project site to a new Southern California Edison substation west of the project site would require approximately 30 workers. The construction schedule of the power line is not expected to coincide with the construction of the solar facility. In addition, construction would not encroach on a public right-of-way nor coincide with peak employment.

The worst-case scenario for Palen, where all workers commute in autos with only one occupant per vehicle, yields a peak trip generation of approximately 1,141 inbound trips

[9] This same cumulative analysis may be found in the staff assessments for Blythe, Palen, Genesis, and Rice solar projects. The conditions of certification in each document are the same. However, the conditions of certification may be numbered differently, depending on other conditions of certification included in the analysis.

during the morning peak period and another 1,141 outbound trips during the evening peak hour. Peak travel times would result in 2,282 one-way worker commute trips per day and an average of 1,132 one-way trips per day.

Construction is expected to generate an average of approximately 20 to 30 one-way, truck trips per day with a peak of approximately 40 truck trips per day.

Without mitigation of traffic, particularly for the I-10 Corn Springs Road westbound and eastbound ramps, the construction of Palen could result in significant cumulative impact on traffic. Consequently, in the PSPP staff analysis, staff has proposed a Condition of Certification to require coordinated traffic plans for all three projects. The traffic plans could include staggered traffic and bus transportation to ensure acceptable loads on I-10 are maintained throughout the projects' construction period. See the traffic and transportation staff analysis for Palen Solar Power Plant for information about that condition.

In the PSPP staff analysis, staff has also proposed a condition of certification to ensure that any damage done to roadways by deliveries of equipment and supplies is repaired. See the traffic and transportation staff analysis for Palen Solar Power Plant for information about that condition.

Genesis Solar Power Project

The 37-month construction period is expected to begin in 2012 and end in 2015 The Project construction work force would peak during month 23 at approximately 1,093 workers per day and average approximately 652 workers over the course of construction.

During peak period construction of the access road is expected to require a crew of less than 25 workers; construction of the transmission line, less than 35 workers; and construction of the gas line, less than 50 workers. Construction of the access road, transmission line, and gas line would not coincide with the plant's peak construction period.

The worst-case scenario for Genesis, where all workers commute in autos with only one occupant per vehicle, yields a peak trip generation of approximately 1,093 inbound trips during the morning peak period and another 1,093 outbound trips during the evening peak hour. Peak travel times would occur in month 23 of construction and result in 1,093 one-way worker commute trips per day and average of 652 one-way trips per day. In addition, construction would result in an average of approximately 15 to 20 one-way, truck trips per day with a peak of approximately 50 to 75 truck trips per day. Peak truck travel would occur during plant site foundation construction and would not coincide with the peak on-site worker commute time.

In addition to using I-10 for construction traffic, the applicant has proposed using the following I-10 intersections for construction traffic:

1. I-10 at Corn Springs Road, West of the Project Site
2. I-10 at Ford Dry Lake Interchange West of the project site

3. 1-10 at Wiley's Well Road, east and west of the project site
4. 1-10 at Mesa Drive, east of the project site
5. SR-78 at the I-10 interchange, south of Blythe

These intersections are projected to be used or could be used by workers on the projects examined in this analysis. Consequently, for the GSPP staff has proposed a condition of certification that requires coordinated traffic plans for all three projects. See staff's traffic and transportation analysis for the Genesis Solar Power Project. The traffic plans could include staggered traffic and bus transportation to ensure acceptable loads on I-10 are maintained throughout the projects' construction period.

Staff has also proposed a condition of certification to ensure that any damage done to roadways by deliveries of equipment and supplies is repaired. See staff's traffic and transportation analysis for the Genesis Solar Power Project.

Operation

The operation of the three solar projects analyzed in this section would not significantly contribute to long-term operational cumulative impacts related to traffic and transportation because of the:

1. Small number of operational workers at each project.
2. The small amount of traffic on I-10. The addition of the number of workers at all three projects commuting daily would not change the LOS of 1-10 in that area from LOS A.

Decommissioning

The decommissioning of the Blythe, Palen, and Genesis solar projects, which is unlikely during the next 40 years, is not expected to result in adverse traffic and transportation impacts. These three projects are not likely to be decommissioned at the same time. Construction of other solar projects is not likely to occur with the decommissioning of the Blythe, Palen, and Genesis solar projects.

In addition, if all three projects were to be decommissioned at the same time, the decommissioning of all three would not result in cumulative impacts for the following reasons:

1. Decommissioning likely would not occur at the same time.
2. If decommissioning were to occur at the same time, any cumulative impacts could be easily mitigated by staggering workers' traffic schedules and other uses of the roadways to acceptable LOS levels.

Regional Impacts

Several projects included in **Traffic and Transportation Figure 5**, Existing and Future Projects, have the potential to result in increased congestion on I-10. These projects include Chuckwalla Valley State Prison, Eagle Mountain Pumping Plant; commercial projects approved by the city of Blythe; Blythe Energy Project II; Blythe Airport Solar I

Project; Mule Mountain Solar Project; Big Maria Vista Solar Project; Blythe PV Project; Desert Quartzite; Desert Sunlight; Mojave Solar Park/Desert Lilly Project; McCoy Soleil; and Red Bluff Substation.

Construction of each of these projects would result in increased vehicle trips on I-10. Although I-10 currently operates at LOS A, the high volume of traffic resulting from the overlapping construction of all projects could result in I-10 operating at an unacceptable LOS.

As a result, in each analysis of all three projects—Blythe, Palen, and Genesis—staff is proposing a condition of certification to help ensure that I-10 and all intersections operate at acceptable LOS. See Condition of Certification TRANS-2 in this document.

This condition of certification, which applies to all three projects, requires applicants of all three projects examined in this analysis to coordinate construction schedules to ensure that during overlapping construction periods, parking for all workers is provided at a location that would minimize traffic on I-10 and that workers would be transported to their respective job sites in a manner designed to ensure that I-10, including all intersections, operate at an acceptable LOS.

Cumulative Impacts Conclusion

In this analysis, staff considered the cumulative impacts of Blythe, Palen, and Genesis, solar projects on the I-10 traffic corridor in eastern Riverside County (I-10 for approximately 170 miles beginning near Indio, California, and ending approximately 50 miles west of Blythe, California). Without mitigation, the traffic and transportation impacts of the Blythe, Palen, and Genesis solar projects have the potential to result in cumulatively considerable impacts to I-10 as well as to local streets, highways, and intersections in the vicinity of the project sites.

