# IMPERIAL VALLEY SOLAR ENERGY PROJECT
# (Formerly SES Solar Two)

## Presiding Member's Proposed Decision

CALIFORNIA
ENERGY COMMISSION
Arnold Schwarzenegger, Governor

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**CALIFORNIA**
**ENERGY COMMISSION**

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**DISCLAIMER**

This report was prepared by the California Energy Commission Imperial Valley (Solar Two) Energy Project AFC Committee as part of Imperial Valley (Solar Two) Energy Project, Docket No. 08-AFC-5. The views and recommendations contained in this document are not official policy of the Energy Commission until the report is adopted at an Energy Commission Business Meeting.

**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA**
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The Committee hereby submits its Presiding Member's Proposed Decision for the ***IMPERIAL VALLEY SOLAR PROJECT*** (formerly Solar 2) (Docket Number 08-AFC-5). We have prepared this document pursuant to the requirements set forth in the Commission's regulations. (20 Cal. Code Regs., §§ 1749-1752.5.)

The Committee recommends that the Application for Certification be approved, subject to the Conditions of Certification set forth herein, and that the Energy Commission grant the Project Owner a license to construct and operate the Project.

Dated: August 26, 2010, at Sacramento, California.

JEFFREY D. BYRON
Commissioner and Presiding Member
Imperial Valley Solar AFC Committee

ANTHONY EGGERT
Commissioner and Associate Member
Imperial Valley Solar AFC Committee

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# INTRODUCTION

## A. SUMMARY OF THE DECISION

This Decision contains the Commission's rationale in approving the Imperial Valley Solar (IVS) Project. Although we have found that the project, even with the mitigation measures described in this Decision, will have significant environmental impacts to Biological, Cultural, Land Use, and Visual resources, the Commission has found that the benefits the project would provide warrant overriding those impacts. The Commission has determined that the IVS project complies with all applicable laws, ordinances, regulations, and standards (LORS) except a provision in the Imperial County Land Use Ordinance pertaining to zoning of a privately-owned parcel within the project site. With respect to the LORS inconsistency, the Commission has found that the project's benefits warrant overriding that LORS inconsistency. The project, if constructed and operated in accord with the BLM Agency Preferred Alternative (Applicant's 709MW Alternative) may therefore be licensed. Our Decision is based exclusively upon the record established during this certification proceeding and summarized in this document. We have independently evaluated the evidence, provided references to the record[1] supporting our findings and conclusions, and specified the measures required to ensure that the Imperial Valley project is designed, constructed, and operated in the manner necessary to protect public health and safety, promote the general welfare, and preserve environmental quality.

On June 30, 2008, Stirling Energy Systems Solar Two, LLC (Applicant), submitted an Application for Certification (AFC) to the Energy Commission to construct a concentrated solar thermal power plant facility approximately 14 miles west of El Centro, in Imperial County.[2] The project site is just south of Plaster City between the Union Pacific Railroad tracks and the Interstate 8 Highway. The Energy Commission has exclusive state-level jurisdiction to license this project and is considering the proposal under a twelve-month review

[1] The Reporter's Transcript of the evidentiary hearings is cited as "date of hearing RT page __." For example: 4/20/10 RT 77. The exhibits included in the evidentiary record are cited as "Ex. number." A list of all exhibits is contained in **Appendix B** of this Decision.

[2] In February 2010, the company formally requested that the project change its name to Imperial Valley Solar. The company name was also changed to Imperial Valley Solar LLC.

process established by Public Resources Code section 25540.6. The Bureau of Land Management (BLM) is conducting its own concurrent process to determine whether to approve an amendment to the 1980 California Desert Conservation Area Plan and a right-of-way grant authorizing the construction and operation of the proposed project on federal lands. The Energy Commission began review of the project on October 8, 2008.

The proposed project would utilize SunCatcher technology, consisting of approximately 30,000 25-kilowatt solar power dishes with a generating capacity of approximately 750 megawatts (MW) to be built in two phases. The first phase would consist up to 12,000 SunCatchers configured in 200 1.5 MW solar groups of 60 SunCatchers per group and have a net nominal generating capacity of 300 MW. The second phase would consist of approximately 18,000 SunCatchers configured in 300 1.5 MW groups with a net generating capacity of 450 MW. Each SunCatcher system consists of an approximate 38-foot high by 40-foot wide solar concentrator dish that supports an array of curved glass mirror facets designed to automatically track the sun and focus solar energy onto a Power Conversion Unit which generates electricity. Related structures would include a main services complex, assembly buildings, a 230-kilovolts (kV) electrical substation, access roads, supply water line, and a 10.3-mile double circuit 230-kV transmission line from the project site to San Diego Gas and Electric's existing Imperial Valley electrical substation. Development of the 450 MW Phase II is dependent on the approval and construction of additional transmission capacity, such as the proposed Sunrise Powerlink 500-kV transmission line that would also interconnect with the Imperial Valley electrical substation.

During the proceedings, concerns were raised concerning the proposed project's potential to cause impacts to certain washes and ephemeral drainage channels on the proposed site due to the placement of SunCatchers in the flow path. Some of these potentially affected washes and drainages were determined to be Waters of the United States, which are under the jurisdiction of the United States Army Corps of Engineers (Corps). To alleviate these concerns the Applicant, in cooperation with the Corps, developed an alternative configuration for the project which avoided the highest flows. This alternative also resulted in the elimination of some of the SunCatchers and a reduction in output from 750MW to 709MW. Subsequently, the Corps determined this alternative to be its preliminary Least Environmentally Damaging Practicable Alternative (LEDPA) and the BLM adopted it as its Agency Preferred Alternative. We have also adopted this alternative, and explain our reasons in this Decision.

If approved, construction of the IVS Project would take place in two phases and employ an average of 360 persons per month, totaling 24,086 personnel months for the 40-month construction period; when fully operational the project would employ 164 full-time workers and would operate 7 days a week, with maintenance activities occurring 7 days a week, 24 hours a day.

## B. SITE CERTIFICATION PROCESS

The IVS and its related facilities are subject to Energy Commission licensing jurisdiction. (Pub. Res. Code, § 25500 et seq.). During licensing proceedings, the Commission acts as lead state agency under the California Environmental Quality Act (CEQA). (Pub. Res. Code, §§ 25519(c), 21000 et seq.) The Commission's regulatory process, including the evidentiary record and associated analyses, is functionally equivalent to the preparation of an Environmental Impact Report. (Pub. Res. Code, § 21080.5.) The process is designed to complete the review within a specified time period when the required information is submitted in a timely manner. A license issued by the Commission is in lieu of other state and local permits.

The Commission's certification process provides a thorough review and analysis of all aspects of a proposed power plant project. During this process, the Energy Commission conducts a comprehensive examination of a project's potential economic, public health and safety, reliability, engineering, and environmental ramifications.

Specifically, the Commission's process allows for and encourages public participation so that members of the public may become involved either informally or on a formal level as intervenor parties who have the opportunity to present evidence and cross-examine witnesses. Public participation is encouraged at every stage of the process.

The process begins when an applicant submits an AFC. Commission staff reviews the data submitted as part of the AFC and makes a recommendation to the Commission on whether the AFC contains adequate information to begin the certification process. After the Commission determines an AFC contains sufficient analytic information, it appoints a Committee of two Commissioners to conduct the formal licensing process. This process includes public conferences and evidentiary hearings, where the evidentiary record is developed and becomes the basis for the Presiding Member's Proposed Decision (PMPD). The PMPD determines a project's environmental impact and conformity with

applicable laws, ordinances, regulations, and standards and provides recommendations to the full Commission.

The initial portion of the certification process is weighted heavily toward assuring public awareness of the proposed Project and obtaining necessary technical information. During this time, the Commission staff sponsors public workshops at which intervenors, agency representatives, and members of the public meet with staff and the applicant to discuss, clarify, and negotiate pertinent issues. In this proceeding, Staff published its initial technical evaluation of the AMS project in its Staff Assessment (SA) and made it available for a 30-day comment period. Staff's responses to public comment on the SA and its complete analyses and recommendations were published in Supplemental Staff Assessment Parts A through C, which were made available for public comment.

Following this, the Committee conducts a Prehearing Conference to assess the adequacy of available information, identify issues, and determine the positions of the parties. Based on information presented at this event, the Committee issues a Hearing Order to schedule formal evidentiary hearings. At the evidentiary hearings, all formal parties, including intervenors, may present sworn testimony, which is subject to cross-examination by other parties and questioning by the Committee. Members of the public may offer oral or written comments at these hearings. Evidence submitted at the hearings provides the basis for the Committee's analysis and recommendations to the full Commission.

The Committee's analysis and recommendations appear in the PMPD, which is available for a 30-day public comment period. Depending upon the extent of revisions necessary after considering comments received during this period, the Committee may elect to publish a revised version. If so, the Revised PMPD triggers an additional public comment period. Finally, the full Commission decides whether to accept, reject, or modify the Committee's recommendations at a public hearing.

Throughout the licensing process, members of the Committee, and ultimately the Commission, serve as fact-finders and decision-makers. Other parties, including the Applicant, Commission staff, and formal intervenors, function independently with equal legal status. An "ex parte" rule prohibits parties in the case, or other persons with an interest in the case, from communicating on substantive matters with the decision-makers, their staffs, or assigned hearing officer unless these communications are made on the public record. The Office of the Public Adviser

is available to assist the public in participating in all aspects of the certification proceeding.

## C. PROCEDURAL HISTORY

Public Resources Code, sections 25500 et seq. and Energy Commission regulations (Cal. Code Regs., tit. 20, § 1701, et seq.) mandate a public review process and specify the occurrence of certain procedural events in which the public may participate. The key procedural events that occurred in the present case are summarized below.

On June 30, 2008, Stirling Energy Systems Solar Two, LLC (Applicant), submitted an Application for Certification (AFC) to the Energy Commission to construct a concentrated solar thermal power plant facility approximately 14 miles west of El Centro, in Imperial County. On October 8, 2008, the Energy Commission deemed the AFC data adequate (sufficient data to proceed) and assigned a Committee of two Commissioners to conduct proceedings.

The formal parties included the Applicant, Energy Commission staff (Staff), and Intervenors California Unions for Reliable Energy (CURE); Intervenor Tom Budlong; Intervenor Hossein Alimamaghani; and Intervenor California Native Plant Society.

On October 30, 2008, the Committee issued a Notice of "Informational Hearing, Environmental Scoping Meeting, and Public Site Visit." The Notice was mailed to local agencies and members of the community who were known to be interested in the project, including the owners of land adjacent to or in the vicinity of the IVS project. The Public Adviser's Office also advertised the public hearing and site visit and distributed information to local officials and sensitive receptors surrounding the project site.[3]

On November 24, 2008, the Committee conducted a site visit to tour the proposed IVS site and then convened a public Informational Hearing at the Imperial County Administration Center in El Centro, California. At that event, the Committee, the parties, interested governmental agencies, and other public participants discussed issues related to development of the project, described

[3] Sensitive receptors are people or institutions with people that are particularly susceptible to illness, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

the Commission's review process, and explained opportunities for public participation.

On December 3, 2008, the Committee issued an initial Scheduling Order. The Committee Schedule was based on both the Applicant's and Staff's proposed schedules and related discussion at the Informational Hearing. The schedule contained a list of events that must occur in order to complete the certification process within twelve months.

In the course of the review process, Staff conducted public workshops on December 18, 2008, February 10, 2009, May 7, 2009, and March 22, 2010. The purpose of the workshops was to provide members of the community and governmental agencies opportunity to obtain project information, and to offer comments regarding any aspect of the proposed project.

In February 2010, the company formally requested that the project change its name to Imperial Valley Solar. The company name was also changed to Imperial Valley Solar LLC.

The Bureau of Land Management (BLM) and the Energy Commission staff conducted a workshop on the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS) on March 22, 2010, which was issued on February 12, 2010. Part 1 of the Supplemental staff Assessment was issued on July 2, 2010, and Part 2 of the Supplemental Staff Assessment was issued on August 2, 2010. The public was provided with an opportunity to comment on each document.

The Committee conducted the Prehearing Conference on March 25, 2010 in Sacramento, California. The Evidentiary Hearings were held on May 24 and 25, 2010, in El Centro, California, and on August 16, 2010, in Sacramento, California.

The Committee published this PMPD on August 26, 2010, and scheduled a Committee Conference in Sacramento at Commission Headquarters for September 20, 2010. At the Committee Conference, the parties may comment on the PMPD. The 30-day comment period on the PMPD will expire on September 27, 2010. A Notice of Availability was published in a general circulation publication.

## D. COMMISSION OUTREACH

Several entities within the Energy Commission provide various notices concerning power plant siting cases. Staff provides notices of staff workshops and the release of the Staff Assessments. The Hearing Office notices Committee-led events such as the informational hearing and site visit, status conferences, the prehearing conference, and evidentiary hearings. The Public Adviser's Office provides additional outreach for critical events as well as provides information to interested persons that would like to become more actively involved in a power plant siting proceeding. Further, the Media Office provides notice of events to local and regional press through press releases. The public may also subscribe to the proceeding's e-mail List Server offered on the web page for each project which gives an immediate notification of documents posted to the project web page. Through the activities of these entities, the Energy Commission has made every effort to ensure that interested persons are notified of activities in this proceeding.

## E. PUBLIC COMMENT

The record contains public comments from concerned individuals and organizations. Throughout these proceedings, as reflected in the transcribed record, the Committee provided an opportunity for public comment at each Committee-sponsored conference and hearing.

# I. PROJECT DESCRIPTION AND PURPOSE

The Imperial Valley Solar project (IVS or Project) is located in Imperial County, California, on approximately 6,140 acres of public land managed by the Bureau of Land Management (BLM) and approximately 360 acres of privately-owned land. The project site is about 100 miles east of San Diego, 14 miles west of El Centro, and 4 miles east of Ocotillo. The Applicant has applied for a right-of-way grant from Bureau of Land Management (BLM).

The proposed project is a nominal 750-megawatt (MW) solar thermal power plant project. The primary equipment for the generating facility includes Stirling Energy Systems SunCatcher proprietary technology, which consists of solar concentrating dishes coupled with Solar Stirling Engine Power Conversion Units (PCUs).

The project site consists primarily of undisturbed desert sands and flora. The area surrounding the project site is predominately undeveloped recreational desert land, including BLM-administered public land zoned for agricultural, residential, industrial, and recreational uses.

The applicant proposed to construct the project in two phases. The total land area required for both phases, including the area for the operation and administration, maintenance, and substation buildings, is approximately 6,500 acres. The Phase I area requires approximately 2,600 acres, consists of 12,000 SunCatchers, and would generate 300 MW. The Phase II area requires 3,500 acres, consists of 18,000 SunCatchers, and would generate 450 MW. Project construction, from site preparation to commercial operation, will take about 40 months.

During the proceedings, concerns were raised concerning the proposed project's potential to cause impacts to certain washes and ephemeral drainage channels on the site. As a result, the applicant and the Army Corps of Engineers developed an alternative that removes 1,163 SunCatchers from the washes and reduce the permanent impacts to Waters of the U.S. from 177.4 acres to 38.2 acres. The plant's power output would be reduced to 709 MW. This is described in more detail in the Soil & Water Resources chapter of this decision.

Imperial Valley Solar, LLC, plans to construct, own, and operate the plant. (Exs. 1, § 3, 302, pp. B.1-1, B.1-5.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

Phase I of the proposed project would have a net nominal generating capacity of 300 MW. Phase II will expand the project's the total net generating capacity to 750 MW. Although construction of both phases will take approximately 40 months to complete, power would be available to the grid as each group of Stirling Engine modules is completed. Thus, IVS is to be an "as-available" resource operating between 18 MW net (when the first units are interconnected to the grid during construction) up to 750 MW upon completion of construction. The project is expected to operate approximately 3,500 hours per year and have an overall availability of 99 percent or higher. (Ex. 302, p. B.1-21.)

Construction and operation are to occur in accordance with the plans and mitigation measures discussed in this Decision to ensure that the project conforms to applicable laws, ordinances, regulations, and standards (LORS) and avoids or mitigates significant adverse impacts.

Imperial Valley is expected to operate seven days per week with a staff of approximately 164 full-time employees. (Ex. 302, p. B.1-22.)

### 1. Project Objectives

The project's primary objectives are to provide clean, renewable solar-powered electricity and to assist San Diego Gas & Electric (SDG&E) in satisfying its legislatively mandated obligations under California's Renewable Portfolio Standard (RPS) Program. A secondary objective is to assist SDG&E in reducing its greenhouse gas emissions as required by the California Global Warming Solutions Act. (Ex. 1, p. 2-1.)

### 2. Project Features

The basic building blocks for the project are 1.5-MW solar groups consisting of 60 SunCatchers connected in series to create 3-, 6-, and 9-MW solar groups. These groups connect to one another by underground cables and then connect to overhead collection lines for delivery of solar-electric generated power to SDG&E's Imperial Valley substation. (Exs. 1, p. 3-7, 302 p. B.1-6.)

The project consists of nearly 30,000 SunCatchers, each of which has three major components: a foundation/pedestal, dish assembly, and power conversion

unit (PCU). The three-component SunCatcher system consists of a 38-foot-high by 4-foot-wide solar concentrator in a dish structure that supports an array of curved glass mirror facets. The mirrors collect and concentrate solar energy onto the solar receiver of the PCU, which, in turn, converts the focused solar thermal energy into grid-quality electricity. (Exs. 1, pp. 3-10 - 3-11; 302, pp. B.1-3 - B.1-6.)

The PCU conversion process involves a closed-cycle, 4-cylinder, 35-horsepower reciprocating Solar Stirling Engine using an internal working fluid of hydrogen gas. The hydrogen gas is cooled by a standard glycol-water radiator system and is continually recycled within the engine during the power cycle.

Significantly, the conversion process does not consume water. Instead, the only water consumed by the SunCatchers is for washing mirrors to remove accumulated dust and replenishing small losses to the cooling system radiator. (Exs. 1, p. 3-12, 302, p. B.1-4.)

The hydrogen gas supply will be produced through electrolysis (from water) by one on-site hydrogen generator. The generator is capable of producing 1,065 standard cubic feet of hydrogen per hour (scfh). Approximately 184 gallons of water per day, or 0.0133 acre feet per year would be required for this generator. The hydrogen gas will be stored in a steel tank with capacity to hold a two-day day supply. (Exs., 14, pp. 1-6 - 1-7; 302, pp. B.1-16 – B.1-17.)

3. Transmission System Interconnection and Upgrades

The project includes construction of a substation, which includes transformers, circuit breakers, metering, and other protection required to connect the project to the SDG&E Imperial Valley Substation, located southwest of E. Centro, California. For the 300-MW Phase I, the interconnection substation will initially consist of two power transformers. An approximate 10.3-mile long 230-kV transmission line is required to interconnect the plant to the Imperial Valley Substation. Power from Phase I would be transmitted via the existing 500-kV SDG&E Southwest Powerlink transmission line.

In Phase II, the substation will expand from 300 to 750 MW with the addition of three power transformers. The 450-MW Phase II will require the construction of the 500-kV Sunrise Powerlink transmission line (or equivalent), which is an

SDG&E project outside of the Energy Commission's jurisdiction.[1] (Exs. 1, pp. 3-15, 3-25 - 3-29; 302, pp. B.1-17 - B.1-19.)

4. Water Supply

The completed project will require a total of approximately 32.7 acre-feet per year (afy) of raw water for activities such as equipment washing, potable water, dust control, and fire protection. SunCatcher mirror washing and operations dust control under regular maintenance routines will use an average of approximately 23.3 gallons of raw water per minute. (Ex. 302, pp. B.1 -13 – B.1-14.)

The Seeley Waste Water Treatment Facility (SWWTF) is expected to become the project's primary supplier of water. SWWTF is operated by the Seeley County Water District (SCWD) and located in Seeley, California, approximately 13 miles east of the project site. The applicant would finance an upgrade to the existing facility to allow it to meet Title 22 water quality standards and would fund the training of operators for the new facility. The SCWD would provide as much treated effluent water as needed to the proposed IVS project. The current influent flow rate is approximately 150,000 gallons per day (gpd), or 168 afy. Improvements to the treatment facility would increase the Title 22 effluent capacity to 250,000 gpd. Any surplus water, not needed by the proposed IVS project, will be used by SCWD for irrigation or discharged into the New River. The reclaimed (secondary treated) water will be supplied to the project via a newly constructed pipeline built within the existing Evan Hewes Highway right-of-way. **(**Exs. 302, pp. B.1-14 – B.1-16; 14, pp. 1-5 – 1-6.)

SCWD is preparing an Environmental Impact Report (EIR) for the upgrade project. The EIR prepared for the SCWD will be used by the District to evaluate the impacts and to support the District's decision on the upgrades.

As a result of the delays necessary for the SCWD to prepare the EIR and obtain the necessary project approvals, groundwater for construction and possibly operation of the IVS project would be supplied by a private supplier identified as Dan Boyer Water Company, located in Ocotillo, California. Groundwater from the

[1] The Sunrise Powerlink project consists of a 150-mile transmission line between Imperial County and San Diego County. Although the Sunrise Powerlink project is directly related to the Imperial Valley project, the environmental review is under the jurisdiction of the California Public Utilities Commission as the lead agency for CEQA compliance and BLM as the lead agency for NEPA compliance. These agencies completed environmental review of the Sunrise Powerlink project before Staff prepared its Supplemental Staff Assessment. Therefore, Staff did not perform an independent analysis. (Ex. 302, pp. B.1-19 - B.1-21.)

Dan Boyer Water Company well would be treated at an on-site facility adjacent to the on-site substation to produce demineralized water for mirror washing. The Boyer well is licensed to pump 40 afy.

Potable water would be delivered by truck and stored onsite in a tank. The tank would be able to provide for all required potable water for two to three days of operations. (Exs. 14, pp. 1-5 - 1-6; 302, p. B.1-13.)

The project water supply requirements are shown below in **Project Description Table 1**.

**PROJECT DESCRIPTION Table 1**
**Water Usage Rates for Operation**

| ***Water Use*** | ***Daily Average (gallons per minute)*** | ***Daily Maximum (gallons per minute)*** | ***Annual Usage (acre-feet)*** |
|---|---|---|---|
| **Equipment Water Requirements** | | | |
| SunCatcher mirror washing | 10.4[1] | 17.4[2] | 14.2[3] |
| **Water Treatment System Discharge** | | | |
| Brine to evaporation ponds | 5.5 | 10.2[4] | 7.5 |
| **Potable Water Use** | | | |
| For drinking and sanitary water requirements | 3.9[5] | 4.7[6] | 5.4[7] |
| **Dust Control** | | | |
| Raw water for dust control during operations | 3.5[8] | 6.9[9] | 5.6[10] |
| **Totals** | **23.3** | **39.2** | **32.7** |

Source: Ex. 302, p. B.1-14

Notes:

1 - Based on 30,000 SunCatchers requiring a monthly wash with an average of 14 gallons of demineralized water per spray wash and a 5-day work week (21 work days per month).
2 - During a 3 month period, all SunCatcher mirrors are given a scrub wash requiring up to 3 times the normal wash of 14 gallons per SunCatcher. Therefore, the Daily Maximum usage rate is based on two-thirds of the SunCatchers receiving a normal wash and one-third receiving a scrub wash.
3 - Based on every SunCatcher having approximately 8 normal washes per year with one additional scrub wash.
4 - Based on the maximum amount of demineralized water required for mirror washing and assumes a decrease in raw water quality requiring an additional 20 percent of system discharge.
5 - Assumes 30 gallons per person per day for 188 people.
6 - Maximum amount assumes a 20 percent contingency over the Daily Average.
7 - Assumes a 6-day work week and average daily usage.
8 - Assumes 5,000 gallons per day
9 - Assumes up to 10,000 gallons per day.
10 - Assumes daily average dust control operations.

5. Wastewater and Waste Management

The water treatment wastewater generated by the reverse osmosis (RO) unit would contain relatively high concentrations of Total Dissolved Solids (TDS). Wastewater or brine generated by the RO unit would be discharged to a concrete evaporation pond that would meet the requirements of the local Regional Water Quality Control Board. Each pond would be sized to contain 1 year of discharge flow, approximately 2.44 million gallons. A minimum of 1 year is required for the water treatment waste to undergo the evaporation process. The second pond would be in operation while the first is undergoing evaporation. The two ponds would alternate their functions on an annual basis.

After the brine has gone through the evaporation process, the solids that settle at the bottom of the evaporation pond will be tested and disposed of in an appropriate non-hazardous waste disposal facility. (Ex. 302, p. B.1-16.)

6. Hazardous Waste Management

Hazardous materials used during facility construction and operations would include paints, epoxies, grease, transformer oil, and battery fluid. The project will use several methods to properly manage and dispose of hazardous materials and wastes. Waste lubricating oil would be recovered and recycled by a waste oil recycling contractor. Chemicals would be stored in appropriate chemical storage facilities. Bulk chemicals would be stored in large storage tanks, while most other chemicals would be stored in smaller returnable delivery containers. All chemical storage areas would be designed to contain leaks and spills in concrete containment areas. (Ex. 302, p. B.1-16.)

7. Distributed Hydrogen System

The project proposes having the hydrogen gas supply produced through electrolysis by one on-site hydrogen generator. The generator is capable of producing 1065 standard cubic feet of hydrogen per hour (scfh) and requires 146 watts/scf of electricity and 2.58 cubic inches of water/scf/hour during operation. Approximately 184 gallons of water per day, or 0.0133 afy would be required for the hydrogen generation system.

The reclaimed water obtained from SCWD will be processed to produce demineralized water, which will be fed to the electrolyzer mounted on the

hydrogen generator skid. The electrolyzer would eliminate any final impurities in the water prior to processing.

The annual power consumption to meet the hydrogen production needs is 100 KW per day, or 36.64 MW per year. Although the hydrogen generator could run full time if needed to support SunCatcher hydrogen requirements, the generator would normally be operated at off-peak electric hours using grid power.

Initially, it would take 11 scf of hydrogen to charge one Stirling Engine. Each PCU is estimated to lose about 200 scf per year. Each high pressure supply tank would supply hydrogen gas to **360 SunCatchers** via a 0.25-inch stainless tubing. A low pressure dump tank would be installed with each compressor group utilizing a stainless steel return line to recover hydrogen gas when the SunCatchers are not in-service. This would reduce hydrogen leaks through fittings and seals on the Stirling Engine. In the event that the hydrogen generator fails, an unloading station designed to receive and transfer hydrogen gas to the storage tank would be installed to allow for the delivery of hydrogen gas to the site by an outside supplier. The hydrogen gas storage tank would provide a few days of hydrogen supply as a back-up system. (Ex. 302, pp. B.1-16 – B.1- 17.)

8. Facility Closure

The planned life of the Imperial Valley facility is 40 years or longer. Whenever the facility closes, whether temporarily or permanently, the closure procedures included in this Decision ensure compliance with applicable laws, ordinances, regulations, and standards (LORS).

## FINDINGS OF FACT

Based on the evidentiary record, we find as follows:

1. The Imperial Valley Solar project, as modified, involves the construction and operation of a nominal 709 MW solar generating facility in Imperial County, California.

2. Imperial Valley, LLC, plans to own and operate the Imperial Valley Solar project.

3. The project includes associated hydrogen, transmission and water supply lines.

4. The project and its objectives are adequately described by the relevant documents contained in the record and include the project owner's interest in assisting SDG&E in satisfying its legislatively mandated obligations under California's RPS Program and reducing its greenhouse gas emissions as required by the California Global Warming Solutions Act.

## CONCLUSIONS OF LAW

1. We therefore conclude that the Imperial Valley Solar project is described at a level of detail sufficient to allow review in compliance with the provisions of both the Warren-Alquist Act and the California Environmental Quality Act.

# II. PROJECT ALTERNATIVES

The California Environmental Quality Act (CEQA) Guidelines and the Energy Commission's regulations require an evaluation of the comparative merits of a range of feasible site and facility alternatives which meet the basic objectives of the proposed project but would avoid or substantially lessen potentially significant environmental impacts. [Cal. Code Regs., tit. 14, §§ 15126.6(c) and (e); tit. 20, § 1765.]

The range of alternatives, including the "No Project" alternative, is governed by the "rule of reason" and need not include those alternatives whose effects cannot be reasonably ascertained and whose implementation is remote and speculative. [Cal. Code Regs. tit. 14, § 15126.6(f).] Rather, the analysis is necessarily limited to alternatives that the "lead agency determines could feasibly attain most of the basic objectives of the project." (*Id*.)

Since the BLM is a federal agency, the Imperial Valley Solar Project (IVS) is subject also to review under the National Environmental Policy Act (NEPA) in addition to CEQA. The purpose of this alternatives analysis is to comply with State and Federal environmental laws by providing a reasonable range of alternatives which, under CEQA, could substantially reduce or avoid any potentially significant adverse impacts of the proposed project, or under NEPA, would inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.

In addition, state policy favors a "loading order" for meeting electricity needs: first in this order is a preference for adding energy efficiency and demand response, followed by renewables and distributed electricity generation, combined heat and power (cogeneration) and then fuel efficient fossil-fueled generation and infrastructure development. State policy also mandates the reduction of greenhouse gas emissions, the achievement of the 33 percent RPS target by 2020, and the completion of the siting review process in a timely manner to allow certain renewable projects to qualify for the 2009 ARRA cash grant. These policies are discussed further under Project Objectives, below.

Applicant provided an alternatives analysis in the Application for Certification, describing the site selection process and project configuration in light of project

objectives. Staff included a similar analysis in the Supplemental Staff Assessment (SSA). (Ex. 302, pp. B.2-1 et seq.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

Energy Commission staff used the following methodology to analyze project alternatives for the IVS:

- identified basic objectives of the project and its potentially significant adverse impacts (which are discussed by topic in this Decision);
- under CEQA, identified and evaluated alternative sites to determine whether an alternative site would mitigate impacts of the proposed site and whether an alternative site would create impacts of its own;
- under CEQA, identified and evaluated technology alternatives, including alternative equipment and electricity generation processes;
- under CEQA, evaluated potential alternatives to select those qualified for detailed evaluation;
- under NEPA, explored and evaluated a reasonable range of alternatives, and of those reasonable alternatives, identified those that would avoid or minimize adverse impacts or enhance the quality of human life; and
- evaluated consequences of not constructing the project, i.e., the "No Project" alternative under CEQA and the "No Action" alternative under NEPA. (Ex. 302, p. B.2-8.)

Elsewhere in this Decision, we have determined that the proposed project has the potential to cause adverse impacts to Biological, Cultural, Visual and Land Use Resources which cannot be fully mitigated. The proposed decision addresses those impacts elsewhere in more detail.

We therefore confine our analysis here to the alternatives' potential to reduce or eliminate those impacts. In all other areas, impacts either do not exist or will be reduced to below a level of significance through implementation of the Conditions of Certification.

1. Project Objectives

The evidentiary record establishes that the project objectives are:

- To construct a utility-scale solar energy project of up to 750 MW and interconnect directly to the CAISO Grid while minimizing additions to electrical infrastructure; and

- To locate the facility in areas of high solar insolation.
- To provide clean, renewable electricity to support California's Renewable Portfolio Standard Program (RPS);
- To assist in reducing greenhouse gas emissions as required by the California Global Warming Solutions Act;
- To contribute to the achievement of the renewables RPS target set by California's governor and legislature

(Ex. 302, pp. B.2-10 to B.2-11.)

Staff included one more objective: to complete the review process in a timeframe that would allow the Applicant to start construction or meet the economic performance guidelines by December 31, 2010 to potentially qualify for the 2009 ARRA cash grant in lieu of tax credits for certain renewable energy projects. However, no legal authority was cited for the inclusion of a measure which is wholly related to financing deadlines. Neither NEPA nor CEQA describe an objective such as this as appropriate; it has only a tangential relationship to such legitimate project objectives as those set forth above. We decline to include Staff's final objective on the list of project objectives we will consider in this analysis.

2. Alternatives Evaluated Under CEQA and NEPA

Twenty-seven (27) alternatives to the proposed project were developed and evaluated. These include six alternative sites, solar and renewable technologies, generation technologies using different fuels, and conservation/demand-side management. Of the 27 alternatives, seven alternatives were determined to be reasonable and potentially feasible by the Energy Commission and have the potential to reduce impacts that would be created by the proposed project: the 300 MW Alternative, two Drainage Avoidance alternatives intended to reduce effects to Waters of the United States, three off-site alternatives, and the No Project/No Action Alternative. (Ex. 302, p. B.2-1.)

3. Alternative Sites (CEQA-only)

Three site alternatives are evaluated by the Energy Commission under CEQA only because they are not on Federal land. Two of the alternative sites evaluated in this section (Mesquite Lake and Agricultural Lands Alternatives) are located on private lands. The third alternative site evaluated under CEQA only (South of Highway 98 Alternative) is on land under the jurisdiction of the Bureau of

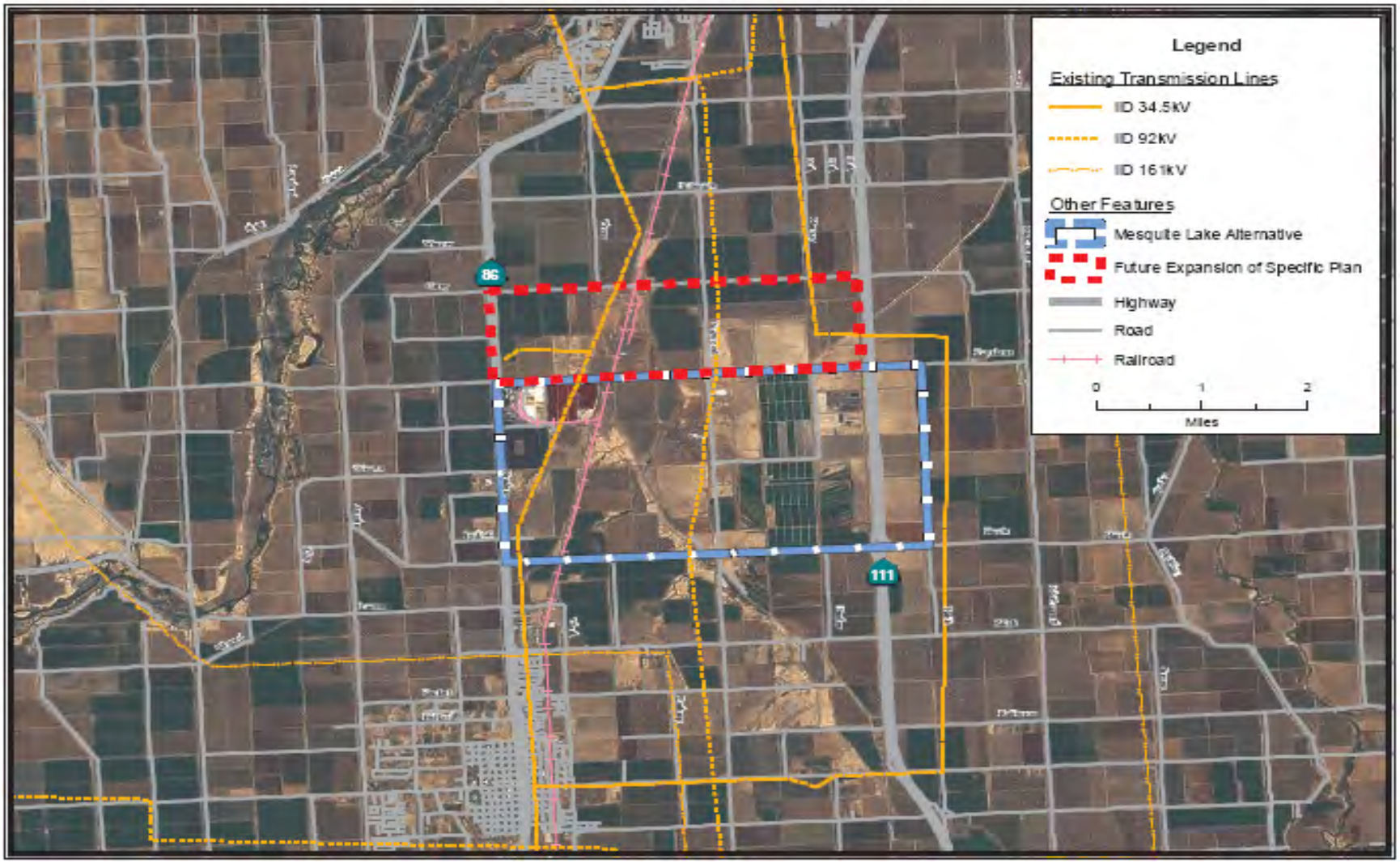
Reclamation; it was withdrawn from the operation of the public land laws due to its proximity to the All American Canal. This site is within the area identified by BLM as a Solar Study Area for the Solar Programmatic EIS now being prepared. (Ex. 302, p. B.2-18.)

a. Mesquite Lake Alternative Site

The Mesquite Lake Specific Plan defines Mesquite Lake as an area that is bordered by Keystone Road to the north, Highway 86 to the west, Harris Road to the south, and approximately 2,250 feet east of Old Highway 111 to the east. Staff's **Alternatives Figure 3**, reproduced below, shows the Mesquite Lake Specific Plan area.

