Creating a brighter future for humanity through Solar Energy

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DOCKET
08-AFC-5
DATE June 24 2009
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June 24, 2009

Mr. Christopher Meyer
Project Manager
Attn: Docket No. 08-AFC-5
California Energy Commission
1516 9th Street
Sacramento, CA 95814-5512

Subject: SES Solar Two (08-AFC-5)
Current Conditions for the SES Solar Two, LLC Project

Dear Mr. Meyer:

Stirling Energy Systems Solar Two, LLC (SES Solar Two or Applicant), hereby submits this Current Conditions for the SES Solar Two LLC Project Imperial County, California. This study, prepared by PBS&J at the request of the Applicant, mapped and analyzed current disturbed conditions for submission to agencies, use in environmental reports, and to aid in mitigation responsibilities.

As an officer, I hereby attest, under penalty of perjury, that the contents of this report are truthful and accurate to the best of my knowledge.

Dated this 24th day of June, 2009.

Robert B. Liden
Vice President-Special Projects

Current Conditions for the SES Solar Two LLC Project

Imperial County, California

05261 | RD | 09

Prepared for:
Stirling Energy Systems Solar Two LLC

Submitted by:
PBS&J

Current Conditions of SES Solar Two, LLC
Imperial County, California

June 2009

Prepared for:

SES Solar Two, LLC
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SES Solar Two, LLC

Current Conditions

Habitat Analysis

SES Solar Two, LLC (Site) is a proposed site for a utility scale solar thermal renewable energy project. It is located approximately 14 miles west of El Centro, California, in Imperial County. This report documents the level of environmental degradation that has occurred owing to human activity at the site. This study mapped and analyzed current disturbed conditions for submission to agencies, use in environmental reports, and to aid in mitigation responsibilities. The analysis focused on disturbance related to off highway vehicles (OHV) activity specifically plus any noticeable mining scars.

The Site is a creosote bush scrub community typical for the southern Imperial Valley of California. It is approximately 6,500 acres in size and surrounded by the highly modifying environmental influences of Plaster City and El Centro, CA, Interstate 8, Evan Hewes Highway, Plaster City OHV Open Area, Union Pacific Railroad (UPRR), and agricultural development. The Site is a mix of a loose soil community, sparsely vegetated areas of open gravel called desert pavement, with little or no plant cover and areas of dense desert foliage. There is a dendritic pattern of washes flowing north from the Yuha Desert (Photo 1). These washes are distinguished by the denser vegetation lining open, sandy beds. A series of bluffs and ridges also break up the terrain (Photo 2).

There is evidence of human activity throughout the Site. The only fence along the boundary of the property is at Interstate 8 to the south. This does not preclude access by OHV because the fence is cut in several places (Photo 3). There are also three culverts under the freeway that allow access to the Site. Bordering to the north of the Site is the 41,000 acre Plaster City OHV open area (Photo 4). This attracts enthusiasts for 8 months of the year but does not restrict their use to the designated OHV area.

There is a network of BLM authorized roads on the Site. Some of these have been included in OHV races sanctioned by the BLM. In addition, there are approximately 3.2 miles of graded road within the right of way for the San Diego Gas and Electric (SDGE) power line, which crosses the Site. Roughly 6 more miles of dirt road on the Site is designated RD 2C01. A network of unauthorized trails and roads circle the Site connecting the underpasses that give access to OHV across the UPRR line and Evan Hewes Highway to the north and the Interstate 8 to the south (Photo 5). The network provides access from the South Fork of the Coyote Wash to the west to the SDGE Southwest Powerlink road to the east. OHV riders or the US Border Patrol maintain some of these trails by using a piece of railroad rail and chain link fence as a drag (Photo 6). Thus, the current condition of the project site is one of near ubiquitous access by vehicles and associated human activities.