Consequently, those cumulatively considerable impacts could also combine with impacts of past, present, or reasonably foreseeable projects to result in cumulatively considerable impacts to Interstate 10 as well as local streets and highways in the immediate vicinity of project sites. Consequently, staff has recommended five conditions of certification to reduce the cumulative impacts of the three projects to less than significant.

In this BSPP analysis, those five conditions of certification consisting of Condition of Certification **TRANS-2,** Condition of Certification **TRANS-3,** Condition of Certification **TRANS-4;** Condition of Certification **TRANS-5; and** Condition of Certification **TRANS-6** to reduce the cumulative impacts of the three projects to less than significant.

- Condition of Certification TRANS-2 recommends setting aside parking and staging areas during construction of the BSPP to ensure that all project-related parking occurs on-site or in designated off-site parking.
- Condition of Certification TRANS-3 recommends developing a traffic control plan \ to ensure, among other things, that park-and-ride programs are in place for transporting workers to the job sites.

- Condition of Certification TRANS-4 recommends limits on size and weights of vehicles traveling to and from the project sites.
- Condition of Certification TRANS-5 recommends obtaining proper permissions to use public rights of way.
- Condition of Certification TRANS-6 recommends restoration of all public roads, rights-of-way, and easements.

See the staff analysis for PSPP and GSPP for information about similar conditions of certification designed to reduce cumulative impacts for those projects.

C.10.10 COMPLIANCE WITH LORS

Applicable Law	Description
Federal	
Code of Federal Regulations (CFR), Title 14, Aeronautics and Space; Part 77, Objects Affecting Navigable Airspace (14 CFR 77)	This regulation includes standards for determining physical obstructions to navigable airspace; information about requirements for notices, hearings, and requirements for aeronautical studies to determine the effect of physical obstructions to the safe and efficient use of airspace. *Under Consideration:* Applicant has indicated its intentions to follow all prescribed FAA procedures. However, at this time the applicant has not filed FAA Form 7460-1 and received a Determination of Hazard/No Hazard from FAA.
Code of Federal Regulations (CFR), Title 49, Subtitle B, Sections 171-177; Sections 350-399; Appendices A-G Other Regulations Relating to Transportation	49 CFR Subtitle B includes procedures and regulations pertaining to interstate and intrastate transport (including hazardous materials program procedures) and as well as safety measures for motor carriers and motor vehicles operating on public highways. *Consistent:* Applicant has indicated its intention to adhere to all applicable regulations. This adherence is made part of the licensing process as Condition of Certification **TRANS-6.**
State	
California Vehicle Code (CVC), Division 2, Chapter 2.5, Div. 6; Chap. 7, Div. 13; Chap. 5, Div. 14.1; Chap. 1 and 2, Div. 14.8, Div. 15	These code sections pertain to licensing, size, weight, and load of vehicles operated on highways; safe operation of vehicles; and transporting hazardous materials. *Consistent.* Adhering to these regulations is made part of the licensing process as a Condition of Certification. See **TRANS-4** and **TRANS-7.**
California Streets and Highway Code, Section 117; Section 660-695; Section 700-711; Section 1450; 1460 et seq.; and 1480 et. Seq.	Pertain to regulating rights-of-way encroachments and granting permits for encroachment on state highways and freeways and on county roads. Consistent. Adhering to these regulations is made part of the licensing process as Condition of Certifications. See **TRANS-5.**
California Health and Safety Code; Section 25160 et seq.	Pertain to operators of vehicles transporting hazardous materials. *Consistent:* Adhering to these regulations is made part of the licensing process as a Condition of Certification. See **TRANS-7.**
Local	
Riverside County General Plan, Circulation Element and Palo Verde Valley Area Plan, which is part of the Riverside County General Plan	Pertains to public policies and strategies for the transportation system in Riverside County, including those pertaining to transportation routes, terminals, and facilities; construction of extensions of existing streets; and levels of

	services (LOS) and airports *Consistent:* See **TRANS-3** and **TRANS-7**;;;
Riverside County Municipal Code, Title 10, Vehicles and Traffic, Section 10.08	Pertains to requirements for oversize and overweight vehicles. *Consistent:* Adhering to these regulations is made part of the licensing process as Conditions of Certification. See **TRANS-4.**
Riverside County Airport Land Use Compatibility Plan	All applicable policies and procedures in the Riverside plan are incorporated as part of the city of Blythe's policies. *Consistent:* Because they are not mitigable, the hazards posed by some project components did not comply with the Airport Land Use Compatibility Plan.
City of Blythe General Plan 2025, Chapter 4, Circulation Element	Establishes regional transportation objectives, policies, and implementation measures for various modes of transportation as well as levels of service. Plan is also coordinated with Palo Verde Valley Area Plan and County of Riverside General Plan. *Consistent:* Adhering to these regulations is made part of the licensing process as Conditions of Certification. See **TRANS-3** and **TRANS-7**;
City of Blythe General Plan 2025, Chapter 7, Safety Element	Establishes policies pertaining to airport safety, including minimizing injury to aircraft occupants and preventing creation of hazards to flights. Guiding policies of this section include Blythe Airport Master Plan; Land Use Compatibility Plan; and Federal Aviation Regulations Part 77. Section also contains five guiding policies concerning hazards to airspace; visual disturbances involving light and glare; and electronic devices. *Consistent:* Adhering to these regulations has been made part of the licensing process.
City of Blythe Municipal Code, Title 10, Section 19	Pertains to permit requirements for moving heavy loads and equipment on city streets. *Consistent:* Adhering to these regulations is made part of the licensing process as Conditions of Certification. See **TRANS-4.**
Palo Verde Valley Area Plan	*Consistent.* Includes height and other restrictions pertaining to the Blythe Airport. See Riverside County Land Use Compatibility Plan, above.

C.10.11 NOTEWORTHY PUBLIC BENEFITS

The proposed project would result in traffic and transportation impacts related to project construction. These impacts are found to be cumulatively significant. Consequently, staff has recommended conditions of certification to reduce the impact to less than significant.

While the development of the proposed project is intended to address the requirements of federal and state mandates to develop renewable energy, it would not yield any noteworthy public benefits related to traffic and transportation.

C.10.12 PROPOSED CONDITIONS OF CERTIFICATION

TRANS-1- Access Road. Prior to start of construction of the BSPP and all related facilities, the project owner shall construct an all-weather access road to the

site from Black Rock Road. This access road shall meet all local, county, and state requirements by emergency vehicles.

TRANS-2- Parking and Staging During construction of the BSPP and all related facilities, the project owner shall develop and implement a parking and staging plan for all phases of project construction to enforce a policy that all project-related parking occurs on-site or in designated off-site parking areas.