ALTERNATIVES - FIGURE 3

Imperial Valley Solar - Mesquite Lake Alternative



The Mesquite Lake Alternative site would have impacts similar to the proposed Imperial Valley Solar site at Plaster City for 11 of the 20 environmental and engineering resource elements discussed above: air quality, hazardous materials, noise, public health, socioeconomics, waste management, worker safety and fire protection, facility design, power plant efficiency, power plant reliability, and transmission system engineering.

The Imperial Valley Solar site is preferred over the Mesquite Lake Alternative site in three resource elements: traffic and transportation; geology, paleontology and minerals; and transmission line safety and nuisance. The Mesquite Lake Alternative site would require a significantly longer transmission interconnection that would be adjacent to residences in the City of Imperial for several miles.

The Mesquite Lake Alternative site is preferred over the proposed Imperial Valley Solar site at Plaster City for six resource elements: land use, recreation, soils and water, biology, cultural resources, and visual resources. Impacts to biological and cultural resources are anticipated to be reduced at the Mesquite Lake Alternative site compared to at the Imperial Valley Solar site because the Mesquite Lake Alternative site would be located on disturbed land. This would lessen the amount of sensitive species habitat that would be lost due to the construction of the project and would potentially lessen impacts to cultural resources.

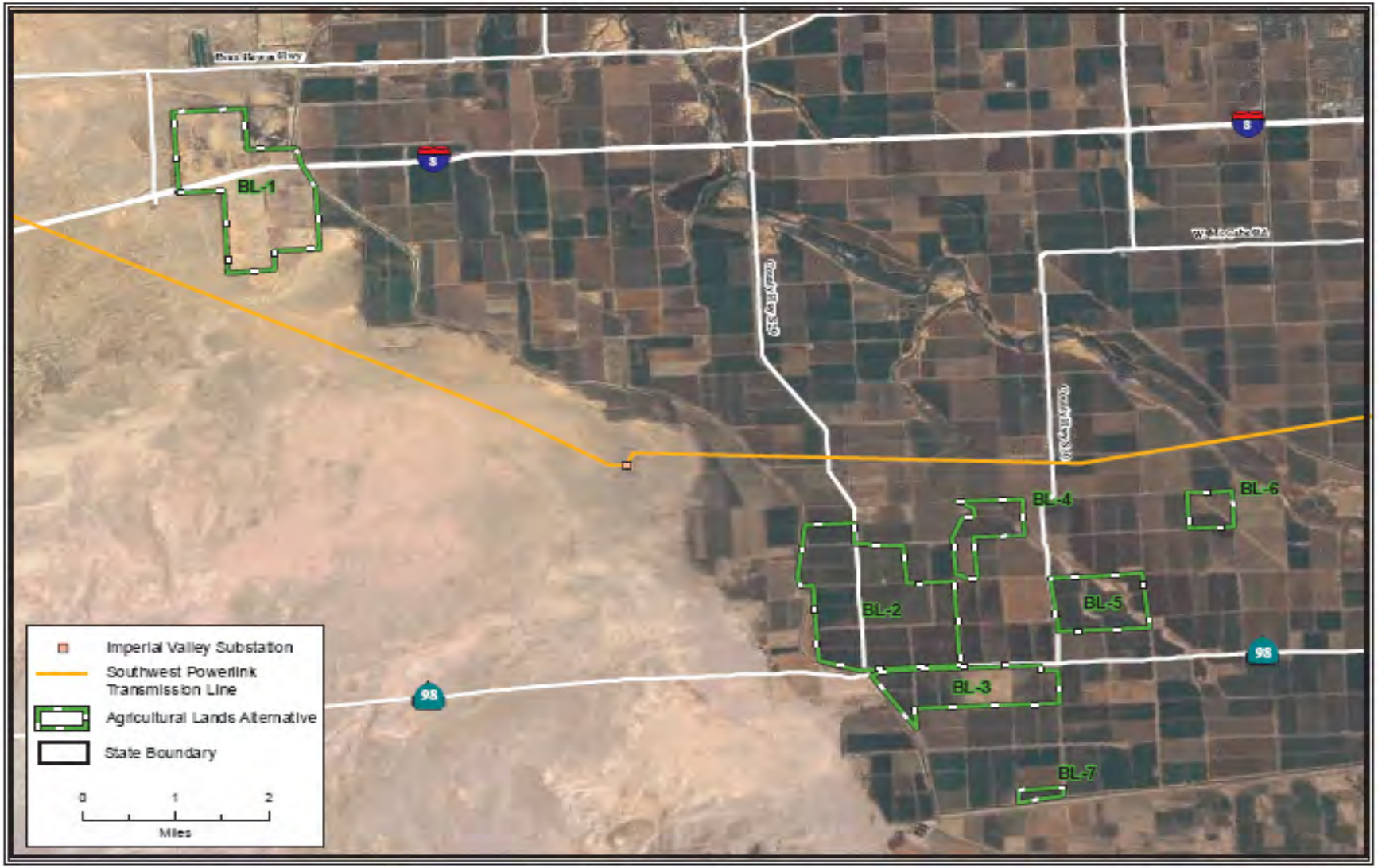
The alternative would reduce impacts in comparison with the proposed project. However, the alternative is not considered feasible because the Mesquite Lake Specific Plan Area is made up of approximately 70 parcels with 52 land owners. Due to the number of parcels that would have to be acquired, this alternative would make obtaining site control unreasonably difficult and, based on our experience with other citing cases, probably impossible. (Ex. 302, pp. B.2-21 to B.2-47.)

b. Agricultural Lands Alternative

Staff's **Alternatives Figure 4,** reproduced below, shows the Agricultural Lands Alternative sites. This alternative is made up of seven separate and unconnected parcels totaling 4,600 acres. The total acreage of the components of this alternative is 1,450 acres smaller than that of the proposed Plaster City site. The project could not be constructed on 4,600 acres. Thus, the Agricultural Lands Alternative site considered here would not meet the project requirements and a combination of two or more alternative sites would be necessary. This would increase the cost of the project due to the need for additional infrastructure (transmission, water, etc.).

ALTERNATIVES - FIGURE 4

Imperial Valley Solar - Agricultural Lands Alternative



The Agricultural Lands Alternative site would have impacts similar to the proposed Imperial Valley Solar site at Plaster City for 11 of the 20 environmental and engineering resource elements: air quality, public health, socioeconomics, traffic and transportation, waste management, worker safety and fire protection, facility design, geology, paleontology and minerals, power plant efficiency, power plant reliability, and transmission system engineering.

The Imperial Valley Solar site is preferred over the Agricultural Lands Alternative site for four resource elements: hazardous materials, land use, noise, and transmission line safety and nuisance.

The Agricultural Lands Alternative site would be preferred to the proposed Imperial Valley Solar site at Plaster City for five resources: biological resources, cultural resources, recreation, soils and water resources, and visual resources.

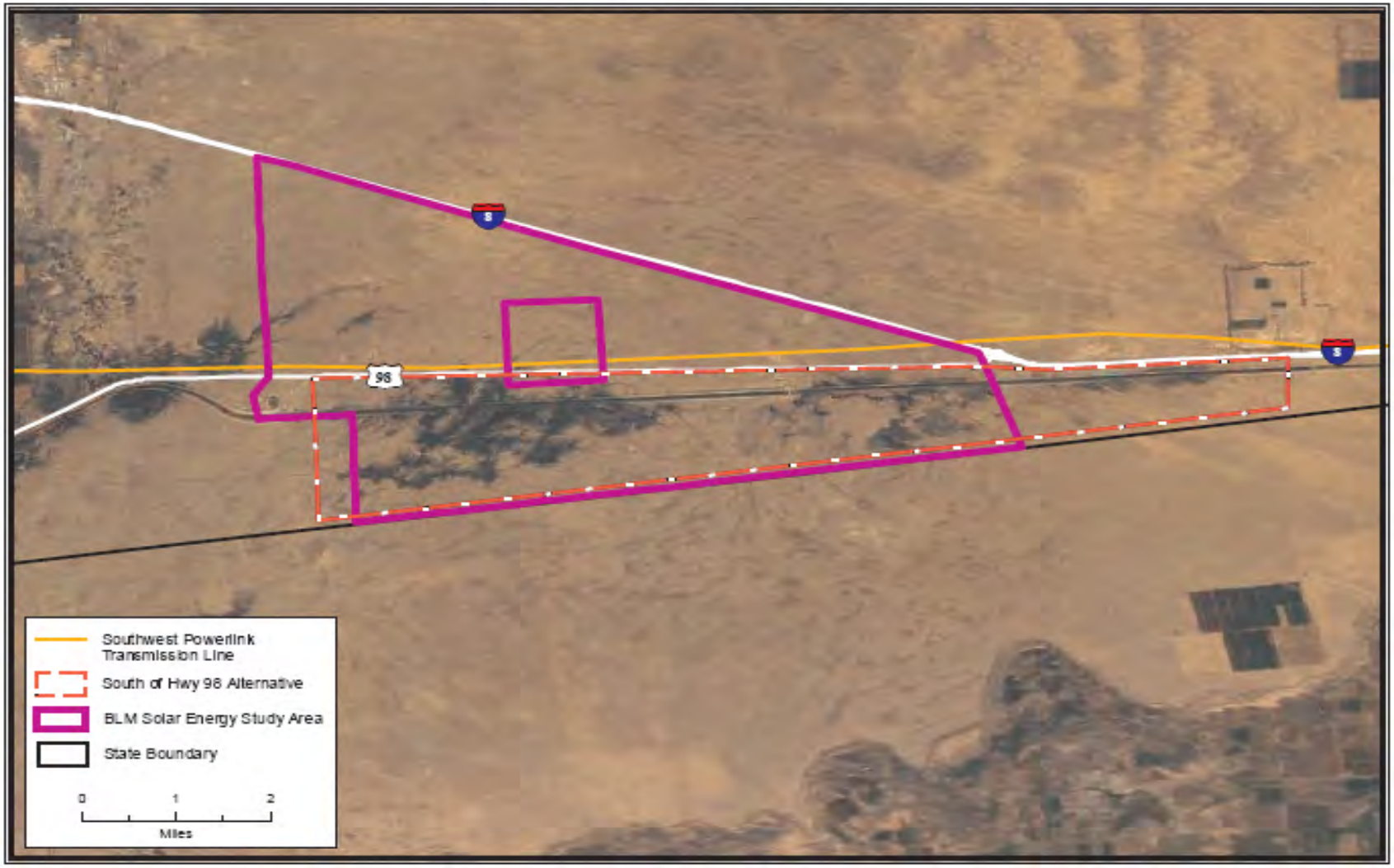
The alternative would reduce impacts in comparison with the proposed project. However, the alternative is not considered feasible because the smaller size would be economically infeasible.
(Exs. Ex. 129, Table 4; 302, pp. B.2-47 to B.2-73.)

c. South of Highway 98 Alternative

The South of Highway 98 Alternative site is located near existing infrastructure and is crossed by an existing 500 kV transmission line. See Staff's **Alternatives Figure 5** , reproduced below, for a depiction of the South of Highway 98 Alternative site. The South of Highway 98 Alternative site is located approximately four miles southeast of the greater El Centro region. Highway 98 is the northern border of the alternative site and the United States/Mexico border creates the southern border of the site. (Ex. 302, p. B.2-73.)

**ALTERNATIVES - FIGURE 5**

Imperial Valley Solar - South of Hwy 98 Alternative



Approximately 5,000 acres south of Highway 98 have appropriate solarity and less than 5 percent slope, as evidenced by the RETI data and the adjacent solar project application (CACA 050174) on land surrounding the All-American Canal (BLM, 2009). The South of Highway 98 Alternative site has elevation ranging between 115 and 360 feet above sea level. It is accessible via I-8 and Highway 98.

The alternative site is located immediately south of Highway 98 between the Lake Cahuilla-D ACEC and three miles east of the intersection of SR 98 and I-8 and would surround the BLM Tamarisk Long Term Visitor Area (LTVA) campground. It is located both north and south of the All-American Canal.

At 5,000 acres, the South of Highway 98 Alternative site does not have the same acreage as the proposed project (6,500 acres), which would accommodate a 750 MW solar power plant. However, this alternative site is considerably flatter than the proposed site, so it is possible that this site could be used more efficiently than the proposed Plaster City site, allowing generation of 750 MW within a smaller space. Alternatively, this site could be combined with land areas identified in other alternative sites such as the Mesquite Lake or Agricultural Lands Alternatives sites, described above.

The land uses in the immediate area of the alternative site area are open space, public land and infrastructure. The nearest town is Calexico, California (estimated population 38,344 in 2008) approximately 16 miles west of the South of Highway 98 Alternative (United States Census 2009). The IID Garrison Camp is located approximately 0.5 mile west of this alternative site; this is a small residential area for IID employees working at generation facilities along the canal.

Water for the South of Highway 98 Alternative would be acquired from the Seeley Waste Water Treatment Facility and would require an approximately 38-mile pipeline to reach this alternative site.

It is assumed that the same number of construction and operation workers would be required for the South of Highway 98 Alternative as for the proposed site, approximately 731 at peak construction and 164 during operation. It is likely that the construction workers would use lodging in either El Centro or Calexico, approximately 27 and 16 miles west of the project, respectively. (Ex. 302, pp. B.2-73 to B.2-74.)

The South of Highway 98 Alternative site would have impacts similar to the proposed Imperial Valley Solar site at Plaster City for 13 of the 20 environmental and engineering resource elements: air quality, land use, public health, socioeconomics, traffic and transportation, waste management, worker safety and fire protection, facility design, geology, paleontology and minerals, power plant efficiency, power plant reliability, and transmission system engineering.

The Imperial Valley Solar site is preferred over the South of Highway 98 Alternative site for four resource elements: biological resources, hazardous materials, noise, and transmission line safety and nuisance. It is believed that impacts to biological resources would be worse at the South of Highway 98 Alternative site compared with the proposed Imperial Valley Solar site. This is because in regards to sensitive habitats and jurisdictional waters, the South of Highway 98 Alternative is the most biologically sensitive due to the presence of stabilized sand dunes and riparian habitat. In regards to rare plants, the proposed Project site and the South of Highway 98 Alternative are very similar, in that neither site has any observed locations of rare plant species, but both are relatively undisturbed sites supporting native habitat and with low to moderate potential for certain rare plants to be present.

The South of Highway 98 Alternative site would be preferred to the proposed Imperial Valley Solar site for three resource elements: soils and water, cultural resources, and visual resources. Given the intensity of cultural history at the proposed Plaster City site, it is believed that impacts to cultural resources would be reduced at the South of Highway 98 Alternative site. The alternative site is located on lands that were identified as having a lower cultural sensitivity than the proposed site by Imperial County. However, without site-specific survey information about cultural resources, a detailed comparison is not possible.

This alternative would not likely reduce impacts overall in comparison to the proposed Imperial Valley site, and we therefore find that it is not preferable to the proposed site. (Ex. 302, pp. B.2-73 to B.2-97.)

5. Alternatives Evaluated Under NEPA and CEQA

This section describes the three alternatives to the proposed project that are retained for analysis: the 300 MW (Phase 1) Alternative, the Drainage Avoidance #1 Alternative, and the Drainage Avoidance #2 Alternative.

a. 300MW Alternative

The 300 MW Alternative would essentially be Phase 1 of the proposed 750 MW project as defined by Applicant. The 300 MW Alternative would consist of 12,000 SunCatchers with a net generating capacity of approximately 300 MW occupying approximately 2,600 acres of land. This alternative would retain 40 percent of the proposed SunCatchers and would affect 40 percent of the land of the proposed 750 MW project. Applicant's Marc van Patten testified that this alternative would not be economically feasible. Referring to Table 4 of the Army Corps of Engineers Draft 404(b0(1) Alternatives Analysis, found at page 28 of Exhibit 129, Mr. van Patten testified that $3,000 per kilowatt is the construction cost per kilowatt above which the project would become economically infeasible. The 300 MW alternative would cost $3,200 per kilowatt to build, and would therefore be infeasible. The cost per kilowatt increases as the generation capacity decreases due to the many fixed costs that would be incurred regardless of the number of SunCatchers installed. (RT 7/27/10 449:11–463:1.) Reducing the project output from 750 MW as proposed to 300MW in this alternative resulted in a $250 per kilowatt increase in construction costs, which calculates out to an increase of $75 million. (Ex. 129, p. 32.)

b. Drainage Avoidance Alternatives #1 and #2

The two alternatives developed by Staff to reduce impacts to Waters of the U.S. are also within the proposed project boundaries. Alternative #1 would have the same outer project boundaries as the proposed project, but it would prohibit installation of permanent structures within the ten primary drainages, thereby reducing the available acreage for development from 6,500 to 4,690, and reducing the generation capacity from 750 MW under the proposed project to 606 MW. (Ex. 129, Table 4, p. 28.) Rather than the 30,000 SunCatchers included in the proposed project, there would be approximately 25,000 of them installed. Alternative #2 would reduce the overall size of the project area by over 50 percent (from 6,500 acres to 3,153 acres). It would also reduce the generation capacity from 750 MW to 438 MW.

The two drainage avoidance alternatives were developed to lessen impacts to waters of the United States and are analyzed in each discipline's analysis in Section C of the SSA, Exs. 302, 307. Drainage Avoidance #1 Alternative would reduce impacts to waters of the United States from 177 acres for the proposed project to 38 acres. It would also reduce impacts to California Department of Fish and Game jurisdictional streambeds and would eliminate significant impacts

to biological resources (flat-tailed horned lizard movement corridors). Impacts to visual resources, water supply, and the de Anza Trail remain significant, as they are for the proposed Imperial Valley Solar project. (Ex. 302, p. B.2-145.)

Drainage Avoidance #2 Alternative would reduce impacts to federal and state jurisdictional streambeds, but would still have the following significant impacts: effects on waters of the United States and limited water supply; loss of flat-tailed horned lizards, habitat, and movement corridors; land use effects on the de Anza Trail; and visual impacts. The alternative would reduce the impact to water supply because it would require less water for construction; however, it would not reduce this impact to less than significant. (*Id*.)

As with the 300MW alternative, Drainage Avoidance Alternatives #1 and #2 are not feasible for economic reasons. Applicant's Marc van Patten, referring to Table 4 of the Army Corps of Engineers Draft 404(b)(1) Alternatives Analysis, found at page 28 of Exhibit 129, testified that $3,000 per kilowatt was the construction cost per kilowatt above which the project would become economically infeasible. Drainage Avoidance Alternatives #1 and #2 are referred to as Alternatives #5 and #6 on Table 4 of Exhibit 129. The cost per kilowatt to build these alternatives would be $3,050 and $3,200, respectively. The $50 per kilowatt increase results in a $60.6 million increase in construction costs—enough to make the project economically infeasible. The $250 per kilowatt increase results in a $109.5 million increase. (Ex. 129, pp. 35 - 38.) The FEIS reaches the same conclusions regarding infeasibility of these alternatives.

Staff, nonetheless, is recommending Drainage Alternative #1 (RT 7/26/10 84:18–20), although Staff has not independently determined whether or not it is economically feasible. (Ex. 302, P. B.2-2.) Substantial evidence, summarized above, supports our finding that neither of these alternatives is economically feasible.

5. Sites Eliminated from Consideration

The following alternative sites were evaluated and, based on the findings of those evaluations, were not carried forward for detailed evaluation in this SSA:

- 900 MW Alternative (original proposed project); eliminated due to greater impacts in nearly all respects than the proposed project;

- Alternative Site #1 (Site AS1); eliminated due to its having similar impacts to biological and cultural resources and greater impacts to soils and visual

resources compared with the proposed project, and infeasibility due to an already-pending application for ROW;

- Alternative Site #2 (Site AS2); eliminated because it would not substantially lessen the effects of the proposed project, and because of infeasibility due to an already-pending application for ROW;

- Alternative Site #3 (Site AS3); eliminated because it would not substantially lessen the effects of the proposed project, and because of infeasibility due to an already-pending application for ROW;

- Wind Zero Site (Ocotillo); eliminated because it already has a proposed use (wind farm) and is currently undergoing environmental review for that proposed Specific Plan, and is therefore unfeasible.

Staff provided a more detailed analysis and discussion of these alternative sites in the SSA. We agree with and adopt Staff's analysis. (Ex. 302, pp. B.2-97 to B.2-102.)

6. Other Generation Technology and Renewables Alternatives

The record shows that alternative solar technologies and alternative renewable technologies were also evaluated. A summary of the alternatives retained and eliminated in the Staff analysis can be found in the SSA at **Alternatives Table 1** (Ex. 302, pp. B.2-3 to B.2-6), as replicated below.

As compared with the proposed project, these technologies would not substantially change the severity of visual, biological resources and cultural resources impacts, although the land requirements vary among the technologies. Some of these alternatives would have other impacts, such as air quality and water consumption. (Ex. 302, pp. B.2-102 to B.2-138.)

**Alternatives Table 1**
**Summary of Alternatives Retained and Eliminated**

| Alternative | Rationale for Retention or Elimination |
|---|---|
| Alternatives Retained for CEQA and NEPA Analysis | |
| Proposed Project/Action<br>- 750 MW<br>- 6,500 acres<br>- 30,000 SunCatchers | Evaluated as the applicant's proposal. |

| Alternative | Rationale for Retention or Elimination |
|---|---|
| 300 MW Alternative<br>- 300 MW<br>- 2,600 acres (40% of proposed)<br>- 12,000 SunCatchers | Evaluated in the SSA because it would substantially reduce impacts of the Imperial Valley Solar Project and meet the purpose and need of the BLM's proposed action. |
| Drainage Avoidance #1 Alternative<br>- 632 MW<br>- 4,690 acres (72% of proposed)<br>- 25,000 SunCatchers | Evaluated in the SSA because it would substantially reduce impacts to waters of the U.S. and meet the purpose and need of the BLM's proposed action. |
| Drainage Avoidance #2 Alternative<br>- 423 MW<br>- 3,153 acres (49% of proposed)<br>- 10,240 SunCatchers | Evaluated in the SSA because it would substantially reduce impacts to waters of the U.S. and meet the purpose and need of the BLM's proposed action. |
| No Project/No Action Alternative | Required under CEQA and NEPA. Note that additional NEPA No Action Alternatives are described below under Land Use Plan Amendment Alternatives. |
| Land Use Plan Amendment Alternatives Evaluated Only under NEPA | |
| Authorize Imperial Valley Solar project through a CDCA Land Use Plan amendment | Action required under the CDCA Plan of 1980, as amended. |
| Authorize a reduced size project within the proposed project's boundaries through a CDCA Land Use Plan amendment (300 MW Alternative, Drainage Avoidance #1 or #2 Alternatives) | A smaller project reduces impacts; site location is an action for which an amendment to the CDCA Plan of 1980, as amended, is required. |
| Do not approve the ROW grant and do not amend the CDCA Land Use Plan of 1980, as amended. | The first No Action Alternative: deny the ROW application and does not amend the CDCA Land Use Plan of 1980. |
| Do not approve the ROW grant and amend the CDCA Land Use Plan of 1980, as amended, to make the area unavailable for future solar development. | The second No Action Alternative: deny the ROW application and amend the CDCA Land Use Plan of 1980 to make the site unavailable for any future solar development. |
| Do not approve the ROW grant and amend the CDCA Land Use Plan of 1980 to make the area available for future solar development. | The third No Action Alternative: deny the ROW application but amend the CDCA Land Use Plan of 1980 to make the site available for future solar development. |
| Site Alternatives Evaluated only under CEQA | |
| Mesquite Lake Alternative | Would substantially reduce impacts of the Imperial Valley Solar Project while meeting most project objectives. |
| Agricultural Lands Alternative | Would substantially reduce impacts of the Imperial Valley Solar Project while meeting most project objectives. |

| Alternative | Rationale for Retention or Elimination |
|---|---|
| South of Highway 98 Alternative | Would substantially reduce impacts of the Imperial Valley Solar Project while meeting most project objectives. |
| Alternatives Eliminated from Detailed Analysis | |
| Alternative Site #1 | Would not substantially reduce impacts of the Imperial Valley Solar Project; located in Department of Defense (DOD) "no fly" "no build" area therefore not a feasible alternative for the Stirling engine technology; pending right-of-way grant application for the site, therefore not considered a viable alternative. |
| Alternative Site #2 | Would not substantially reduce impacts of the Imperial Valley Solar Project; located in DOD "no fly" "no build" area therefore not a feasible alternative for the Stirling engine technology; pending right-of-way grant application for the site, therefore not considered a viable alternative. |
| Alternative Site #3 | Would not substantially reduce impacts of the Imperial Valley Solar Project; pending right-of-way grant application for the site, therefore not considered a viable alternative. |
| Wind Zero Site (Ocotillo) | Alternative site was eliminated as infeasible because of the pre-existing proposed use as a private military training facility. Currently undergoing environmental review. |
| Parabolic Trough Technology | Would not substantially reduce impacts of the Imperial Valley Solar Project. |
| Solar Power Tower Technology | Would not substantially reduce impacts of the Imperial Valley Solar Project. |
| Linear Fresnel Technology | Would reduce area required by about 40% but would not eliminate significant impacts of the Imperial Valley Solar Project. |
| Solar Photovoltaic Technology – Utility Scale | Would not substantially reduce impacts of the Imperial Valley Solar Project. |
| Distributed Solar Technology | While it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the limited numbers of existing facilities make it difficult to conclude with confidence that this much distributed solar will be available within the timeframe required for the Imperial Valley Solar project. Barriers exist related to interconnection with the electric distribution grid. Also, solar PV is one of the components of the renewable energy mix required to meet the California Renewable Portfolio Standard requirements, and additional technologies like solar thermal generation, would also be required. |
| Wind Energy | While there are substantial wind resources in western Imperial and eastern San Diego Counties, environmental impacts could also be significant so wind would not reduce impacts in comparison to the Imperial Valley Solar Project. Also, wind is one of the components of the renewable energy mix required to meet the California Renewable Portfolio Standard requirements, so additional technologies like solar thermal generation, would also be required. |

| Alternative | Rationale for Retention or Elimination |
|---|---|
| Geothermal Energy | Despite the encouragement provided by Renewable Portfolio Standards and ARRA funding, few new geothermal projects have been proposed in the Imperial Valley and no geothermal projects are included on the Renewable Energy Action Team list of projects requesting ARRA funds. Therefore, the development of 750 MW of new geothermal generation capacity within the timeframe required for the Imperial Valley Solar project is considered speculative. |
| Biomass Energy | Most biomass facilities produce only small amounts of electricity (in the range of 3 to 10 MW) and so could not meet the project objectives related to the California Renewable Portfolio Standard. In addition, between 75 and 250 facilities would be needed to achieve 750 MW of generation, creating substantial adverse impacts. |
| Tidal Energy | Tidal fence technology is commercially available in Europe. However, it has not been demonstrated and proven at the scale that would be required to replace the proposed project, particularly with Pacific tides. Therefore, it would not substantially reduce impacts of the Imperial Valley Solar Project. |
| Wave Energy | Unproven technology at the scale that would be required to replace the proposed project; it may also result in substantial adverse environmental impacts |
| Natural Gas | Would not attain the objective of generating renewable power meeting California's renewable energy needs |
| Coal | Would not attain the objective of generating renewable power meeting California's renewable energy needs and is not a feasible alternative in California |
| Alternative | Rationale for Retention or Elimination |
| Nuclear Energy | The permitting of new nuclear facilities in California is not currently allowable by law |
| Conservation and Demand-side Management | Conservation and demand-management alone are not sufficient to address all of California's energy needs, and would not provide the renewable energy required to meet the California Renewable Portfolio Standard requirements |
| Avoidance of Waters of the U.S. | Would not attain the objective of generating sufficient renewable power |

Intervenor Budlong submitted several exhibits showing the promise of distributed solar photovoltaic system technology with generation near the point of use. (Ex. 532, 541, 546.) This alternative technology was among those analyzed by the Staff as an alternative. (Ex. 302, pp. B.2-107 to B.2-111.) Rooftop PV systems and parking lot systems are a subset of these systems which exist in small areas throughout California. Larger distributed solar PV installations are becoming more common in California. Rooftop solar PV facilities would require extensive acreage, although it would minimize the need for undisturbed or vacant land. However, increased deployment of rooftop solar PV faces challenges in

manufacturing capacity, cost, and policy implementation. For rooftop solar PV to be a feasible alternative to the proposed project, there would have to be sufficient newly-installed panels to generate 750 MW of capacity. California currently has over 540 MW of distributed solar PV systems which cover over 40 million square feet. (Ex. 302, p. B.2-110.) Staff testimony presented analysis that, based on SCE's use of 600,000 square feet for 2 MW of energy, 225 million square feet (approximately 5,165 acres) would be required for 750 MW. (Ex. 302, pp. B. 2-110 to B.2-111.) While it will very likely be possible to achieve 750 MW of distributed solar energy over the coming years, the very limited numbers of existing manufacturing facilities lead us to conclude that it will not happen in time to meet the objectives of the Imperial Valley Solar project. As a result, we find that this generation technology is not a feasible alternative to the proposed project.

7. No Project/No Action Alternative (CEQA/NEPA)

The No Project Alternative under CEQA defines the scenario that would exist if the proposed project were not constructed. The CEQA Guidelines state that "the purpose of describing and analyzing a 'no project' alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project." (Cal. Code Regs., tit. 14 § 15126.6(i).) The No Project analysis here considers existing conditions and "what would be reasonably expected to occur in the foreseeable future if the project were not approved." (Cal. Code Regs, tit. 14 § 15126.6(e)(2).) (Ex. 302, p. B.2-16.)

If the No Project Alternative were selected, the construction and operational impacts of the project would not occur. There would be no grading of the site, no loss of resources or disturbance of desert habitat, and no installation of power generation and transmission equipment. The No Project Alternative would also eliminate contributions to cumulative impacts on a number of resources and environmental parameters in Imperial County and in the Colorado Desert as a whole. (Ex. 302, p. B.2-17.)

In the absence of the Imperial Valley Solar Project, however, other power plants, both renewable and non-renewable, may have to be constructed to serve the demand for electricity and to meet the RPS. The impacts of these other facilities may be similar to those of the proposed project because other renewable generation technologies require large amounts of land like that required for the project. The No Project/No Action Alternative may also lead to siting of other

non-solar renewable technologies to help achieve the California RPS. (Ex. 302, p. B.2-17.)

Additionally, if the No Project/No Action Alternative were chosen, additional gas-fired power plants may be built, or existing gas-fired plants may operate longer. If the proposed project were not built, California would not benefit from the reduction in greenhouse gases that the Imperial Valley Solar facility would provide, and California utilities would not receive the 750 MW contribution to its renewable state-mandated energy portfolio. (Ex. 302, p. B.2-17.)

Under NEPA, the No Action Alternative is used as a benchmark of existing conditions by which the public and decision makers can compare the environmental effects of the proposed action and the alternatives. Like the No Project Alternative described above, under the No Action Alternative, the impacts of the Imperial Valley Solar project would not occur.

BLM's alternatives related to the No Action Alternative and the Plan amendment are the following:

- **No Action on project but amend the CDCA plan to make the area available for future solar development.** The Imperial Valley Solar project is not approved (project denied), and no ROW grant is issued to SES, but the CDCA plan is amended to make the project area available for large scale renewable energy development under a future project.
- **No Action on project and amend the CDCA plan to make the area unavailable for future solar development.** The Imperial Valley Solar project is not approved (project denied), and no ROW grant is issued to SES, and the CDCA plan is amended to make the project area unavailable for large scale renewable energy development.
- **No Action on project application and on land use plan amendment**. The Imperial Valley Solar project is not approved (denied), no ROW grant is issued, and no CDCA Plan amendment is approved. There is no consideration of information that would allow approval of a CDCA Plan amendment that would make the land available for large scale energy development in the future.

Because these alternatives would result in the Imperial Valley Solar Project not being approved or built within the established time frames, we find that these alternatives are not preferable for the same reasons as the No Project Alternative under CEQA, discussed above.

8. Least Environmentally Damaging Practicable Alternative (LEDPA)/Agency Preferred Alternative/709MW

Working with the Army Corps of Engineers (Corps), the Applicant developed this alternative, designed to achieve most of the objectives of the Drainage Avoidance alternatives discussed above and also be feasible. The main goal of Staff's Drainage Avoidance alternatives was to reduce or eliminate the impacts of SunCatcher pedestals on washes at the site. The proposed project would cause impacts to 177 acres of Waters of the United States (WUS). Staff's alternatives would reduce the impacts to WUS to 38 and 31.9 acres, respectively. (Ex. 129, p. 28, Table 4.) The 709 MW alternative was designed to avoid the highest flows, thereby reducing impacts to WUS, but still be feasible. The 709 MW alternative achieves both goals, impacting 38.2 acres of WUS. The impacted acreage for this alternative is virtually the same as Drainage Avoidance Alternative #1 (Alternative #5 on Exhibit 129, p. 28, Table 4). Furthermore, it is economically and otherwise feasible, coming in at $3,000 per kilowatt to build, unlike Staff-recommended Drainage Avoidance Alternative #1.

In the FEIS, issued July 28, 2010, the BLM adopted this alternative as its Agency Preferred Alternative. We have taken official notice of the FEIS, and we will approve this alternative as presenting the best balance of maximization of generation at the site, minimization of impacts to WUS, and economic feasibility.

Although the staff did not specifically analyze this alternative, Staff did analyze alternatives at the same site which are larger and smaller than the 709 MW alternative. For virtually all impacts, staff concluded that the differences between the proposed project and Drainage Avoidance Alternative #1 (which has fewer SunCatchers than the 709 MW Alternative but has the same outer boundaries) do not have an effect on staff's determinations of the significance or non-significance of the impact. For some impacts, such as visual resources and land use, this is because the perimeter of the project will not change. (RT 7/26/10 87:10 – 88:22.) Neither will the perimeter change with the 709 MW alternative. For other impacts, there are no material differences among the alternatives discussed in this subsection.[1] Moreover, the FEIS, of which we have taken official notice, thoroughly analyses the 709 MW alternative.

Staff and CURE claim that the Commission cannot adopt the 709MW alternative because staff has not analyzed it. (Staff's Opening Brief, pp. 2 – 5; CURE Opening Brief, pp. 20 – 27.) We beg to differ. Staff analyzed alternatives at the

[1] Applicant's Reply Brief, dated August 18, 2010, contains a thorough explanation of how the impact differences among these alternatives are immaterial, at pages 2 – 12.

same site. Some of those are larger and some are smaller than the 709 MW Alternative, but all are within the proposed project boundary. It is not necessary for Staff to have analyzed the precise alternative the Commission ultimately chooses. We have been shown no authority for the proposition that we must choose only from those items on Staff's menu. The purpose of Staff's analysis of alternatives is to inform the Commission and even more important, the public, of possible ways to avoid some or all of the proposed project's impacts. The range of alternatives analyzed does just that.

In *Dusek v. Anaheim Redevelopment Agency*, 173 Cal. App. 3d 1029 (1985), defendant prepared an EIR for a project described as "the acquisition of properties within Parcel 10, the demolition of all existing improvements thereon, and the construction of up to 350,000 square feet of new office and retail uses." The "existing improvements" on Parcel 10 consisted of the Pickwick, a hotel listed on the National Register of Historic places which had become dilapidated. Among the alternatives analyzed was construction of 175,000 square feet of commercial floor space *and* demolition of the historic hotel. Plaintiff challenged defendant's decision to approve only demolition of the hotel, but not the new construction portion, of the alternatives. The court noted that the fundamental purpose of CEQA review and an EIR is to "depict the project's unavoidable effects, mitigation measures and alternatives, the [environmental impact] report furnishes the decision-maker information enabling it to balance the project's benefit against environmental cost. [Citations.] The report should function as an environmental 'alarm bell.' [Citation.]" (citing *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192, 139 Cal.Rptr. 396. (173 Cal.App. 3d at 1036.) The court went on to point out that the "Retention or demolition of the Pickwick was the focal point of the EIR. The adverse environmental impact of demolition was expressly recognized and considered and the public input directly concerned that question." (*Id*. at 1041.)