In addition to the trails, the Site is accessed by OHV's using the washes as roadways (Photo 7). These washes traverse the site, flowing from the southwest to the north and

north east. They contain a greater vegetative diversity and density than the surrounding land (Photo 8). Thus, washes are important as corridors for wildlife moving around the site as well as those species traveling beyond it (Photo 9). This traffic within the washes reduces their availability to wildlife, destroys habitat through compaction of the soil, destruction of vegetation (Photo 10) and is a direct cause of mortality to small vertebrates through crushing burrows and collision. Such traffic is a significant threat to flat-tailed horned lizards because they do not generally flee from danger but rather remain motionless, relying on their cryptic coloration to protect them. Additionally, ground nesting avian species are at risk. Two Special Status birds recorded in the area are ground nesters, the burrowing owl and the California horned lark.

Exotic plants such as mustard, grass and mallow species are found throughout the Site. The greatest concentration of these invasive weed species appears to be in the disturbed washes (Photo 11). These species out compete native grasses and forbs. They are less palatable than native grasses and forbs thus reducing the amount of forage available. Their dense growth pattern also increases the risk and intensity of wildfire.

A GIS analysis of the current extent of surface disturbance on the Site reveals hundreds of miles and over one thousand acres of OHV trails (see beyond). In addition, there are several abandoned borrow pits probably associated with the construction of Interstate 8 or gravel mining operations (Photo 12). There are also impacts associated with the Plaster City gypsum plant, which borders the Site.

The wildlife present on the Site also faces stress from the OHV traffic. This is less easily quantified than habitat lost to the trails. While traffic on the highways to the north and south pose a threat from collisions, wildlife would have habituated to the noise and activity to the point that it would not cause significant stress. The current level of OHV traffic, on the other hand, is perceived as a threat because of its unpredictable nature and potential to cause harm. Mammals, reptiles, and ground dwelling birds would be highly susceptible to such stress caused by human activity.

The project will impact property outside of the 6,500 acre site at two locations. An approximately 12 mile waterline will be installed within the Right of Way for the Evan Hewes Highway. This is a highly disturbed environment that serves as a major traffic artery and is flanked by housing and parallels the railroad tracks. The majority of the impacts associated with the installation of the underground pipeline will be temporary.

An off site transmission line will run from the existing transmission corridor in the southeast area of the project to an existing substation 7.56 miles south east of the property. This line will be adjacent to an existing 500 kV line managed by SDGE (Photo 13). It will be maintained using the existing graded road servicing the SDGE line. This road is heavily used by OHVs and is part of the designated road network of the BLM. Much of the disturbance associated with construction will be temporary and maintenance traffic will use existing roads for the majority of its needs.

GIS Analysis of Current Disturbed Conditions

Introduction

The SES Solar Two, LLC project site required current disturbed conditions to be mapped and analyzed for submission to agencies, use in environmental reports, and aid in mitigation responsibilities. The analysis focused on disturbance related to OHV activity specifically plus any noticeable mining scars. The database created for this project will also be useful in future tasks including mitigation acreage determination, natural resource mapping, and protection plans. Total acreage of disturbance and supporting maps are provided as part of the final deliverable. Site geodatabase stores the line work collected during this project and the areas used to calculate the total disturbance.

Process

Data Collection:

Various datasets and imagery were collected from Tessera Solar, Stantec, URS, and BLM. These data were reviewed and assessed on its usefulness to the project tasks. Analysis was performed based on the imagery provided by Stantec, assumed to be flown recently and at a high precision. The project boundary, staging areas, image tiles, existing roads were all considered as part of the study.

Imagery Analysis:

The image analysis was performed using a combination of image classification and heads up digitizing. Due to the spectral variability in the imagery (desert environment with little vegetation), and because it is only 3-band imagery, the digitizing efforts were necessary.