Verification: At least 60 days prior to start of site mobilization, the project owner shall submit the plan to the County of Riverside, City of Blythe, and BLM Operations Manager for review and comment, and to the CPM for review and approval. The requirements outlined in this Condition of Certification shall be coordinated with requirements outlined in Condition of Certification **TRANS-3**.

TRANS-3- Traffic Control Plan Prior to start of construction of the Blythe Solar Power Project (BSPP), the project owner shall prepare and implement a Traffic Control Plan (TCP). In preparing this TCP, the applicant shall:

1. Take into account the cumulative traffic impacts of the overlapping construction schedules of the BSPP, Palen Solar Power Project (PSPP), and the Genesis Solar Energy Project (GSEP).
2. In conjunction with Genesis Solar/NextEra, devise a traffic control plan that:[10]
    a. Provides for a coordinated park-and-ride system of bus service for workers at all three sites. This bus service shall be designed to ensure that the LOS on I-10 operates at least at Level C. Those park-and-ride sites must be established in locations selected to ensure that construction worker traffic to and from the sites does not negatively affect I-10 LOS. Most workers will likely be living in motels in Blythe or the surrounding area. Consequently, bus service should be arranged to pick up workers at their temporary place of residence.
    b. Addresses the movement of other vehicles and materials, including delivery routes and the arrival and departure schedules of equipment and materials, including arrival and departure schedules and designated workforce and delivery routes to ensure that the LOS on I-10 operates at least at Level C.

The project owner shall consult with the County of Riverside and the Caltrans District 8 office in the preparation and implementation of the Traffic Control Plan and shall submit in sufficient time for review and comment the proposed Traffic Control Plan to the:

1. County of Riverside and the Caltrans District 8 office
2. BLM's Authorized Officer and the California Energy Commission Compliance Project Manager (CPM) for review and approval. This submittal to BLM and CPM must occur prior to the proposed start of construction and

[10] Solar Millennium LLC is the applicant for both Blythe Solar Power Project and Palen Solar Power Project.

implementation of the plan. BLM's Authorized Officer and the CPM shall review and approve the TCP or identify any material deficiencies within 30 days of receipt.

In addition, the project owner shall provide to BLM's Authorized Officer and the CPM prior to the proposed start of construction a copy of any written comments from the County of Riverside and the Caltrans District 8 office as well as any changes to the traffic control plan.

For all three projects the traffic control plan shall include:

- A coordinated program designed to transport construction workers to all three sites via vans or bus service.
- A revised traffic study designed to ensure that LOS C can be maintained by implementing measures included in the traffic control plan, including information about procedures designed to ensure that the park-and-ride program does not result in significant impacts in the vicinity of the park-and-ride facilities.
- Limiting truck deliveries to the project site
- Redirecting construction traffic with a flag person as necessary to ensure traffic safety and minimize interruptions to non-construction related traffic flow
- Placing signage, lighting, and traffic control devices at the project construction site and laydown areas
- Placing signage along appropriate eastbound and westbound roads and at the entrance of each of the I-10 northbound and southbound off-ramps at appropriate roads to notify drivers of construction traffic throughout the duration of the construction period
- Placing signage and constructing detours to redirect traffic from the appropriate roads during construction activities related to roadway realignments and pipeline installation in and across the appropriate rights-of-way
- Developing a heavy-haul plan to address the transport and delivery of heavy and oversized loads requiring permits from Caltrans or other state and federal agencies as necessary
- Developing a work schedule and end-of-shift departure plan to limit departures from the sites as necessary
- Timing arrivals and departures of heavy equipment and delivery of building materials to the sites as necessary
- Employing a flagperson to redirect construction traffic as necessary
- Placing signing, lighting, and traffic control devices if required
- Assessing and implementing, if needed, coordinated work hours and arrival/departure times outside of peak traffic

- Ensuring access for emergency vehicles to the project sites
- Providing for temporary closing of travel lanes, if necessary
- Ensuring access to adjacent residential and commercial property during the construction of all linears

Verification: At least 90 calendar days prior to the start of construction, including any grading or site remediation on the power plant site or its associated easements, the project owner shall submit the proposed traffic control plan to the County of Riverside and the Caltrans District 8 office for review and comment and to BLM's authorized officer and the CPM for review and approval. The project owner shall also provide BLM's Authorized Officer and the CPM with a copy of the transmittal letter to the County of Riverside and the Caltrans District 8 office requesting review and comment.
At least 30 calendar days prior to the start of construction, the project owner shall provide copies of any comment letters received from either the County of Riverside and the Caltrans District 8 office, along with any changes to the proposed traffic control plan to BLM's authorized officer and the CPM for review and approval.

TRANS-4 – Limitations on Vehicle Size and Weight The project owner shall comply with limitations imposed by Caltrans District 8 office and other relevant jurisdictions including County of Riverside and City of Blythe on vehicle sizes and weights. In addition, the project owner or its contractor shall obtain necessary transportation permits from Caltrans and all relevant jurisdictions for use of roadways.

Verification: At least 30 calendar days prior to the start of construction, the project owner shall provide copies of permits obtained from either the County of Riverside and the Caltrans District 8 office to BLM's authorized officer and the CPM. In the Monthly Compliance Reports (MCRs), the project owner shall submit copies of any permits received during that reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-5 - Encroachment into Public Rights of Way The project owner or its contractor shall comply with Caltrans and other relevant jurisdictions limitations for encroachment into public rights-of-way and shall obtain necessary encroachment permits from Caltrans and all relevant jurisdictions.

Verification: In the monthly compliance reports (MCRs), the project owner shall submit copies of permits received during the reporting period. In addition, the project owner shall retain copies of these permits and supporting documentation in its compliance file for at least six months after the start of commercial operation.

TRANS-6 – Restoration of All Public Roads, Easements, and Rights-of-Way The project owner shall restore all public roads, easements, and rights-of-way that have been damaged due to project-related construction activities to original or near-original condition in a timely manner, as directed by BLM's Authorized Officer and CPM. Repairs and restoration of access roads may be required at any time during the construction phase of the project to assure safe ingress and egress.

Prior to the start of site mobilization, the project owner shall consult with the County of Riverside and Caltrans District 8 and notify them of the proposed schedule for project construction. The purpose of this notification is to request that the County of Riverside and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate with the project owner regarding any concurrent construction-related activities that are planned or in progress and cannot be postponed.