In this case the focal point of our decision is whether or not to permit the construction of a solar power project covering some 6000 acres of desert land on the site proposed by Applicant. The "alarm bell" has been sounded loud and clear through the many public hearings we have conducted and the materials docketed for public review during the nearly two years this AFC has been pending at the Commission. Our decision to approve the 709 MW alternative, which, like the Pickwick, comprises a portion of the alternatives presented in the SSA, is entirely consistent with the CEQA objective.

The Dusek court went on to state: “CEQA does not handcuff decision-makers in the manner proposed by the Duseks. The action approved need not be a blanket approval of the entire project initially described in the EIR. If that were the case, the informational value of the document would be sacrificed. Decision-makers should have the flexibility to implement that portion of a project which satisfies their environmental concerns.” (173 Cal.App. 3d at 1033.)

We wholeheartedly agree. The chosen alternative must be within the *range* of alternatives analyzed, but it need not be precisely one of those alternatives. The 709MW alternative obviously is within that range, and Staff’s testimony confirms this. Staff stated: “The Applicant has submitted to the Army Corps of Engineers a revised drainage avoidance alternative that it considers practicable that avoids some impacts to jurisdictional waters. This alternative is being considered by the Army Corps and *would be within the range of alternatives considered by the Energy Commission Staff* in the SSA.” (emphasis added) (Ex. 302, pp. B.2-145 to B.2-146.)

In addition, we can (and do) approve the 709 MW alternative not only as an “alternative,” but as a feasible mitigation measure (and thus as a Condition of Certification) that will reduce or avoid the impacts of the project as originally proposed.

The CEQA Guidelines state that it is not necessary to evaluate every conceivable alternative, but rather a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. “There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.” (CEQA Guidelines, section 15126.6, subd(a).)

This Decision reflects the Energy Commission’s consideration of a reasonable range of alternatives and its rationale for rejecting each one. An applicant-proposed alternative, the 709 MW alternative, combines features of those alternatives to achieve a balance that the others, standing alone, could not. Each aspect of the 709 MW alternative has been analyzed by Staff in the context of its consideration of other alternatives that we have rejected for the reasons stated above. Indeed, Staff’s testimony states that it is within the range of alternatives considered by the Energy Commission Staff in the SSA. (Ex. 302, p. B.2-2.)

Finally, we are mindful of the fact that the project is on BLM land and the BLM has chosen the 709MW alternative as the Agency Preferred Alternative. While

we are not bound by the BLM decision, it will ultimately be necessary for this Decision and the FEIS to be in harmony. Our selection of the 709 MW alternative achieves this goal as well in addition to all of the other goals it achieves.

**FINDINGS OF FACT**

Based upon the evidence, including that presented on each subject area described in other portions of this Decision, we find and conclude as follows:

1. Of the feasible alternatives analyzed, only the preliminary LEDPA/Agency Preferred Alternative/709MW Alternative would reduce the proposed projects impacts while meeting the project objectives.
2. The BLM has selected the preliminary LEDPA as the Agency Preferred Alternative.
3. The Agency Preferred Alternative significantly reduces the proposed project's impacts to Waters of the United States and its other impacts are either less than or not materially different from the impacts of the proposed project.
4. The Agency Preferred Alternative is feasible.
5. The Applicant has adopted the Agency Preferred Alternative.
6. The Agency Preferred Alternative is within the range of alternatives analyzed by Staff.
7. None of the site location alternatives to the project offer a superior alternative as analyzed under both NEPA and CEQA.
8. The alternative utility scale solar generation technologies analyzed were reasonably feasible alternatives but would not substantially change the visual, biological and cultural resources impacts imposed by the proposed project.
9. Rooftop solar PV facilities would require extensive acreage although it would minimize the need for undisturbed or vacant land. However, increased deployment of rooftop solar PV at this time, faces challenges in manufacturing capacity, cost, and timeliness.
10. Other generation technologies (wind, geothermal, biomass, tidal, wave, natural gas, and nuclear) were also examined as possible alternatives to the proposed project. These technologies would either be infeasible at the scale of the proposed project, or would not eliminate substantial adverse impacts caused by the proposed project without creating their own substantial adverse impacts in other locations.

11. Conservation and demand side management programs would likely not meet the state's growing electricity needs that could be served by the proposed project. In addition, these programs would not provide the renewable energy required to meet the California Renewable Portfolio Standard (RPS) requirements.

12. The "No Project/No Action" alternative is not a reasonable alternative or a feasible alternative to the proposed project. This alternative would likely delay development of renewable resources, shift renewable development to other similar areas, and would lead to new development and increased operations of power plants that use non-renewable technologies.

## CONCLUSIONS OF LAW

1. The evidentiary record contains an adequate review of alternative generation technology, including that of rooftop photovoltaic distributed generation.

2. The evidentiary record contains an adequate review of the "No Project/No Action" alternative.

3. If all Conditions of Certification contained in this Decision are implemented, any adverse environmental impacts related to construction and operation of the Imperial Valley Solar Project will be mitigated to the greatest extent feasible.

4. The record contains an acceptable analysis of a reasonable range of site location and generation alternatives to the project as proposed.

5. The record contains a sufficient analysis of Alternatives and complies with the requirements of the California Environmental Quality Act, the Warren-Alquist Act, and the National Environmental Policy Act.

## CONDITION OF CERTIFICATION

**ALT-1**. The Imperial Valley Solar Project shall be designed, constructed and operated in accord with the alternative referred to as the preliminary LEDPA, the Agency Preferred Alternative, and the 709MW alternative.

# III. COMPLIANCE AND CLOSURE

Public Resources Code section 25532 requires the Commission to establish a post-Certification monitoring system. The purpose of this requirement is to assure that certified facilities are constructed and operated in compliance with applicable laws, ordinances, regulations, standards, as well as the specific Conditions of Certification adopted as part of this Decision.

## SUMMARY OF THE EVIDENCE

The evidence of record contains a full explanation of the purposes and intent of the Compliance Plan (Plan). The Plan is the administrative mechanism used to ensure that the Imperial Valley Solar Project (IVSP) is constructed and operated according to the Conditions of Certification. It essentially describes the respective duties and expectations of the Project Owner and the Staff Compliance Project Manager (CPM) in implementing the design, construction, and operation criteria set forth in this Decision.

Compliance with the Conditions of Certification contained in this Decision is verified through mechanisms such as periodic reports and site visits. The Plan also contains requirements governing the planned closure, as well as the unexpected temporary and unexpected permanent closure of the Project.

The Compliance Plan will also be integrated with a U.S. Bureau of Land Management (BLM) Compliance Monitoring Plan (hereafter referred to as the Compliance Plan) to assure compliance with the terms and conditions of any approved Right-of-Way (ROW) grant including the approved Plan of Development (POD).

Additionally, the Conditions of Certification referred to herein serve the purpose of both the Energy Commission's Conditions of Certification for purposes of the California Environmental Quality Act (CEQA) and BLM's Mitigation Measures for purposes of the National Environmental Policy Act (NEPA).

The Compliance Plan is composed of two broad elements. The first element establishes the "General Conditions," which:

- set forth the duties and responsibilities of BLM's Authorized Officer, the Compliance Project Manager (CPM), the project owner, delegate agencies, and others;

- set forth the requirements for handling confidential records and maintaining the compliance record;
- state procedures for settling disputes and making post-certification changes;
- state procedures for requesting and approving ROW Grant or POD changes;
- state the requirements for periodic compliance reports and other administrative procedures that are necessary to verify the compliance status for all BLM and Energy Commission approved conditions of certification/mitigation measures;
- establish requirements for modifications or amendments to facility Closure, Revegetation, and Restoration Plans; and
- specify conditions of certification for each technical area containing the measures required to mitigate any and all potential adverse project impacts associated with construction, operation and closure below a level of significance. Each specific condition of certification also includes a verification provision that describes the method of assuring that the condition has been satisfied.

The second general element of the Plan contains the specific "Conditions of Certification." These are found following the summary and discussion of each individual topic area in this Decision. The individual Conditions contain the measures required to mitigate potentially adverse Project impacts associated with construction, operation, and closure to levels of insignificance. Each Condition also includes a verification provision describing the method of assuring that the Condition has been satisfied. The contents of the Compliance Plan are intended to be implemented in conjunction with any additional requirements contained in the individual Conditions of Certification.

Conditions of Certification referred to herein serve the purpose of both the Energy Commission's Conditions of Certification for purposes of the California Environmental Quality Act (CEQA) and BLM's Mitigation Measures for purposes of the National Environmental Policy Act (NEPA).

## FINDINGS OF FACT

The evidence of record establishes:

1. Requirements contained in the Compliance Plan and in the specific Conditions of Certification are intended to be implemented in conjunction with one another.

2. We adopt the following Compliance Plan as part of this Decision.

## CONCLUSIONS OF LAW

1. The compliance and monitoring provisions incorporated as a part of this Decision satisfy the requirements of Public Resources Code section 25532.

2. The Compliance Plan and the specific Conditions of Certification contained in this Decision assure that the Imperial Valley Solar Project will be designed, constructed, operated, and closed in conformity with applicable law.

# GENERAL CONDITIONS OF CERTIFICATION

## DEFINITIONS

The following terms and definitions are used to establish when Conditions of Certification are implemented.

### BLM AUTHORIZED OFFICER:

The BLM Authorized Officer for the Project is the BLM Needles Field Manager or his designated Compliance Inspector that is responsible for oversight and inspection of all construction and operational related activities on public land.

### PRE-CONSTRUCTION SITE MOBILIZATION

Site mobilization is limited preconstruction activities at the site to allow for the installation of fencing, construction trailers, construction trailer utilities, and construction trailer parking at the site. Limited ground disturbance, grading, and trenching associated with the above mentioned pre-construction activities is considered part of site mobilization. Walking, driving or parking a passenger vehicle, pickup truck and light vehicles is allowable during site mobilization.

### CONSTRUCTION

Onsite work to install permanent equipment or structures for any facility.

#### Ground Disturbance

Construction-related ground disturbance refers to activities that result in the removal of top soil or vegetation at the site beyond site mobilization needs, and for access roads and linear facilities.

#### Grading, Boring, and Trenching

Construction-related grading, boring, and trenching refers to activities that result in subsurface soil work at the site and for access roads and linear facilities, e.g., alteration of the topographical features such as leveling, removal of hills or high spots, moving of soil from one area to another, and removal of soil.

Notwithstanding the definitions of ground disturbance, grading, boring and trenching above, construction does not include the following:

1. the installation of environmental monitoring equipment;
2. a soil or geological investigation;
3. a topographical survey;
4. any other study or investigation to determine the environmental acceptability or feasibility of the use of the site for any particular facility; and
5. any work to provide access to the site for any of the purposes specified in "Construction" 1, 2, 3, or 4 above.

## START OF COMMERCIAL OPERATION

For compliance monitoring purposes, “commercial operation” begins after the completion of start-up and commissioning, when each of the power plants has reached reliable steady-state production of electricity at the rated capacity. At the start of commercial operation, plant control is usually transferred from the construction manager to the plant operations manager.

## BLM’S AUTHORIZED OFFICER AND COMPLIANCE PROJECT MANAGER RESPONSIBILITIES

BLM’s Authorized Officer (AO) and the Compliance Project Manager (CPM) shall oversee the compliance monitoring and is responsible for:

1. Ensuring that the design, construction, operation, and closure of the project facilities are in compliance with the terms and conditions of BLM’s ROW Grant and the Energy Commission Decision
2. Resolving complaints
3. Processing post-certification changes to the conditions of certification, project description (petition to amend), and ownership or operational control (petition for change of ownership) (See instructions for filing petitions)
4. Documenting and tracking compliance filings
5. Ensuring that compliance files are maintained and accessible

BLM’s AO is the contact person for BLM and will consult with appropriate responsible agencies, Energy Commission, and Energy Commission staff when handling disputes, complaints, and amendments. The CPM is the contact person for the Energy Commission and will consult with appropriate responsible agencies, BLM, Energy Commission, and Energy Commission staff when handling disputes, complaints, and amendments.

All project compliance submittals are submitted to BLM’s AO and the CPM for processing. Where a submittal required by a condition of certification requires BLM’s AO and/or CPM approval, the approval will involve all appropriate BLM personnel, Energy Commission staff and management. All submittals must include searchable electronic versions (pdf or word files).

## CHIEF BUILDING OFFICIAL RESPONSIBILITIES

The Chief Building Official (CBO) shall serve as BLM's and the Energy Commission's delegate to assure the project is designed and constructed in accordance with BLM's Right-of-Way Grant, the Energy Commission's Decision including Conditions of Certification, California Building Standards Code, local building codes and applicable laws, ordinances, regulations and standards to ensure health and safety. The CBO is typically made-up of a team of specialists covering civil, structural, mechanical and electrical disciplines whose duties include the following:

1. Performing design review and plan checks of all drawings, specifications and procedures;
2. Conducting construction inspection;
3. Functioning as BLM's and the Energy Commission's delegate including reporting noncompliance issues or violations to the BLM Authorized Officer for action and taking any action allowed under the California Code of Regulations, including issuing a Stop Work Order, to ensure compliance;
4. Exercising access as needed to all project owner construction records, construction and inspection procedures, test equipment and test results; and
5. Providing weekly reports on the status of construction to BLM's Authorized Officer and the CPM.

## PRE-CONSTRUCTION AND PRE-OPERATION COMPLIANCE MEETING

BLM's AO and the CPM shall schedule pre-construction and pre-operation compliance meetings prior to the projected start-dates of construction, plant operation, or both. The purpose of these meetings is to assemble BLM's, the Energy Commission's and project owner's technical staff and construction contractor to review the status of all pre-construction or pre-operation requirements, contained in BLM's and the Energy Commission's conditions of certification. This is to confirm that all applicable conditions of certification have been met, or if they have not been met, to ensure that the proper action is taken. In addition, these meetings ensure, to the extent possible, that BLM and Energy Commission conditions will not delay the construction and operation of the plant due to oversight and to preclude any last minute, unforeseen issues from arising. Pre-construction meetings held during the certification process must be publicly noticed unless they are confined to administrative issues and processes.

## BLM AND ENERGY COMMISSION RECORD

BLM and the Energy Commission shall maintain the following documents and information as a public record, in either the Energy Commission's Compliance file or Dockets file, for the life of the project (or other period as required):

- All documents demonstrating compliance with any legal requirements relating to the construction and operation of the facility;
- All monthly and annual compliance reports filed by the project owner;
- All complaints of noncompliance filed with BLM and the Energy Commission; and
- All petitions/requests for project or condition of certification changes and the resulting BLM, Energy Commission staff or Energy Commission action.

## PROJECT OWNER RESPONSIBILITIES

The project owner is responsible for ensuring that the compliance conditions of certification and all other conditions of certification that appear in BLM's ROW Grant and the Energy Commission Decision are satisfied. The compliance conditions regarding post-certification changes specify measures that the project owner must take when requesting changes in the project design, conditions of certification, or ownership.

Failure to comply with any of the conditions of certification or the compliance conditions may result in reopening of the case and revocation of the Energy Commission certification; an administrative fine; or other action as appropriate. A summary of the Compliance Conditions of Certification is included as Compliance Table 1 at the conclusion of this section. The BLM ROW grant holder will comply with the terms, conditions, and special stipulations of the ROW grant. Failure to comply with applicable laws or regulations or any of the terms and conditions of a BLM ROW grant may result in the suspension or termination of the ROW grant (43 CFR 2807.17). Prior to suspending or terminating a ROW grant, BLM will provide written notice to the holder stating it intends to suspend or terminate and will provide reasonable opportunity to correct any noncompliance.

## COMPLIANCE MITIGATION MEASURES/CONDITIONS OF CERTIFICATION

### UNRESTRICTED ACCESS (COMPLIANCE-1)

The CPM, responsible Energy Commission staff, and delegated agencies or consultants shall be guaranteed and granted unrestricted access to the power plant site, related facilities, project-related staff, and the records maintained on-site for the purpose of conducting audits, surveys, inspections, or general site visits. Although the CPM will normally schedule site visits on dates and times agreeable to the project owner, the CPM reserves the right to make unannounced visits at any time.

### COMPLIANCE RECORD (COMPLIANCE-2)

The project owner shall maintain project files on-site or at an alternative site approved by the CPM for the life of the project, unless a lesser period of time is specified by the conditions of certification. The files shall contain copies of all “as-built” drawings, documents submitted as verification for conditions, and other project-related documents. Energy Commission staff and delegate agencies shall, upon request to the project owner, be given unrestricted access to the files maintained pursuant to this condition.

### COMPLIANCE VERIFICATION SUBMITTALS (COMPLIANCE-3)

Each condition of certification is followed by a means of verification. The verification describes the Energy Commission’s procedure(s) to ensure post-certification compliance with adopted conditions. The verification procedures, unlike the conditions, may be modified as necessary by the CPM.

Verification of compliance with the conditions of certification can be accomplished by the following:

1. monthly and/or annual compliance reports, filed by the project owner or authorized agent, reporting on work done and providing pertinent documentation, as required by the specific conditions of certification;

2. appropriate letters from delegate agencies verifying compliance;

3. energy Commission staff audits of project records; and/or

4. energy Commission staff inspections of work, or other evidence that the requirements are satisfied.

Verification lead times associated with start of construction may require the project owner to file submittals during the certification process, particularly if construction is planned to commence shortly after certification.

A cover letter from the project owner or authorized agent is required for all compliance submittals and correspondence pertaining to compliance matters. **The cover letter subject line shall identify the project by AFC number, the appropriate condition(s) of certification by condition number(s), and a brief description of the subject of the submittal**. The project owner shall also identify those submittals **not** required by a condition of certification with a statement such as: "This submittal is for information only and is not required by a specific condition of certification." When submitting supplementary or corrected information, the project owner shall reference the date of the previous submittal and CEC submittal number.

The project owner is responsible for the delivery and content of all verification submittals to the CPM, whether such condition was satisfied by work performed by the project owner or an agent of the project owner.

All hardcopy submittals shall be addressed as follows:

**Mary Dyas**
**Compliance Project Manager**
**08-AFC-5C**
**California Energy Commission**
**1516 Ninth Street (MS-2000)**
**Sacramento, CA 95814**

Those submittals shall be accompanied by a searchable electronic copy, on a CD or by e-mail, as agreed upon by the CPM.

If the project owner desires Energy Commission staff action by a specific date, that request shall be made in the submittal cover letter and shall include a detailed explanation of the effects on the project if that date is not met.

## PRE-CONSTRUCTION MATRIX AND TASKS PRIOR TO START OF CONSTRUCTION (COMPLIANCE-4)

Prior to commencing construction, a compliance matrix addressing only those conditions that must be fulfilled before the start of construction shall be submitted by the project owner to the CPM. This matrix will be included with the project owner's first compliance submittal or prior to the first pre-construction meeting, whichever comes first. It will be submitted in the same format as the compliance matrix described below.

Construction shall not commence until the pre-construction matrix is submitted, all preconstruction conditions have been complied with, and the CPM has issued a letter to

the project owner authorizing construction. Various lead times for submittal of compliance verification documents to the CPM for conditions of certification are established to allow sufficient staff time to review and comment and, if necessary, allow the project owner to revise the submittal in a timely manner. This will ensure that project construction may proceed according to schedule.

Failure to submit compliance documents within the specified lead-time may result in delays in authorization to commence various stages of project development.

If the project owner anticipates commencing project construction as soon as the project is certified, it may be necessary for the project owner to file compliance submittals prior to project certification. Compliance submittals should be completed in advance where the necessary lead time for a required compliance event extends beyond the date anticipated for start of construction. The project owner must understand that the submittal of compliance documents prior to project certification is at the owner's own risk. Any approval by Energy Commission staff is subject to change, based upon the Commission Decision.

**Compliance Reporting**

There are two different compliance reports that the project owner must submit to assist the CPM in tracking activities and monitoring compliance with the terms and conditions of the Energy Commission Decision. During construction, the project owner or authorized agent will submit Monthly Compliance Reports. During operation, an Annual Compliance Report must be submitted. These reports, and the requirement for an accompanying compliance matrix, are described below. The majority of the conditions of certification require that compliance submittals be submitted to the CPM in the monthly or annual compliance reports.

**COMPLIANCE MATRIX (COMPLIANCE-5)**

A compliance matrix shall be submitted by the project owner to the CPM along with each monthly and annual compliance report. The compliance matrix is intended to provide the CPM with the current status of all conditions of certification in a spreadsheet format. The compliance matrix must identify:

1. the technical area;

2. the condition number;

3. a brief description of the verification action or submittal required by the condition;

4. the date the submittal is required (e.g., 60 days prior to construction, after final inspection, etc.);

5. the expected or actual submittal date;

6. the date a submittal or action was approved by the Chief Building Official (CBO), CPM, or delegate agency, if applicable;

7. the compliance status of each condition, e.g., “not started,” “in progress” or “completed” (include the date); and

8. if the condition was amended, the date of the amendment.

Satisfied conditions shall be placed at the end of the matrix.

**MONTHLY COMPLIANCE REPORT (COMPLIANCE-6)**

The first Monthly Compliance Report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by the CPM. The first Monthly Compliance Report shall include the AFC number and an initial list of dates for each of the events identified on the Key Events List found at the end of this section of the Decision.

During pre-construction and construction of the project, the project owner or authorized agent shall submit an original and an electronic searchable version of the Monthly Compliance Report within 10 working days after the end of each reporting month. Monthly Compliance Reports shall be clearly identified for the month being reported. The reports shall contain, at a minimum:

1. a summary of the current project construction status, a revised/updated schedule if there are significant delays, and an explanation of any significant changes to the schedule;

2. documents required by specific conditions to be submitted along with the Monthly Compliance Report. Each of these items must be identified in the transmittal letter, as well as the conditions they satisfy and submitted as attachments to the Monthly Compliance Report;

3. an initial, and thereafter updated, compliance matrix showing the status of all conditions of certification;

4. a list of conditions that have been satisfied during the reporting period, and a description or reference to the actions that satisfied the condition;

5. a list of any submittal deadlines that were missed, accompanied by an explanation and an estimate of when the information will be provided;

6. a cumulative listing of any approved changes to conditions of certification;

7. a listing of any filings submitted to, or permits issued by, other governmental agencies during the month;

8. a projection of project compliance activities scheduled during the next two months. The project owner shall notify the CPM as soon as any changes are made to the project construction schedule that would affect compliance with conditions of certification;

9. a listing of the month’s additions to the on-site compliance file; and

10. a listing of complaints, notices of violation, official warnings, and citations received during the month, a description of the resolution of the resolved actions, and the status of any unresolved actions.

All sections, exhibits, or addendums shall be separated by tabbed dividers or as acceptable by the CPM.

**ANNUAL COMPLIANCE REPORT (COMPLIANCE-7)**

After construction is complete, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to the CPM each year at a date agreed to by the CPM. Annual Compliance Reports shall be submitted over the life of the project, unless otherwise specified by the CPM. Each Annual Compliance Report shall include the AFC number, identify the reporting period, and shall contain the following:

1. an updated compliance matrix showing the status of all conditions of certification (fully satisfied conditions do not need to be included in the matrix after they have been reported as completed);

2. a summary of the current project operating status and an explanation of any significant changes to facility operations during the year;

3. documents required by specific conditions to be submitted along with the Annual Compliance Report. Each of these items must be identified in the transmittal letter with the condition it satisfies, and submitted as attachments to the Annual Compliance Report;

4. a cumulative listing of all post-certification changes approved by the Energy Commission or cleared by the CPM;

5. an explanation for any submittal deadlines that were missed, accompanied by an estimate of when the information will be provided;

6. a listing of filings submitted to, or permits issued by, other governmental agencies during the year;

7. a projection of project compliance activities scheduled during the next year;

8. a listing of the year's additions to the on-site compliance file;

9. an evaluation of the on-site contingency plan for unplanned facility closure, including any suggestions necessary for bringing the plan up to date (see Compliance Conditions for Facility Closure addressed later in this section); and

10. a listing of complaints, notices of violation, official warnings, and citations received during the year, a description of the resolution of any resolved matters, and the status of any unresolved matters.

## CONFIDENTIAL INFORMATION (COMPLIANCE-8)

Any information that the project owner deems confidential shall be submitted to the Energy Commission's Executive Director with an application for confidentiality pursuant to Title 20, California Code of Regulations, section 2505(a). Any information that is determined to be confidential shall be kept confidential as provided for in Title 20, California Code of Regulations, section 2501, et. seq.

## REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS (COMPLIANCE-9)

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints, or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with a date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to the CPM who will post it on the Energy Commission's web page at http://www.energy.ca.gov/sitingcases/power_plants_contacts.html.

Any changes to the telephone number shall be submitted immediately to the CPM, who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE C**onditions of Certification. All other complaints shall be recorded on the complaint form (Attachment A).

## ANNUAL ENERGY FACILITY COMPLIANCE FEE (COMPLIANCE-10)

Pursuant to the provisions of Section 25806(b) of the Public Resources Code, the project owner is required to pay an annual compliance fee, which is adjusted annually. Current Compliance fee information is available on the Energy Commission's website http://www.energy.ca.gov/siting/filing_fees.html. You may also contact the CPM for the current fee information. The initial payment is due on the date the Energy Commission adopts the final decision. All subsequent payments are due by July 1 of each year in which the facility retains its certification. The payment instrument shall be made payable to the California Energy Commission and mailed to: Accounting Office MS-02, California Energy Commission, 1516 9th St., Sacramento, CA 95814.

## REPORTING OF COMPLAINTS, NOTICES, AND CITATIONS (COMPLIANCE-11)

Prior to the start of construction, the project owner must send a letter to property owners living within one mile of the project notifying them of a telephone number to contact project representatives with questions, complaints or concerns. If the telephone is not staffed 24 hours per day, it shall include automatic answering with date and time stamp recording. All recorded complaints shall be responded to within 24 hours. The telephone

number shall be posted at the project site and made easily visible to passersby during construction and operation. The telephone number shall be provided to BLM's AO and the CPM who will post it on the Energy Commission's web page at:

http://www.energy.ca.gov/sitingcases/power_plants_contacts.html.

Any changes to the telephone number shall be submitted immediately to BLM's AO and the CPM, who will update the web page.

In addition to the monthly and annual compliance reporting requirements described above, the project owner shall report and provide copies to BLM's AO and the CPM of all complaint forms, including noise and lighting complaints, notices of violation, notices of fines, official warnings, and citations, within 10 days of receipt. Complaints shall be logged and numbered. Noise complaints shall be recorded on the form provided in the **NOISE** conditions of certification. All other complaints shall be recorded on the complaint form (Attachment A).

## FACILITY CLOSURE

At some point in the future, the project will cease operation and close down. At that time, it will be necessary to implement the Closure, Revegetation and Restoration Plan to ensure that the closure occurs in such a way that public health and safety and the environment are protected from adverse impacts. Although the project setting for this project does not appear, at this time, to present any special or unusual closure problems, it is impossible to foresee what the situation will be in 30 years or more when the project ceases operation. Therefore, provisions must be made that provide the flexibility to deal with the specific situation and project setting that exist at the time of closure. Laws, Ordinances, Regulations and Standards (LORS) pertaining to facility closure are identified in the sections dealing with each technical area. Facility closure will be consistent with LORS in effect at the time of closure. Closure would be conducted in accordance with Condition of Certification **BIO-14** that requires the project owner to develop and implement a Closure, Revegetation and Rehabilitation Plan.

There are at least three circumstances in which a facility closure can take place: planned closure, unplanned temporary closure and unplanned permanent closure.

### CLOSURE DEFINITIONS

#### Planned Closure

A planned closure occurs when the facility is closed in an anticipated, orderly manner, at the end of its useful economic or mechanical life, or due to gradual obsolescence.

#### Unplanned Temporary Closure

An unplanned temporary closure occurs when the facility is closed suddenly and/or unexpectedly, on a short-term basis, due to unforeseen circumstances such as a natural disaster or an emergency. Short-term is defined as cessation of construction activities or operations of a power plant for a period less than 6-months long. Cessation

of construction of operations for a period longer than 6 months in considered a permanent closure.

**Unplanned Permanent Closure**

An unplanned permanent closure occurs if the project owner closes the facility suddenly and/or unexpectedly, on a permanent basis. This includes unplanned closure where the owner implements the on-site contingency plan. It can also include unplanned closure where the project owner fails to implement the contingency plan, and the project is essentially abandoned.

## COMPLIANCE CONDITIONS FOR FACILITY CLOSURE

### PLANNED CLOSURE (COMPLIANCE-11)

In order to ensure that a planned facility closure does not create adverse impacts, a closure process that provides for careful consideration of available options and applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of closure, will be undertaken. To ensure adequate review of a planned project closure, the project owner shall submit a revision or update to the approved Closure, Revegetation and Rehabilitation Plan to BLM and the Energy Commission for review and approval at least 12 months (or other period of time agreed to by BLM's AO and the CPM) prior to commencement of closure activities. The project owner shall file 50 copies and 50 CDs with the Energy Commission and 10 copies and 10 CDs with BLM (or other number of copies agreed upon by BLM's AO and the CPM) of a proposed facility closure plan/Closure, Revegetation and Rehabilitation Plan.

The plan shall:

1. identify and discuss any impacts and mitigation to address significant adverse impacts associated with proposed closure activities and to address facilities, equipment, or other project related materials that must be removed from the site;
2. identify a schedule of activities for closure of the power plant site, transmission line corridor, and all other appurtenant facilities constructed as part of the project;
3. address conformance of the plan with all applicable laws, ordinances, regulations, standards, and local/regional plans in existence at the time of facility closure, and applicable conditions of certification; and.
4. Address any changes to the site revegetation, rehabilitation, monitoring and long-term maintenance specified in the existing plan that are needed for site revegetation and rehabilitation to be successful.

Prior to submittal of an amended or revised Closure, Revegetation and Restoration Plan, a meeting shall be held between the project owner, BLM's AO and the Energy Commission CPM for the purpose of discussing the specific contents of the plan.

In the event that there are significant issues associated with the proposed facility Closure, Revegetation and Restoration plan's approval, or the desires of local officials or interested parties are inconsistent with the plan, BLM's AO the CPM shall hold one or

more workshops and/or BLM and the Energy Commission may hold public hearings as part of its approval procedure.

As necessary, prior to or during the closure plan process, the project owner shall take appropriate steps to eliminate any immediate threats to public health and safety and the environment, but shall not commence any other closure activities until BLM and the Energy Commission approves the facility Closure, Revegetation and Restoration plan.

**UNPLANNED TEMPORARY CLOSURE/ON-SITE CONTINGENCY PLAN (COMPLIANCE-12)**

In order to ensure that public health and safety and the environment are protected in the event of an unplanned temporary facility closure, it is essential to have an On-Site Contingency Plan in place. The On-Site Contingency Plan will help to ensure that all necessary steps to mitigate public health and safety impacts and environmental impacts are taken in a timely manner.

The project owner shall submit an On-Site Contingency Plan for BLM's AO and CPM review and approval. The plan shall be submitted no less than 60 days (or other time agreed to by BLM's AO and the CPM) after approval of any NTP or letter granting approval to commence construction for each phase of construction. A copy of the approved plan must be in place during commercial operation of the facility and shall be kept at the site at all times.

The project owner, in consultation with BLM's AO and the CPM, will update the On-Site Contingency Plan as necessary. BLM's AO and the CPM may require revisions to the On-Site Contingency Plan over the life of the project. In the annual compliance reports submitted to the Energy Commission, the project owner will review the On-Site Contingency Plan, and recommend changes to bring the plan up to date. Any changes to the plan must be approved by BLM's AO and the CPM.

The On-Site Contingency Plan shall provide for taking immediate steps to secure the facility from trespassing or encroachment. In addition, for closures of more than 90 days, unless other arrangements are agreed to by BLM's AO and the CPM, the plan shall provide for removal of hazardous materials and hazardous wastes, draining of all chemicals from storage tanks and other equipment, and the safe shutdown of all equipment. (Also see specific conditions of certification for the technical areas of Hazardous Materials Management and Waste Management.)

In addition, consistent with requirements under unplanned permanent closure addressed below, the nature and extent of insurance coverage, and major equipment warranties must also be included in the On-Site Contingency Plan. In addition, the status of the insurance coverage and major equipment warranties must be updated in the annual compliance reports.

In the event of an unplanned temporary closure, the project owner shall notify BLM's AO and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's AO and the CPM informed of the circumstances and expected duration of the closure.

If BLM's AO and the CPM determine that an unplanned temporary closure is likely to be permanent, or for a duration of more than 6 months, a Closure Plan consistent with the requirements for a planned closure shall be developed and submitted to BLM's AO and the CPM within 90 days of BLM's AO and the CPM's determination (or other period of time agreed to by BLM's AO and the CPM).

**UNPLANNED PERMANENT CLOSURE/ON-SITE CONTINGENCY PLAN (COMPLIANCE-13)**

The On-Site Contingency Plan required for unplanned temporary closure shall also cover unplanned permanent facility closure. All of the requirements specified for unplanned temporary closure shall also apply to unplanned permanent closure.

In addition, the On-Site Contingency Plan shall address how the project owner will ensure that all required closure steps will be successfully undertaken in the event of abandonment.

In the event of an unplanned permanent closure, the project owner shall notify BLM's AO and the CPM, as well as other responsible agencies, by telephone, fax, or e-mail, within 24 hours and shall take all necessary steps to implement the On-Site Contingency Plan. The project owner shall keep BLM's AO and the CPM informed of the status of all closure activities.

To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an On-Site Contingency Plan no less than 60 days after a NTP is issued for each phase of development.

**POST CERTIFICATION CHANGES TO BLM'S ROW GRANT AND/OR THE ENERGY COMMISSION DECISION: AMENDMENTS, OWNERSHIP CHANGES, STAFF APPROVED PROJECT MODIFICATIONS AND VERIFICATION CHANGES (COMPLIANCE-14)**

The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility. The BLM ROW holder must file a written requests in the form an application to the BLM AO in order to change the terms and conditions of their ROW grant or POD. Written requests will be in a manner prescribed by the BLM AO.

It is the responsibility of the project owner to contact BLM's AO and the CPM to determine if a proposed project change should be considered a project modification pursuant to section 1769. Implementation of a project modification without first securing BLM and either Energy Commission or Energy Commission staff approval, may result in enforcement action that could result in civil penalties in accordance with section 25534 of the Public Resources Code.

A petition is required for amendments and for staff approved project modifications as specified below. Both shall be filed as a "Petition to Amend." Staff will determine if the

change is significant or insignificant. For verification changes, a letter from the project owner is sufficient. In all cases, the petition or letter requesting a change should be submitted to BLM's AO and the CPM, who will file it with the Energy Commission's Dockets Unit in accordance with Title 20, California Code of Regulations, section 1209.

The criteria that determine which type of approval and the process that applies are explained below. They reflect the provisions of Section 1769 at the time this condition was drafted. If the Commission's rules regarding amendments are amended, the rules in effect at the time an amendment is requested shall apply.

**Amendment**

The project owner shall petition the Energy Commission, pursuant to Title 20, California Code of Regulations, Section 1769(a), when proposing modifications to the project (including linear facilities) design, operation, or performance requirements. If a proposed modification results in deletion or change of a condition of certification, or makes changes that would cause the project not to comply with any applicable laws, ordinances, regulations or standards, the petition will be processed as a formal amendment to the Energy Commission's final decision, which requires public notice and review of the BLM-Energy Commission staff analysis, and approval by the full Energy Commission. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(a). Upon request, the CPM will provide you with a sample petition to use as a template.

The ROW holder shall file an application to amend the BLM ROW grant for any substantial deviation or change in use. The requirements to amend a ROW grant are the same as when filing a new application including paying processing and monitoring fees and rent.