The available imagery received for the project area was at varying resolutions, therefore these datasets had to be reviewed and sorted for the best available. The aerial imagery format was compatible to use with ERDAS Imagine, an image analysis software package. Before any analysis took place, some image processing was performed including statistics calculated, pyramid layers built, and projection defined. A mosaic of the imagery was also created for faster processing and easier viewing.

Due to the nature of the desert environment, little vegetation and continuous ground cover, it was difficult to produce high quality results in regards to change detection. Therefore, we were not able to automate extraction of the trails as originally anticipated due to these accuracy issues and dramatic banding in the original imagery. The software was able to produce two different color classification images to help identify where disturbance was found in the project area. These were used in conjunction with the raw aerial imagery to capture OHV trails and other types of disturbance.

Data Creation:

Due to the large scale of the project area, and after initial assessment of the extent of the disturbance, a scale of 1:2400 (or 1 inch = 200 feet) was found to provide accurate results for this level of study. OHV disturbance was digitized into polygons if a large continuous area was found, otherwise line features were captured along with trial width and type of disturbance as feature attributes. The types of disturbance noted were: OHV trails, roads, mining, other. When necessary, analysts zoomed to 1:1,800 and 1:1,200 to further clarify an area and achieve higher accuracy results.

Once the digitizing efforts were complete the line features were buffered to their assigned trial width and merged with other polygon features to calculate the final disturbance acreage. Disturbance was captured all throughout the Site, but clipped to the actual project boundary for actual results.

A sample area was selected and ground truthed to verify the accuracy of the image analysis process. An experienced field biologist took maps into the field with our preliminary results to confirm or reject the areas of concern. Photos were captured and the extent of disturbance was confirmed.

Deliverables

A personal Geodatabase with the disturbance lines and areas was delivered to the client along with supporting maps under separate cover. Acreage calculations provided on the maps include the disturbance within the project boundary only. The area of disturbance is 1,038.67 acres. An overview map is attached to this report.