Verification: At least 30 days prior to the start of mobilization, the project owner shall photograph or videotape all affected public roads, easements, and right-of-way segments and/or intersections and shall provide BLM's Authorized Officer, the CPM, the affected local jurisdictions and Caltrans (if applicable) with a copy of these images. The project owner shall rebuild, repair and maintain all public roads, easements, rights-of-way in a usable condition throughout the construction phase of the project.

Prior to the start of site mobilization, the project owner shall consult with the County of Riverside and Caltrans District 8 and notify them of the proposed schedule for project construction. The purpose of this notification is to request that the County of Riverside and Caltrans consider postponement of public right-of-way repair or improvement activities in areas affected by project construction until construction is completed and to coordinate with the project owner regarding any concurrent construction-related activities that are planned or in progress and cannot be postponed.

Within 60 calendar days after completion of construction, the project owner shall meet with BLM's Authorized Officer and the CPM, the County of Riverside and Caltrans District 8 to identify sections of public right-of-way to be repaired. At that time, the project owner shall establish a schedule to complete the repairs and to receive approval for the action(s). Following completion of any public right-of-way repairs, the project owner shall provide a letter signed by the County of Riverside and Caltrans District 8 stating their satisfaction with the repairs to BLM's Authorized Officer and the CPM.

TRANS-7 – Securing Permits/Licenses to Transport Hazardous Materials The project owner shall ensure that permits and/or licenses are secured from the California Highway Patrol and Caltrans for the transport of hazardous materials.

Verification: The project owner shall include in its Monthly Compliance Reports, copies of all permits/licenses acquired by the project owner and/or subcontractors concerning the transport of hazardous substances.

C.10.13 CONCLUSIONS

1. At this time, the BSPP, as conditioned, would comply with all applicable LORS related to traffic and transportation except those related to airports.
2. The BSPP is located within 20,000 feet of the Blythe Airport and several components of the BSPP are located in the Blythe Airport Areas of Influence. Due to their location in the Blythe Airport Areas of Influence, staff has found unmitigable impacts pertaining to transmission lines; bright flashes of light from parabolic troughs; and plumes. .

3. The BSPP, as conditioned, would result in no significant direct, indirect, or cumulative traffic and transportation impacts and therefore, no environmental justice issues. To ensure the BSPP does not result in significant cumulative traffic and transportation impacts, staff is proposing Condition of Certification **TRANS-3,** a traffic control plan to take into account the cumulative impacts of the BSPP in conjunction with two other projects in close proximity, Palen Solar Power Project and Genesis Solar Energy Project. Staff is also proposing Condition of Certification **TRANS-1** to ensure that the access road leading to the site is constructed as an all-weather road to ensure adequate access by emergency vehicles; and **TRANS-2** to ensure that all parking and staging occurs on-site or off-site in a designated parking area.
4. Staff is also proposing Condition of Certification **TRANS-4**, limitation of vehicle size and weights to ensure compliance with limitations on use of roadways; **TRANS-5** to ensure compliance with limitations on encroachment into public rights-of-way; and **TRANS-6** to ensure all public roads, easements, and rights-of-way are restored to at least their original condition if damaged by project-related construction.
5. Staff is also proposing Condition of Certification T**RANS-7** to ensure safe transport of hazardous materials.

C.10.14 REFERENCES

Airport Land Use Planning Handbook (ALUPH), California Department of Transportation, Aeronautics.

AIRBNAV.COM 2010. Statistical Information About Blythe Airport. Accessed November, December 2009 and January, February 2010.

Blythe Airport: Airport Master Plan, Coffman and Associations, Inc. and Z & H Engineering, Inc., nd.

Bureau of Land Management Arizona Solar Energy. <http://www.blm.gov/az/st/en/prog/energy/solar/sonoran_solar.html> Accessed November 2009.

Bureau of Land Management California. Renewable Energy. <http://www.blm.gov/ca/st/en/prog/energy/solar.html> Accessed November 2009.

California Energy Commission Power Plant Siting Website < http://www.energy.ca.gov/sitingcases/alphabetical.html> Accessed November 2009.

City of Blythe General Plan 2025, City of Blythe, California. < http://www.cityofblythe.ca.gov/index.aspx?nid=27> Accessed November 2009.

Code of Federal Regulations (CFR), Title 14, Aeronautics and Space; Part 77, Objects Affecting Navigable Airspace (14 CFR 77)

Letter from Riverside County Airport Land Use Commission, (tn. 54932), dated 1/19/2010.

Palo Verde *Valley Area Plan*, Riverside County, California

Riverside County Airport Land Use Compatibility Plan, Riverside County, California

Riverside County General Plan, Riverside County, California.

Solar Millennium (tn: 52937). Application for Certification

APPENDIX TT-1: PLUME VELOCITY ANALYSIS

William Walters

INTRODUCTION

The following provides the assessment of the Blythe Solar Power Project (BSPP) air cooled condensers (ACCs) exhaust stack plume velocities. Staff completed calculations to determine the worst-case vertical plume velocities at different heights above the stacks based on the applicant's proposed facility design.

PROJECT DESCRIPTION

The proposed project includes four large air cooled condensers, one for each power block, used for each plant units steam power cycle heat rejection. The ACC only has appreciably heat rejection load during high solar energy conditions, such as midday during the summer.

PLUME VELOCITY CALCULATION METHOD

Staff has selected a calculation approach from a technical paper (Best 2003) to estimate the worst-case plume vertical velocities for the BSPP exhausts. The calculation approach, which is also known as the "Spillane approach", used by staff is limited to calm wind conditions, which are the worst-case wind conditions. The Spillane approach uses the following equations to determine vertical velocity for single stacks during dead calm wind (i.e. wind speed = 0) conditions:

(1) $(V^*a)^3 = (V^*a)_o^3 + 0.12^*F_o^*[(z-z_v)^2-(6.25D-z_v)^2]$

(2) $(V^*a)_o = V_{exit}^*D/2^*(T_a/T_s)^{0.5}$

(3) $F_o = g^*V_{exit}^*D^{2*}(1-T_a/T_s)/4$

(4) $Z_v = 6.25D^*[1-(T_a/T_s)^{0.5}]$

Where: V = vertical velocity (m/s), plume-average velocity
a = plume top-hat radius (m, increases at a linear rate of $a = 0.16^*(z- z_v)$
F_o= initial stack buoyancy flux m^4/s^3
z = height above ground (m)
z_v= virtual source height (m)
V_{exit}= initial stack velocity (m/s)
D = stack diameter (m)
T_a= ambient temperature (K)
T_s= stack temperature (K)
g = acceleration of gravity (9.8 m/s^2)

Equation (1) is solved for V at any given height above ground that is above the momentum rise stage for single stacks (where $z > 6.25D$) and at the end of the plume

merged stage for multiple plumes. This solution provides the plume-average velocity for the area of the plume at a given height above ground; the peak plume velocity would be two times higher than the plume-average velocity predicted by this equation. As can be seen the stack buoyancy flux is a prominent part of Equation (1). The calm condition calculation basis clearly represents the worst-case conditions, and the vertical velocity would decrease substantially as wind speed increases.