**Staff Approved Project Modification**

Modifications that do not result in deletions or changes to conditions of certification, and that are compliant with laws, ordinances, regulations and standards may be authorized by BLM's AO and the CPM as a staff approved project modification (SAPM) pursuant to section 1769(a) (2). This process usually requires minimal time to complete, and it requires an Energy Commission 14-day public review of the Notice of SAPM that includes the BLM and Energy Commission staff's intention to approve the modification unless substantive objections are filed. These requests must also be submitted in the form of a "petition to amend" as described above. BLM and the Energy Commission intend to integrate a process to jointly approve SAPMs to avoid duplication of approval processes and ensure appropriate documentation for the public record.

**Change of Ownership**

Change of ownership or operational control also requires that the project owner file a petition pursuant to section 1769(b). This process requires public notice and approval by the full Commission and BLM. The petition shall be in the form of a legal brief and fulfill the requirements of Section 1769(b). Upon request, the CPM will provide you with a sample petition to use as a template. The transfer of ownership of a BLM ROW grant must be through the filing of an application for assignment of the grant.

**Verification Change**

A verification may be modified by BLM's AO and the CPM without requesting an amendment to the ROW Grant or Energy Commission decision if the change does not conflict with the conditions of certification and provides an effective alternate means of verification.

## CBO DELEGATION AND AGENCY COOPERATION

In performing construction and operation monitoring of the project, BLM and Energy Commission staff act as, and have the authority of, the Chief Building Official (CBO). BLM and Energy Commission staff may delegate CBO responsibility to either an independent third party contractor or the local building official. BLM and the Energy Commission intend to avoid duplication by integrating the responsibilities of the CBO with those of a BLM compliance inspector and will work jointly in the selection of a CBO. BLM and Energy Commission staff retain CBO authority when selecting a delegate CBO, including enforcing and interpreting federal, state and local codes, and use of discretion, as necessary, in implementing the various codes and standards.

BLM and Energy Commission staff may also seek the cooperation of state, regional and local agencies that have an interest in environmental protection when conducting project monitoring.

## ENFORCEMENT

BLM's legal authority to enforce the terms and conditions of its ROW Grant is specified in 43 CFR 2807.16 to 2807.19. BLM may issue an immediate temporary suspension of activities it they determine a holder has violated one or more of the terms, conditions, or stipulation of the grant. BLM may also suspend or terminate a ROW grant if a holder does not comply with applicable laws and regulation or any terns, conditions, or special stipulations contained in the grant. Prior to suspending or terminating a ROW grant, BLM will provide written notice to the holder stating it intends to suspend or terminate and will provide reasonable opportunity to correct any noncompliance.

The Energy Commission's legal authority to enforce the terms and conditions of its Decision is specified in Public Resources Code sections 25534 and 25900. The Energy Commission may amend or revoke the certification for any facility, and may impose a civil penalty for any significant failure to comply with the terms or conditions of the Energy Commission Decision. The specific action and amount of any fines the Energy Commission may impose would take into account the specific circumstances of the incident(s). This would include such factors as the previous compliance history, whether the cause of the incident involves willful disregard of LORS, oversight, unforeseeable events, and other factors the Energy Commission may consider.

## ENERGY COMMISSION NONCOMPLIANCE COMPLAINT PROCEDURES

Any person or agency may file a complaint alleging noncompliance with the conditions of certification. Such a complaint will be subject to review by the Energy Commission pursuant to Title 20, California Code of Regulations, section 1237, but in many instances the noncompliance can be resolved by using the informal dispute resolution

process. Both the informal and formal complaint procedure, as described in current State law and regulations, are described below. They shall be followed unless superseded by future law or regulations.

The Energy Commission has established a toll free compliance telephone number of 1-800-858-0784 for the public to contact the Energy Commission about power plant construction or operation-related questions, complaints or concerns.

**Informal Dispute Resolution Process**

The following procedure is designed to informally resolve disputes concerning the interpretation of compliance with the requirements of this compliance plan. The project owner, the Energy Commission, or any other party, including members of the public, may initiate an informal dispute resolution process. Disputes may pertain to actions or decisions made by any party, including the Energy Commission's delegate agents.

This process may precede the more formal complaint and investigation procedure specified in Title 20, California Code of Regulations, section 1237, but is not intended to be a substitute for, or prerequisite to it. This informal procedure may not be used to change the terms and conditions of certification as approved by the Energy Commission, although the agreed upon resolution may result in a project owner, or in some cases the Energy Commission staff, proposing an amendment.

The process encourages all parties involved in a dispute to discuss the matter and to reach an agreement resolving the dispute. If a dispute cannot be resolved, then the matter must be brought before the full Energy Commission for consideration via the complaint and investigation procedure.

**Request for Informal Investigation**

Any individual, group, or agency may request the Energy Commission to conduct an informal investigation of alleged noncompliance with the Energy Commission's terms and conditions of certification. All requests for informal investigations shall be made to the designated CPM.

Upon receipt of a request for informal investigation, the CPM shall promptly notify the project owner of the allegation by telephone and letter. All known and relevant information of the alleged noncompliance shall be provided to the project owner, BLM and to the Energy Commission staff. The CPM will evaluate the request and the information to determine if further investigation is necessary. If the CPM find that further investigation is necessary, the project owner will be asked to promptly investigate the matter. Within seven working days of the CPM's request, provide a written report to the CPM of the results of the investigation, including corrective measures proposed or undertaken. Depending on the urgency of the noncompliance matter, the CPM may conduct a site visit and/or request the project owner to also provide an initial verbal report, within 48 hours.

**Request for Informal Meeting**

In the event that either the party requesting an investigation or the Energy Commission staff is not satisfied with the project owner's report, investigation of the event, or

corrective measures proposed or undertaken, either party may submit a written request to the CPM for a meeting with the project owner. Such request shall be made within 14 days of the project owner's filing of its written report. Upon receipt of such a request, the CPM shall:

1. immediately schedule a meeting with the requesting party and the project owner, to be held at a mutually convenient time and place;
2. secure the attendance of appropriate Energy Commission staff and staff of any other agencies with expertise in the subject area of concern, as necessary;
3. conduct such meeting in an informal and objective manner so as to encourage the voluntary settlement of the dispute in a fair and equitable manner;
4. After the conclusion of such a meeting, promptly prepare and distribute copies to all in attendance and to the project file, a summary memorandum that fairly and accurately identifies the positions of all parties and any understandings reached. If an agreement has not been reached, the CPM shall inform the complainant of the formal complaint process and requirements provided under Title 20, California Code of Regulations, section 1230 et seq.

**Formal Dispute Resolution Procedure-Complaints and Investigations**

Any person may file a complaint with the Energy Commission's Dockets Unit alleging noncompliance with a Commission decision adopted pursuant to Public Resources Code section 25500. Requirements for complaint filings and a description of how complaints are processed are in Title 20, California Code of Regulations, section 1237.

# KEY EVENTS LIST

**PROJECT: Imperial Valley Solar**
**DOCKET #: 08-AFC-05**
**COMPLIANCE PROJECT MANAGER: _____**
**BLM AUTHORIZED OFFICER: _____**

| EVENT DESCRIPTION | DATE |
|---|---|
| Certification Date | |
| Obtain Site Control | |
| Online Date | |
| **POWER PLANT SITE ACTIVITIES** | |
| Start Site Mobilization | |
| Start Ground Disturbance | |
| Start Grading | |
| Start Construction | |
| Begin Pouring Major Foundation Concrete | |
| Begin Installation of Major Equipment | |
| Completion of Installation of Major Equipment | |
| First Combustion of Gas Turbine | |
| Obtain Building Occupation Permit | |
| Start Commercial Operation | |
| Complete All Construction | |
| **TRANSMISSION LINE ACTIVITIES** | |
| Start T/L Construction | |
| Synchronization with Grid and Interconnection | |
| Complete T/L Construction | |
| **FUEL SUPPLY LINE ACTIVITIES** | |
| Start Gas Pipeline Construction and Interconnection | |
| Complete Gas Pipeline Construction | |
| **WATER SUPPLY LINE ACTIVITIES** | |
| Start Water Supply Line Construction | |
| Complete Water Supply Line Construction | |

**COMPLIANCE TABLE 1**

**SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION**

| CONDITION NUMBER | SUBJECT | DESCRIPTION |
|---|---|---|
| **COMPLIANCE-1** | **Unrestricted Access** | The project owner shall grant BLM and Energy Commission staff and delegate agencies or consultants unrestricted access to the power plant site. |
| **COMPLIANCE-2** | **Compliance Record** | The project owner shall maintain project files on-site. BLM and Energy Commission staff and delegate agencies shall be given unrestricted access to the files. |
| **COMPLIANCE-3** | **Compliance Verification Submittals** | The project owner is responsible for the delivery and content of all verification submittals to BLM's Authorized Officer and the CPM, whether such condition was satisfied by work performed or the project owner or his agent. |
| **COMPLIANCE-4** | **Pre-construction Matrix and Tasks Prior to Start of Construction** | • Construction shall not commence until the all of the following activities/submittals have been completed:<br>property owners living within one mile of the project have been notified of a telephone number to contact for questions, complaints or concerns,<br>a pre-construction matrix has been submitted identifying only those conditions that must be fulfilled before the start of construction,<br>all pre-construction conditions have been complied with,<br>BLM's Authorized Officer and the CPM have issued a letter to the project owner authorizing construction. |
| **COMPLIANCE-5** | **Compliance Matrix** | The project owner shall submit a compliance matrix (in a spreadsheet format) with each monthly and annual compliance report which includes the status of all compliance conditions of certification. |

**COMPLIANCE TABLE 1**

**SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION**

| CONDITION NUMBER | SUBJECT | DESCRIPTION |
|---|---|---|
| **COMPLIANCE-6** | **Monthly Compliance Report including a Key Events List** | During construction, the project owner shall submit Monthly Compliance Reports (MCRs) which include specific information. The first MCR is due the month following the Energy Commission business meeting date on which the project was approved and shall include an initial list of dates for each of the events identified on the Key Events List. |
| **COMPLIANCE-7** | **Annual Compliance Reports** | After construction ends and throughout the life of the project, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. |
| **COMPLIANCE-8** | **Confidential Information** | Any information the project owner deems confidential shall be submitted to BLM and the Energy Commission's Dockets Unit with a request for confidentiality. |
| **COMPLIANCE-9** | **Annual fees** | Payment of Annual Energy Facility Compliance Fee to the Energy Commission; |
| **COMPLIANCE-10** | **Reporting of Complaints, Notices and Citations** | Within 10 days of receipt, the project owner shall report to BLM's Authorized Officer and the CPM, all notices, complaints, and citations. |
| **COMPLIANCE-11** | **Planned Facility Closure** | The project owner shall submit any revisions or changes to the Closure, Revegetation and Restoration Plan to BLM's Authorized Officer and the CPM at least 12 months prior to commencement of a planned closure. |
| **COMPLIANCE-12** | **Unplanned Temporary Facility Closure** | To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an On-Site Contingency Plan no less than 60 days after a NTP is issued for each power plant. |

**COMPLIANCE TABLE 1**

**SUMMARY of COMPLIANCE CONDITIONS OF CERTIFICATION**

| CONDITION NUMBER | SUBJECT | DESCRIPTION |
|---|---|---|
| **COMPLIANCE-13** | **Unplanned Permanent Facility Closure** | To ensure that public health and safety and the environment are protected in the event of an unplanned temporary closure, the project owner shall submit an On-Site Contingency Plan no less than 60 days after a NTP is issued for each power plant. |
| **COMPLIANCE-14** | **Post-certification changes to the ROW Grant and/or Decision** | The project owner must petition the Energy Commission and file an application to amend the ROW grant to delete or change a condition of certification, modify the project design or operational requirements and/or transfer ownership of operational control of the facility. |

**ATTACHMENT 1**
**COMPLAINT REPORT / RESOLUTION FORM**

Complaint Log Number:_____ Docket Number:_____
Project Name:_____

**COMPLAINANT INFORMATION**

Name:_____ Phone Number:_____

Address:_____

**COMPLAINT**

DATE COMPLAINT RECEIVED:_____ TIME COMPLAINT RECEIVED:_____

COMPLAINT RECEIVED BY: ☐ TELEPHONE ☐ IN WRITING (COPY ATTACHED)

DATE OF FIRST OCCURRENCE:_____

DESCRIPTION OF COMPLAINT (INCLUDING DATES, FREQUENCY, AND DURATION):_____

FINDINGS OF INVESTIGATION BY PLANT PERSONNEL:_____

DOES COMPLAINT RELATE TO VIOLATION OF BLM ROW GRANT? ☐ YES ☐ NO

DOES COMPLAINT RELATE TO VIOLATION OF A CEC REQUIREMENT? ☐ YES ☐ NO

DATE COMPLAINANT CONTACTED TO DISCUSS FINDINGS:_____

DESCRIPTION OF CORECTIVE MEASURES TAKEN OR OTHER COMPLAINT RESOLUTION:_____

DOES COMPLAINANT AGREE WITH PROPOSED RESOLUTION?☐ YES ☐ NO

IF NOT, EXPLAIN:_____

**CORRECTIVE ACTION**

IF CORRECTIVE ACTION NECESSARY, DATE COMPLETED:_____

DATE FIRST LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

DATE FINAL LETTER SENT TO COMPLAINANT (COPY ATTACHED):_____

OTHER RELEVANT INFORMATION:_____

*"This information is certified to be correct."*

PLANT MANAGER SIGNATURE:_____ DATE:

(ATTACH ADDITIONAL PAGES AND ALL SUPPORTING DOCUMENTATION, AS REQUIRED)

# IV. ENGINEERING ASSESSMENT

The broad engineering assessment of the Imperial Valley Solar Project consists of separate analyses that examine its facility design, engineering, efficiency, and reliability aspects. These analyses include the on-site power generating equipment and the project-related linear facilities.

## A. FACILITY DESIGN

This review covers several technical disciplines including the civil, electrical, mechanical, and structural engineering elements related to project design and construction. It addresses consistency with applicable LORS, and does not extend to the project's environmental impacts under the National Environmental Policy Act (NEPA) or the California Environmental Quality Act (CEQA). (Ex. 300, pp. D.1-1, D.1-5.) The evidentiary presentations were uncontested. (5/24/2010 (day 1) RT 34, 157-58, 192-93; 5/25/2010 (day 2) RT 276-78; Exs. 1; 6; 122; 300, § D.1; 302, § D.1.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The Application for Certification (AFC) describes the preliminary facility design. In considering the adequacy of the plans, the Commission reviews whether the power plant and linear facilities are described with sufficient detail to assure the project can be designed and constructed in accordance with applicable engineering laws, ordinances, regulations, and standards (LORS). The review also includes, as appropriate, the identification of special design features that are necessary to deal with unique site conditions which could impact public health and safety or the operational reliability of the project. (Ex. 300, p. D.1-1.)

Staff considered potential geological hazards and reviewed the preliminary project design with respect to grading, flood protection, erosion control, site drainage, and site access in addition to the criteria for designing and constructing related linear facilities such as the transmission interconnection facilities. (Ex. 300, p. D.1-3; see also, the **Geology and Paleontology** section of this Decision.) The evidence establishes that the project will incorporate accepted industry standards. This includes design practices and construction methods for preparing and developing the site. (*Id.*) Conditions **CIVIL-1** through **CIVIL-4** ensure that these activities will be conducted in compliance with applicable LORS.

Major structures, systems, and equipment include project components necessary for power production, those costly or time consuming to repair or replace, facilities used for storage of hazardous or toxic materials, and those capable of becoming potential health and safety hazards[1] if not constructed properly. (Ex. 300, p. D.1-3.) **Table 1**, contained in Condition **GEN-2,** lists the major structures and equipment included in the initial engineering design for the project.[2] Conditions **GEN-3** through **GEN-8** require that qualified individuals oversee and inspect facility construction. Similarly, Conditions **MECH-1** through **MECH-3** address compliance of the project's mechanical systems with appropriate standards, and a quality assurance/quality control program assures that the project will be designed, procured, fabricated, and installed as described. Condition **ELEC-1** mandates that design and construction of major electrical features comply with applicable LORS.

The Conditions of Certification establish a design review and construction inspection process to verify compliance with applicable standards and special requirements. (Ex. 300, p. D.1-4.) The project will be designed and constructed in conformance with the latest edition of the California Building Standards Code (currently the 2007 CBSC) and other applicable codes and standards in effect at the time design approval and construction actually begin. (Ex. 300, p. D.1-3.) Condition of Certification **GEN-1** incorporates this requirement.

The project is located in Seismic Risk Zone 4. (Ex. 300, p. C.5-4.)The 2007 CBSC requires specific "dynamic" lateral force procedures for certain structures to determine their seismic design criteria; others may be designed using a "static" analysis procedure. To ensure that project structures are analyzed appropriately, Condition **STRUC-1** requires the project owner to submit its proposed lateral force procedures to the Chief Building Official[3] (CBO) for review and approval prior to the start of construction. (Ex. 300, p. D.1-3.)

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[1] The matter of hydrogen usage is discussed in the **HAZARDOUS MATERIALS MAGEMENT** section.

[2] The master drawing and master specifications lists described in Condition **GEN-2** refer to documents based on the project's *detailed* design and may include supplemental materials for structures and equipment not currently identified in Table 1. (Ex. 300, p. D.1-3.) We have included the "verification" language for **GEN-2** that appears in Staff's Opening Brief. (August 11, 2010; p.14.)

[3] The Energy Commission is the CBO for facilities we certify. We may delegate CBO authority to local building officials and/or independent consultants to carry out design review and construction inspections. When CBO duties are delegated, we require a Memorandum of Understanding with the delegate entity to outline respective roles, responsibilities, and qualifications of involved individuals such as those described in Conditions of Certification **GEN-1** through **GEN-8**. The Conditions further require that every appropriate element of project construction be first approved

Overall, the evidentiary record conclusively establishes that the project will be designed and constructed in compliance with all applicable LORS, and that these activities will not negatively impact public health and safety.

## FINDINGS OF FACT

Based on the evidence of record, the Commission makes the following findings:

1. The Imperial Valley Solar Project is currently in the preliminary design stage.
2. The evidence summarized in this topic area addresses consistency with applicable LORS, and does not extend to an evaluation of the project's environmental impacts.
3. The facility can be designed and constructed in conformity with the applicable laws, ordinances, regulations, and standards (LORS) set forth in the appropriate portion of **Appendix A** of this Decision.
4. The Conditions of Certification set forth below provide, in part, that qualified personnel will perform design review, plan checking, and field inspections of the project.
5. The Conditions of Certification set forth below are necessary to ensure that the project is designed and constructed in accordance with applicable law and in a manner that protects public health and safety.
6. The **General Conditions,** included in the **Compliance and Closure** section of this Decision, establish requirements to be followed in the event of facility closure.

## CONCLUSION OF LAW

1. We therefore conclude that implementation of the Conditions of Certification listed below ensure that the Imperial Valley Solar Project will be designed and constructed in conformance with the applicable LORS pertinent to the engineering aspects summarized in this section of the Decision.

## CONDITIONS OF CERTIFICATION

**GEN-1** The project owner shall design, construct, and inspect the project in accordance with the 2007 California Building Standards Code (CBSC),

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by the CBO and that qualified personnel perform or oversee inspections. (Ex. 300, pp. D.1-4 to D.1-5.)

also known as Title 24, California Code of Regulations, which encompasses the California Building Code (CBC), California Building Standards Administrative Code, California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Code for Building Conservation, California Reference Standards Code, and all other applicable engineering LORS in effect at the time initial design plans are submitted to the CBO for review and approval (the CBSC in effect is the edition that has been adopted by the California Building Standards Commission and published at least 180 days previously). The project owner shall ensure that all the provisions of the above applicable codes are enforced during the construction, addition, alteration, moving, demolition, repair, or maintenance of the completed facility. All transmission facilities (lines, switchyards, switching stations and substations) are covered in the conditions of certification in the **Transmission System Engineering** section of this document.

In the event that the initial engineering designs are submitted to the CBO when the successor to the 2007 CBSC is in effect, the 2007 CBSC provisions shall be replaced with the applicable successor provisions. Where, in any specific case, different sections of the code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall govern.

The project owner shall ensure that all contracts with contractors, subcontractors, and suppliers clearly specify that all work performed and materials supplied comply with the codes listed above.

**Verification:** Within 30 days following receipt of the certificate of occupancy, the project owner shall submit to the CPM a statement of verification, signed by the responsible design engineer, attesting that all designs, construction, installation, and inspection requirements of the applicable LORS and the Energy Commission's decision have been met in the area of facility design. The project owner shall provide the CPM a copy of the certificate of occupancy within 30 days of receipt from the CBO.

Once the certificate of occupancy has been issued, the project owner shall inform the CPM at least 30 days prior to any construction, addition, alteration, moving, demolition, repair, or maintenance to be performed on any portion(s) of the completed facility that requires CBO approval for compliance with the above codes. The CPM will then determine if the CBO needs to approve the work.

**GEN-2** Before submitting the initial engineering designs for CBO review, the project owner shall furnish the CPM and the CBO with a schedule of facility design submittals, and master drawing and master specifications lists. The schedule shall contain a list of proposed submittal packages

of designs, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide specific packages to the CPM upon request. ‘

**Verification:** At least 30 days prior to construction or a lesser number of days agreed to by the applicant and the CPM or CBO, the project owner shall submit to the CBO and to the CPM the schedule, the master drawing and master specifications lists of documents to be submitted to the CBO for review and approval. These documents shall be the pertinent design documents for the major structures and equipment listed in **Facility Design Table 2**, below. Major structures and equipment shall be added to or deleted from the table only with CPM approval. The project owner shall provide schedule updates in the monthly compliance report.

**Facility Design Table 2Major Structures and Equipment List**

| Equipment/System | Quantity (Plant) |
|---|---|
| Solar Dish Stirling Unit (CT) Foundation and Connections (Pedestal FDN) | 1 Lot |
| Administration Building Structure, Foundation and Connections | 1 |
| Maintenance Building Structure, Foundation and Connections | 1 |
| Assembly Building Structure, Foundation and Connections | 3 |
| Fuel Storage Tanks Structure, Foundation and Connections | 2 |
| Water Treatment Area Structure, Foundation and Connections | 1 |
| Potable Water Tank Structure, Foundation and Connections | 1 |
| Fire Protection/Mirror Washing Water Tank Structure, Foundation and Connections | 1 |
| Raw Water Tank Structure, Foundation and Connections | 1 |
| Waste Water Treatment Facility Structure, Foundation and Connections | 1 |
| Septic Tank Structure, Foundation and Connections | 1 |
| Diesel Standby Generator Foundation and Connections | 1 |
| Electric Fire Pump Foundation and Connections | 1 |
| Service Transformer Foundation and Connections | 1 |
| Hydrogen Tanks | 1 Lot |
| Chemical Storage Area | 1 Lot |
| Drainage Systems (including sanitary drain and waste) | 1 Lot |
| High Pressure and Large Diameter Piping and Pipe Racks | 1 Lot |
| HVAC Systems | 1 Lot |
| Temperature Control and Ventilation Systems (including water and sewer connections) | 1 Lot |
| Building Energy Conservation Systems | 1 Lot |
| Substation, Switchboards, Transformers, Buses and Towers | 1 Lot |
| Electrical Cables/Duct Banks | 1 Lot |
| Prefabricated Assemblies | 1 Lot |

**GEN-3** The project owner shall make payments to the CBO for design review, plan checks, and construction inspections, based upon a reasonable

fee schedule to be negotiated between the project owner and the CBO. These fees may be consistent with the fees listed in the 2007 CBC, adjusted for inflation and other appropriate adjustments; may be based on the value of the facilities reviewed; may be based on hourly rates; or may be otherwise agreed upon by the project owner and the CBO.

**Verification:** The project owner shall make the required payments to the CBO in accordance with the agreement between the project owner and the CBO. The project owner shall send a copy of the CBO's receipt of payment to the CPM in the next monthly compliance report indicating that applicable fees have been paid.

**GEN-4** Prior to the start of rough grading, the project owner shall assign a Californiaregistered architect, or a structural or civil engineer, as the resident engineer (RE) in charge of the project. All transmission facilities (lines, switchyards, switching stations, and substations) are addressed in the conditions of certification in the **Transmission System Engineering** section of this document.

The RE may delegate responsibility for portions of the project to other registered engineers. Registered mechanical and electrical engineers may be delegated responsibility for mechanical and electrical portions of the project, respectively. A project may be divided into parts, provided that each part is clearly defined as a distinct unit. Separate assignments of general responsibility may be made for each designated part.

The RE shall:

1. Monitor progress of construction work requiring CBO design review and inspection to ensure compliance with LORS;

2. Ensure that construction of all facilities subject to CBO design review and inspection conforms in every material respect to applicable LORS, these conditions of certification, approved plans, and specifications;

3. Prepare documents to initiate changes in approved drawings and specifications when either directed by the project owner or as required by the conditions of the project;

4. Be responsible for providing project inspectors and testing agencies with complete and up-to-date sets of stamped drawings, plans, specifications, and any other required documents;

5. Be responsible for the timely submittal of construction progress reports to the CBO from the project inspectors, the contractor, and

other engineers who have been delegated responsibility for portions of the project; and

6. Be responsible for notifying the CBO of corrective action or the disposition of items noted on laboratory reports or other tests when they do not conform to approved plans and specifications.

The resident engineer (or his delegate) must be located at the project site, or be available at the project site within a reasonable period of time, during any hours in which construction takes place.

The RE shall have the authority to halt construction and to require changes or remedial work if the work does not meet requirements.

If the RE or the delegated engineers are reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, the resume and registration number of the RE and any other delegated engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the RE and other delegated engineer(s) within five days of the approval.

If the RE or the delegated engineer(s) is subsequently reassigned or replaced, the project owner has five days to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

**GEN-5** Prior to the start of rough grading, the project owner shall assign at least one of each of the following California registered engineers to the project: a civil engineer; a soils, geotechnical, or civil engineer experienced and knowledgeable in the practice of soils engineering; and an engineering geologist. Prior to the start of construction, the project owner shall assign at least one of each of the following California registered engineers to the project: a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; a mechanical engineer; and an electrical engineer. (California Business and Professions Code section 6704 et seq., and sections 6730, 6731 and 6736 require state registration to practice as a civil engineer or structural engineer in California). All transmission facilities (lines, switchyards, switching stations, and substations) are handled in

the conditions of certification in the **Transmission System Engineering** section of this document.

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (for example, proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California registered electrical engineer.

The project owner shall submit, to the CBO for review and approval, the names, qualifications, and registration numbers of all responsible engineers assigned to the project.

If any one of the designated responsible engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications and registration number of the newly assigned responsible engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer.

A. The civil engineer shall:

    1. Review the foundation investigations, geotechnical, or soils reports prepared by the soils engineer, the geotechnical engineer, or by a civil engineer experienced and knowledgeable in the practice of soils engineering;

    2. Design (or be responsible for the design of), stamp, and sign all plans, calculations, and specifications for proposed site work, civil works, and related facilities requiring design review and inspection by the CBO. At a minimum, these include: grading, site preparation, excavation, compaction, construction of secondary containment, foundations, erosion and sedimentation control structures, drainage facilities, underground utilities, culverts, site access roads and sanitary sewer systems; and

    3. Provide consultation to the RE during the construction phase of the project and recommend changes in the design of the civil works facilities and changes to the construction procedures.

B. The soils engineer, geotechnical engineer, or civil engineer experienced and knowledgeable in the practice of soils engineering, shall:

    1. Review all the engineering geology reports;

2. Prepare the foundation investigations, geotechnical, or soils reports containing field exploration reports, laboratory tests, and engineering analysis detailing the nature and extent of the soils that could be susceptible to liquefaction, rapid settlement or collapse when saturated under load;

3. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with requirements set forth in the 2007 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both); and

4. Recommend field changes to the civil engineer and RE. This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform to the predicted conditions used as the basis for design of earthwork or foundations.

C. The engineering geologist shall:

1. Review all the engineering geology reports and prepare a final soils grading report; and

2. Be present, as required, during site grading and earthwork to provide consultation and monitor compliance with the requirements set forth in the 2007 CBC (depending on the site conditions, this may be the responsibility of either the soils engineer, the engineering geologist, or both).

D. The design engineer shall:

1. Be directly responsible for the design of the proposed structures and equipment supports;

2. Provide consultation to the RE during design and construction of the project;

3. Monitor construction progress to ensure compliance with engineering LORS;

4. Evaluate and recommend necessary changes in design; and

5. Prepare and sign all major building plans, specifications, and calculations.

E. The mechanical engineer shall be responsible for, and sign and stamp a statement with, each mechanical submittal to the CBO, stating that the proposed final design plans, specifications, and

calculations conform to all of the mechanical engineering design requirements set forth in the Energy Commission's decision.

F. The electrical engineer shall:

1. Be responsible for the electrical design of the project; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of rough grading, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible civil engineer, soils (geotechnical) engineer and engineering geologist assigned to the project.

At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction, the project owner shall submit to the CBO for review and approval, resumes and registration numbers of the responsible design engineer, mechanical engineer, and electrical engineer assigned to the project.

The project owner shall notify the CPM of the CBO's approvals of the responsible engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner has five days in which to submit the resume and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of the approval.

**GEN-6** Prior to the start of an activity requiring special inspection, including prefabricated assemblies, the project owner shall assign to the project, qualified and certified special inspector(s) who shall be responsible for the special inspections required by the 2007 CBC. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this document.

A certified weld inspector, certified by the American Welding Society (AWS), and/or American Society of Mechanical Engineers (ASME) as applicable, shall inspect welding performed on-site requiring special inspection (including structural, piping, tanks and pressure vessels).

The special inspector shall:

1. Be a qualified person who shall demonstrate competence, to the satisfaction of the CBO, for inspection of the particular type of construction requiring special or continuous inspection;

2. Inspect the work assigned for conformance with the approved design drawings and specifications;

3. Furnish inspection reports to the CBO and RE. All discrepancies shall be brought to the immediate attention of the RE for correction, then, if uncorrected, to the CBO and the CPM for corrective action; and

4. Submit a final signed report to the RE, CBO, and CPM, stating whether the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and other provisions of the applicable edition of the CBC.

**Verification:** At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of an activity requiring special inspection, the project owner shall submit to the CBO for review and approval, with a copy to the CPM, the name(s) and qualifications of the certified weld inspector(s), or other certified special inspector(s) assigned to the project to perform one or more of the duties set forth above. The project owner shall also submit to the CPM a copy of the CBO's approval of the qualifications of all special inspectors in the next monthly compliance report.

If the special inspector is subsequently reassigned or replaced, the project owner has five days in which to submit the name and qualifications of the newly assigned special inspector to the CBO for approval. The project owner shall notify the CPM of the CBO's approval of the newly assigned inspector within five days of the approval.

**GEN-7** If any discrepancy in design and/or construction is discovered in any engineering work that has undergone CBO design review and approval, the project owner shall document the discrepancy and recommend required corrective actions. The discrepancy documentation shall be submitted to the CBO for review and approval. The discrepancy documentation shall reference this condition of certification and, if appropriate, applicable sections of the CBC and/or other LORS.

**Verification:** The project owner shall transmit a copy of the CBO's approval of any corrective action taken to resolve a discrepancy to the CPM in the next monthly compliance report. If any corrective action is disapproved, the project owner shall advise the CPM, within five days, of the reason for disapproval and the revised corrective action to obtain CBO's approval.

**GEN-8** The project owner shall obtain the CBO's final approval of all completed work that has undergone CBO design review and approval. The project owner shall request the CBO to inspect the completed structure and review the submitted documents. The project owner shall notify the CPM after obtaining the CBO's final approval. The project owner shall

retain one set of approved engineering plans, specifications, and calculations (including all approved changes) at the project site or at another accessible location during the operating life of the project. Electronic copies of the approved plans, specifications, calculations, and marked-up as-builts shall be provided to the CBO for retention by the CPM.

**Verification:** Within 15 days of the completion of any work, the project owner shall submit to the CBO, with a copy to the CPM, in the next monthly compliance report, (a) a written notice that the completed work is ready for final inspection, and (b) a signed statement that the work conforms to the final approved plans. After storing the final approved engineering plans, specifications, and calculations described above, the project owner shall submit to the CPM a letter stating both that the above documents have been stored and the storage location of those documents.

Within 90 days of the completion of construction, the project owner shall provide to the CBO three sets of electronic copies of the above documents at the project owner's expense. These are to be provided in the form of "read only" (Adobe .pdf 6.0) files, with restricted (password-protected) printing privileges, on archive quality compact discs.

**CIVIL-1** The project owner shall submit to the CBO for review and approval the following:

1. Design of the proposed drainage structures and the grading plan;
2. An erosion and sedimentation control plan;
3. Related calculations and specifications, signed and stamped by the responsible civil engineer; and
4. Soils, geotechnical, or foundation investigations reports required by the 2007 CBC.

**Verification:** At least 15 days (or project owner- and CBO-approved alternative time frame) prior to the start of site grading the project owner shall submit the documents described above to the CBO for design review and approval. In the next monthly compliance report following the CBO's approval, the project owner shall submit a written statement certifying that the documents have been approved by the CBO.

**CIVIL-2** The resident engineer shall, if appropriate, stop all earthwork and construction in the affected areas when the responsible soils engineer, geotechnical engineer, or the civil engineer experienced and knowledgeable in the practice of soils engineering identifies unforeseen adverse soil or geologic conditions. The project owner shall submit modified plans, specifications, and calculations to the CBO based on

these new conditions. The project owner shall obtain approval from the CBO before resuming earthwork and construction in the affected area.

**Verification:** The project owner shall notify the CPM within 24 hours, when earthwork and construction is stopped as a result of unforeseen adverse geologic/soil conditions. Within 24 hours of the CBO's approval to resume earthwork and construction in the affected areas, the project owner shall provide to the CPM a copy of the CBO's approval.

**CIVIL-3** The project owner shall perform inspections in accordance with the 2007 CBC. All plant site-grading operations, for which a grading permit is required, shall be subject to inspection by the CBO.

If, in the course of inspection, it is discovered that the work is not being performed in accordance with the approved plans, the discrepancies shall be reported immediately to the resident engineer, the CBO, and the CPM. The project owner shall prepare a written report, with copies to the CBO and the CPM, detailing all discrepancies, non-compliance items, and the proposed corrective action.

**Verification:** Within five days of the discovery of any discrepancies, the resident engineer shall transmit to the CBO and the CPM a non-conformance report (NCR), and the proposed corrective action for review and approval. Within five days of resolution of the NCR, the project owner shall submit the details of the corrective action to the CBO and the CPM. A list of NCRs, for the reporting month, shall also be included in the following monthly compliance report.

**CIVIL-4** After completion of finished grading and erosion and sedimentation control and drainage work, the project owner shall obtain the CBO's approval of the final grading plans (including final changes) for the erosion and sedimentation control work. The civil engineer shall state that the work within his/her area of responsibility was done in accordance with the final approved plans.

**Verification:** Within 30 days (or project owner- and CBO-approved alternative time frame) of the completion of the erosion and sediment control mitigation and drainage work, the project owner shall submit to the CBO, for review and approval, the final grading plans (including final changes) and the responsible civil engineer's signed statement that the installation of the facilities and all erosion control measures were completed in accordance with the final approved combined grading plans, and that the facilities are adequate for their intended purposes, along with a copy of the transmittal letter to the CPM. The project owner shall submit a copy of the CBO's approval to the CPM in the next monthly compliance report.

**STRUC-1** Prior to the start of any increment of construction of any major structure or component listed in **Facility Design Table 2** of condition of certification **GEN-2**, above, the project owner shall submit to the CBO

for design review and approval the proposed lateral force procedures for project structures and the applicable designs, plans and drawings for project structures. Proposed lateral force procedures, designs, plans and drawings shall be those for the following items (from **Table 2**, above):

1. Major project structures;

2. Major foundations, equipment supports, and anchorage; and

3. Large field-fabricated tanks.

Construction of any structure or component shall not begin until the CBO has approved the lateral force procedures to be employed in designing that structure or component.