Photo1

Photo 2

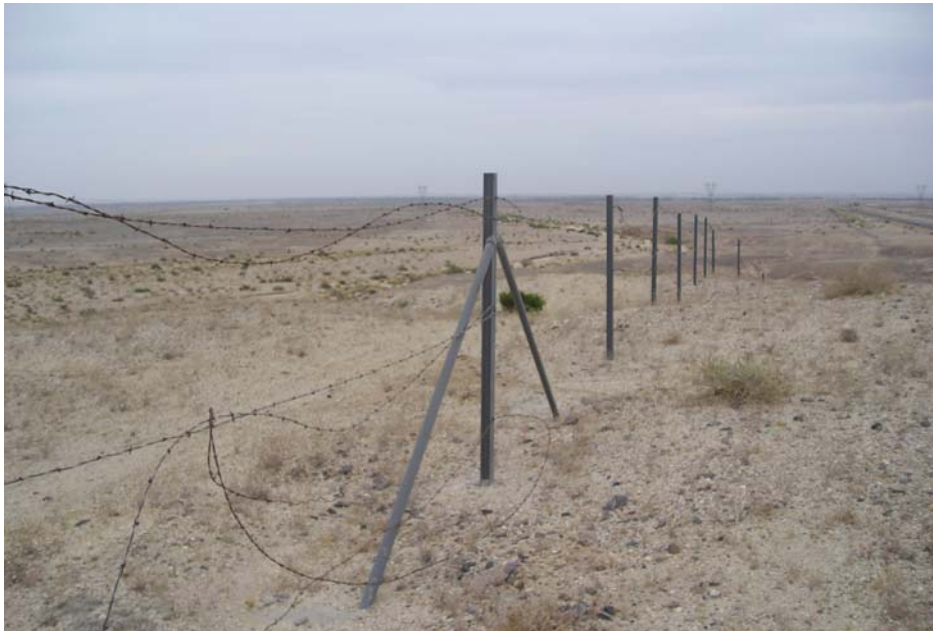


Photo 3

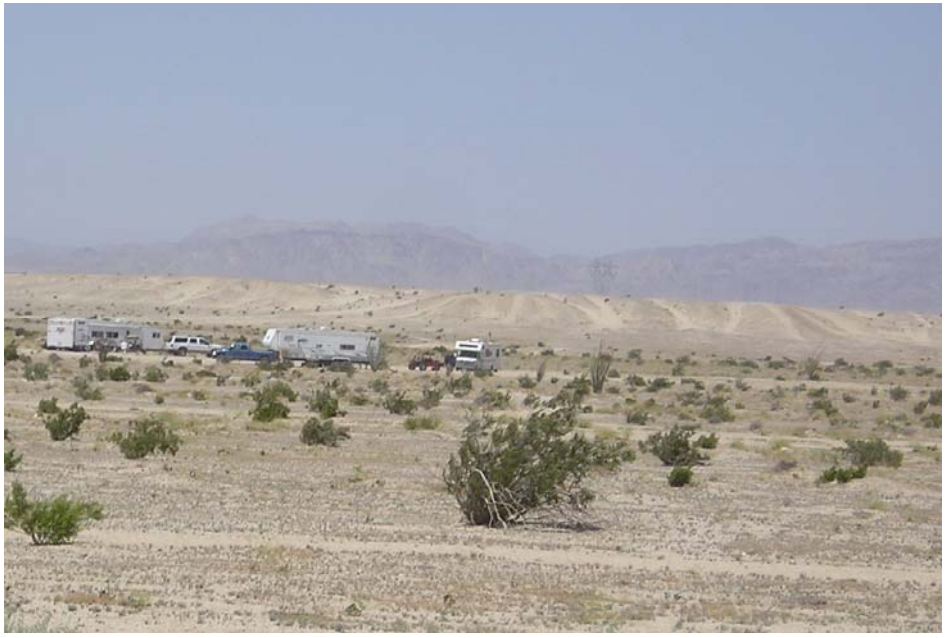


Photo4

PBS&J

Site Photographs

SES Solar Two, LLC Project

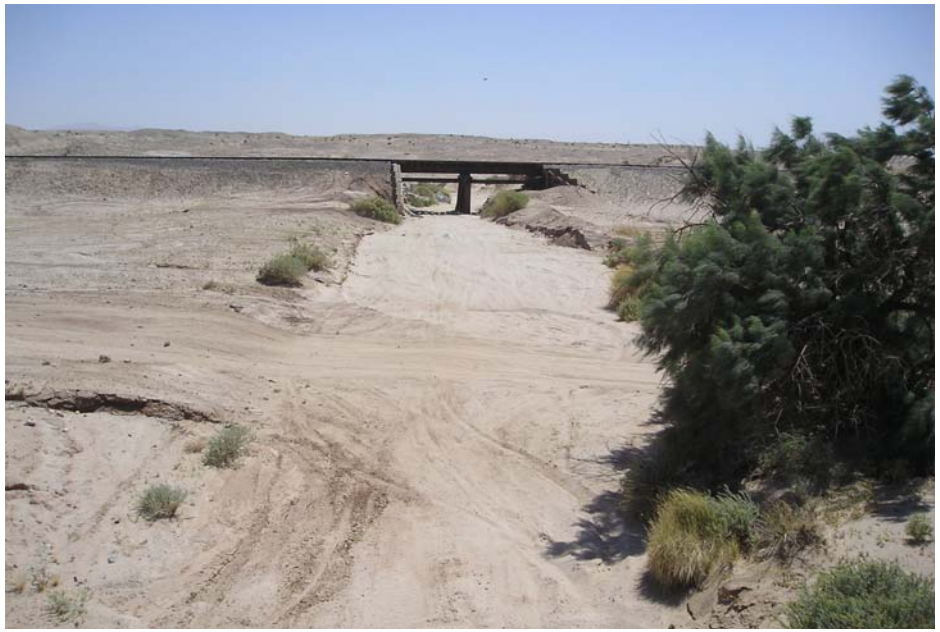


Photo 5

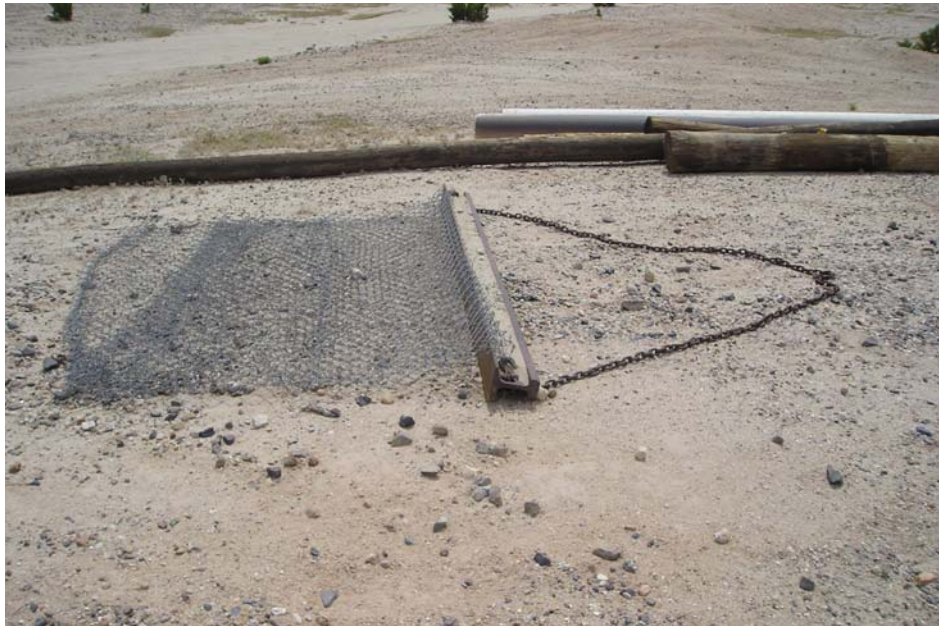


Photo 6

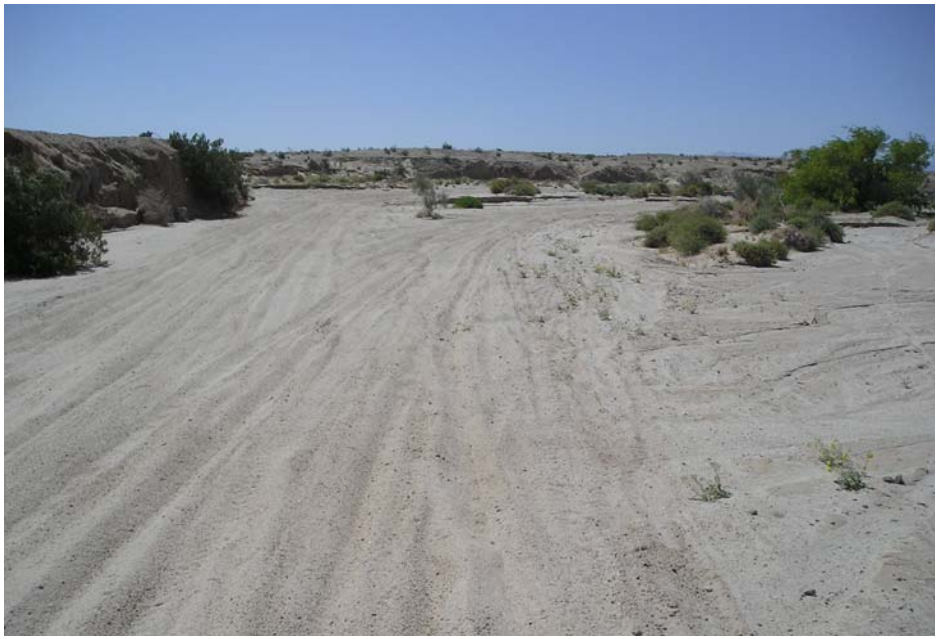


Photo 7

Photo 8

Photo 9

Photo 10

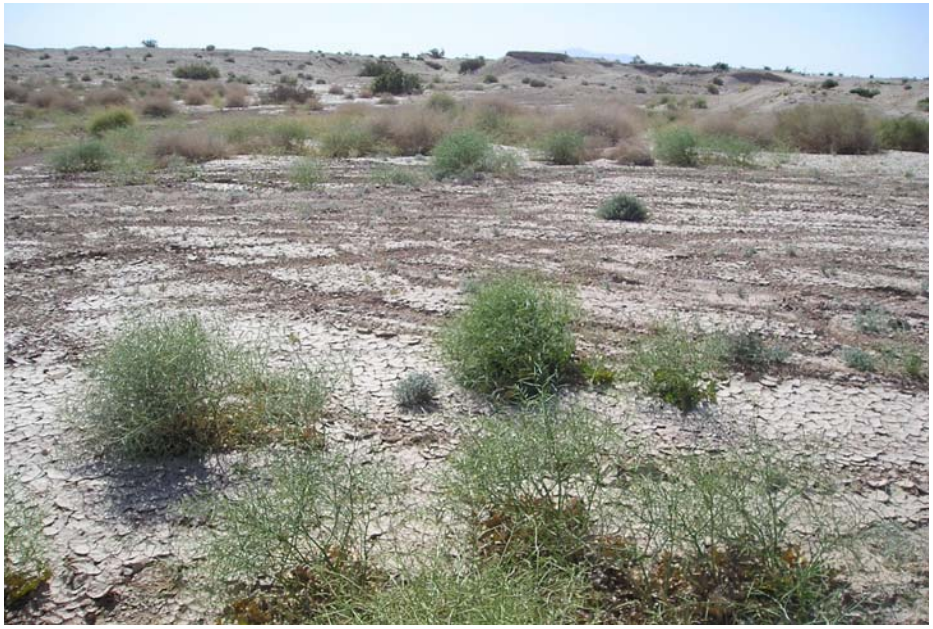


Photo 11

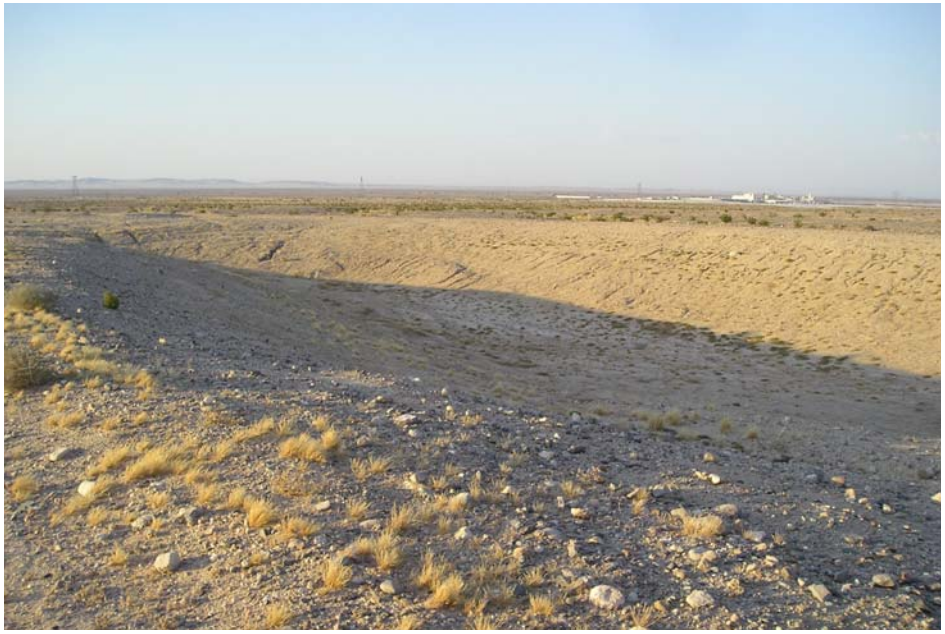


Photo 12

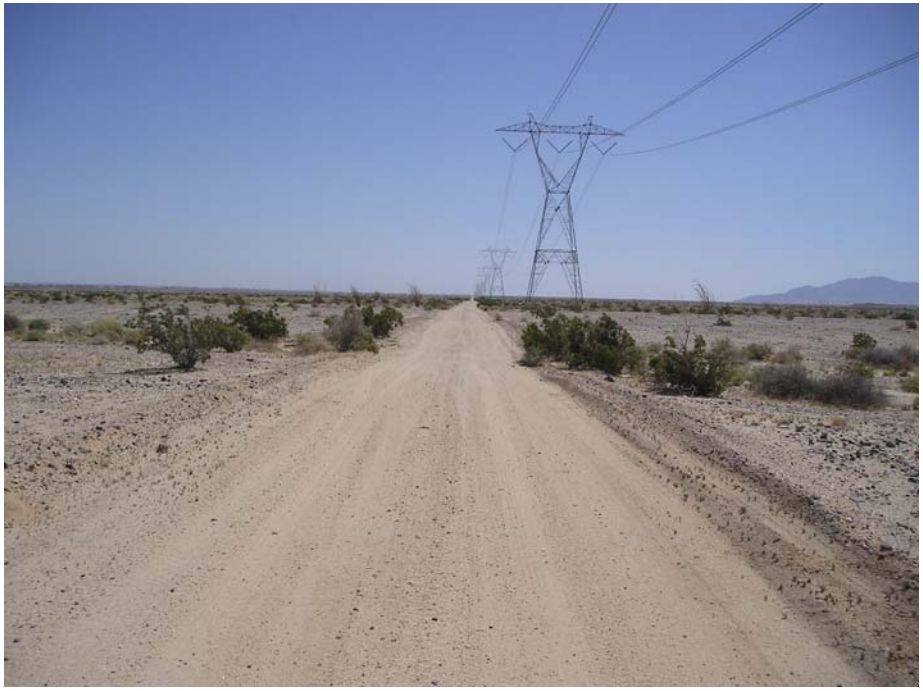