For multiple stack plumes, where the stacks are equivalent, the multiple stack plume velocity during calm winds was calculated by staff in a simplified fashion, presented in the Best Paper as follows:

(5) $V_m = V_{sp} * N^{0.25}$

Where: V_m = multiple stack combined plume vertical velocity (m/s)
V_{sp} = single plume vertical velocity (m/s), calculated using Equation (1)
N = number of stacks

Staff notes that this simplified multiple stack plume velocity calculation method predicts somewhat lower velocity values than the full Spillane approach methodology as given in data results presented in the Best paper (Best 2003).

VERTICAL PLUME VELOCITY ANALYSIS

The ambient and full load exhaust conditions for the ACCs are provided in **Plume Velocity Table 1**.

Plume Velocity Table 1
BSPP ACC Exhaust Parameters

	Air Cooled Condenser (each)
Ambient Case	**60°F**
Stack Height, ft (m)	120 (36.6)
Length, ft (m)	374 (114)
Width, ft (m)	252 (76.8)
Fan Diameter, ft (m)	38 (11.6), per fan
Number of Fans	54 (6 x 9)
Fan Velocity, ft/s (m/s)	20.76 (6.3)
Exhaust Temperature, F (K)	76.5 (298)
Heat Rejection (MW)	404
Flow Rate (MM lbs/hour)	335
Fan Velocity, ft/s (m/s)	20.76 (6.3)
Exhaust Temperature, F (K)	76.5 (298)

Source: Solar Millennium 2009a, Solar Millennium 2010x, and staff engineering estimates.

The conditions modeled are worst case or full load operating conditions. The plumes from these exhausts are not visible and cannot be easily avoided by pilots.

Using the Spillane calculation approach, the plume average velocity at different heights above ground was determined by staff for calm conditions. Staff's calculated plume average velocity values are provided in **Plume Velocity Table 2.** The combined ACC plume average velocity is calculated using by combining the adjacent 42 fans per

Equation 5. The values provided below assume the multiple fan plumes have completely merged.

Plume Velocity Table 2
ACC Worst-Case Predicted Plume Velocities

	Air Cooled Condenser Plume Velocity (m/s)
Height (ft)	Combined Fans 60°F
300	9.81
400	7.98
500	7.06
600	6.46
700	6.04
800	5.71
900	5.44
1,000	5.22
1,100	5.03
1,200	4.86
1,300	4.72
1,400	4.59
1,500	4.48
1,600	4.37
1,700	4.28
1,800	4.19
1,900	4.11
2,000	4.03

Source: Staff calculations.

As explained in the Transportation and Traffic section a vertical velocity of 4.3 m/s has been determined as the critical velocity of concern to light aircraft. The ACC velocity is calculated to drop below 4.3 m/s at a height of approximately 1,670 feet. This is a worst-case value that assumes full heat rejection load and dead calm wind conditions from ground level to 1,670 feet above the ground. For reduced load conditions during periods of lower sun energy the top height for 4.3 m/s velocities could be substantially lower.

The values listed above in **Plume Velocity Table 2** are plume average velocities across the area of the plume. The maximum plume velocity, based on a normal Gaussian distribution, is two times the plume average velocity as shown in the table.

WIND SPEED STATISTICS

Plume Velocity Table 3 provides the hourly average wind speed statistics for 9 am to 6 pm, the time period of most concern, using the meteorological data provided by the applicant (AECOM 2009a). Calm or very low wind speeds can also occur for shorter periods of time within each of the monitored average hourly conditions.

Plume Velocity Table 3
Wind Speed Statistics for Blythe

Wind Speed Statistics	
Wind Speed	Percent (9 am to 6 pm hours)
Calm	9.9%
≤ 1.5 m/s	18.0%
≤ 2.1 m/s	27.2%
≤ 2.6 m/s	35.6%

Source: Staff data reduction of applicant provided meteorological data (AECOM 2009a).

Calm conditions/low wind speeds averaging an hour or longer are not the predominant wind condition in the site area (where hour long calm winds only occur 3% of the time) but that they do occur relatively frequently.

CONCLUSIONS

The calculated worst case calm wind condition vertical plume average velocities from the BSPP ACC are predicted to exceed 4.3 m/s at heights as much as approximately 1,670 feet above ground level. The vertical velocity from the equipment exhaust at a given height above the stack decreases as wind speed increases. However, the plume average vertical velocities would remain relatively high, and would exceed 4.3 m/s above 500 feet about ground level, during calm or very low wind speed conditions. These low wind speed conditions lasting an hour or more occur reasonably frequently at the site location, approximately 10% of the time during the daylight hours of greatest concern. Additionally, shorter periods of dead calm winds, lasting long enough to increase the vertical plume average velocity height up to its peak height, can occur even more often during hours with low average wind speeds.

REFERENCES

AECOM 2009a – AECOM Environment (tn: 53076). Air Quality Modeling Files, dated 8/28/2009.