The project owner shall:

1. Obtain approval from the CBO of lateral force procedures proposed for project structures;

2. Obtain approval from the CBO for the final design plans, specifications, calculations, soils reports, and applicable quality control procedures. If there are conflicting requirements, the more stringent shall govern (for example, highest loads, or lowest allowable stresses shall govern). All plans, calculations, and specifications for foundations that support structures shall be filed concurrently with the structure plans, calculations, and specifications;

3. Submit to the CBO the required number of copies of the structural plans, specifications, calculations, and other required documents of the designated major structures prior to the start of on-site fabrication and installation of each structure, equipment support, or foundation;

4. Ensure that the final plans, calculations, and specifications clearly reflect the inclusion of approved criteria, assumptions, and methods used to develop the design. The final designs, plans, calculations, and specifications shall be signed and stamped by the responsible design engineer; and

5. Submit to the CBO the responsible design engineer's signed statement that the final design plans conform to applicable LORS.

**Verification:** At least 60 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of construction of any structure or component listed in **Facility Design Table 2** of

condition of certification **GEN-2**, above, the project owner shall submit to the CBO the above final design plans, specifications and calculations, with a copy of the transmittal letter to the CPM.

The project owner shall submit to the CPM, in the next monthly compliance report, a copy of a statement from the CBO that the proposed structural plans, specifications, and calculations have been approved and comply with the requirements set forth in applicable engineering LORS.

**STRUC-2** The project owner shall submit to the CBO the required number of sets of the following documents related to work that has undergone CBO design review and approval:

1. Concrete cylinder strength test reports (including date of testing, date sample taken, design concrete strength, tested cylinder strength, age of test, type and size of sample, location and quantity of concrete placement from which sample was taken, and mix design designation and parameters);

2. Concrete pour sign-off sheets;

3. Bolt torque inspection reports (including location of test, date, bolt size, and recorded torques);

4. Field weld inspection reports (including type of weld, location of weld, inspection of non-destructive testing (NDT) procedure and results, welder qualifications, certifications, qualified procedure description or number (ref: AWS); and

5. Reports covering other structural activities requiring special inspections shall be in accordance with the 2007 CBC.

**Verification:** If a discrepancy is discovered in any of the above data, the project owner shall, within five days, prepare and submit an NCR describing the nature of the discrepancies and the proposed corrective action to the CBO, with a copy of the transmittal letter to the CPM. The NCR shall reference the condition(s) of certification and the applicable CBC chapter and section. Within five days of resolution of the NCR, the project owner shall submit a copy of the corrective action to the CBO and the CPM.

The project owner shall transmit a copy of the CBO's approval or disapproval of the corrective action to the CPM within 15 days. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action to obtain CBO's approval.

**STRUC-3** The project owner shall submit to the CBO design changes to the final plans required by the 2007 CBC, including the revised drawings, specifications, calculations, and a complete description of, and

supporting rationale for, the proposed changes, and shall give to the CBO prior notice of the intended filing.

**Verification:** On a schedule suitable to the CBO, the project owner shall notify the CBO of the intended filing of design changes, and shall submit the required number of sets of revised drawings and the required number of copies of the other abovementioned documents to the CBO, with a copy of the transmittal letter to the CPM. The project owner shall notify the CPM, via the monthly compliance report, when the CBO has approved the revised plans.

**STRUC-4** Tanks and vessels containing quantities of toxic or hazardous materials exceeding amounts specified in the 2007 CBC shall, at a minimum, be designed to comply with the requirements of that chapter.

**Verification:** At least 30 days (or project owner- and CBO-approved alternate time frame) prior to the start of installation of the tanks or vessels containing the above specified quantities of toxic or hazardous materials, the project owner shall submit to the CBO for design review and approval final design plans, specifications, and calculations, including a copy of the signed and stamped engineer's certification.

The project owner shall send copies of the CBO approvals of plan checks to the CPM in the following monthly compliance report. The project owner shall also transmit a copy of the CBO's inspection approvals to the CPM in the monthly compliance report following completion of any inspection.

**MECH-1** The project owner shall submit, for CBO design review and approval, the proposed final design, specifications and calculations for each plant major piping and plumbing system listed in **Facility Design Table 2**, condition of certification **GEN-2**, above. Physical layout drawings and drawings not related to code compliance and life safety need not be submitted. The submittal shall also include the applicable QA/QC procedures. Upon completion of construction of any such major piping or plumbing system, the project owner shall request the CBO's inspection approval of that construction.

The responsible mechanical engineer shall stamp and sign all plans, drawings, and calculations for the major piping and plumbing systems, subject to CBO design review and approval, and submit a signed statement to the CBO when the proposed piping and plumbing systems have been designed, fabricated, and installed in accordance with all of the applicable laws, ordinances, regulations and industry standards, which may include, but are not limited to:

- American National Standards Institute (ANSI) B31.1 (Power Piping Code);
- ANSI B31.2 (Fuel Gas Piping Code);

- ANSI B31.3 (Chemical Plant and Petroleum Refinery Piping Code);
- ANSI B31.8 (Gas Transmission and Distribution Piping Code);
- Title 24, California Code of Regulations, Part 5 (California Plumbing Code);
- Title 24, California Code of Regulations, Part 6 (California Energy Code, for building energy conservation systems and temperature control and ventilation systems);
- Title 24, California Code of Regulations, Part 2 (California Building Code); and
- Imperial County codes.

The CBO may deputize inspectors to carry out the functions of the code enforcement agency.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of any increment of major piping or plumbing construction listed in **Facility Design Table 2**, condition of certification **GEN-2,** above, the project owner shall submit to the CBO for design review and approval the final plans, specifications, and calculations, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's inspection approvals.

**MECH-2** For all pressure vessels installed in the plant, the project owner shall submit to the CBO and California Occupational Safety and Health Administration (Cal-OSHA), prior to operation, the code certification papers and other documents required by applicable LORS. Upon completion of the installation of any pressure vessel, the project owner shall request the appropriate CBO and/or Cal-OSHA inspection of that installation.

The project owner shall:

1. Ensure that all boilers and fired and unfired pressure vessels are designed, fabricated, and installed in accordance with the appropriate section of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, or other

applicable code. Vendor certification, with identification of applicable code, shall be submitted for prefabricated vessels and tanks; and

2. Have the responsible design engineer submit a statement to the CBO that the proposed final design plans, specifications, and calculations conform to all of the requirements set forth in the appropriate ASME Boiler and Pressure Vessel Code or other applicable codes.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of on-site fabrication or installation of any pressure vessel, the project owner shall submit to the CBO for design review and approval, the above listed documents, including a copy of the signed and stamped engineer's certification, with a copy of the transmittal letter to the CPM.

The project owner shall transmit to the CPM, in the monthly compliance report following completion of any inspection, a copy of the transmittal letter conveying the CBO's and/or Cal-OSHA inspection approvals.

**MECH-3** The project owner shall submit to the CBO for design review and approval the design plans, specifications, calculations, and quality control procedures for any heating, ventilating, air conditioning (HVAC) or refrigeration system. Packaged HVAC systems, where used, shall be identified with the appropriate manufacturer's data sheets.

The project owner shall design and install all HVAC and refrigeration systems within buildings and related structures in accordance with the CBC and other applicable codes. Upon completion of any increment of construction, the project owner shall request the CBO's inspection and approval of that construction. The final plans, specifications and calculations shall include approved criteria, assumptions, and methods used to develop the design. In addition, the responsible mechanical engineer shall sign and stamp all plans, drawings and calculations and submit a signed statement to the CBO that the proposed final design plans, specifications and calculations conform with the applicable LORS.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of construction of any HVAC or refrigeration system, the project owner shall submit to the CBO the required HVAC and refrigeration calculations, plans, and specifications, including a copy of the signed and stamped statement from the responsible mechanical engineer certifying compliance with the CBC and other applicable codes, with a copy of the transmittal letter to the CPM.

**ELEC-1** Prior to the start of any increment of electrical construction for all electrical equipment and systems 480 Volts or higher (see a

representative list, below), with the exception of underground duct work and any physical layout drawings and drawings not related to code compliance and life safety, the project owner shall submit, for CBO design review and approval, the proposed final design, specifications, and calculations. Upon approval, the above listed plans, together with design changes and design change notices, shall remain on the site or at another accessible location for the operating life of the project. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. All transmission facilities (lines, switchyards, switching stations, and substations) are handled in conditions of certification in the **Transmission System Engineering** section of this document.

A. Final plant design plans shall include:

   1. one-line diagrams for the 13.8 kV, 4.16 kV and 480 V systems; and

   2. system grounding drawings.

B. Final plant calculations must establish:

   1. short-circuit ratings of plant equipment;

   2. ampacity of feeder cables;

   3. voltage drop in feeder cables;

   4. system grounding requirements;

   5. coordination study calculations for fuses, circuit breakers and protective relay settings for the 13.8 kV, 4.16 kV and 480 V systems;

   6. system grounding requirements; and

   7. lighting energy calculations.

C. The following activities shall be reported to the CPM in the monthly compliance report:

   1. Receipt or delay of major electrical equipment;

   2. Testing or energization of major electrical equipment; and

   3. A signed statement by the registered electrical engineer certifying that the proposed final design plans and specifications

conform to requirements set forth in the Energy Commission decision.

**Verification:** At least 30 days (or project owner- and CBO-approved alternative time frame) prior to the start of each increment of electrical construction, the project owner shall submit to the CBO for design review and approval the above listed documents. The project owner shall include in this submittal a copy of the signed and stamped statement from the responsible electrical engineer attesting compliance with the applicable LORS, and shall send the CPM a copy of the transmittal letter in the next monthly compliance report.

## B. POWER PLANT EFFICIENCY

Pursuant to the California Environmental Quality Act (CEQA), the Commission must determine whether the consumption of fossil fuel (a non-renewable form of energy) will result in substantial impacts upon energy resources. (Cal. Code Regs., tit. 14 § 15126.4(a)(1), App. F.) However, Imperial Valley Solar Project would use solar energy to generate all of its capacity and fossil fuel, in the form of natural gas, would be used only to maintain steam seals, assist with startups, and keep the temperature of the heat transfer fluid above its relatively high freezing point. The project would decrease reliance on fossil fuel, and would increase reliance on renewable energy resources. The undisputed evidence establishes that the project would not create significant adverse effects on fossil fuel energy supplies or resources, would not require additional sources of energy supply, and would not consume fossil fuel energy in a wasteful of inefficient manner.

The evidence examines the efficiency of the Imperial Valley Solar Project design, compares project efficiency to that of other solar projects, and examines whether the project will incorporate measures that prevent or reduce wasteful, inefficient, or unnecessary energy consumption. There are no LORS that establish solar power plant efficiency criteria.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The Imperial Valley Solar Project is a solar thermal power plant producing a total of 750 MW (nominal net output) and employing a Stirling engine-based solar thermal technology to produce electrical power using 30,000 Stirling Energy Systems SunCatcher units. Each SunCatcher is composed of a pedestal, a mirrored dish that tracks the sun, and a power conversion unit (PCU) consisting of a solar receiver, a closed-cycle Stirling engine, and a generator that capture the solar energy and convert it to electricity. Each SunCatcher is capable of generating 25 kW of power. Power would be routed from the SunCatchers to electrical transformers, then to a switchyard located near the center of the project (Exs. 1, pp. 3-2 – 3-3; 3-10 – 3-12; 302, pp. D.3-1, D.3-3.)

Each of the 30,000 Stirling engines is filled with hydrogen gas, which acts as a working fluid that allows the engine to operate. During operation, hydrogen leaks from the engines and must be continuously replenished from a centralized hydrogen system connected to each SunCatcher.

Hydrogen would be created on-site by electrolysis of water using electricity from the grid, consuming approximately 37 MWh of electrical energy annually. Compared to a typical power plant of equal capacity, this rate is insignificant. (Ex. 302, p. D.3-3.)

The Stirling engine that is the heart of the SunCatcher technology is cooled by an automotive-style cooling system. Waste engine heat is conducted via an enclosed cooling loop to a radiator that dumps the waste heat to the atmosphere. This is a dry cooling system; its only water consumption is that required to make up any unintended leakage from the system. Thus, we concur with Staff's determination that the cooling technology selected for this project appears optimum. (Ex. 302, p. D.3-7.)

The Applicant and Staff evaluated alternative generating technologies to the proposed project. Staff independently concluded that from an energy efficiency prospective, given the project objectives, location, air pollution control requirements, and the commercial availability of various alternative technologies, that the selected solar thermal technology is a feasible selection. This is evaluated in the **Alternatives** section of this Decision.

1. Fossil Fuel Use – Impacts

Solar thermal power plants typically consume much less fossil fuel (usually in the form of natural gas) than other types of thermal power plants. Therefore, common measures of power plant efficiency used by the Commission to analyze gas-fired power plants are less meaningful when applied to a solar project. There are currently no legal or industry standards for measuring the efficiency of solar thermal power plants.

The Imperial Valley Solar Project would consume no natural gas or other fossil fuel for power generation. Because the project would consume no natural gas, staff considers the project's fuel consumption to have no impact on energy supplies and energy efficiency. (Ex. 302, pp. D.3-3 – D.3-4.)

2. Solar Land Use Impacts

Solar power plants do occupy vast tracts of land and therefore, the focus for analyzing the efficiency of these types of facilities must shift from fuel efficiency to land use efficiency. To analyze the land use efficiency of a solar facility, Staff analyzed the Imperial Valley Solar Project to determine its overall solar

efficiency. The greater the project's solar efficiency, the less land the plant must occupy to produce a given power output. (Ex. 302, pp. D.3-5 – D.3-7.)

The extent of the project's land use impacts is likely in direct proportion to the number of acres affected. For this reason, we evaluated the land use efficiency of the project and expressed the results in terms of power produced, or MW per acre. We evaluated the project as compared to the MW per acre of other solar projects currently under review by the Commission. These projects' power and energy output, and the extent of the land occupied by them, are summarized in **Efficiency Table 1**, below. The solar land use efficiency for a typical fossil fuel-fired (natural gas-fired) combined cycle power plant is shown only for comparison. (Ex. 302, p.D.3-6.)

According to the Staff analysis, the Imperial Valley Solar Project will produce power at the rate of 750 MW net, and will generate energy at the rate of 1,620,000 MW-hours net per year, while occupying 6,500 acres (Ex. 302, p. D.3-5). Staff calculations for the Imperial Valley Solar Project establish:

**Power-based efficiency**: 750 MW ÷ 6,500 acres = **0.12 MW/acre** or **8.7 acres/MW**

Staff calculates energy-based land use efficiency by subtracting the project's power consumption, in this case the electrical energy consumed in hydrogen replenishment.

**Energy-based efficiency**:

electrical energy consumed in hydrogen replenishment:

1,620,000 MWh/year – 37 MWh/year = 1,619,963 MWh/year

energy-based efficiency:

1,619,963 MWh/year ÷ 6,500 acres = **249 MWh/acre-year**

**Efficiency Table 1**
**Solar Land Use Efficiency**

| Project | Generating Capacity (MW net) | Annual Energy Production (MWh net) | Annual Fuel Consumption (MMBtu LHV) | Footprint (Acres) | Land Use Efficiency (Power-Based) (MW/acre) | Land Use Efficiency (Energy – Based) (MWh/acre-year) | |
|---|---|---|---|---|---|---|---|
| | | | | | | Total | Solar Only[1] |
| **IVS (08-AFC-5)** | **750** | **1,620,000** | **0** | **6,500** | **0.12** | **249** | **249** |
| Beacon Solar (08-AFC-2) | 250 | 600,000 | 36,000 | 1,240 | 0.20 | 484 | 480 |
| Ivanpah SEGS (07-AFC-5) | 400 | 960,000 | 432,432 | 3,744 | 0.11 | 256 | 238 |
| GAS-FIRED EXAMPLE: Avenal Energy (08-AFC-1)[2] | 600 | 3,023,388 | 24,792,786 | 25 | 24.0 | 120,936 | N/A |
| Abengoa Solar (09-AFC-5) | 250 | 630,000 | 94,280 | 1420 | 0.18 | 444 | 434 |
| Blythe Solar (09-AFC-6) | 1000 | 2,100,000 | 207,839 | 5,950 | 0.17 | 353 | 348 |
| Palen Solar (09-AFC-7) | 500 | 1,000,000 | 103,919 | 2970 | 0.17 | 337 | 332 |
| Genesis Solar (09-AFC-8) | 250 | 600,000 | 60,000 | 1,800 | 0.14 | 333 | 329 |
| Ridgecrest Solar (09-AFC-9) | 250 | 500,000 | 51,960 | 1,440 | 0.17 | 347 | 342 |
| San Joaquin Solar Hybrid (08-AFC-12) | 106 | 774,000 | 5,899,500 | 640 | 0.17 | 1209 | 415 |

1 - Net energy output is reduced by natural gas-fired combined cycle proxy energy output; see **Efficiency Appendix A.**
2 - Example natural gas-fired combined cycle plant.

[3] Example natural gas-fired combined cycle plant.

As shown, the Imperial Valley Solar project will employ the Stirling Energy Systems SunCatcher technology, which is roughly one-half as efficient in use of land as the Beacon Solar project, which employs linear parabolic trough technology. And, even though the Imperial Valley Solar project is roughly as efficient in use of land as the Ivanpah Solar Electric Generating System project, which employs BrightSource power tower technology, this project represents one of the least land use–efficient solar technologies currently available. (Ex. 302, pp. D.3-7.)

Based on the evidence, we make the following findings and reach the following conclusions:

**FINDINGS OF FACT**

1. Imperial Valley Solar Project will provide approximately 750 MW of electrical power, using solar energy and no natural gas.

2. Because the project would consume no natural gas, the project's fuel consumption will have no impact on energy supplies and energy efficiency.

3. The evidence contains a comparative analysis of alternative fuel sources and generation technologies, none of which is superior to the proposed project at meeting project objectives in an efficient manner.

4. Imperial Valley Solar Project will not require the development of new fuel supply resources.

5. The project will decrease reliance on fossil fuel and will increase reliance on renewable energy resources. Consequently, the project would help in reducing California's dependence on fossil fuel-fired power plants.

6. The evidentiary record contains an analysis of the project's land use impacts compared to energy output, and analyses of alternative solar technologies and heat rejection systems.

7. No nearby power plant projects or other projects consuming large amounts of fossil fuel hold the potential for cumulative energy consumption impacts when aggregated with the project.

8. No Federal, State, or local laws, ordinances, regulations, or standards apply to the efficiency of this project.

## CONCLUSIONS OF LAW

1. The Imperial Valley Solar Project will not create adverse effects upon energy supplies or resources, require additional sources of energy supply, or consume energy in a wasteful or inefficient manner.

2. No Conditions of Certification are required for this topic area.

## C. POWER PLANT RELIABILITY

In order to ensure safe and reliable operation of the Imperial Valley Solar (IVS) project, the Commission must determine whether the project will be appropriately designed and sited. [Pub. Res. Code, § 25520(b); Cal. Code Regs., tit. 20, § 1752(c)(2).] However, there are no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation. (Ex. 302, pp. D.4-1 and D.4-10.)

The responsibility for maintaining system reliability falls largely to operators such as the California Independent System Operator (CAISO) that purchase, dispatch, and sell electric power throughout the State. (Ex. 302, p. D.4-2.) Protocols to ensure sufficient electrical system reliability have been established. For example, “must run” power purchase agreements and “participating generator” agreements are two mechanisms that contribute to an adequate supply of reliable power. CAISO’s mechanisms to ensure adequate power plant reliability are based on the assumption that the individual power plants that compete to sell power into the system will each exhibit a level of reliability no less than that of power plants of past decades. (Ex. 302, p. D.4-3.)

The “availability factor” of a power plant is the percentage of time it is available to generate power; both planned and unplanned outages subtract from this availability. Measures of power plant reliability are based upon two factors: (1) the plant’s actual ability to generate power when it is considered to be available and, (2) failures at start-up and unplanned (or forced) outages. For practical purposes, reliability can be considered a combination of these two industry measures, making a reliable power plant one that is can provide power when called upon to operate. Power plant systems must be able to operate for extended periods without shutting down for maintenance or repairs. Achieving this reliability requires adequate levels of equipment availability, plant maintainability with scheduled maintenance outages, fuel and water availability, and resistance to natural hazards. This section examines these factors for the project. As of this writing, industry norms that could be used for comparison purposes have not been developed for solar thermal power plants.(Ex. 302, p. D.4-2.)

## SUMMARY AND DISCUSSION OF THE EVIDENCE

The Applicant proposes to operate the 750[1] megawatt (MW) net power output IVS project, a solar thermal power plant facility employing advanced solar power technology. The Applicant intends to provide dependable power to the grid, generally during the hours of peak power consumption by San Diego Gas and Electric Company (SDG&E), the interconnecting utility. This project would help serve the need for renewable energy in California, as all its generated electricity will be produced by the sun, a reliable source of energy that is available during hot summer afternoons, when power is needed most. In the AFC, the Applicant indicated that it expects the project to achieve an availability factor of 99 percent and to operate at an annual capacity factor[2] of approximately 25 percent (Ex. 1, AFC §§ 1.3, 3.1, 3.9.14, 3.11.1; Ex. 302, p. D.4-4.) Its operation of a unit of 60 Sun Catchers at its Maricopa facility has resulted in an availability factor of 96.1 percent (7/27/10 RT 432:7–22) and a capacity factor of 26.7 percent during the period March 16 to June 5, 2010. (Ex. 302, p. D.4-4.)

### 1. Equipment Availability

Equipment availability will be ensured by use of appropriate quality assurance/quality control (QA/QC) programs during design, procurement, construction, and operation of the plant and by providing adequate maintenance and repair of the equipment and systems. The project owner will use a QA/QC program typical in the power industry. Equipment will be purchased from qualified suppliers, which have their own QA/QC programs, and the project owner will perform receipt inspections, test components, and administer independent testing contracts. To ensure these measures are taken, we have incorporated appropriate Conditions of Certification in the **Facility Design** section of this Decision. (Ex. 302, p. D.4-3.) Applicant's witness testified to the equipment manufacturer's warranty obligations and fulfillment program, which obligates the manufacturer to have sufficient spare parts on hand to maintain a 98 percent availability factor. (7/27/10 RT 442:10 – 443:3.)

[1] Elsewhere in this Decision we have selected Applicant's proposed 709 MW alternative as preferable to the proposed 750 MW project. This fact does not affect our analysis of reliability.

[2] "Capacity factor" is the percentage of time the plant will actually produce power.

2. Plant Maintainability

The IVS project will operate only when the sun is shining. Redundant pieces of the equipment most likely to require service or repair will be kept on site in order to allow repairs to be done at night when the plant is shut down or during the day, when the plant is in operation. (Ex. 302, p.D.4-4.) The power conversion unit (PCU), which contains the Stirling engine, is the component that has required the most maintenance interventions at the test facility. The PCU on a SunCatcher will, when in need of maintenance or repair, simply be changed out and the removed PCU serviced in the shop. Change-out is considered a normal part of plant operation and typically takes about 45 minutes. (7/27/10 RT 434:12–436:2.) During change-out, the affected SunCatcher will not generate electricity, but this will not affect the other SunCatchers, which will continue to operate. This modularity is expected to be beneficial to reliability. (7/27/10 RT 439:16–20.)

The Applicant predicts that each machine will leak its entire inventory of hydrogen once a year, thus requiring constant replenishment of hydrogen. The Applicant proposes a hydrogen electrolyzer and piping system that uses electricity from the grid to convert water into hydrogen and oxygen, then compresses the hydrogen and pipes it to each of the 30,000 SunCatchers. (Ex. 300, D.4-4.) Experience at the Applicant's Maricopa test facility has shown that Applicant's hydrogen leakage predictions are correct and its replenishment procedure is functioning as expected. (7/27/10 RT 425:19–426:10.)

Staff expressed reluctance to predict the long-term availability factor for the project. (Ex. 302, p. D.4-5.) However, all the evidence points to an ongoing upward trend. (7/27/10 RT 426:18–27:8.) The current 96.1 percent is already within the range of typical power plant availability factors. Although some individuals have expressed concern due to the fact that this will be the first installation of SunCatchers on so large a scale (Exs. 302, p. D.4-1; 504), these opinions do not take into account the performance of SunCatchers at the Maricopa test facility. There is no evidence in the record that would tend to show that the availability factor will decrease.

3. Fuel and Water Availability

For any power plant the long-term availability of fuel, and water for cooling or process use, is necessary to ensure reliability. The IVS Project will not use natural gas or other fossil fuel. Therefore, there is no likelihood that availability of fuel will cause concern. (Ex. 300, p. D.4-5.)

The IVS project proposes using water from the Seeley Waste Water Treatment Facility (SWWTF) for mirror washing, for potable and fire protection water, and in an electrolysis process to produce hydrogen gas[3] to replenish the hydrogen that leaks from the Stirling engines if the proposed upgrades to SWWTF are approved. (Ex. 1, §§ 1.3, 1.4, 3.1.2, 3.5.6, 3.5.10, 3.7; Table 3-2.) Since the Stirling engines use automotive-style radiators containing an ethylene-glycol solution, no water would be required for power plant cooling. Water from SWWTF would be brought to the site via a new 11.8-mile-long 6-inch diameter pipeline, treated onsite and stored in tanks holding raw water, demineralized water and potable water.

The SWWTF upgrade plans are currently undergoing environmental review. Therefore, the Applicant proposes to utilize operational and potable water from a local water supplier, Dan Boyer Water Company l in Ocotillo until the SWWTF expansion is approved and completed.

For purposes of project reliability, the evidence shows that the Dan Boyer Water Company well will be an adequate and reliable supply of water. (7/26/10 RT 92:12–103:14; 7/27/10 RT 427:10–428:18; Ex. 130.) While Staff has expressed no doubt that the Dan Boyer well will reliably supply water, Staff has expressed concerns over the impacts of the project's use of groundwater. We address impacts and mitigation for water use in the **Soil and Water Resources** section of this Decision.

4. Natural Hazards

The site lies within a seismically active region; see the "Faulting and Seismicity" portion of the **Geology and Paleontology** section of this Decision. Project facilities will be designed in accordance with applicable building codes' seismic design Criteria, set forth in the 2007 California Building Code (CBC) and provided in Appendix E, Preliminary Geotechnical and Geologic Hazards Evaluation, of Exhibit 1. The dish structures, and possibly other structures at the site, will be designed to resist the seismic loading developed as part of the Probabilistic Seismic Hazard Analysis (PSHA). (Ex. 1, p. 5.3-13.) We therefore find that this project's seismic performance will likely meet or exceed that of existing plants in the electric power system. We adopt Condition of Certification **STRUC-1** to ensure this; see the **Facility Design** section of this Decision. (Ex. 302, p. D.4-6.)

[3] The annual power consumption to meet the hydrogen production needs is 100 kW per day, or 36.64 MW per year. Although the hydrogen generator could run full time if needed to support SunCatcher hydrogen requirements, the generator would normally be operated at off peak hours using grid power. (Ex. 302, p. B.1-17.)

Portions of the site lie within the 100-year flood plain. (Ex.1, § 3.10.1.4.) Project features will be designed and built to provide adequate levels of flood resistance. For further discussion, see the **Soil and Water Resources** and **Geology and Paleontology** sections of this Decision. (Ex. 302, p. D.4-6.)

High winds are common in the region of the site; all buildings and facilities will be designed for the wind loads stated in the 2007 CBC, the 2007 UBC, and the 2006 IBC. The SunCatcher has been designed to withstand winds of 90 miles per hour. (Ex. 1, § 3.10.1.2. Ex. 302, p. B.1-22.) The evidence thus shows there should be no effect on power plant functional reliability due to wind. (Ex. 302, p. D.4-6.)

5. Comparison to Industry Norms

The North American Electric Reliability Corporation (NERC) maintains industry statistics for availability factors (as well as other related reliability data). The NERC regularly polls North American utility companies on their project reliability through its Generating Availability Data System and periodically summarizes and publishes those statistics on the Internet at <http://www.nerc.com>. Energy Commission staff typically compares the applicant's claims for reliability to the statistical reliability of similar power plants. Because solar technology is relatively new and the technologies employed so varied, no NERC statistics are available for solar power plants. Staff's typical comparison with other existing facilities thus cannot be accomplished. (Ex. 302, p. D.4-6.)

Typical availability factors for gas-fired power plants range from 94 to 98 percent. *See* North American Electric Reliability Council *2005–2009 Generating Availability Report,* available at <www.nerc.com/elibrary>. Given that the evidence shows the IVS project will likely achieve an availability factor within this range, we find that the project compares favorably with industry norms for utility-scale electrical generation facilities.

**FINDINGS OF FACT**

Based on the uncontested evidence, we make the following findings:

1. No federal, state, or local/county LORS apply to the reliability of the Imperial Valley Solar Project.

2. A project's reliability is acceptable if it does not degrade the reliability of the utility system to which it is connected.

3. No NERC statistics for solar power plants are currently available. The evidence shows that the project's predicted availability factor of 98 percent compares favorably to typical availability factors for fossil-fueled plants.

4. The technology used by the IVSP has certain potential reliability advantages compared to other generating technologies including its modularity and the ability to maintain and repair individual units without materially affecting overall output, and certain disadvantages including a relative lack of historical field data on commercial-scale installations.

5. The Imperial Valley Solar Project is anticipated to operate at an annual capacity factor of approximately 25 percent.

6. Implementation of QA/QC programs during design, procurement, construction, and operation of the plant, as well as adequate maintenance and repair of the equipment and systems, will ensure the project is adequately reliable.

7. Appropriate Conditions of Certification included in the **Facility Design** portion of this Decision ensure implementation of the QA/QC programs and conformance with seismic design criteria.

8. The Applicant will use the water from a private well near the project site to supply water for the project pending approval and construction of upgrades to the Seeley Wastewater Treatment Facility, which will provide treated effluent for the project. With the implementation of Condition of Certification **SOIL&WATER-9,** requiring documentation of the well's compliance with the terms of its registration and the well owner's/SWWTF's commitment to provide water, the water supply will be reliable and adequate for the project.

9. The project is designed to withstand seismic events, flooding and high winds.

10. The project will incorporate an appropriate redundancy of function for its equipment.

11. The project will provide renewable energy on hot summer days, when it is most needed.

## CONCLUSIONS OF LAW

1. We therefore conclude that the Imperial Valley Solar Project will meet or exceed industry norms and not degrade the overall reliability of the electrical system.

2. There are no LORS that establish either power plant reliability criteria or procedures for attaining reliable operation.

No Conditions of Certification are proposed for this section.

## D. TRANSMISSION SYSTEM ENGINEERING

The Commission's jurisdiction includes electric transmission lines, which are defined as "…any electric power line[s] carrying electric power from a thermal powerplant …to a point of junction with any interconnected transmission system." (Pub. Res. Code, § 25107.) The Commission assesses the engineering and planning design of new transmission facilities associated with a proposed project to ensure compliance with applicable law.

The California Independent System Operator (CAISO) is responsible for ensuring electric system reliability for participating entities, and determines both the standards necessary to achieve system reliability and whether a proposed project conforms to those standards. The Commission works in conjunction with the CAISO in assessing a project. In this matter, Commission Staff evaluated the project's transmission system engineering.

The record indicates that the Applicant in this case accurately identified all necessary interconnection facilities. The record also shows that the power plant outlet lines and termination and downstream facilities were evaluated, and Conditions of Certification have been proposed, to ensure the project complies with applicable laws during the design review, construction, operation, and potential closure of the project. The evidence on these matters is undisputed. (5/24/10 33-98, Exs. 1, § 3.6, Appen. H, J; 32,116, 302, §D.5.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The Imperial Valley project will be located in a 6,500 acre site in Imperial County, California. The 750 megawatt (MW) project will interconnect to San Diego Gas & Electric's (SDG&E) existing Imperial Valley 500/230 kV substation, which is located southwest of El Centro, California. SDG&E is responsible for ensuring electrical system reliability in its service territory for proposed transmission modifications.

The record details how this solar concentrating thermal power plan will use the proprietary SunCatcher technology to generate and deliver the solar electric power to a new 34.5 kV to 230 kV 750 MW substation to be built on the project site. The record further describes the substation components and configuration. For Phase I, the first interconnection substation will initially consist of two power transformers rated at 120/160/200 MVA each, to convert the generation collection voltage from 34.5 kV to the transmission tie voltage of 230kV.

Expansion of the substation from 300 to 750MW will occur with the addition of three power transformers during Phase II. (Exs. 1, pp.3-6 to 3-17 and Figures 3-11 to 3-18; 302, pp. D.5-4 - D.5-5.)

The on-site substation will be connected to SDG&E's Imperial Valley Substation by a 10.3 mile long 230-kV double circuit overhead transmission line. The SDG&E Imperial Valley Substation will be modified to include one or more 230-kV breakers and associated switches, metering equipment, and a protection system. (Exs. 1, § 3.6; 302, p. D.5-5.)

1. Interconnection System Impact Studies

SDG&E as the interconnecting utility, and CAISO as the control area operator, are responsible for ensuring grid reliability for project interconnection to the grid. The record contains discussion of the studies (and underlying assumptions) performed to assess the project's potential impacts upon SDG&E's transmission system and to analyze the CAISO grid with and without the project.

Under the Federal Energy Regulatory Commission's Large Generation Interconnection Procedures, CAISO, and SDG&E performed a system impact study (SIS), which is presented in the record. (Ex. 1, p. 3-27 and Appen. H.) The SIS includes a commercial operating date (COD) study and future-year (FY) study. The COD study examines the effect of the project on the bulk power grid at the time of the anticipated commercial operating date.[1] The FY study evaluates the project's impacts after all of the preceding generation projects in the CAISO queue have come online.

The SIS base cases included all CAISO approved major SDG&E transmission projects, the transmission system for the Imperial Irrigation District, Comisión Federal de Electricidad, and major path flow limits of Southern California Import Transmission, and 500-kV Southwest Power link and 230-kV phase shifting transformer at Imperial Valley at the interconnection between SDG&E and the Imperial Irrigation District.

The SIS included power flow, sensitivity, and short circuit studies, and transient and post-transient analyses. (Exs. 1, Appen. H; 302, pp. D.5-6 - D.5-8.)

[1] The SIS were prepared with an assumed December 31, 2009, commercial operating date, although the Applicant proposed operational dates of summer of 2010 for Phase I and spring 2011 for Phase II.

Phase 1 (300 MW) Power Flow Studies.

The power flow studies were conducted with and without Phase 1 connected to SDG&E's grid at the existing SDG&E Imperial Valley Substation, using 2009 heavy summer and 2008/2009 light winter-spring base cases. The study assessed the potential impacts of the project on thermal loading of the transmission lines and equipment.

Under the Phase I power flow analysis, there will be no Category A (N-0) thermal or voltage violations of the SDG&E and adjacent systems. The studies found, however, that the Imperial Valley Substation 500/230-kV transformer bank 80 was overloaded under the 2009 heavy summer Category B (N-1) contingency analysis. The SIS concluded that this impact will be mitigated with installation of an additional 1120/1194 MVA, 500/230-kV transformer bank at the Imperial Valley Substation. The studies also show that the Miguel 500/230-kV transformer banks 80 and 81 were overloaded under the 2009 summer heavy Category B (N-1) contingency analysis. According to the SIS, installing protection and control equipment at the Miguel, Imperial Valley Substation, and on-site substations and establishing redundant communication paths among the three substations will mitigate these impacts. (Exs. 1, Appen. H; 302, pp. D.5-6 - D.5-7.)

Phase 2 (450 MW) Power Flow Studies.

Power flow studies were also conducted with and without Phase II connected to SDG&E's grid at the existing SDG&E Imperial Valley Substation, using 2011 heavy summer and 2011/2012 light winter-spring case studies. The studies found that the addition of Phase II would cause the Sycamore Canyon 230/69-kV transformer banks 70 and 71 to overload above continuous ratings for Category A (N-0), heavy summer 2011 contingency analysis. The transformers might not overload if a higher queue generation project does not happen. However, in anticipation of potential overload, the SIS requires installation of a third 230/69-kV, 224 MVA transformer bank at the Sycamore Substation to mitigate the impacts.

The studies also show that the Sycamore-Chicarita 138-kV transmission line was overloaded above the continuous ratings for Category B (N-1) heavy summer 2011 contingency analysis. This impact will be mitigated by implementing either of two alternatives presented by the SIS: (1) reconductor the Sycamore Canyon-Chicarita 138 kV transmission line to a continuous rating of 250MWA from bus to

bus or (2) include within the project operating procedures a process for curtailing project output during planned or extended forced outages.