Photo 13

Solar Two Project Area

OHV Disturbance

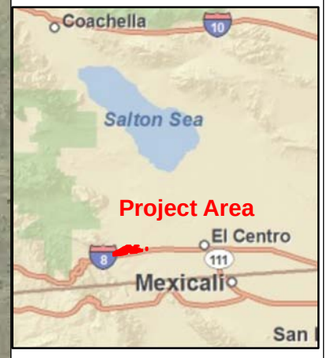
Project Area

Access Road

Map Note: The total area of disturbance within the project boundaries is 1038.67 Acres.

N.A.P.

N.A.P.



N

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S

1 inch = 3,000 feet

Tessera Solar
power from stirling energy systems
PBSJ

5/27/09 HD ENC Z:\Projects\IS\Proposals\StirlingEnergy\mxd\Overview2.mxd

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
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APPLICATION FOR CERTIFICATION
For the SES SOLAR TWO PROJECT

Docket No. 08-AFC-5

PROOF OF SERVICE
(Revised 5/26/09)

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DECLARATION OF SERVICE

I, Kimberly S Whitney, declare that June 24, 2009, I served and filed copies of the attached Current Conditions Report. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[www.energy.ca.gov/sitingcases/solartwo]**. The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

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

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

AND

FOR FILING WITH THE ENERGY COMMISSION:

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

OR

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

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 08-AFC-5
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

docket@energy.state.ca.us

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

Kimberly S Whitney

Kimberly S Whitney