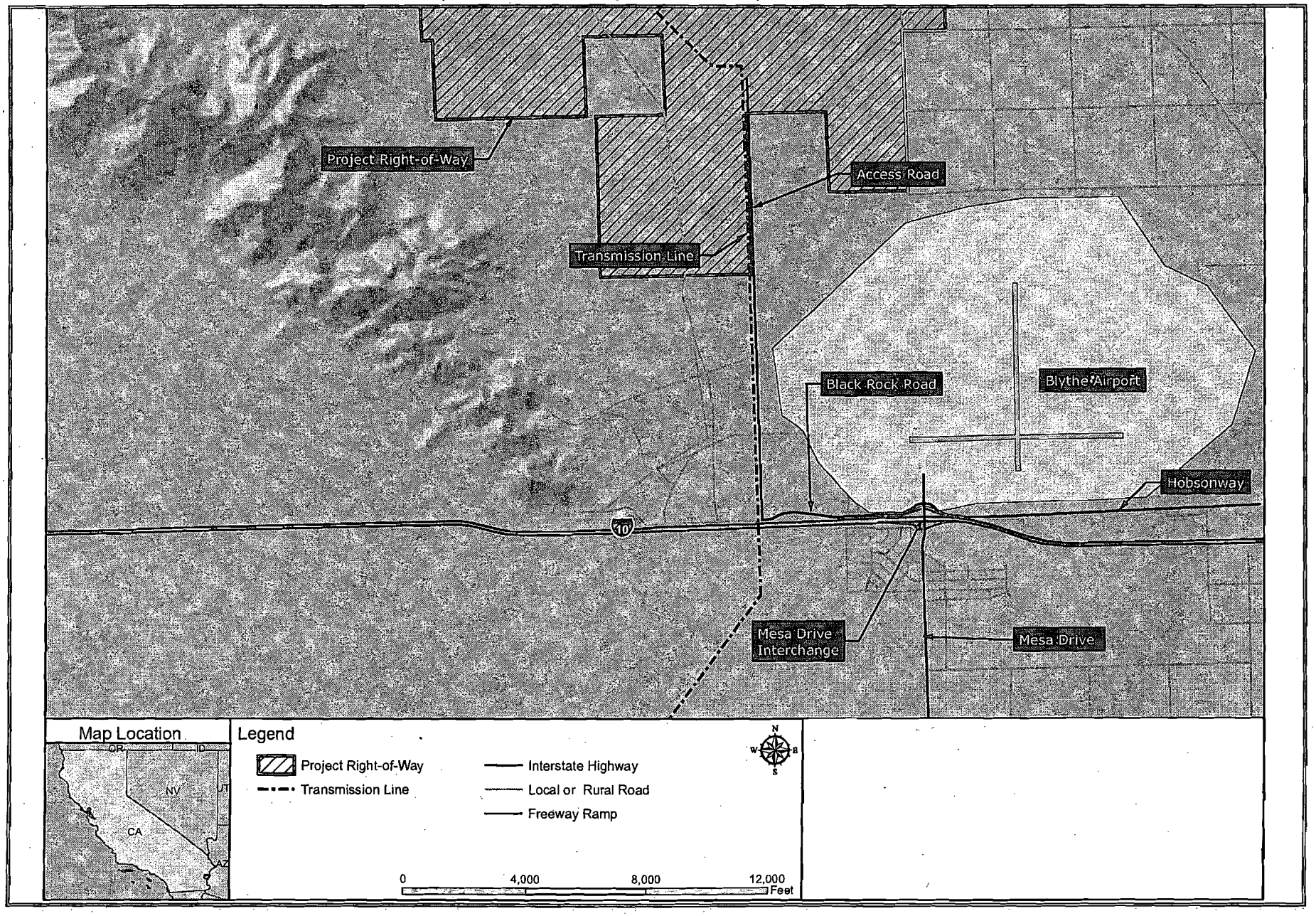
Best, P. et al. 2003. Aviation Safety and Buoyant Plumes. Presented at the Clean Air Conference, Newcastle, New South Wales, Australia. By Peter Best, Lena Jackson, Mark Kanowski of Katestone Environmental, Toowong, Queensland, Australia and Kevin Spillane of Bendigo, Victoria, Australia.

Solar Millennium 2009a - Solar Millennium (tn: 52937). Application for Certification Vol 1 & 2, dated 8/24/2009.

Solar Millennium 2010x - Solar Millennium. Supplemental Responses to Data Requests. Dated 2/4/2010.