Finally, the studies found that the Imperial Valley Substation, 500/230-kV transformer bank 81 was overloaded, under the 2011/2012 light winter-spring Category B (N-1) contingency analysis. The SIS concluded that this impact will be mitigated by installing an additional 1120/1194 MVA, 500/230-kV transformer bank at Imperial Valley Substation. (Exs. 1, Appen. H, p. 2; 16; 302, pp. D.5-7 - D.5-8.)

Phase 1 and Phase 2 Short-Circuit Duty Studies.

The record describes the short circuit studies performed to determine if, and the degree to which, the addition of the power generated by the project would overstress existing facilities by increasing fault duties at SDG&E substations, and other 69-kV, 115-kV, 230-kV, and 230-kV busses in the study area. According to the studies, the addition of the project will not cause any existing breaker to become overdutied during fault conditions. (Exs. 1, Appen. G, H; 302, p. D.5-8.)

Phase 1 and 2 Transient and Post-Transient Studies.

The transient studies were conducted for the critical single and double contingencies using 2009 and 2011 heavy summer base cases to determine whether the project would create system instability after certain selected outages. The record shows that the three-phase faults with normal clearing were studied for the single contingencies and the three-phase faults with delayed clearing were studied for the double contingencies. The record discusses the studies and their underlying assumptions supporting the determinations that (1) the WECC transmission system remained stable for all contingency simulations and (2) there were no criteria violations.

The post-transient studies conducted for similar or larger generators in the area concluded that voltage remains stable under both N-1 and N-2 contingencies. The studies also show that the system remained stable under both single and double contingency outage conditions for the primary point of interconnection. (Exs. 1, Appen. H, J; 302, p. D.5-8.)

Phase 1 and Phase 2 Reactive Power Deficiency Analysis.

The record shows that case studies were performed for post-transient reactive power sufficiency using the Voltage Analysis Tool (VSAT). The record further shows that all power flow cases met CAISO reactive power criteria. (Exs. 1, Appen. H, p. 21; 302, p. D.5-8.)

2. Compliance with LORS

The study results indicate that Phases 1 and 2 of the project would comply with the NERC/WECC planning standards and California ISO reliability criteria. The project will be designed and constructed to include the 230 kV substation on the project site and a new 10.3 mile long, 230kV double circuit transmission facility from the project site to the Imperial Valley Substation. With implementation of the Conditions of Certification herein, the project would meet the requirements and standards of all applicable LORS for TSE.

3. Cumulative Impacts.

The evidence shows that SDG&E, CAISO, and Staff evaluated possible cumulative impacts of the project's interconnection to the grid. Staff reviewed existing and foreseeable projects and considered whether project interconnection as well as interconnection of those projects would be in accord with all applicable LORS. As more fully discussed in the SIS, CAISO and SDG&E determined that the project's cumulative marginal impacts to the safe and reliable operation of the transmission system can be adequately mitigated to less than significant levels with implementation of the measures and Conditions of Certification imposed by this Decision. (Exs. 1, Appen. H; 302, pp. B.3-1 to B.3-12, D.-5-12.)

4. Required Mitigation Measures.

Based upon the analyses and recommended mitigation measures set forth in the SIS, we hereby require the project owner to implement the following three mitigation measures:

- For Phase I overloads under Category B (N-1) contingency analysis, the project owner is required to install a 500/230-kV, 1,120 MVA transformer bank at the existing SDG&E Imperial Valley Substation.

- For Phase II overloads under Category A (N-0) analysis, the project owner is required to install a third 230/69-kV, 224 MVA transformer at the Sycamore Substation.
- The project owner is required to design and construct the project with adequate reactive power resources to compensate the consumption of Var by the generator step-up transformers, distribution feeders, and generator tie-lines. (Ex. 302, pp. D.5-1, D.5-7..)

In addition to the above-listed mitigation measures, we have adopted Conditions of Certification **TSE-1** through **TSE-7** set forth below, to further address and reduce to less than significant, any potential impacts arising from the project's transmission system.

**FINDINGS OF FACT**

Based on the uncontroverted evidence of record, we make the following findings and conclusions:

1. No new transmission lines, other than those proposed by Applicant, are required for the project.

2. The record includes a System Impact Study that analyzes potential reliability and congestion impacts that could occur when the Imperial Valley project interconnects to the grid.

3. Imperial Valley will cause overloads to the transmission grid under specified conditions, but such impacts are mitigated to less-than-significant with implementation of the required mitigation and Conditions of Certification.

4. The Imperial Valley switchyard and interconnection facilities will be adequate and reliable. The power plant switchyard, outlet lines, and termination are in accordance with good utility practices and are acceptable.

5. Adding local generation such as Imperial Valley would supplement local solar generation and import of power to the SDG&E system, meet the increasing load demand in San Diego County's Imperial Valley, provide additional reactive power and voltage support in the local network, and may reduce system losses in the SDG&E system.

6. The Conditions of Certification are adequate to ensure that Imperial Valley does not adversely impact the transmission grid.

## CONCLUSIONS OF LAW

1. We therefore conclude that with the implementation of the various mitigation measures specified in this Decision, the proposed transmission interconnection for the project will not contribute to significant adverse direct, indirect, or cumulative impacts.

2. The Conditions of Certification below ensure that the transmission-related aspects will be designed, constructed, and operated in conformance with the applicable laws, ordinances, regulations, and standards identified in the appropriate portion of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**TSE-1** The project owner shall furnish to the Compliance Project Manager (CPM) and to the Chief Building Official (CBO) a schedule of transmission facility design submittals, a Master Drawing List, a Master Specifications List, and a Major Equipment and Structure List. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment. To facilitate audits by Energy Commission staff, the project owner shall provide designated packages to the CPM when requested

**Verification:** At least 60 days prior to the start of construction (or a lesser number of days mutually agreed to by the project owner and the CBO), the project owner shall submit the schedule, a Master Drawing List, and a Master Specifications List to the CBO and to the CPM. The schedule shall contain a description and list of proposed submittal packages for design, calculations, and specifications for major structures and equipment (see a list of major equipment in Table 1: Major Equipment List below). Additions and deletions shall be made to the table only with CPM and CBO approval. The project owner shall provide schedule updates in the Monthly Compliance Report.

**TRANSMISSION SYSTEM ENGINEERING Table 1**
**Major Equipment List**

| |
|---|
| Breakers |
| Step-Up Transformer |
| Switchyard |
| Busses |
| Surge Arrestors |
| Disconnects |
| Take Off Facilities |
| Electrical Control Building |
| Switchyard Control Building |
| Transmission Pole/Tower |
| Grounding System |

**TSE-2** Prior to the start of construction, the project owner shall assign an electrical engineer and at least one of each of the following to the project: A) a civil engineer; B) a geotechnical engineer or a civil engineer experienced and knowledgeable in the practice of soils engineering; C) a design engineer who is either a structural engineer or a civil engineer fully competent and proficient in the design of power plant structures and equipment supports; or D) a mechanical engineer. (Business and Professions Code Sections 6704 et seq. require state registration to practice as a civil engineer or structural engineer in California).

The tasks performed by the civil, mechanical, electrical, or design engineers may be divided between two or more engineers, as long as each engineer is responsible for a particular segment of the project (e.g., proposed earthwork, civil structures, power plant structures, equipment support). No segment of the project shall have more than one responsible engineer. The transmission line may be the responsibility of a separate California-registered electrical engineer. The civil, geotechnical or civil, and design engineer assigned in conformance with Facility Design condition GEN-5, may be responsible for design and review of the TSE facilities.

The project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all engineers assigned to the project. If any one of the designated engineers is subsequently reassigned or replaced, the project owner shall submit the name, qualifications, and registration number of the newly assigned

engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer. This engineer shall be authorized to halt earthwork and to require changes if site conditions are unsafe or do not conform with predicted conditions used as a basis for design of earthwork or foundations.

The electrical engineer shall:

1. Be responsible for the electrical design of the power plant switchyard, outlet and termination facilities; and

2. Sign and stamp electrical design drawings, plans, specifications, and calculations.

**Verification:** At least 30 days prior to the start of rough grading (or a lesser number of days mutually agreed to by the project owner and the CBO), the project owner shall submit to the CBO for review and approval, the names, qualifications, and registration numbers of all the responsible engineers assigned to the project. The project owner shall notify the CPM of the CBO's approvals of the engineers within five days of the approval.

If the designated responsible engineer is subsequently reassigned or replaced, the project owner shall have five days in which to submit the name, qualifications, and registration number of the newly assigned engineer to the CBO for review and approval. The project owner shall notify the CPM of the CBO's approval of the new engineer within five days of that approval.

**TSE-3** If any discrepancy in design and/or construction is discovered in any engineering work that has previously undergone CBO design review and approval, the project owner shall document the discrepancy and recommend corrective action (California Building Code, 1998, Chapter 1, Section 108.4, Approval Required; Chapter 17, Section 1701.3, Duties and Responsibilities of the Special Inspector; Appendix Chapter 33, Section 3317.7, Notification of Noncompliance). The discrepancy documentation shall become a controlled document and shall be submitted to the CBO for review and approval and shall reference this condition of certification.

**Verification:** The project owner shall submit a copy of the CBO's approval or disapproval of any corrective action taken to resolve a discrepancy to the CPM within 15 days of receipt. If disapproved, the project owner shall advise the CPM, within five days, the reason for disapproval, and the revised corrective action required obtaining the CBO's approval**.**

**TSE-4** For the power plant switchyard, outlet line, and termination, the project owner shall not begin any increment of construction until plans for that increment have been approved by the CBO. These plans, together with design changes and design change notices, shall remain on the site for

one year after completion of construction. The project owner shall request that the CBO inspect the installation to ensure compliance with the requirements of applicable LORS. The following activities shall be reported in the Monthly Compliance Report:

1. Receipt or delay of major electrical equipment;

2. Testing or energization of major electrical equipment; and

3. The number of electrical drawings approved, submitted for approval, and still to be submitted**.**

**Verification:** At least 30 days prior to the start of each increment of construction (or a lesser number of days mutually agreed to by the project owner and the CBO), the project owner shall submit to the CBO for review and approval the final design plans, specifications, and calculations for equipment and systems of the power plant switchyard, outlet line, and termination, including a copy of the signed and stamped statement from the responsible electrical engineer attesting to compliance with the applicable LORS, and shall include a copy of the transmittal letter in the next Monthly Compliance Report**.**

**TSE-5** The project owner shall ensure that the design, construction, and operation of the proposed transmission facilities conform to all applicable LORS, including the requirements listed below. The project owner shall submit the required number of copies of the design drawings and calculations as determined by the CBO.

1. The IVS Project shall be interconnected to the SDG&E grid via a segment of 230kV, 1590 kcmil-ACSR, approximately 10.3 mile long double circuit extending from the new substation on the project site to the Imperial Valley Substation. The IVS Project substation on the project site shall use 34.5kV, 1200A, 25 breakers and five, three phase, 120/160/200 MVA, 34.5kV/230 kV transformers.

2. The power plant outlet line shall meet or exceed the electrical, mechanical, civil, and structural requirements of CPUC General Order 95 and General Order 98 or National Electric Safety Code (NESC), Title 8 of the California Code and Regulations (Title 8), Articles 35, 36, and 37 of the “High Voltage Electric Safety Orders”, California ISO standards, National Electric Code (NEC), and related industry standards.

3. Breakers and busses in the power plant switchyard and other switchyards, where applicable, shall be sized to comply with a short-circuit analysis.

4. Outlet line crossings and line parallels with transmission and distribution facilities shall be coordinated with the transmission line owner and comply with that owner's standards.

5. The project conductors shall be sized to accommodate the full output from the project.

6. Termination facilities shall comply with applicable SCE interconnection standards.

7. The project owner shall provide to the CPM:

   a. The final Detailed Facility Study (DFS) including a description of facility upgrades, operational mitigation measures, and/or Special Protection System (SPS) sequencing and timing if applicable,

   b. Executed project owner and California ISO Facility Interconnection Agreement.

**Verification:** At least 60 days prior to the start of construction of transmission facilities (or a lessor number of days mutually agreed to by the project owner and CBO), the project owner shall submit to the CBO for approval:

1. Design drawings, specifications, and calculations conforming with CPUC General Order 95 and General Order 98 or NESC; Title 8, California Code of Regulations, Articles 35, 36, and 37 of the "High Voltage Electric Safety Orders"; NEC; applicable interconnection standards, and related industry standards for the poles/towers, foundations, anchor bolts, conductors, grounding systems, and major switchyard equipment.

2. For each element of the transmission facilities identified above, the submittal package to the CBO shall contain the design criteria, a discussion of the calculation method(s), a sample calculation based on worst-case conditions,[2] and a statement signed and sealed by the registered engineer in responsible charge**,** or other acceptable alternative verification, that the transmission element(s) will conform with CPUC General Order 95 or NESC; Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; NEC; applicable interconnection standards, and related industry standards.

3. Electrical one-line diagrams signed and sealed by the registered professional electrical engineer in responsible charge, a route map, and an engineering description of equipment and the configurations covered by requirements TSE-5 1) through 5) above.

[2] Worst-case conditions for the foundations would include for instance, a dead-end or angle pole.

4. The final Detailed Facility Study, including a description of facility upgrades, operational mitigation measures, and/or SPS sequencing and timing if applicable, shall be provided concurrently to the CPM.

**TSE-6** The project owner shall provide the following Notice to the California Independent System Operator (California ISO) prior to synchronizing the facility with the California transmission system:

1. At least one week prior to synchronizing the facility with the grid for testing, provide the California ISO a letter stating the proposed date of synchronization; and

2. At least one business day prior to synchronizing the facility with the grid for testing, provide telephone notification to the California ISO Outage Coordination Department.

**Verification:** The project owner shall provide copies of the California ISO letter to the CPM when it is sent to the California ISO one week prior to initial synchronization with the grid. A report of the conversation with the California ISO shall be provided electronically to the CPM one day before synchronizing the facility with the California transmission system for the first time.

**TSE-7** he project owner shall be responsible for the inspection of the transmission facilities during and after project construction, and any subsequent CPM and CBO approved changes thereto, to ensure conformance with CPUC GO-95 or NESC; Title 8, CCR, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; applicable interconnection standards; NEC; and related industry standards. In case of non-conformance, the project owner shall inform the CPM and CBO in writing, within 10 days of discovering such nonconformance and describe the corrective actions to be taken.

**Verification:** Within 60 days after first synchronization of the project, the project owner shall transmit to the CPM and CBO:

1. As-built engineering description(s) and one-line drawings of the electrical portion of the facilities signed and sealed by the registered electrical engineer in responsible charge. A statement attesting to conformance with CPUC GO-95 or NESC; Title 8, California Code of Regulations, Articles 35, 36 and 37 of the "High Voltage Electric Safety Orders"; applicable interconnection standards; NEC; and related industry standards, and these conditions shall be provided concurrently with the submittal of the as-built plans.

2. An as-built engineering description of the mechanical, structural, and civil portions of the transmission facilities signed and sealed by the registered

engineer in responsible charge or acceptable alternative verification. As-built drawings of the electrical, mechanical, structural, and civil portions of the transmission facilities shall be maintained at the power plant and made available, if requested, for CPM audit as set forth in the “Compliance Monitoring Plan.”

3. A summary of inspections of the completed transmission facilities, and identification of any nonconforming work and corrective actions taken, signed and sealed by the registered engineer in charge.

## E. TRANSMISSION LINE SAFETY AND NUISANCE

The Imperial Valley Solar Project's transmission line must be constructed and operated in a manner that protects environmental quality, assures public health and safety, and complies with applicable law. This portion of the Decision assesses the potential for the generation tie line to create the various impacts mentioned below, as well as whether mitigation measures are required to reduce any adverse effects to insignificant levels. The analysis of record takes into account both the physical presence of the line and the physical interactions of its electric and magnetic fields. The evidence submitted by Applicant and Staff was uncontested. (5/24/2010 (day 1) RT 34; 5/24/2010 (day 2) RT 276-78; Exs. 1; 300, C.12; 302, §C.12.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The transmission tie line facilities associated with this project[1] consist of:

- An on-site 230-kV switchyard; and
- A new, double-circuit 230-kV overhead transmission line extending 10.3 miles from the on-site switchyard to SDG&E's Imperial Valley Substation.

The on-site segment (approximately 2.74 miles long) will be located within a100-foot right-of-way extending from the on-site substation east and south to a point where the SDG&E Southwest Powerlink transmission line's right-of-way crosses the project's southern boundary line. The off-site segment (approximately 7.56 miles long) will be routed within a 100-foot right-of-way running parallel to the existing SDG&E 500-kV Southwest Powerlink transmission line until the third tower from the SDG&E Imperial Valley Substation where the line will cross under the 500-kV line. (Ex. 300, pp. C.12-4 to C.12-5.) The tie line crosses only uninhabited desert land, with no nearby residences. The line will be supported by 85 to 100 steel structures, spaced from 650 to 850 feet apart. (Ex. 300, pp. C.12-1, C.12-5.)

Potential impacts involve aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger,

[1] Imperial's associated transmission project is also known as "Phase I". "Phase II" will require SDG&E to build a new 500-kV line from the Imperial Valley Substation. Only "Phase I" is discussed here as the Commission's jurisdiction over a transmission line associated with a power plant extends only to "a point of junction with any interconnected transmission system." [Pub. Res. Code §§ 25107, 25110.] The CPUC and the BLM will review "Phase II." (Ex. 300, pp. C.12-1, C.12-4 to C.12-5.)

and electric and magnetic field (EMF) exposure. (Ex. 300, pp. C.12-1 to C.12-2.) The evidence conclusively establishes the following:

- *Aviation Safety*

Hazards to area aircraft arise from the potential for collision in the navigable airspace. The project site is not located near a major commercial aviation center. The nearest airfield is the Naval Air Facility at El Centro, approximately 7 miles northeast of the project site. The evidence shows that the project is sufficiently distant so as not to pose a hazard. Moreover, the 70-100 foot maximum height of the line's support structures is well below the 200-foot height threshold of concern for the Federal Aviation Administration. Thus, the project is unlikely to pose a hazard to users of the existing Naval airfield. (Ex. 300, p. C.12-5.)

- *Interference with Radio-Frequency Communication*

This potential impact is one of the indirect effects of line operation and is produced by the physical interactions of the electric fields. It arises from corona discharge and is primarily a concern for lines larger than 345-kV. The project's 230-kV line will be built and maintained according to standard SDG&E practices aimed at minimizing any interference. Moreover, there are no nearby residential receptors. Thus, no radio frequency interference or related complaints are likely. (Ex. 300, pp. C.12-5 to C.12-6.)

- *Audible Noise*

This is typically perceived as a characteristic crackling, hissing, or frying sound or hum, especially in wet weather.[2] The noise level depends upon the strength of the line's electric field, and is a concern mainly from lines of 345-kV or higher. It can be limited through design, construction, and maintenance practices. The project's line (230-kV) will embody a low corona design to minimize field strengths. The evidence shows that the line is not expected to add significantly to the current background noise levels.[3] (Ex. 300, p. C.12-6.)

[2] In fair weather, audible noise from modern transmission lines is generally indistinguishable from background noise at the edge of a right-of-way 100 or more feet wide. (Ex. 300, p. C.12-6.)

[3] Overall project noise levels are discussed in the **Noise** section of this Decision.

- *Hazardous Shocks*

These could result from direct or indirect contact between an individual and the energized line. Adherence to minimum national safe operating clearances in areas where the line might be accessible to the public assures safety. Compliance with the CPUC's GO-95, as required in Condition of Certification **TLSN-1**, will ensure that adequate measures are implemented to minimize this potential impact. (Ex. 300, p. C.12-7.)

- *Nuisance Shocks*

Nuisance shocks are typically caused by direct contact with metal objects electrically charged by fields from an energized line. They are effectively minimized through grounding procedures for all metallic objects within the right-of-way as specified by the National Electrical Safety Code (NESC) as well as the joint guidelines of the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). This is required in Condition of Certification **TLSN-4**. (*Id.*)

- *Fire Hazards*

Fire can be caused by sparks from the line's conductors or by direct contact between the line and nearby trees or other combustible objects. SDG&E's standard fire prevention and suppression measures, and compliance with the clearance-related aspects of GO-95 as required in Condition of Certification **TLSN-3**, ensure that appropriate fire prevention measures are implemented. (Ex. 300, pp. C.12-6 to C.12-7.)

- *Exposure to Electric and Magnetic Fields*

Electric and magnetic fields (EMF) occur whenever electricity flows. The possibility of deleterious health effects from exposure to EMF has raised public health concerns about living and working near high-voltage lines. Due to the present scientific uncertainty regarding these potential health effects, CPUC policy requires reduction of EMF fields in the design, construction, and maintenance of new or modified lines, if feasible, without affecting the safety, efficiency, reliability, and maintainability of the transmission grid. (Ex. 300, pp. C.12-7 to C.12-8.)

The CPUC requires each new or modified transmission line in California to be designed according to the EMF-reducing guidelines of the electric utility in the service area involved. EMF fields produced by new lines must be similar to the fields of comparable lines in that service area. To comply with CPUC requirements for EMF management, SDG&E's specific field strength-reducing measures will be incorporated into the project line's design and include:

- Increasing the distance between the conductors and the ground to an optimal level;
- Reducing the spacing between the conductors to an optimal level;
- Minimizing the current in the line; and
- Arranging current flow to maximize the cancellation effects from the interaction of conductor fields. (Ex. 300, pp. C.12-9 to C.12-10.)

Applicant calculated the maximum electric and magnetic field intensities expected along the Phase I line route.[4] Condition of Certification **TLSN-2** requires that actual field strengths be measured, according to accepted procedures, to insure that the field intensities are similar to those of other SDG&E lines. These measurements will reflect both the effectiveness of the field reduction techniques used and the project's potential contribution to area EMF levels. (Ex. 300, p. C.12-10.)

Since there are no residences in the vicinity of the project's line, there will not be the long-term human residential EMF exposures primarily responsible for the health concern of recent years. The only project-related EMF exposures of potential significance are the short-term exposures of plant workers, regulatory inspectors, maintenance personnel, visitors, or individuals in the immediate vicinity of the lines. The evidence shows that these types of exposures are not significantly related to an adverse health effect. (Ex. 300, p. C.12-17.)

Overall, the evidence shows that the Phase I generation tie line will be designed, constructed, operated, and maintained in compliance with applicable LORS. Implementation of the Conditions of Certification will ensure that any impacts are reduced to less than significant levels. (Ex. 300, pp. C.12-16 to C.12-17.)

[4] Estimates are specified for a height of one meter above the ground, in units of kilovolts per meter (kV/m) for the electric field and milligauss (mG) for the companion magnetic field. The maximum electric field strength (0.6 kV/m) and the maximum magnetic field intensity (60 mG) calculated at the edge of the right-of-way are similar to those of other SDG&E 230-kV lines. (Ex. 300, p. C.12-10.)

Finally, the evidence addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and the various No Project Alternatives in regard to this topic area. None of the Alternatives would substantially alter the level of impacts posed by the project. The Imperial Project does not create significant adverse impacts in this topic area. Therefore, it is not necessary to consider any of the project's alternatives as a means of reducing impacts to below a level of significance. (Ex. 300, pp. C.12-10 to C.12-15.)

**FINDINGS OF FACT**

Based on the evidence of record, we make the following findings:

1. The Imperial Valley Solar Project's Phase I transmission facilities consist of an on-site 230-kV switchyard and a 10.3 mile long, 230-kV double-circuit overhead transmission tie line extending from the switchyard to SDG&E's Imperial Valley Substation.
2. The evidentiary record includes analyses of potential impacts from the project's generation tie line involving aircraft collisions, interference with radio frequency communication, audible noise, hazardous shocks, nuisance shocks, fire danger, and EMF exposure.
3. There are no residences along the route of the project's new generation tie line.
4. The available scientific evidence does not establish that EMF fields pose a significant health hazard to humans.
5. The electric and magnetic fields generated by the project's generation tie line will be managed to the extent the CPUC considers appropriate, based on available health effects information.
6. The project's generation tie line will comply with existing LORS for public health and safety.
7. The project's generation tie line will incorporate standard EMF-reducing measures established by the CPUC and used by SDG&E.
8. The project owner will provide field intensity measurements before and after line energization to assess EMF contributions from the project-related current flow.
9. The new generation tie line will not result in significant adverse environmental impacts to public health and safety or cause significant direct, indirect, or cumulative impacts as a result of aviation collisions, radio frequency communication interference, fire danger, nuisance or hazardous shocks, or electric and magnetic field exposure.

10. The record addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and the various No Project Alternatives in regard to this topic area.

11. Implementation of any of the Alternatives mentioned above is not necessary or preferable as a means of reducing project related impacts to below a level of significance.

## CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, will ensure that the Imperial Valley Project's Phase I line complies with all applicable laws, ordinances, regulations, and standards relating to **Transmission Line Safety and Nuisance** as identified in the pertinent portion of **Appendix A** of this Decision.

2. The Imperial Project's transmission line will not create a significant impact due to tie line safety and nuisance factors.

## CONDITIONS OF CERTIFICATION

**TLSN-1** The project owner shall construct the transmission line according to the requirements of the California Public Utility Commission's GO-95, GO-52, GO-131-D, Title 8, and Group 2 High Voltage Electrical Safety Orders, sections 2700 through 2974 of the California Code of Regulations, and San Diego Gas and Electric's EMF reduction guidelines.

**Verification:** At least 30 days before starting the transmission line or related structures and facilities, the project owner shall submit to the Compliance Project Manager (CPM) a letter signed by a California-registered electrical engineer affirming that the line will be constructed according to the requirements stated in the condition.

**TLSN-2** The project owner shall use a qualified individual to measure the strengths of the electric and magnetic fields from the line at the points of maximum intensity along the route for which the applicant provided specific estimates. The measurements shall be made before and after energization according to the American National Standard Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) standard procedures. These measurements shall be completed no later than 6 months after the start of operations.

**Verification:** The project owner shall file copies of the pre-and post-energization measurements with the CPM within 60 days after completion of the measurements.

**TLSN-3** The project owner shall ensure that the right-of-way of the transmission line is kept free of combustible material, as required under the provisions of section 4292 of the Public Resources Code and section 1250 of Title 14 of the California Code of Regulations.

**Verification:** During the first five years of plant operation, the project owner shall provide a summary of inspection results and any fire prevention activities carried out along the right-of-way and provide such summaries in the Annual Compliance Report.

**TLSN-4** The project owner shall ensure that all permanent metallic objects within the right-of-way of the project-related line are grounded according to industry standards regardless of ownership.

**Verification:** At least 30 days before the line is energized, the project owner shall transmit to the CPM a letter confirming compliance with this condition.

# V. PUBLIC HEALTH AND SAFETY

## A. GREENHOUSE GAS (GHG) EMISSIONS

### INTRODUCTION AND SUMMARY

There is general scientific consensus that climate change is occurring and that human activity contributes in some measure (perhaps substantially) to that change. Man-made emissions of greenhouse gases, if not sufficiently curtailed, are likely to contribute further to continued increases in global temperatures. Indeed, the California Legislature has found that "[g]lobal warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California" (Cal. Health & Safety Code, sec. 38500, division 25.5, part 1).

The Imperial Valley Solar Project (IVS), as a solar energy generation project, is exempt from the mandatory GHG emission reporting requirements for electricity generating facilities as currently required by the California Air Resources Board (ARB) for compliance with the California Global Warming Solutions Act of 2006 (AB 32 Núñez, Statutes of 2006, Chapter 488, Health and Safety Code sections 38500 et seq.) (ARB 2008a). However, the project may be subject to future reporting requirements and GHG reductions or trading requirements as these regulations become more fully developed and implemented.

In addition, as a solar project with a nightly shutdown, the plant would operate at less than 60 percent of capacity and it is therefore not subject to the requirements of Senate Bill (SB) 1368 (Chapter 11, Greenhouse Gases Emission Performance Standard, Article 1, Section 2900 et. seq.). Nonetheless, the IVS would easily comply with the requirements of SB 1368 and the Greenhouse Gases Emission Performance Standard.

The generation of electricity using fossil fuels, even in a back-up generator at a thermal solar plant, produces air emissions known as greenhouse gases in addition to the criteria air pollutants that have been traditionally regulated under the federal and state Clean Air Acts. California is actively pursuing policies to reduce GHG emissions that include adding non-GHG emitting renewable generation resources to the system.

The greenhouse gases are carbon dioxide ($CO_2$), nitrous oxide ($N_2O$), methane ($CH_4$), sulfur hexafluoride ($SF_6$), hydrofluorocarbons (HFC), and perflurocarbons (PFC). $CO_2$ emissions are far and away the most common of these emissions and are often expressed in terms of "metric tons of $CO_2$-equivalent" ($MTCO_2e$) for simplicity. (Ex. 302, p. C.1-74.)

Since the impact of the GHG emissions from a power plant's operation has global, rather than local, effects, those impacts should be assessed not only by analysis of the plant's emissions, but also in the context of the operation of the entire electricity system of which the plant is an integrated part. Furthermore, the impact of the GHG emissions from a power plant's operation should be analyzed in the context of applicable GHG laws and policies, such as Assembly Bill (AB) 32.

In this part of the Decision we consider:

- Whether IVS GHG construction emissions will have significant impacts;
- Whether IVS operation will be consistent with the state's GHG policies and will help achieve the state's GHG goals by causing a decrease in overall electricity system GHG emissions.

1. Policy and Regulatory Framework

We begin with the simple observation that, as the Legislature stated 35 years ago, "it is the responsibility of state government to ensure that a reliable supply of electrical energy is maintained at a level consistent with the need for such energy for protection of public health and safety, for promotion of the general welfare, and for environmental quality protection." (Pub. Res. Code, § 25001.) Today, as a result of legislation, the most recent addition to "environmental quality protection" is the reduction of GHG emissions. Several laws and statements of policy are applicable.

a. <u>AB 32</u>

The foundation of California's GHG policy is the California Global Warming Solutions Act of 2006. [Assembly Bill 32, codified in Health & Saf. Code, § 38560 et seq. (hereinafter AB 32).] AB 32 requires the California Air Resources Board ("CARB") to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the level of statewide GHG emissions that existed in 1990. Gubernatorial Executive Order S-3-05 (June 1, 2005) requires a further

reduction, to a level 80 percent below the 1990 GHG emissions, by the year 2050.

Along with all other regulatory agencies in California, the Energy Commission recognizes that meeting the AB 32 goals is vital to the state's economic and environmental health. While AB 32 goals have yet to be translated into regulations that limit GHG emissions from generating facilities, the scoping plan adopted by ARB relies heavily on cost-effective energy efficiency and demand response, renewable energy, and prioritization of generation resources to achieve significant reductions of emissions in the electricity sector by 2020. Even more dramatic reductions in electricity sector emissions will be required to meet California's 2050 greenhouse gas reduction goal. Facilities under our jurisdiction, such as IVS, must be consistent with these policies.[1] (Ex. 302, p. C.1-74.)

b. Renewable Portfolio Standard

California statutory law requires the state's utilities to obtain at least 20 percent of their electricity supplies from renewable sources by the year 2010. (Pub. Util. Code, § 399.11 et seq.) Gubernatorial Executive Orders increase the requirement to 33 percent and require CARB to adopt regulations to achieve the goal. [Governor's Exec. Orders Nos. S-21-09 (Sept. 15, 2009), S-14-08 (Nov. 17, 2008).]

c. Emissions Performance Standard

Senate Bill (SB) 1368 of 2006, and regulations adopted by the Energy Commission and the Public Utilities Commission pursuant to the bill, prohibit utilities from entering into long-term commitments with any base load facilities that exceed an Emission Performance Standard (EPS) of 0.500 metric tonnes of $CO_2$ per megawatt-hour (this is the equivalent of 1100 pounds of $CO_2$/MWh). (Pub. Util. Code, § 8340 et seq.; Cal. Code Regs., tit. 20, § 2900 et seq.; CPUC D0701039.) Currently, the EPS is the only LORS that has the effect of limiting power plant GHG emissions. IVS is exempt from SB 1368 because it would operate at or below a 60 percent capacity factor. (Ex. 302, p. C.1-77.)

[1] Of course, IVS and all other stationary sources will need to comply with any applicable GHG LORS that take effect in the future.

d. Loading Order

In 2003 the Energy Commission and the CPUC agreed on a "loading order" for meeting electricity needs. The first energy resources that should be utilized are energy efficiency and demand response (at the maximum level that is feasible and cost-effective), followed by renewables and distributed generation, combined heat and power (also known as cogeneration), and finally the most efficient available fossil fuel resources and infrastructure development.[2] CARB's AB 32 Scoping Plan reflects these policy preferences. (California Air Resources Board, Climate Change Scoping Plan, December 2008.)

We now turn to a discussion of whether, and how well, IVS would advance these goals and policies. We begin by reviewing the project's emissions both during construction and during operation.

3. GHG Emissions During Construction of the Facility

Construction of industrial facilities such as power plants involves concentrated on-site activities that result in short-term, unavoidable increases in vehicle and equipment emissions, including greenhouse gases. Construction of the proposed project has three phases, each of which would last about 24 months. There would be a 12 month-overlapping period between each phase, which would result in 4 years of continuous construction. The Applicant provided a construction emissions estimate that Staff used to calculate greenhouse gas emissions for the entirety of the construction activities. The greenhouse gas emissions estimate, presented below in Greenhouse **Gas Table 1[3],** was converted by staff into $MTCO_2e$ and totaled.

[2] California Energy Commission 2008, *2008 Integrated Energy Policy Report Update*, (IEPR) (CEC-100-2008-008-CMF.)

[3] The project construction GHG emissions have been updated to include water trucking emissions. Additionally, the applicant has corrected the on-road emission factors, developed from the ARB EMFAC model, from a 10 mile per hour speed basis to a 50 mile per hour speed basis.

**Greenhouse Gas Table 1**

**IVS Estimated Potential Construction Greenhouse Gas Emissions**

| Construction Element | $CO_2$-Equivalent (MTCO2E) [a,b] |
|---|---|
| On-Site Construction Equipment | 4,983.73 |
| On-Site Construction/Delivery Trucks | 1,886.93 |
| On-Site Worker/Security Vehicles | 144.20 |
| Off-Site Construction Trucks | 337.22 |
| Off-Site Worker/Security Vehicles | 4,301.43 |
| Off-Site SunCatcher Delivery Trucks | 7,551.25 |
| Construction Total | 19,204.77 |

Source: Ex. 302, p. C.1-78
[a] One metric tonne (mt) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms
[b] The vast majority of the CO2E emissions, over 99 percent, is $CO_2$ from these combustion sources.

There is no adopted, enforceable federal or state LORS applicable to IVS construction emissions of GHG. Nor is there a quantitative threshold over which GHG emissions are considered "significant" under CEQA. Nevertheless, there is guidance from regulatory agencies on how the significance of such emissions should be assessed. For example, the most recent guidance from CARB staff recommends a "best practices" threshold for construction emissions. [CARB, Preliminary Draft Staff Proposal, Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act (Oct. 24, 2008), p. 9]. Such an approach is also recommended on an interim basis, or proposed, by major local air districts.

We understand that "best practices" includes the implementation of all feasible methods to control construction-related GHG emissions. As the "best practices" approach is currently recommended by the state agency primarily responsible not only for air quality standards but also for GHG regulation, we will use it here to assess the GHG emissions from IVS construction.

In order to limit vehicle emissions of both criteria pollutants and GHG during construction, IVS will use (1) operational measures, such as limiting vehicle idling time and shutting down equipment when not in use; (2) regular preventive maintenance to prevent emission increases due to vehicular engine problems; and (3) use of low-emitting diesel engines meeting federal emissions standards for construction equipment, whenever available. (Ex. 302, p. C.1-60.)

Control measures that we have adopted elsewhere in this Decision to address criteria pollutant emissions would further minimize greenhouse gas emissions to

the extent feasible. Also, the requirement that the owner use newer construction equipment will increase fuel efficiency and minimize tailpipe emissions. (see, e.g. Condition of Certification **AQ-SC5**.)

We find that the measures described above to directly and indirectly limit the emission of GHGs during the construction of IVS are in accordance with current best practices. We therefore find that the evidence shows that the GHG emissions from construction activities would not exceed the level of significance.

4. Direct/Indirect Operation Impacts and Mitigation

a. Anticipated Emissions

Operation of the proposed SES Solar Two Project would cause GHG emissions from the facility maintenance fleet and employee trips, emergency fire pump engine, and sulfur hexafluoride emissions from new electrical component equipment.( Ex. 302, p. C.1-78.)

Operations GHG emissions are shown in **Greenhouse Gas Table 2**. All emissions are converted to $CO_2$-equivalent and totaled.

**Greenhouse Gas Table 2**
**Estimated IVS Potential Operating Greenhouse Gas Emissions**

| | Annual $CO_2$-Equivalent (MTCO2E)[a] |
|---|---|
| Onsite Combustion [b] | 1,066.71 |
| Offsite Total [b] | 719.92 |
| Equipment Leakage ($SF_6$) | 271.83 |
| **Total Project GHG Emissions –** MTCO2E [b] | **2,058.47** |
| | |
| Facility MWh per year [c] | 1,620,000 |
| Facility GHG Performance (MTCO2E/MWh) | 0.00127 |

Source: Ex. 302, p. C.1-79
[a] One metric tonne (MT) equals 1.1 short tons or 2,204.6 pounds or 1,000 kilograms.
[b] The vast majority of the CO2E emissions, over 99 percent, is $CO_2$ from these two emission sources.
[c] Approximately a 25 percent capacity factor.

The proposed project is estimated to emit, directly from primary and secondary emission sources on an annual basis, nearly 2,000 $MTCO_2e$ GHG emissions per year. The IVS project, as a renewable energy generation facility, is determined by rule to comply with the Greenhouse Gas Emission Performance Standard requirements of SB 1368 (Chapter 11, Greenhouse Gases Emission Performance Standard, Article 1, Section 2903 [b][1]). Regardless, IVS has an

estimated GHG emission rate of 0.00123 MTCO2E/MWh, well below the Greenhouse Gas Emission Performance Standard of 0.500 MTCO2/MWh.

b. Assessment of Operational Impacts

As we have previously noted, GHG emissions have global impacts. While it may be true that in general, when an agency conducts a CEQA analysis of a proposed project, it does not need to analyze how the operation of the proposed project is going to affect the entire system of projects in a large multistate region, analysis of the impacts of GHG emissions from power plants requires consideration of the project's impacts on the entire electricity system.

California's electricity system – which is actually part of a system serving the entire western region of the U.S., Canada, and Mexico – is large and complex. Hundreds of power plants, thousands of miles of transmission and distribution lines, and millions of points of electricity demand operate in an interconnected, integrated, and simultaneous fashion. Because the system is integrated, and because electricity is produced and consumed instantaneously, and will continue to be until large-scale electricity storage technologies are available, any change in demand and, most important for this analysis, any change in output from any generation source, is likely to affect the output from all generators (*Committee Guidance on Fulfilling California Environmental Quality Act Responsibilities for Greenhouse Gas Impacts in Power Plant Siting Applications,* CEC-700-2009-004, pp. 20 to 22.) [4] (Hereinafter referred to as "Committee CEQA Guidance")

The California Independent System Operator (CAISO) is responsible for operating the system so that it provides power reliably and at the lowest cost. Thus the CAISO dispatches generating facilities generally in order of cheapest to operate (i.e., typically the most efficient) to most expensive (i.e., typically the least efficient). (*Id*., p. 20.) Because operating cost is correlated with heat rate (the amount of fuel that it takes to generate a unit of electricity), and, in turn, heat rate is directly correlated with emissions (including GHG emissions), when a power plant runs, it usually will take the place of another facility with higher emissions that otherwise would have operated. Due to the integrated nature of the electrical grid, the operational plant and the displaced plant may be hundreds of miles apart (Committee CEQA Guidance, p. 20.) Because one plant's operation could affect GHG emissions hundreds of miles away, the necessity of

[4] 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**

assessing their operational GHG emissions on a system-wide basis becomes clear.

As California moves towards an increased reliance on renewable energy, non-renewable energy resources will be curtailed or displaced. These potential reductions in non-renewable energy, shown in **Greenhouse Gas Table 3**, could be as much as 36,000 GWh. These predictions are conservative in that the predicted growth in retail sales incorporates the assumption that the impacts of energy efficiency programs are already included in the current retail sales forecast. If, for example, forecasted retail sales in 2020 were lowered by 10,000 GWh due to the success of energy efficiency programs, non-renewable energy needs would fall by an additional 6,700 to 8,000 GWh/year, depending on the RPS level, totaling as much as 45,000 GWh per year of reduced non-renewable energy, depending on the RPS assumed.

**Greenhouse Gas Table 3**

**Estimated Changes in Non-Renewable Energy Potentially Needed to Meet California Loads, 2008-2020**

| **California Electricity Supply** | **Annual GWh** | |
|---|---|---|
| Statewide Retail Sales, 2008, actual [a] | 264,794 | |
| Statewide Retail Sales, 2020, forecast [a] | 289,697 | |
| Growth in Retail Sales, 2008-20 | 24,903 | |
| Growth in Net Energy for Load [b] | 29,840 | |
| **California Renewable Electricity** | **GWh @ 20% RPS** | **GWh @ 33% RPS** |
| Renewable Energy Requirements, 2020 [c] | 57,939 | 95,600 |
| Current Renewable Energy, 2008 | 29,174 | |
| Change in Renewable Energy-2008 to 2020 | 28,765 | 66,426 |
| Resulting Change in Non-Renewable Energy | 176 | (36,586) |

Source: Ex. 302, p. C.1-82
Notes:
a. 2009 IPER Demand Forecast, Form 1.1c. Excludes pumping loads for entities that do not have an RPS.
b. 2009 IEPR Demand Forecast, Form 1.5a.
c. RPS requirements are a percentage of retail sales.

High GHG -emitting resources, such as coal, are effectively prohibited from entering into new contracts for California electricity deliveries as a result of the Emissions Performance Standard adopted in 2007 pursuant to SB 1368. Between now and 2020, more than 18,000 GWh of energy procured by California

utilities under these contracts will have to reduce GHG emissions or be replaced; these contracts are presented in **Greenhouse Gas Table 4**.

**Greenhouse Gas Table 4**
**Expiring Long-term Contracts with Coal-fired Generation 2009 – 2020**

| Utility | Facility [a] | Contract Expiration | Annual GWh Delivered to CA |
|---|---|---|---|
| PG&E, SCE | Misc In-state Qual. Facilities [a] | 2009-2019 | 4,086 |
| LADWP | Intermountain | 2009-2013 | 3,163 [b] |
| City of Riverside | Bonanza, Hunter | 2010 | 385 |
| Department of Water Resources | Reid Gardner | 2013 [c] | 1,211 |
| SDG&E | Boardman | 2013 | 555 |
| SCE | Four Corners | 2016 | 4,920 |
| Turlock Irrigation District | Boardman | 2018 | 370 |
| LADWP | Navajo | 2019 | 3,832 |
| | | **TOTAL** | **18,522** |

Source: Ex. 302, p. C.1-83

Notes:
a. All facilities are located out-of-state except for the Miscellaneous In-state Qualifying Facilities.
b. Estimated annual reduction in energy provided to LADWP by Utah utilities from their entitlement by 2013.
c. Contract not subject to Emission Performance Standard, but the Department of Water Resources has stated its intention not to renew or extend.

This represents almost half of the energy associated with California utility contracts with coal-fired resources that will expire by 2030. If the State enacts a carbon adder[5], all the coal contracts (including those in **Greenhouse Gas Table 4**, which expire by 2020, and other contracts that expire beyond 2020 and are not shown in the table) may be retired at an accelerated rate as coal-fired energy becomes economically uncompetitive. Also shown are the approximate 500 MW of in-state coal and petroleum coke-fired capacity that may be unlikely to contract with California utilities for baseload energy due to SB1368 Emission Performance Standard. As these contracts expire, new and existing generation resources will replace the lost energy and capacity. Some will come from renewable generation; some will come from new and existing natural gas fired generation. All will emit substantially less GHG than the coal and petroleum coke-fired generation, which average about 1.0 $MTCO_2$/MWh without carbon capture and

[5] A carbon adder or carbon tax is a specific value added to the cost of a project for per ton of associated carbon or carbon dioxide emissions. Because it is based on, but not limited to, actual operations and emission and can be trued up at year end, it is considered a simple mechanism to assign environmental costs to a project.

sequestration, resulting in a net reduction in GHG emissions from the California electricity sector.

On May 4, 2010, the SWRCB adopted the “Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling” which will substantially changes the operation of once-through cooled (OTC) units (shown in **Greenhouse Gas Table 5)**. The policy will likely require retrofit, retirement, or substantial curtailment of dozens of generating units. In 2008, these units collectively produced about 58,000 GWh. While many OTC facilities and recently-built combined cycle plants may well install dry or wet cooling towers, it is unlikely that all the aging plants will do so. Most of these plants already operate at low capacity factors, reflecting their limited ability to compete in the current electricity market. New resources would continue to out-compete aging plants, displacing the energy provided by OTC facilities and accelerating their retirement.

It must be noted, however, that a project like IVS, located far from coastal load pockets, would likely provide energy support to facilitate the retirement of some aging and/or OTC power plants, but would not likely provide any local capacity support at or near the coastal OTC units. We expect that local capacity and voltage support will increasingly be provided by newer, more-efficient natural gas and other forms of generation, including, to the extent practical, distributed generation resources such as rooftop solar. These resources will also help displace older, less-efficient generation and accelerate retirement of those units.

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## Greenhouse Gas Table
## Aging and Once-Through Cooling Units

### 2008 Capacity and Energy Output [a]

| Plant, Unit Name | Owner | Local Reliability Area | Aging Plant? | Capacity (MW) | 2008 Energy Output (GWh) | GHG Emission Rate (MTCO2/MWh) |
|---|---|---|---|---|---|---|
| Diablo Canyon 1, 2 | Utility | None | No | 2,232 | 17,091 | Nuclear |
| San Onofre 2, 3 | Utility | L.A. Basin | No | 2,246 | 15,392 | Nuclear |
| Broadway 3 [b] | Utility | L.A. Basin | Yes | 75 | 90 | 0.648 |
| El Centro 3, 4 [b] | Utility | None | Yes | 132 | 238 | 0.814 |
| Grayson 3-5 [b] | Utility | LADWP | Yes | 108 | 150 | 0.799 |
| Grayson CC [b] | Utility | LADWP | Yes | 130 | 27 | 0.896 |
| Harbor CC | Utility | LADWP | No | 227 | 203 | 0.509 |
| Haynes 1, 2, 5, 6 | Utility | LADWP | Yes | 1,046 | 1,529 | 0.578 |
| Haynes CC | Utility | LADWP | No | 560 | 3,423 | 0.376 |
| Humboldt Bay 1, 2 [a] | Utility | Humboldt | Yes | 107 | 507 | 0.683 |
| Olive 1, 2 [b] | Utility | LADWP | Yes | 110 | 11 | 1.008 |
| Scattergood 1-3 | Utility | LADWP | Yes | 803 | 1,327 | 0.618 |
| **Utility-Owned** | | | | **7,776** | **39,988** | **0.693** |
| Alamitos 1-6 | Merchant | L.A. Basin | Yes | 1,970 | 2,533 | 0.661 |
| Contra Costa 6, 7 | Merchant | S.F. Bay | Yes | 680 | 160 | 0.615 |
| Coolwater 1-4 [b] | Merchant | None | Yes | 727 | 576 | 0.633 |
| El Segundo 3, 4 | Merchant | L.A. Basin | Yes | 670 | 508 | 0.576 |
| Encina 1-5 | Merchant | San Diego | Yes | 951 | 997 | 0.674 |
| Etiwanda 3, 4 [b] | Merchant | L.A. Basin | Yes | 666 | 848 | 0.631 |
| Huntington Beach 1, 2 | Merchant | L.A. Basin | Yes | 430 | 916 | 0.591 |
| Huntington Beach 3, 4 | Merchant | L.A. Basin | No | 450 | 620 | 0.563 |
| Mandalay 1, 2 | Merchant | Ventura | Yes | 436 | 597 | 0.528 |
| Morro Bay 3, 4 | Merchant | None | Yes | 600 | 83 | 0.524 |
| Moss Landing 6, 7 | Merchant | None | Yes | 1,404 | 1,375 | 0.661 |
| Moss Landing 1, 2 | Merchant | None | No | 1,080 | 5,791 | 0.378 |
| Ormond Beach 1, 2 | Merchant | Ventura | Yes | 1,612 | 783 | 0.573 |
| Pittsburg 5-7 | Merchant | S.F. Bay | Yes | 1,332 | 180 | 0.673 |
| Potrero 3 | Merchant | S.F. Bay | Yes | 207 | 530 | 0.587 |
| Redondo Beach 5-8 | Merchant | L.A. Basin | Yes | 1,343 | 317 | 0.810 |
| South Bay 1-4 | Merchant | San Diego | Yes | 696 | 1,015 | 0.611 |
| **Merchant-Owned** | | | | **15,254** | **17,828** | **0.605** |
| **Total In-State OTC** | | | | **23,030** | **57,817** | |

Source: Ex. 302, p. C.1-85

a. OTC Humboldt Bay Units 1 and 2 are included in this list. They must retire in 2010 when the new Humboldt Bay Generating Station (not ocean-cooled), currently under construction, enters commercial operation.

b. Units are aging but are not OTC.

The proposed IVS promotes the state's efforts to move towards a high-renewable, low-GHG electricity system, and, therefore, reduce the amount of natural gas used by electricity generation and thus greenhouse gas emissions. Its use of solar energy, resultant limited GHG emissions, and likely replacement of older existing plant capacity, furthers the state's strategy to promote generation system efficiency and reduce fossil fuel use and GHG emissions.

Net GHG emissions for the integrated electric system will decline when new renewable power plants are added to: 1) increase renewable generation towards the 33 percent target; 2) improve the overall efficiency and thus reduce the GHG emission rate, of the electric system; or 3) serve load growth or capacity needs more efficiently, or with fewer GHG emissions. We find that IVS furthers the state's progress toward achieving these important goals and is consistent with the state policies we discussed in Section 2 of this chapter.

5. Cumulative Impacts on Greenhouse Gases

*Cumulative impacts* are defined as "two or more individual effects which, when considered together, are considerable or . . . compound or increase other environmental impacts." (CEQA Guidelines § 15355.) "A cumulative impact consists of an impact that is created as a result of a combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines § 15130[a][1].) Such impacts may be relatively minor and incremental, yet still be significant because of the existing environmental background, particularly when one considers other closely related past, present, and reasonably foreseeable future projects.

GHG assessment is by its very nature a cumulative impact assessment. IVS would emit a limited amount of greenhouse gases and, therefore, we have analyzed its potential cumulative impact in the context of its effect on the electricity system, resulting GHG emissions from the system, and existing GHG regulatory requirements and GHG energy policies. The evidence supports our finding that IVS would not cause or contribute to a significant adverse cumulative impact on GHG, and would in fact result in a decrease in GHG from the generation of electricity in California.

6. Closure and Decommissioning

Eventually the facility will close, either at the end of its useful life or due to some unexpected situation such as a natural disaster or catastrophic facility breakdown. When the facility closes, all sources of air emissions would cease to

operate and thus impacts associated with those greenhouse gas emissions would no longer occur. The only other expected GHG emissions would be temporary equipment exhaust (off-road and on-road) from the dismantling activities. These activities would be of much a shorter duration than construction of the project, equipment is assumed to have lower comparative GHG emissions due to technology advancement, and would be required to be controlled in a manner at least equivalent to that required during construction. Therefore, we find that while there will be a temporary CEQA impact on GHG during decommissioning, it will be less than significant.

7. Mitigation Measures/Proposed Conditions of Certification

No Conditions of Certification related to Greenhouse Gas emissions are proposed. The project owner would comply with any future applicable GHG regulations formulated by the ARB, such as GHG reporting or emissions cap and trade markets.

**FINDINGS OF FACT**

1. The GHG emissions from the IVS project construction are likely to be 19,204.77 $MTCO_2e$ during the 40-month construction period.

2. There is no numerical threshold of significance under CEQA for construction-related GHG emissions.

3. IVS will use best practices to control its construction-related GHG emissions.

4. Construction-related GHG emissions are less than significant if they are controlled with best practices.

5. State government has a responsibility to ensure a reliable electricity supply, consistent with environmental, economic, and health and safety goals.

6. California utilities are obligated to meet whatever demand exists from any and all customers.

7. Under SB 1368 and implementing regulations, California's electric utilities may not enter into long-term commitments with base load power plants with $CO_2$ emissions that exceed the Emissions Performance Standard ("EPS") of 0.500 $MTCO_2$ / MWh.

8. The maximum annual $CO_2$ emissions from IVS operation will be 1987.68 $MTCO_{2e}$, which constitutes an emissions performance factor of 0.00123 $MTCO_{2e}$ / MWh.

9. The SB 1368 EPS is not applicable to IVS GHG emissions because the project will be shut down nightly and therefore operate below a 60 percent capacity factor.

10. AB 32 requires CARB to adopt regulations that will reduce statewide GHG emissions, by the year 2020, to the 1990 level. Executive Order S-3-05 requires a further reduction, by the year 2050, to 80 percent below the 1990 level.

11. The California Renewable Portfolio Standard (RPS) requires the state's electric utilities obtain at least 20 percent of the power supplies from renewable sources, by the year 2010.

12. Gubernatorial Executive Orders increase the RPS target requirement to 33 percent by 2020.

13. California's power supply loading order requires California utilities to obtain their power first from the implementation of all feasible and cost-effective energy efficiency and demand response, then from renewable energy and distributed generation, and finally from the most efficient available fossil-fired generation and infrastructure improvement.

14. The construction and operation of IVS will be consistent with the loading order.

15. IVS will displace generation from less-efficient (i.e., higher-heat-rate and therefore higher-GHG-emitting) power plants.

16. IVS will replace power from coal-fired power plants that will be unable to enter into new contracts or renew contracts with California utilities under the SB 1368 EPS, and from once-through cooling power plants that must reduce their use of coastal or estuarine water.

17. IVS operation will reduce overall GHG emissions from the electricity system.

**CONCLUSIONS OF LAW**

1. IVS construction-related GHG emissions will not cause a significant adverse environmental impact.

2. The GHG emissions from a power plant's operation should be assessed in the context of the operation of the entire electricity system of which the plant is an integrated part.

3. IVS operational GHG emissions will not cause a significant environmental impact.

4. The SB 1368 EPS does not apply to IVS, but if it did IVS GHG emissions will not exceed the EPS limit.

5. IVS operation will help California utilities meet their RPS obligations.

6. IVS operation will be consistent with California's loading order for power supplies.

7. IVS operation will foster the achievement of the GHG goals of AB 32 and Executive Order S-3-05.

8. The GHG emissions of any power plant must be assessed within the system on a case-by-case basis to ensure that the project will be consistent with the goals and policies enunciated above.

9. Any new power plant that we certify must:

    a) not increase the overall system heat rate;

    b) not interfere with generation from existing renewables or with the integration of new renewable generation; and

    c) have the ability to reduce system-wide GHG emissions.

## B. AIR QUALITY

Operation of the Imperial Valley Solar Project will create combustion products and use certain hazardous materials that could expose the general public and workers at the facility to potential health effects.

This section evaluates the expected air quality impacts from the emissions of criteria air pollutants from both the construction and operation of Imperial Valley. Criteria air pollutants are defined as air contaminants for which the state and/or federal governments have established an ambient air quality standard to protect public health.

The criteria pollutants analyzed are nitrogen dioxide ($NO_2$), sulfur dioxide ($SO_2$), carbon monoxide (CO), ozone ($O_3$), and particulate matter (PM). Two subsets of particulate matter are (1) inhalable particulate matter (less than or equal to 10 microns in diameter, or PM10) and (2) fine particulate matter (less than or equal to 2.5 microns in diameter, or PM2.5). Nitrogen oxides (NOx, consisting primarily of nitric oxide [NO] and $NO_2$) and volatile organic compounds (VOC) emissions are analyzed because they readily react in the atmosphere as precursors to ozone and, to a lesser extent, particulate matter. Sulfur oxides (SOx) are also analyzed herein because readily react in the atmosphere to form particulate matter and are major contributors to acid rain.

Staff, in consultation with the Imperial County Air Pollution Control District, evaluated whether the project will likely conform with applicable LORS, whether it will likely result in significant air quality impacts, including violations of ambient air quality standards, and whether the project's proposed mitigation measures will likely reduce potential impacts to insignificant levels.

As discussed below, the evidence establishes that Imperial Valley Solar Project will meet the provisions of all applicable air quality laws, and with implementation of the mitigation measures set forth in the Conditions of Certification, will not cause any new violations of state or federal standards, even when modeled with worst case ambient concentrations. Thus, there are no direct adverse air quality impacts attributable to the project. (5/24/10 RT 103-114, 7/26/10 RT 9 – 32, Exs. 1, §§ 5.2, Appendix V, 5.16; Appendix DD, 2,3,6,10,12, 14, 16, 29, 32, § 2.2; 102, 116, 130, 131, 301, 302, § C.1.)

The record includes the assumptions, methodologies, and results of the air quality analyses performed by the Applicant and Staff to evaluate the potential

impacts associated with air emissions from construction and operation of Imperial Valley.

## SUMMARY AND DISCUSSION OF THE EVIDENCE

The federal Clean Air Act and the California Clean Air Act both require the establishment of standards for ambient concentrations of air pollutants, called ambient air quality standards (AAQS). The state AAQS, established by the California Air Resources Board (CARB), are typically more protective than the federal AAQS, which are established by the U.S. Environmental Protection Agency (EPA). The standards consist of two parts: an allowable concentration of a pollutant, and an averaging time over which the concentration is to be measured. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (one hour, for instance), or to a relatively lower average concentration over a longer period (8 hours, 24 hours, or 1 month). The state and federal AAQS are listed in **AIR QUALITY Table 1** below.

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**Air Quality Table 1**
**Federal and State Ambient Air Quality Standards**

| Pollutant | Averaging Time | Federal Standard | California Standard |
|---|---|---|---|
| Ozone ($O_3$) | 8 Hour | 0.075 ppm [a] (147 μg/m$^3$) | 0.070 ppm (137 μg/m$^3$) |
| | 1 Hour | — | 0.09 ppm (180 μg/m$^3$) |
| Carbon Monoxide (CO) | 8 Hour | 9 ppm (10 mg/m$^3$) | 9.0 ppm (10 mg/m$^3$) |
| | 1 Hour | 35 ppm (40 mg/m$^3$) | 20 ppm (23 mg/m$^3$) |
| Nitrogen Dioxide ($NO_2$) | Annual | 0.053 ppm (100 μg/m$^3$) | 0.03 ppm (57 μg/m$^3$) |
| | 1 Hour | 0.100 ppm (188 μg/m$^3$)[b] | 0.18 ppm (339 μg/m$^3$) |
| Sulfur Dioxide ($SO_2$) | Annual | 0.030 ppm (80 μg/m$^3$) | — |
| | 24 Hour | 0.14 ppm (365 μg/m$^3$) | 0.04 ppm (105 μg/m$^3$) |
| | 3 Hour | 0.5 ppm (1300 μg/m$^3$) | — |
| | 1 Hour | — | 0.25 ppm (655 μg/m$^3$) |
| Particulate Matter (PM10) | Annual | — | 20 μg/m$^3$ |
| | 24 Hour | 150 μg/m$^3$ | 50 μg/m$^3$ |
| Fine Particulate Matter (PM2.5) | Annual | 15 μg/m$^3$ | 12 μg/m$^3$ |
| | 24 Hour | 35 μg/m$^3$ | — |
| Sulfates ($SO_4$) | 24 Hour | — | 25 μg/m$^3$ |
| Lead | 30 Day Average | — | 1.5 μg/m$^3$ |
| | Calendar Quarter | 1.5 μg/m$^3$ | — |
| Hydrogen Sulfide ($H_2S$) | 1 Hour | — | 0.03 ppm (42 μg/m$^3$) |
| Vinyl Chloride (chloroethene) | 24 Hour | — | 0.01 ppm (26 μg/m$^3$) |
| Visibility Reducing Particulates | 8 Hour | — | In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%. |

Source: Ex. 302, p. C.1-8..

Note:
[a] – The 2008 standard is shown above, but as of September 16, 2009 this standard is being reconsidered. The 1997 8-hour standard is 0.08 ppm.
[b] – The U.S. EPA is in the process of implementing this new standard, which became effective April 12, 2010. This standard is based on the 3-year average of the 98$^{th}$ percentile of the yearly distribution of 1-hour daily maximum concentrations.

As shown by the table, the averaging times for the various air quality standards and the times over which they are measured, range from one-hour to annual averages. The standards are read as a concentration in parts per million (ppm), or as a weighted mass of material per a volume of air in milligrams or micrograms of pollutant in a cubic meter of air (mg/m$^3$ or μg/m$^3$, respectively.)

In general, an area is designated as “attainment” if the concentration of a particular air contaminant does not exceed the standard. Likewise, an area is designated as “nonattainment” if concentration of a particular contaminant standard is violated. Where there is insufficient data to support designation as either attainment or nonattainment, the area can be designated as unclassified. An area could be attainment for one air contaminant while nonattainment for another, or attainment under the federal standard and nonattainment under the state standard for the same air contaminant. (Ex. 302, p. C.1-9.)

1. Existing Air Quality

Imperial Valley is located in the Salton Sea Air Basin (SSAB) and is under the jurisdiction of the Imperial County Air Pollution Control District (ICAPCD). As shown in **Air Quality Table 2** below**,** the Imperial County portion of the SSAB is designated as non-attainment for federal and state ozone and PM10 standards. (Ex. 302, p. C.1-9.)

**Air Quality Table 2**
**Federal and State Attainment Status**
**Project Site Area within Imperial County**

| Pollutant | Attainment Status [a] | |
|---|---|---|
| | Federal | State |
| Ozone | Moderate Nonattainment | Moderate Nonattainment |
| CO | Attainment | Attainment |
| $NO_2$ | Attainment[c] | Attainment |
| $SO_2$ | Attainment | Attainment |
| PM10 | Serious Nonattainment | Nonattainment |
| PM2.5 | Attainment[b] | Attainment[a] |

[a] Attainment = Attainment or Unclassified.
[b] Site is adjacent and upwind of the U.S.EPA limited PM2.5 non-attainment area surrounding the developed areas south of the Salton Sea.
[c] Nitrogen dioxide attainment status for the new federal 1-hour $NO_2$ standard is scheduled to be determined by January 2012.

2. Construction Impacts and Mitigation

The Imperial Valley project will be constructed on approximately 6,500 acres in two sequential phases. Construction activities include a new 230-kV substation, main road, and 11.8 water supply pipeline from the Seely Waste Water Treatment Plant. The total expected duration of project construction will be approximately 40 months. Construction generally consists of site preparation,

and construction and installation of major equipment and structures. Thus, there are two types of construction emissions: fugitive dust and combustion emissions. Fugitive dust comes from moving, disturbing, and traveling over the work site and roads, including grading/excavation and installation of linear facilities. Fuel combustion emissions come from construction equipment exhausts, such as vehicles and heavy equipment/internal combustion engines. (Exs. 1, p. 5.2-18 to 5.2-21; 32, § 2.2; 302**,** pp. C.1-16 to C.1-17, C.1-24 – C.1-27.)

**Air Quality Table 3** presents the Applicant's estimate of maximum mitigated annual construction-related emissions for NOx, VOC, SOx, CO, PM10 and PM2.5.

**Air Quality Table 3**
**SES Solar Two Construction - Maximum Annual (12-Month) Emissions (tons/yr)**

| | ***NOx*** | ***SOx*** | ***CO*** | ***VOC*** | ***PM10*** | ***PM2.5*** |
|---|---|---|---|---|---|---|
| **Onsite Construction Emissions** | | | | | | |
| Onsite Combustion Emissions | 40.56 | 0.04 | 37.10 | 7.97 | 2.61 | 2.39 |
| Onsite Fugitive Dust Emissions | -- | -- | -- | -- | 37.84 | 5.54 |
| **Subtotal of Onsite Emissions** | **40.56** | **0.04** | **37.10** | **7.97** | **40.45** | **7.93** |
| **Offsite Emissions** | | | | | | |
| Offsite Combustion Emissions | 27.00 | 0.04 | 33.94 | 2.21 | 1.05 | 0.84 |
| Offsite Fugitive Dust | -- | -- | -- | -- | 20.83 | 2.21 |
| **Subtotal of Offsite Emissions** | **27.00** | **0.04** | **33.94** | **2.21** | **21.88** | **3.05** |
| **Total Maximum Annual Emissions** | **67.56** | **0.08** | **71.04** | **10.18** | **62.33** | **10.98** |

Source: SES 2010g, Table 2.2-2.

As shown, the maximum annual emissions are below the General Conformity Rule applicability thresholds for PM10 (70 tons) and ozone precursors NOx ([100 tons] and VOC [100 tons]). (Ex. 302, p. C.1-17.)

Using estimated peak hourly, daily, and annual construction equipment exhaust emissions, the Applicant modeled Imperial Valley's construction emissions to determine impacts. The Applicant's modeling analysis includes onsite fugitive dust and vehicle tailpipe emissions sources and control measures proposed by the Applicant. The modeling results are shown below in **Air Quality Table 4**.[1] (Exs. 10; 302, pp. C.1-20 to C.1-21.)

[1] Staff further evaluated the construction impacts by adding the modeled impacts to the available highest ambient background concentrations recorded during the previous three years from nearby monitoring stations. (Ex. 302, pp. C.1-23.)

The estimate includes the water trucking emissions, which are shown to create a very small increase in on-road equipment exhaust emissions and on-road fugitive dust emissions.

**Air Quality Table 4**
**Maximum Proposed Project Construction Impacts**

| Pollutants | Avg. Period | Project Impact ($\mu g/m^3$) | Background ($\mu g/m^3$) | Total Impact ($\mu g/m^3$) | Standard ($\mu g/m^3$) | Percent of Standard |
|---|---|---|---|---|---|---|
| $NO_2$ | 1-hr. | 88.94 | 152.6 | 241.5 | 339 | 71% |
| | Annual | 1.25 | 20.9 | 22.2 | 57 | 39% |
| CO | 1-hr | 78.32 | 3,565 | 3,643 | 23,000 | 16% |
| | 8-hr | 20.60 | 2,878 | 2,899 | 10,000 | 29% |
| PM10 | 24 | 31.37 | 146 | 177.4 | 50 | 355% |
| | Annual | 6.11 | 47.5 | 53.6 | 20 | 268% |
| PM2.5 | 24 | 4.76 | 27.1 | 31.9 | 35 | 91% |
| | Annual | 0.91 | 8.8 | 9.7 | 12 | 81% |
| $SO_2$ | 1-hr | 0.09 | 47.2 | 47.3 | 665 | 7% |
| | 3-hr | 0.04 | 42.4 | 42.4 | 1,300 | 3% |
| | 24-hr | 0.01 | 18.4 | 18.4 | 105 | 18% |
| | Annual | 0.001 | 2.7 | 2.7 | 80 | 3% |

Source: Ex. 302, p. C.1-25.

As shown, with the exception of 24-hour PM10 impacts, the project will not create new exceedances. The modeling analysis also shows that with the exception of annual PM10 impacts, the project will not contribute to exceedances for any of the modeled air pollutants.

However, in light of the existing PM10 and ozone-nonattainment status for the project area, Staff determined that the construction emissions of nonattainment pollutants and their precursors (NOx, VOC, and PM emissions) are CEQA significant and therefore, the off-road equipment and fugitive dust emissions require mitigation. (Ex. 302, p. C.1-25.)

The modeling analysis also shows that with implementation of mitigation measures proposed by the Applicant and Staff, project construction is not predicted to cause new exceedances of the NAAQS for attainment pollutants. Staff determined that with implementation of the required mitigation, project construction emissions are below the General Conformity applicability thresholds for the federal nonattainment pollutants PM10 and ozone. Therefore, no adverse NEPA impacts would occur after implementation of the mitigation measures and Conditions of Certification adopted herein. (Ex. 302, pp. C.1-25 – C.1-27.)

3. Operation Impacts and Mitigation

The project proposes a nominal 750 MW solar concentrating thermal power plant. While the direct air pollutant emissions from power solar generation are negligible, operating emissions from the project will nonetheless occur from maintenance activities that require the use of mobile emissions sources such as tanker trucks for mirror washing, delivery trucks, fork lifts, and staff and visitor vehicles. (Exs. 1, pp. 5.2-22 to 5.2-28; 10; 32; 302, p. C.1-17 – C.1-19.)

The results of the Applicant's modeling analysis of maximum annual operation emissions are well below the General Conformity Rule applicability thresholds for PM10 (70) and ozone precursors (NOx [100 tons] and VOC [100 tons]). These estimates are shown below in **Air Quality Table 5.**

**Air Quality Table 5**
**SES Solar Two Operations - Maximum Annual Emissions (tons/yr)**

| | NOx | SOx | CO | VOC | PM10 | PM2.5 |
|---|---|---|---|---|---|---|
| **Onsite Operation Emissions** | | | | | | |
| Onsite Combustion Emissions | 2.75 | 0.01 | 19.83 | 2.61 | 0.05 | 0.05 |
| Onsite Gasoline Tank Emissions | -- | -- | -- | 0.92 | -- | -- |
| Onsite Fugitive Dust Emissions | -- | -- | -- | -- | 21.71 | 3.20 |
| **Subtotal of Onsite Emissions** | **2.75** | **0.01** | **19.83** | **3.53** | **21.77** | **3.25** |
| **Offsite Emissions** | | | | | | |
| Offsite Combustion Emissions | 1.68 | 0.01 | 9.30 | 0.39 | 0.07 | 0.05 |
| Offsite Fugitive Dust | -- | -- | -- | -- | 3.26 | 1.00 |
| **Subtotal of Offsite Emissions** | **1.68** | **0.01** | **9.30** | **0.39** | **3.33** | **1.04** |
| **Total Maximum Annual Emissions** | **4.43** | **0.02** | **29.14** | **3.92** | **25.10** | **4.29** |

Source: SES 2010g, Table 2.2-4.

The Applicant also performed a modeling analysis using the EPA-approved AERMOD model to estimate the impacts of the project's NOx, PM10, CO, and SOx maintenance and stationary emissions resulting from project operation. **Air Quality Table 6** presents the results of the Applicant's modeling analysis.[2]

[2] Staff further evaluated the operation impacts by adding the modeled impacts to the available highest ambient background concentrations recorded during the previous three years from nearby monitoring stations. (Ex. 302, pp. C.1-27.)

**Air Quality Table 6**
**Proposed Project Operation Emission Impacts**

| Pollutants | Avg. Period | Project Impact ($\mu g/m^3$) | Background ($\mu g/m^3$) | Total Impact ($\mu g/m^3$) | Standard ($\mu g/m^3$) | Percent of Standard |
|---|---|---|---|---|---|---|
| $NO_2$ | 1-hr. | 69.18 | 152.6 | 221.8 | 339 | 65% |
| | 1-hr Fed | 69.18 | 102.5[a] | 171.7 | 188 | 91% |
| | Annual | 0.23 | 20.9 | 21.1 | 57 | 37% |
| CO | 1-hr | 217.77 | 3,565 | 3783 | 23000 | 16% |
| | 8-hr | 64.48 | 2,878 | 2942 | 10000 | 29% |
| PM10 | 24 | 5.45 | 146 | 151.5 | 50 | 303% |
| | Annual | 0.96 | 47.5 | 48.5 | 20 | 242% |
| PM2.5 | 24 | 0.77 | 27.1 | 27.9 | 35 | 80% |
| | Annual | 0.14 | 8.8 | 8.9 | 12 | 75% |
| $SO_2$ | 1-hr | 1.42 | 47.2 | 48.6 | 665 | 7% |
| | 3-hr | 0.85 | 42.4 | 43.3 | 1300 | 3% |
| | 24-hr | 0.18 | 18.4 | 18.6 | 105 | 18% |
| | Annual | 0.0004 | 2.7 | 2.7 | 80 | 3% |

Source: SES 2009i, Table 5.2-30a; and URS 2010a.

Note:[a] – This background level is the three year average of the 98th percentile of maximum daily 1-hour concentrations.

As shown, with the exception of 24-hour PM10 impacts, that the proposed project would not create new exceedances. The table further shows that with the exception of annual PM10 impacts, the proposed project will not contribute to existing exceedances for any of the modeled air pollutants.