TRAFFIC AND TRANSPORTATION - FIGURE 1

Blythe Solar Power Project - Local Transportation Access

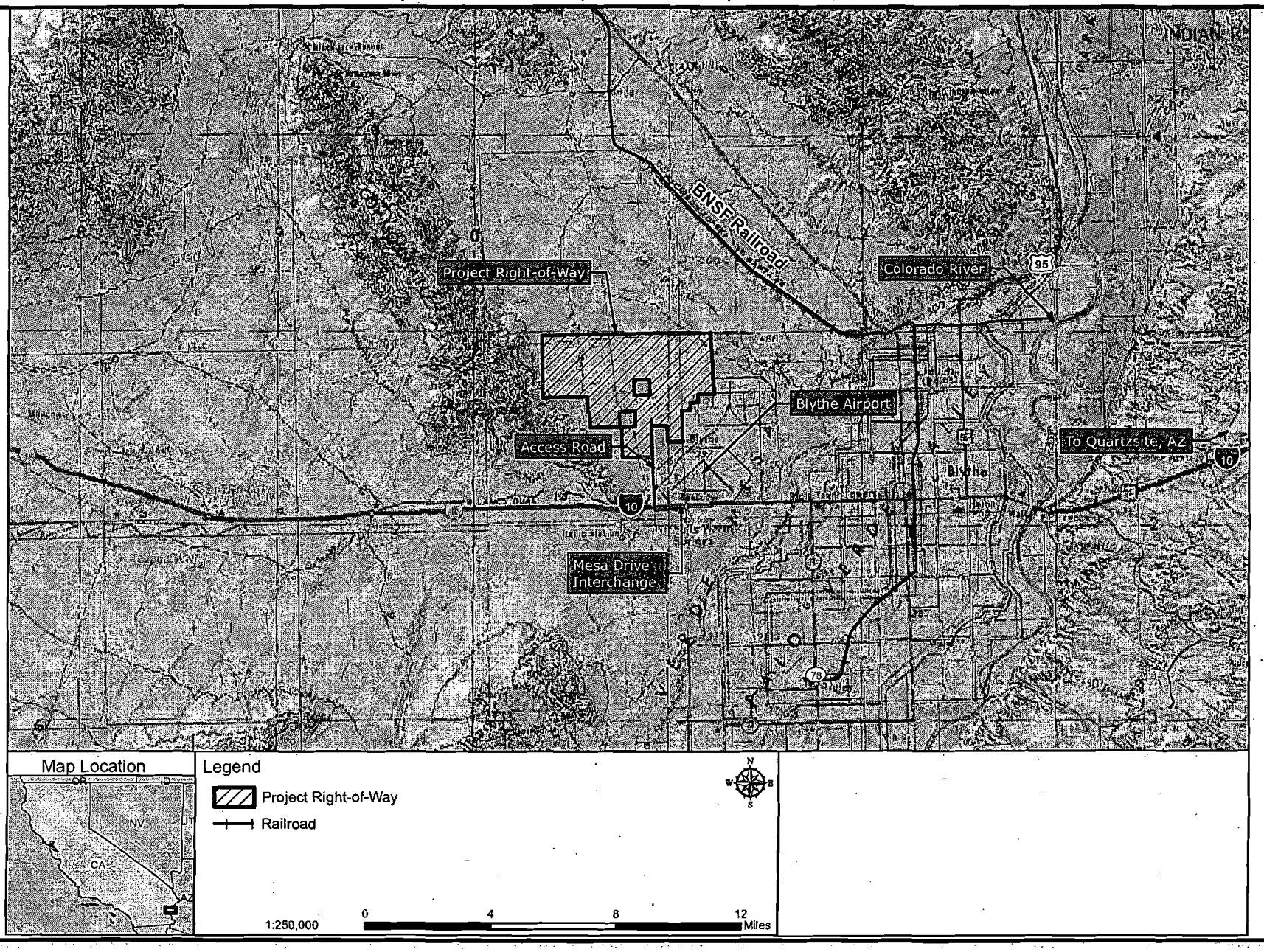


CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: AFC Fig 5.13-2

TRAFFIC AND TRANSPORTATION - FIGURE 2

Blythe Solar Power Project - Local Transportation Network

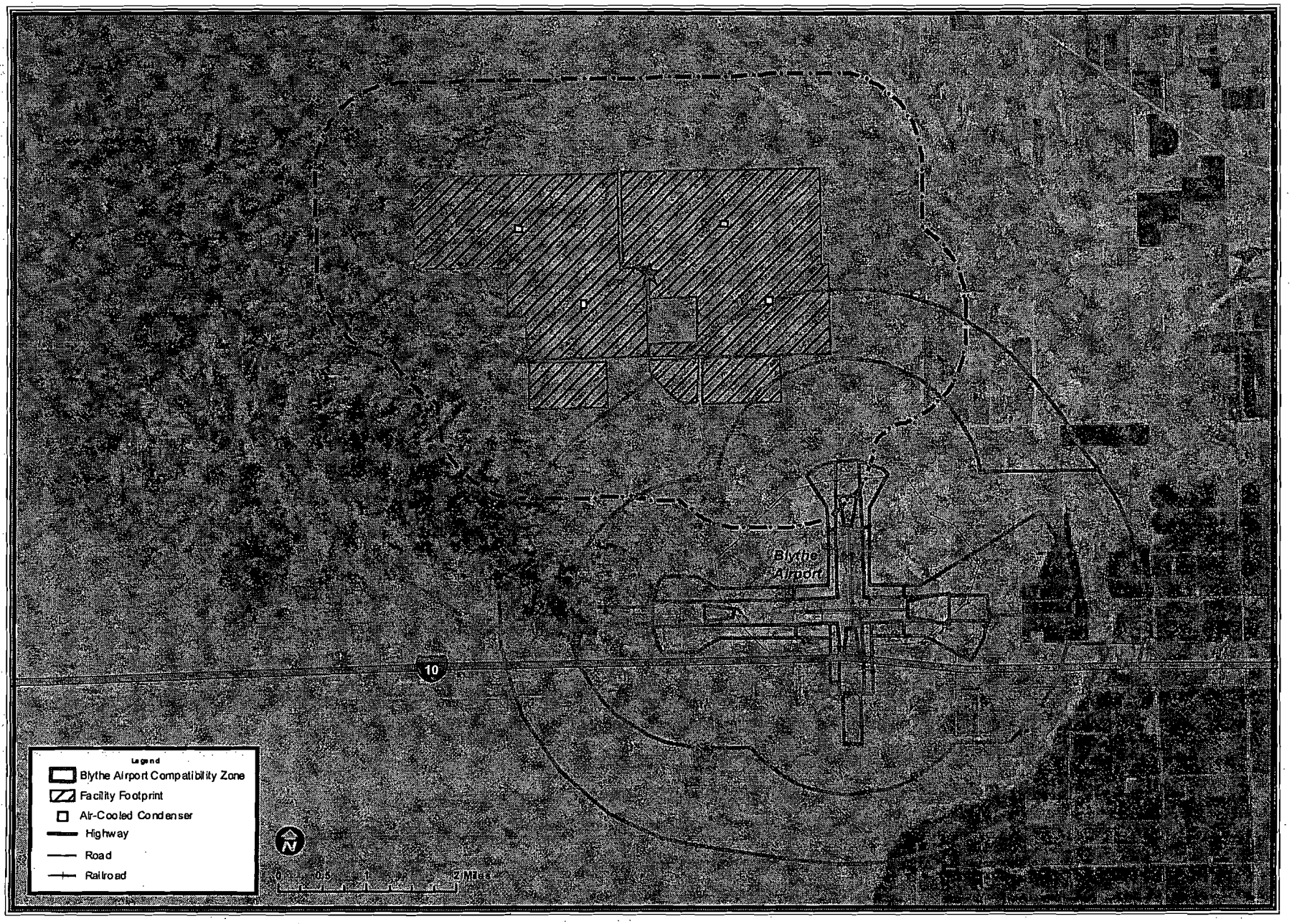


CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: AFC Fig 5.13-1

TRAFFIC AND TRANSPORTATION- FIGURE 3

Blythe Solar Power Project - Blythe Airport Areas of Influence

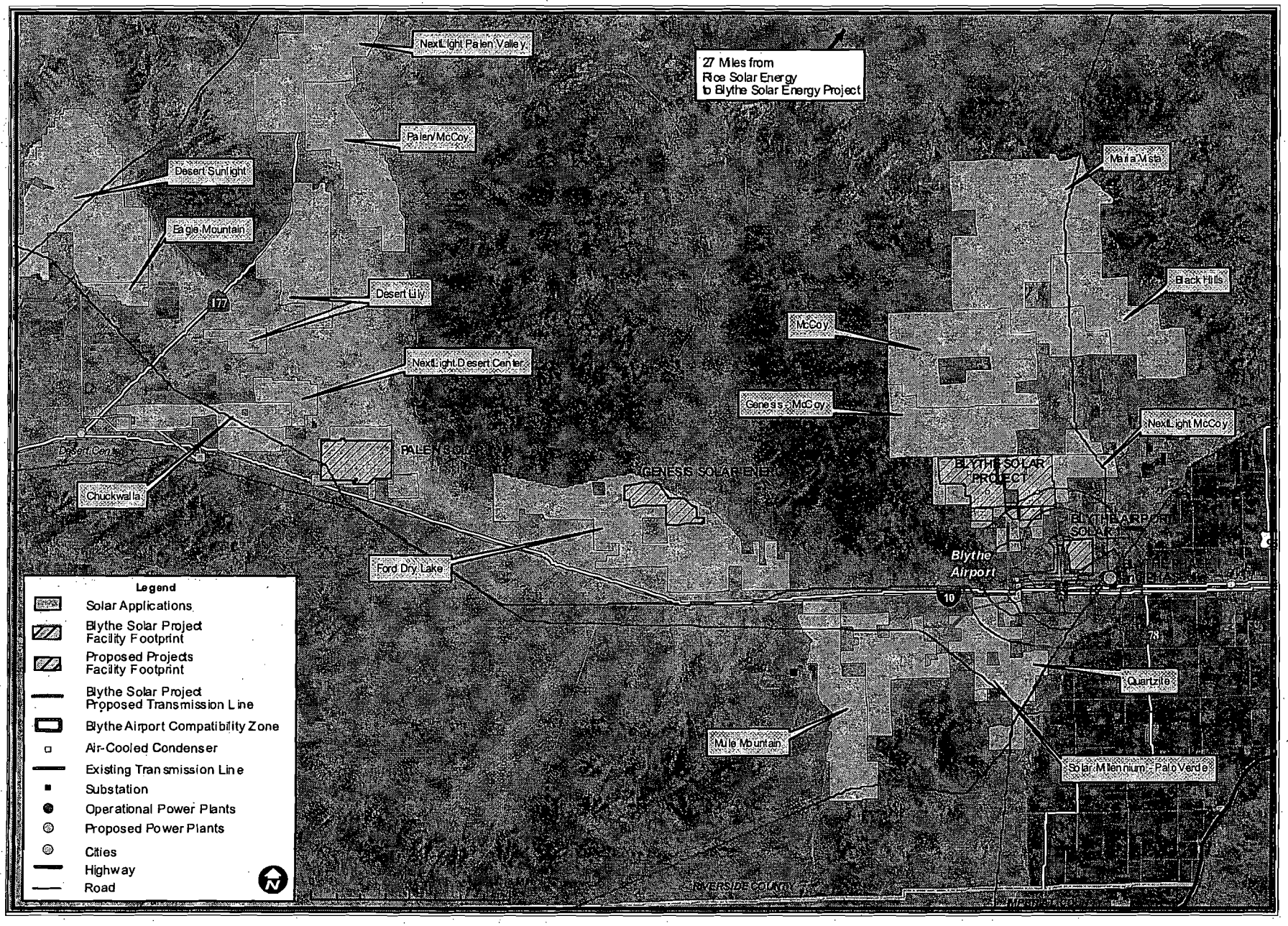


CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: California Energy Commission and Solar Millennium LLC

TRAFFIC AND TRANSPORTATION - FIGURE 4

Blythe Solar Power Project - Project Cumulative Impacts

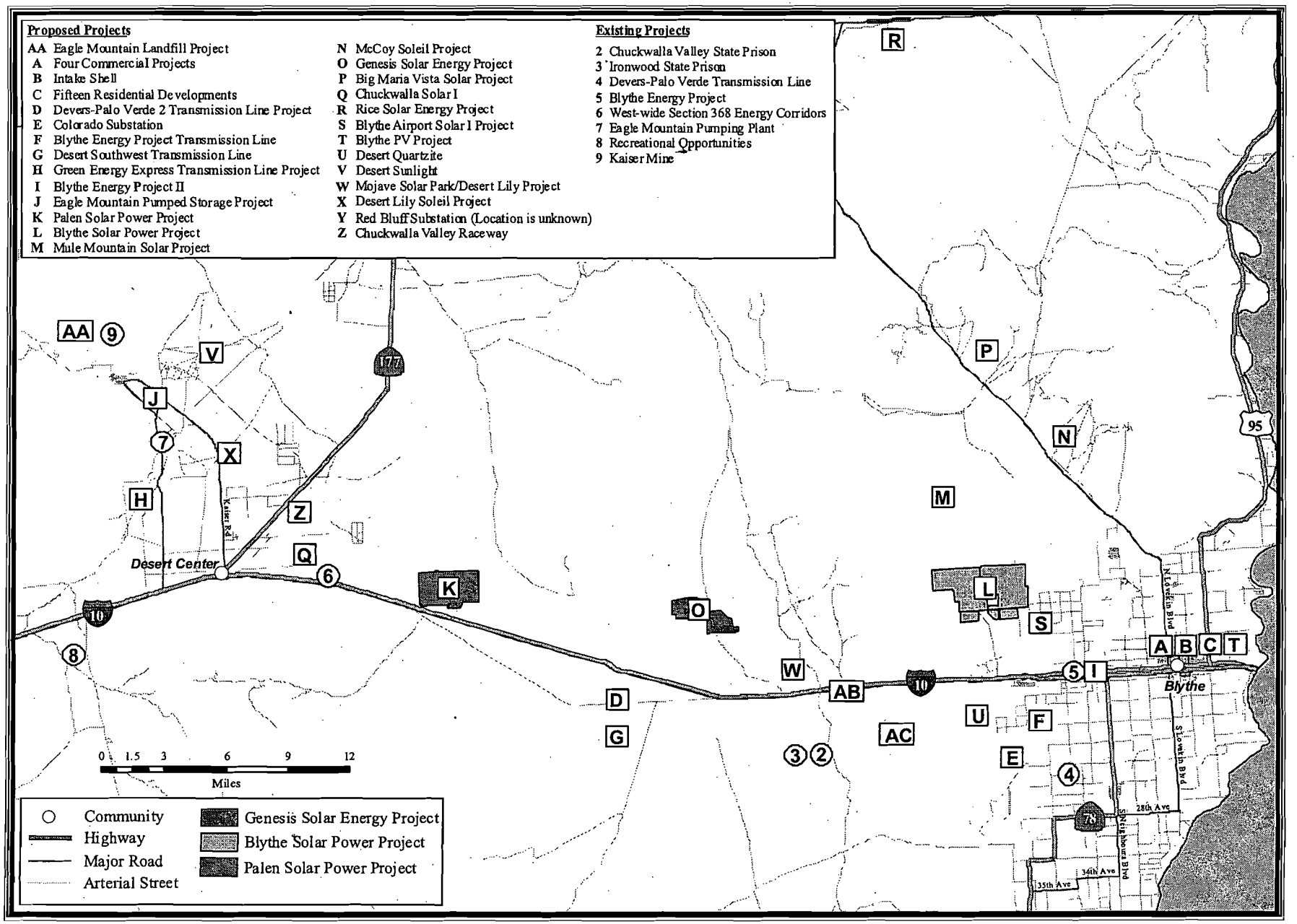


CALIFORNIA ENERGY COMMISSION, SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: California Energy Commission and Solar Millennium LLC

TRAFFIC & TRANSPORTATION - FIGURE 5

Blythe Solar Power Project - I-10 Corridor Existing and Proposed Projects



CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, MARCH 2010

SOURCE: California Energy Commission, Bureau of Land Management