In light of the existing PM10 and ozone no-attainment status for the project area, Staff determined that the operating emissions of nonattainment pollutants and their precursors Nox, VOC, and PM emissions) are potentially CEQA significant and mitigation is required for the stationary equipment, the off-road maintenance equipment, and fugitive dust emissions. (Ex. 302, p. C.1-24.)

The record further shows that based on the modeling analysis and with implementation of recommended mitigation measures, as adopted in the Conditions of Certification below, project operations will not cause new exceedances of NAAQS.

The record shows that the project's operating emissions are well below the General Conformity applicability thresholds for the federal PM10 and ozone nonattainment pollutants. Thus, no adverse NEPA impacts would occur after implementation of the recommended mitigation measures. (Ex. 302, p. C.1-28.) These conclusions are confirmed by the ICAPCD Final Determination of Compliance. (Ex. 301.)

4. Construction and Operation Overlap Impacts and Mitigation

For a period of time, the construction and operation of the facilities will overlap due to the staged construction and operation of the two phases. As discussed above, the record discloses Applicant's performance of various modeling analyses for worst-case emissions. These analyses include modeling for the worst-case onsite emissions associated with overlap between operation of Phase I and construction of Phase II. (Ex. 302, pp. C.1-19 – C.1-22.) The maximum annual construction/operation overlapping emissions are shown below in **Air Quality Table 7**.

As shown, the maximum annual overlapping construction/operation emissions are below the General Conformity Rule applicability thresholds for PM10 [70 tons] and ozone precursors (NOx [100 tons] and VOC [100 tons].). (Ex. 302, pp. C.1-21 – C.1-22.)

Furthermore, the Applicant's emissions analysis indicates that the mitigated construction/operation overlapping emissions would be no higher than those determined for the worst-case project construction period. (Ex. 302, p. C.1-24.) Staff therefore determined that no significant CEQA or adverse NEPA impacts would occur after implementation of the mitigation measures included in the Conditions of Certification adopted herein.

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**Air Quality Table 7**
**Maximum Annual Construction/Operation Overlapping Emissions**
**(tons/year)**

| **Construction** | | | | | | |
|---|---|---|---|---|---|---|
| | NOx | SOx | CO | VOC | PM10 | PM2.5 |
| **Onsite Emissions** | | | | | | |
| Onsite Combustion Emissions | 30.86 | 0.03 | 31.68 | 6.59 | 1.48 | 1.35 |
| Onsite Fugitive Dust Emissions | -- | -- | -- | -- | 31.57 | 4.53 |
| **Subtotal of Onsite Emissions** | **30.86** | **0.03** | **31.68** | **6.59** | **33.05** | **5.89** |
| **Offsite Emissions** | | | | | | |
| Offsite Combustion Emissions | 25.04 | 0.04 | 32.00 | 2.07 | 1.01 | 0.82 |
| Offsite Fugitive Dust | -- | -- | -- | -- | 19.29 | 2.12 |
| **Subtotal of Offsite Emissions** | **25.04** | **0.04** | **32.00** | **2.07** | **20.30** | **2.94** |
| **Total Maximum Annual Emissions** | **55.90** | **0.07** | **63.69** | **8.65** | **53.35** | **8.83** |
| **Operation** | | | | | | |
| | NOx | SOx | CO | VOC | PM10 | PM2.5 |
| **Onsite Emissions** | | | | | | |
| Onsite Combustion Emissions | 0.45 | 0.00 | 3.12 | 0.41 | 0.02 | 0.01 |
| Onsite Fugitive Dust Emissions | -- | -- | -- | 0.92 | 6.45 | 0.95 |
| **Subtotal of Onsite Emissions** | **0.45** | **0.00** | **3.12** | **1.33** | **6.47** | **0.97** |
| **Offsite Emissions** | | | | | | |
| Offsite Combustion Emissions | 0.26 | 0.00 | 1.46 | 0.06 | 0.02 | 0.01 |
| Offsite Fugitive Dust | -- | -- | -- | -- | 0.97 | 0.30 |
| **Subtotal of Offsite Emissions** | **0.26** | **0.00** | **1.46** | **0.06** | **0.99** | **0.31** |
| **Total Maximum Annual Emissions** | **0.71** | **0.00** | **4.58** | **1.39** | **7.45** | **1.28** |
| **Construction/Operation Overlap Totals** | | | | | | |
| | NOx | SOx | CO | VOC | PM10 | PM2.5 |
| **Construction/Operation Overlap Total** | **56.62** | **0.07** | **68.26** | **10.05** | **60.80** | **10.10** |

Source: SES 2010g, Table 2.2-6a.

5. Impacts from Seeley Wastewater Reclamation Facility Upgrades

The evidence includes an evaluation of the potential impacts of the Seeley Wastewater Reclamation Facility (SWWRF) upgrades necessary for the provision of reliable source water for mirror washing. These upgrades are a reasonably foreseeable event if the Imperial Valley Solar project is approved and constructed as proposed. (Ex. 302, pp. C.1-32 – C.1-34.)

The Seeley County Water District, who owns and operates SWWRF, initially issued a Draft Mitigated Negative Declaration for the proposed upgrades. The District did not approve the Mitigated Negative Declaration and instead, is currently preparing an Environmental Impact Report for the upgrades. In the absence of an adopted EIR, Staff evaluated the proposed upgrades based on available information provided by the Applicant and with the objective of

informing of the potential environmental and public health effects that may result from the project-related SWWRF upgrades. (Ex. 302, p. C.1-33.)

The project would access water from the Seeley Waste Water Treatment Facility (SWWTF) via a newly constructed 12 mile pipeline. The pipeline would be buried within the right-of-way of Evan Hewes Highway approximately 30" below the existing grade. The pipeline would enter the project site approximately 100 yards east of Plaster City and then proceed due south to the raw water storage tank. The pipeline, like the rest of the project, is within the Salton Sea Air Basin and under the jurisdiction of the Imperial County Air Pollution Control District. (*Id*.)

The evidence shows that the five-month pipeline construction activities would result in impacts including exhaust emissions from heavy construction equipment and vehicle and fugitive dust generated in areas disturbed by grading, excavating, and erection of facility structures. Beyond the project and construction site boundaries, exhaust and paved road fugitive dust emissions would result from commuting workers, delivery trucks, and crew trucks. (*Id.)*

**Air Quality Table 8**, below, presents the Applicant's estimate of pipeline-related construction emissions.

**Air Quality Table 8**

**SWWRF - Maximum Daily Construction Emissions (lbs/day)**

| | NOx | SOx | CO | VOC | PM10 | PM2.5 |
|---|---|---|---|---|---|---|
| SWWRF Project Emissions | 58.56 | 0.01 | 41.48 | 10.61 | 26.24 | 8.12 |

Source: SES 2010g

As shown, the emissions estimates are predicted to be well below those predicted for project construction. Because the project's construction emissions will be mitigated to less than significant levels, the air quality impacts caused by pipeline construction are also expected to be less than significant.

Project-related SWWRF operation impacts were also evaluated. These impacts would result from wastewater treatment processes and vehicles used for periodic maintenance and deliveries. **Air Quality Table 9** below presents the Applicant's estimated SWWRF operation emissions.

**Air Quality Table 9**

**SWWRF - Maximum Daily Operation Emissions (lbs/day)**

| | NOx | SOx | CO | VOC | PM10 | PM2.5 |
|---|---|---|---|---|---|---|
| Existing SWWRF | -- | -- | -- | 0.009 | -- | -- |
| Upgraded SWWRF (Proposed) | | | | | | |
| Wastewater Treatment | -- | -- | -- | 0.034 | -- | -- |
| Employee Trips | 0.02 | 0.00 | 0.17 | 0.02 | 0.00 | 0.00 |
| Sludge Removal Trips | 6.91 | 0.01 | 2.22 | 0.56 | 0.33 | 0.29 |
| Emergency Generator | 5.58 | 0.01 | 4.84 | 1.86 | 0.28 | 0.25 |
| Incremental Emissions | 12.51 | 0.02 | 7.23 | 2.46 | 0.61 | 0.54 |
| Total Emissions | 12.51 | 0.02 | 7.23 | 2.47 | 0.61 | 0.54 |

Source: SES 2010g

As shown, the Applicant's estimates establish that the direct air quality impacts caused by the incremental increase in emissions from SWWRF operation are minimal and would be less than significant.

**Cumulative Impacts**

Cumulative impacts result from the proposed project's incremental effect, together with other closely related past, present and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. (Pub. Res. Code § 21083; Cal. Code Regs., tit. 14, §§ 15064(h), 15130, 15355.)

The air quality analysis discussed herein is concerned with criteria air pollutants, which have impacts that are usually (though not always) cumulative by nature. Although a project by itself would rarely cause a violation of a federal or state criteria pollutant standard, a new source of pollution may contribute to violations of criteria pollutant standards because of the existing background sources or foreseeable future projects.

The record contains extensive analyses of cumulative impacts to air quality during project construction and operation, including a description of the air quality background in the Imperial County portion of the Salton Sea Air Basin, and discusses historical ambient levels for each of the assessed criteria pollutants. (Exs., 1, p. 5.2-38; 10; 302 pp. C.1-46 to C.1-49.)

The record also contains a summary of projections for criteria pollutants by the Imperial County Air Pollution Control District's programmatic efforts to abate such pollution, an analysis of the project's localized cumulative impacts, and the project's direct operating emissions combined with other local major emission sources. With respect to the project's potential cumulative impacts on ozone, the only measures identifies ad potentially applicable to the proposed project include transportation control measures to reduce trips to and from the site; including carpool/vanpool measures and facility design measures to enable the use of public transportation and reduce trips to and from the site during shift changes and lunch. In this regard, the Applicant has proposed several transportation control measures including vanpools and the use of low emission electric-hybrid vehicles, as appropriate. Since the measures in this interim draft ozone plan are not currently approved or directly applicable, the Applicant may be required to enact additional emission control measures during the project's life in order to comply with new District rules enacted as part of the revised 8-hour ozone State Implementation Plan (SIP). (Ex. 302, p. C.1-47.)

With respect to particulate matter impacts, the project is would comply with established control measures by adhering to the Imperial County Air Pollution Control District's rules and the Conditions of Certification adopted herein. (Id.)

The evidence also shows that the Applicant, in consultation with the Imperial County Air Control District, conducted a survey of new development projects and stationary sources that have potential for emissions of criteria air contaminants within 6 miles of the project site that are either under construction, or have received permits to be built or operate in the foreseeable future. The Applicant reviewed a total of 31 projects, and found that 24 of them are located outside of a 6-mile radius of the proposed project site. These were eliminated from the list of cumulative emission sources. Six projects were eliminated due to their annual permitted emission increases being negative, negligible, or less than 5 tons per year. The last project was eliminated because it is indefinitely on hold. Therefore, it has been determined that no stationary sources requiring a cumulative modeling analysis exist within a 6-mile radius of the proposed project site. (Ex. 302, p. C.1-49)

There are two large wind projects proposed on BLM land within a few miles of the IVS site in addition to large wind projects proposed in Mexico, south of the proposed site. In addition, there are seven large solar projects proposed on BLM land within the area served by the BLM El Centro Field Office. This potential for substantial additional development within the air basin and corresponding increase in air basin emissions further underscore the importance of

implementing Conditions of Certification **AQ-SC6** and **AQ-SC7**, which are designed to mitigate the proposed project's cumulative impacts by reducing the dedicated on-site vehicle emissions and fugitive dust emissions during site operation. We find that implementation of those Conditions of Certification will mitigate the proposed project's cumulative impacts to air quality to below the level of significance. (Id.)

6. Compliance with LORS

The Imperial County Air Pollution Control District issued a Preliminary Determination of Compliance (PDOC) for the SES Solar Two on August 20, 2009 and after a 30 day comment period that ended on September 24, 2009, issued a Final Determination of Compliance on October 14, 2009. (Ex. 301.) Compliance with all District rules and regulations was demonstrated to the District's satisfaction in the FDOC. The District's FDOC conditions are presented in Conditions of Certification **AQ-1** to **AQ-3,** which we adopt.

A fugitive dust management plan for unpaved roads is discussed in District Rule 805. Implementation of staff-recommended mitigation measures **AQ-SC3** and **AQ-SC7,** which we adopt, will reduce the project's contributions to fugitive dust emissions to below the level of significance.

In addition, Staff recommended several other Conditions of Certification designed to reduce the project's air quality impacts to below the level of significance. We have adopted Staff's recommended Conditions of Certification, **AQ-SC1** through **AQ-SC10**.

7. Public and Agency Comments

Intervenor California Unions for Reliable Energy (CURE) commented that the SA/DEIS was incomplete and required recirculation in that it did not contain an analysis of the interrelationship between water supply and air quality. Staff responded that the Supplemental Staff Assessment (SSA) addresses these concerns by analyzing specific water delivery options and the Seeley Wastewater Treatment Plant upgrades. Staff's SSA analysis demonstrates that water supply raises a minor direct air quality issue. Staff also explained, with reference to data and calculations, why project-related Salton Sea impacts are speculative and would not create a significant air quality issue.

The California Native Plant Society (CNSP) commented that the SA/DEIS air quality analysis was incomplete with respect to the estimates of windblown dust particulate. CNSP recommended the “MacDougall method” for a revised analysis. Staff responded that the SA/DEIS emission estimates are complete and use recognized and appropriate U.S. EPA dust emission factors and calculation procedures. According to Staff, the “MacDougall method” applies to particulate emission from vacant lands and is inapplicable to the project site. Staff further asserted that implementation of proposed Conditions of Certification **AQSC3** – **AQ-SC7**, which impose stringent fugitive dust control measures, will result in road stabilization and in turn, reduce baseline fugitive dust emissions from wind erosion.

CNSP comments suggested that SA/DEIS did not provide information regarding the dust suppressant and that additional review is required. Staff responded that (1) the Applicant specified the proposed soil binding agent and identified Soiltac® as the proposed product for use, (2) the Applicant provided a sample of product-stabilized soils for Staff inspection, and (3) the Applicant may find a more efficient bonding agent for use prior to the start of construction or during construction or operation. Staff further responded that the proposed Condition of Certification requires Energy Commission approval of the chosen soil binder and requires that the soil binder be “as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers and shall not increase any other environmental impacts including loss of vegetation.”

The Center for Biological Diversity commented that the project would increase particulate emissions through the disruption of cryptobiotic soil crusts and would reduce C02 uptake from these soil crusts. Staff agreed that the project will increase particulate emission but noted that that the required use of soil binders for all disturbed areas would reduce wind emissions from the site.

A member of the public, Edie Harmon, expressed concern with unpaved road travel, particulate emissions, and air quality generally. Staff responded by acknowledging that the project will create localized emission increases. Staff pointed out that the required mitigation for unpaved roads, off- and on-road equipment, and the exceeded the standards and requirements of the Imperial County Air Pollution Control District. (Ex. 302, pp. C.1-54 – C.1-56.)

## FINDINGS OF FACT

Based on the persuasive weight of the evidence of record, we find as follows:

1. The proposed Imperial Valley Solar Power project in the Salton Sea Air Basin and is under the jurisdiction of the Imperial County Air Pollution Control District.

2. The Imperial County portion of the Salton Sea Air Basin area is designated as nonattainment for federal and state ozone and PM10 standards.

3. The project will not cause new violations of any $NO_2$, $SO_2$, or CO ambient air quality standards. Therefore, the $NO_x$, $SO_x$, and CO emission impacts are not significant.

4. The project's $NO_x$ and VOC emissions can contribute to the existing violations of the ozone standards. However, the required mitigation will reduce the project's impact to a level that is less than significant.

5. The project's $PM_{10}$ emissions can contribute to the existing violations of the ozone 24-hour $PM_{10}$ air quality standards. However, the required mitigation will mitigate the project's impacts to a level that is less than significant.

6. The Imperial County Air Pollution Control District issued a Final Determination of Compliance imposing conditions of compliance on project construction and operation to ensure compliance with District Rules and Regulations. These Rules and Regulations are incorporated into the Conditions of Certification below.

7. The project's construction-related impacts are temporary and short-term in nature. They are mitigated to below a level of significance by measures identified in the Conditions of Certification.

8. The record contains an adequate analysis of the project's contributions to cumulative air quality impacts.

9. Projects, which have been constructed, undergoing construction, or otherwise reasonably foreseeable have been considered in the cumulative impact analyses of record. Impacts arguably attributable to such projects do not alter conclusions reached concerning the Imperial Valley contribution to cumulative air quality impacts.

10. Implementation of the Conditions of Certification listed below ensures that the Imperial Valley Project will not result in any significant direct, indirect, or cumulative adverse impacts to air quality.

## CONCLUSION OF LAW

1. The Commission therefore concludes that with implementation of the Conditions of Certification will ensure that Imperial Valley will conform with all applicable laws, ordinances, regulations, and standards relating to air quality as set forth in the pertinent portion of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**AQ-SC1** Air Quality Construction Mitigation Manager (AQCMM): The project owner shall designate and retain an on-site AQCMM who shall be responsible for directing and documenting compliance with Conditions of Certification **AQ SC3**, **AQ-SC4** and **AQ-SC5** for the entire project site and linear facility construction. The on-site AQCMM may delegate responsibilities to one or more AQCMM Delegates. The AQCMM and AQCMM Delegates shall have full access to all areas of construction on the project site and linear facilities, and shall have the authority to stop any or all construction activities as warranted by applicable construction mitigation conditions. The AQCMM and AQCMM Delegates may have other responsibilities in addition to those described in this condition. The AQCMM shall not be terminated without written consent of the Compliance Project Manager (CPM).

**Verification:** At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM for approval, the name, resume, qualifications, and contact information for the on-site AQCMM and all AQCMM Delegates.

**AQ-SC2** Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with Conditions of Certification **AQ-SC3**, **AQ-SC4,** and **AQ-SC5**.

**Verification:** At least 30 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the CPM for approval. The AQCMP shall include effectiveness and environmental data for the proposed soil stabilizer. The CPM will notify the project owner of any necessary modifications to the plan within 15 days from the date of receipt.

**AQ-SC3** Construction Fugitive Dust Control: The AQCMM shall submit documentation to the CPM in each Monthly Compliance Report that demonstrates compliance with the Air Quality Construction Mitigation Plan (AQCMP) mitigation measures for the purposes of minimizing fugitive dust emission creation from construction activities and preventing all fugitive dust plumes that would not comply with the

performance standards identified in **AQ-SC4** from leaving the project site. The following fugitive dust mitigation measures shall be included in the Air Quality Construction Mitigation Plan (AQCMP) required by **AQ-SC2**, and any deviation from the following mitigation measures shall require prior CPM notification and approval.

a. The main access roads through the facility to the power block areas will be either paved or stabilized using soil binders, or equivalent methods, to provide a stabilized surface that is similar for the purposes of dust control to paving, that may or may not include a crushed rock (gravel or similar material with fines removed) top layer, prior to initiating construction in the main power block area, and delivery areas for operations materials (chemicals, replacement parts, etc.) will be paved or treated prior to taking initial deliveries.

b. All unpaved construction roads and unpaved operation and maintenance site roads, as they are being constructed, shall be stabilized with a nontoxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control. All other disturbed areas in the project and linear construction sites shall be watered as frequently as necessary during grading (consistent with **BIO-7**); and after active construction activities shall be stabilized with a non-toxic soil stabilizer or soil weighting agent, or alternative approved soil stabilizing methods, in order to comply with the dust mitigation objectives of Condition of Certification **AQ-SC4**.
The frequency of watering can be reduced or eliminated during periods of precipitation.

c. No vehicle shall exceed 10 miles per hour on unpaved areas within the construction site.

d. Visible speed limit signs shall be posted at the construction site entrances.

e. All construction equipment vehicle tires shall be inspected and washed as necessary to be cleaned free of dirt prior to entering paved roadways.

f. Gravel ramps of at least 20 feet in length must be provided at the tire washing/cleaning station.

g. All unpaved exits from the construction site shall be graveled or treated to prevent track-out to public roadways.

h. All construction vehicles shall enter the construction site through the treated entrance roadways, unless an alternative route has been submitted to and approved by the CPM.

i. Construction areas adjacent to any paved roadway below the grade of the surrounding construction area or otherwise directly impacted by sediment from site drainage shall be provided with sandbags or other equivalently effective measures to prevent run-off to roadways, or other similar run-off control measures as specified in the Storm Water Pollution Prevention Plan (SWPPP), only when such SWPPP measures are necessary so that this condition does not conflict with the requirements of the SWPPP.

j. All paved roads within the construction site shall be swept daily or as needed (less during periods of precipitation) on days when construction activity occurs to prevent the accumulation of dirt and debris.

k. At least the first 500 feet of any paved public roadway exiting the construction site or exiting other unpaved roads en route from the construction site or construction staging areas shall be swept as needed (less during periods of precipitation) on days when construction activity occurs or on any other day when dirt or runoff resulting from the construction site activities is visible on the public paved roadways.

l. All soil storage piles and disturbed areas that remain inactive for longer than 10 days shall be covered, or shall be treated with appropriate dust suppressant compounds.

m. All vehicles that are used to transport solid bulk material on public roadways and that have potential to cause visible emissions shall be provided with a cover, or the materials shall be sufficiently wetted and loaded onto the trucks in a manner to provide at least 2 feet of freeboard.

n. Wind erosion control techniques (such as windbreaks, water, chemical dust suppressants, and/or vegetation) shall be used on all construction areas that may be disturbed. Any windbreaks installed to comply with this condition shall remain in place until the soil is stabilized or permanently covered with vegetation.

**Verification:** The AQCMM shall provide the CPM a Monthly Compliance Report to include the following to demonstrate control of fugitive dust emissions:

A. a summary of all actions taken to maintain compliance with this condition;
B. copies of any complaints filed with the District in relation to project construction; and
C. any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

**AQ-SC4** Dust Plume Response Requirement: The AQCMM or an AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (A) off the project site and within 400 feet upwind of any regularly occupied structures not owned by the project owner or (B) 200 feet beyond the centerline of the construction of linear facilities indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed:

Step 1: The AQCMM or Delegate shall direct more intensive application of the existing mitigation methods within 15 minutes of making such a determination.

Step 2: The AQCMM or Delegate shall direct implementation of additional methods of dust suppression if Step 1, specified above, fails to result in adequate mitigation within 30 minutes of the original determination.

Step 3: The AQCMM or Delegate shall direct a temporary shutdown of the activity causing the emissions if Step 2, specified above, fails to result in effective mitigation within one hour of the original determination. The activity shall not restart until the AQCMM or Delegate is satisfied that appropriate additional mitigation or other site conditions have changed so that visual dust plumes will not result upon restarting the shutdown source. The owner/operator may appeal to the CPM any directive from the AQCMM or Delegate to shut down an activity, if the shutdown shall go into effect within one hour of the original determination, unless overruled by the CPM before that time.

**Verification:** The AQCMM shall provide the CPM a Monthly Compliance Report to include:

A. a summary of all actions taken to maintain compliance with this condition;

B. copies of any complaints filed with the District in relation to project construction; and
C. any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner's discretion.

**AQ-SC5** Diesel-Fueled Engine Control: The AQCMM shall submit to the CPM, in the Monthly Compliance Report, a construction mitigation report that demonstrates compliance with the AQCMP mitigation measures for purposes of controlling diesel construction-related emissions. The following off-road diesel construction equipment mitigation measures shall be included in the Air Quality Construction Mitigation Plan (AQCMP) required by **AQ-SC2**, and any deviation from the following mitigation measures shall require prior CPM notification and approval.

a. All diesel-fueled engines used in the construction of the facility shall have clearly visible tags issued by the on-site AQCMM showing that the engine meets the conditions set forth herein.
b. All construction diesel engines with a rating of 50 hp or higher shall meet, at a minimum, the Tier 3 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, section 2423(b)(1), unless a good faith effort to the satisfaction of the CPM that is certified by the on-site AQCMM demonstrates that such engine is not available for a particular item of equipment. In the event that a Tier 3 engine is not available for any offroad equipment larger than 50 hp, that equipment shall be equipped with a Tier 2 engine, or an engine that is equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides (NOx) and diesel particulate matter (DPM) to no more than Tier 2 levels unless certified by engine manufacturers or the on-site AQCMM that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is "not practical" for the following, as well as other, reasons.

    1. There is no available retrofit control device that has been verified by either the California Air Resources Board or U.S. Environmental Protection Agency to control the engine in question to Tier 2 equivalent emission levels and the highest level of available control using retrofit or Tier 1 engines is being used for the engine in question; or

    2. The construction equipment is intended to be on site for 10 days or less.

3. The CPM may grant relief from this requirement if the AQCMM can demonstrate a good faith effort to comply with this requirement and that compliance is not practical.

c. The use of a retrofit control device may be terminated immediately, provided that the CPM is informed within 10 working days of the termination and that a replacement for the equipment item in question meeting the controls required in item “b” occurs within 10 days of termination of the use, if the equipment would be needed to continue working at this site for more than 15 days after the use of the retrofit control device is terminated, if one of the following conditions exists:

1. The use of the retrofit control device is excessively reducing the normal availability of the construction equipment due to increased down time for maintenance, and/or reduced power output due to an excessive increase in back pressure.
2. The retrofit control device is causing or is reasonably expected to cause engine damage.
3. The retrofit control device is causing or is reasonably expected to cause a substantial risk to workers or the public.
4. Any other seriously detrimental cause which has the approval of the CPM prior to implementation of the termination.

d. All heavy earth-moving equipment and heavy duty construction-related trucks with engines meeting the requirements of (b) above shall be properly maintained and the engines tuned to the engine manufacturer’s specifications.
e. All diesel heavy construction equipment shall not idle for more than five minutes. Vehicles that need to idle as part of their normal operation (such as concrete trucks) are exempted from this requirement.
f. Construction equipment will employ electric motors when feasible.

**Verification:** The AQCMM shall include in the Monthly Compliance Report the following to demonstrate control of diesel construction-related emissions:

A. A summary of all actions taken to maintain compliance with this condition;
B. A list of all heavy equipment used on site during that month, including the owner of that equipment and a letter from each owner indicating that equipment has been properly maintained; and
C. Any other documentation deemed necessary by the CPM, and the AQCMM to verify compliance with this condition. Such information may be provided via electronic format or disk at the project owner’s discretion.

**AQ-SC6** The project owner, when obtaining dedicated on-road or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain vehicles that meet California on-road vehicle

emission standards or appropriate U.S.EPA/California off-road engine emission standards for the latest model year available when obtained.

**Verification:** At least 30 days prior to the start of commercial operation, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule. The plan shall be updated every other year and submitted in the Annual Compliance Report.

**AQ-SC7** The project owner shall provide a site Operations Dust Control Plan, including all applicable fugitive dust control measures identified in the verification of **AQ-SC3** that would be applicable to minimizing fugitive dust emission creation from operation and maintenance activities and preventing all fugitive dust plumes that would comply with the performance standards identified in **AQ-SC4** from leaving the project site; that:

A. describes the active operations and wind erosion control techniques such as windbreaks and chemical dust suppressants, including their ongoing maintenance procedures, that shall be used on areas that could be disturbed by vehicles or wind anywhere within the project boundaries; and

B. identifies the location of signs throughout the facility that will limit traveling on unpaved portion of roadways to solar equipment maintenance vehicles only. In addition, vehicle speed shall be limited to no more than 10 miles per hour on these unpaved roadways.

The site operations fugitive dust control plan shall include the use of durable non-toxic soil stabilizers on all regularly used unpaved roads and disturbed off-road areas, or alternative methods for stabilizing disturbed off-road areas, within the project boundaries, and shall include the inspection and maintenance procedures that will be undertaken to ensure that the unpaved roads remain stabilized. The soil stabilizer used shall be a non-toxic soil stabilizer or soil weighting agent that can be determined to be both as efficient or more efficient for fugitive dust control as ARB approved soil stabilizers, and shall not increase any other environmental impacts including loss of vegetation to areas beyond where the soil stabilizers are being applied for dust control.

The performance and application of the fugitive dust controls shall also be measured against and meet the performance requirements of

condition **AQSC4**. The performance requirements of **AQ-SC4** shall also be included in the operations dust control plan.

**Verification:** At least 30 days prior to the start of commercial operation, the project owner shall submit to the CPM for review and approval a copy of the site Operations Dust Control Plan that identifies the dust and erosion control procedures, including effectiveness and environmental data for the proposed soil stabilizer, that will be used during operation of the project and that identifies all locations of the speed limit signs. Within 60 days after the start of commercial operation, the project owner shall provide to the CPM a report identifying the locations of all speed limit signs, and a copy of the project employee and contractor training manual that clearly identifies that project employees and contractors are required to comply with the dust and erosion control procedures and on-site speed limits.

**AQ-SC8** The project owner shall provide the CPM copies of all District issued Authority-to-Construct (ATC) and Permit-to-Operate (PTO) documents for the facility.

The project owner shall submit to the CPM for review and approval any modification proposed by the project owner to any project federal air permit. The project owner shall submit to the CPM any modification to any federal permit proposed by the District or U.S. Environmental Protection Agency (U.S. EPA), and any revised federal permit issued by the District or U.S. EPA, for the project.

**Verification:** The project owner shall submit any ATC, PTO, and proposed federal air permit modifications to the CPM within 5 working days of its submittal either by 1) the project owner to an agency, or 2) receipt of proposed modifications from an agency. The project owner shall submit all modified ATC/PTO documents and all federal air permits to the CPM within 15 days of receipt.

**AQ-SC9** The emergency generator engine procured for this project will meet or exceed the U.S. EPA New Source Performance Standard (NSPS) Subpart IIII and ARB Air Toxic Control Measure (ATCM) emission standards for the model year that corresponds to the date of purchase.

**Verification:** The project owner shall submit the emergency engine specifications to the CPM at least 30 days prior to purchasing the engines for review and approval.

**AQ-SC10** The gasoline tank and appurtenances procured for this project will meet or exceed all vapor recovery and standing loss requirements in affect at the time of construction.

**Verification:** The project owner shall submit the gasoline tank and refueling equipment specifications and documentation of compliance with effective vapor recovery and standing loss requirements to the CPM at least 30 prior to purchasing the equipment for review and approval.

## C.1.14.2 DISTRICT CONDITIONS

**DISTRICT FINAL DETERMINATION OF COMPLIANCE CONDITIONS (ICAPCD 2009c)**

***General Conditions***

**EQUIPMENT DESCRIPTION:**

A. Emergency Generator Engine, 335 hp diesel engine.
B. 5,000 gallon above ground fuel storage tank.

**AQ-1** Operation of this equipment shall be in compliance with all data and specifications submitted with the application on August 11th, 2008 (FR#574708) under which this permit is issued unless otherwise noted.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-2** Operation of the described equipment shall be in compliance with all applicable Imperial County Air Pollution Control District Rules and Regulations.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-3** This Permit does not authorize the emissions of air contaminants in excess of those allowed by U.S.EPA (Title 40 of the Code of Federal Regulations), the State of California Division 26, Part 24, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

**AQ-4** This permit cannot be considered permission to violate applicable existing laws, regulations, rules, or statutes of other governmental agencies.

**Verification:** Not necessary.

**AQ-5** No air contaminant shall be released into the atmosphere which causes a public nuisance, caused by permitted operation.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

***Facility Roads***

**AQ-6** Materials used for Chemical Stabilization of soils, including petroleum resins, asphaltic emulsions, acrylics, and adhesives shall not violate State Water Quality Control Board standards for use as a soil stabilizer. Materials accepted by the California Air Resources Board (ARB) and the United States Environmental Protection Agency (EPA), and which meet State water quality standards, shall be considered acceptable to the ICAPCD.

**Verification:** Compliance with Conditions **AQ-SC3** and **AQ-SC4** during construction and Condition **AQ-SC7** during operation will demonstrate compliance with this condition.

**AQ-7** Any use of dust suppressants or gravel pads, and paving materials such as asphalt or concrete for paving, shall comply with other applicable District rules.

**Verification:** Compliance with Conditions **AQ-SC3** and **AQ-SC4** during construction and Condition **AQ-SC7** during operation will demonstrate compliance with this condition.

**AQ-8** The project owner shall apply Soiltac soil conditioner or a similar product on all unpaved roads once per year or as necessary to comply with application information.

**Verification:** Compliance with Conditions **AQ-SC3** and **AQ-SC4** during construction and Condition **AQ-SC7** during operation will demonstrate compliance with this condition.

**AQ-9** The project owner must clean up any bulk material tracked out or carried out onto a paved road at the end of the work day.

**Verification:** Compliance with Conditions **AQ-SC3** and **AQ-SC4** during construction and Condition **AQ-SC7** during operation will demonstrate compliance with this condition.

**AQ-10** All paved and unpaved roads shall limit Visible Dust Emissions (VDE) to 20% opacity, as determined by the test methods for "Visual Determination of Opacity" in Rule 800 Appendix A.

**Verification:** Compliance with Conditions **AQ-SC3** and **AQ-SC4** during construction and Condition **AQ-SC7** during operation will demonstrate compliance with this condition.

**AQ-11** The project owner shall compile and retain records that provide evidence of control measure application. The project owner shall describe, in the records, the type of treatment or control measure, extent of coverage, and date applied. For control measures which require multiple daily applications, recordings the frequency of application will fulfill the recordkeeping requirements of this rule (i.e., water being applied three times a day and the date). Records shall be provided to the ICAPCD upon request.

**Verification:** Compliance with Conditions **AQ-SC3** and **AQ-SC4** during construction and Condition **AQ-SC7** during operation will demonstrate compliance with this condition.

***Emergency Generator Engine***
**EQUIPMENT DESCRIPTION:**
Emergency Generator Engine, 335 hp diesel engine.

**AQ-12** A log shall be maintained on the premises showing hours of operation and routine repairs of emergency generator engine. This log shall be made available for inspection by the ICAPCD.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

**AQ-13** The emergency generator engine shall be restricted to operate a total of 50 hours per year for non-emergency testing and maintenance purposes.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

**AQ-14** The project owner shall submit to the ICAPCD an annual report by the end of February of each operating year containing the monthly fuel consumption and hours operated per month for the unit.

**Verification:** As part of the Annual Compliance Report, the project owner shall include the monthly fuel consumption and hour operated records required by this condition, including a photograph showing the annual reading of engine hours.

**AQ-15** The emergency generator shall not be used to provide power to sources other than this facility.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-16** The diesel engine shall not discharge into the atmosphere any visible air contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour, which is 20 percent opacity or greater.

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-17** Hour Meter, with a minimum display capability of 9,999 hours, shall be installed and maintained to proper working condition for the unit.

**Verification:** At least thirty (30) days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the hour timer.

**AQ-18** Emergency generator set's diesel is subject to New Source Performance Standards (NSPS) Subpart IIII and shall meet Tier 3 emissions standards (40 CFR 60.4205 (b)).

**Verification:** The project owner shall submit the emergency engine specifications to the District and the CPM for review and approval at least 30 days prior to purchasing the engine.

***Above Ground Storage Tank***
**EQUIPMENT DESCRIPTION:**

5,000 gallon above ground fuel storage tank.

**AQ-19** The Phase I Vapor Recovery System shall be installed and operated in accordance with the requirements of the California Air Resources Board (ARB) Executive Order G-70-102-A – Certification of a Phase I Vapor

Recovery System for Aboveground Storage Tanks with less than 40,000 Gallons Capacity for Gasoline or Gasoline/Methanol Blended Fuels (ARB E.O. G-70-102-A).

**Verification:** The project owner shall submit the ARB Phase I Vapor Recovery System specifications to the District for approval, if required by District rules and to the CPM for review at least 30 days prior to installing the system.

**AQ-20** The Phase II Vapor Recovery System, including all associated underground and aboveground plumbing, shall be installed, operated, and maintained in accordance with ARB's Executive Order G-70-52-AM – Certification of Components for Red Jacket, Hirt, and Balance Phase II Vapor Recovery System and Executive Order G-70-162-A – Steel Tank Institute Fireguard Aboveground Tank Vapor Recovery System. Section 41954(f) of the California Health and Safety Code prohibits the sale, offering for sale, or installation of any vapor control system unless the system has been certified by ARB (ARB E.O. G-70-52-AM; ARB E.O. G-70-162-A).

**Verification:** The project owner shall submit the ARB Phase II Vapor Recovery System specifications to the District for approval, if required by District rules and to the CPM for review at least 30 days prior to installing the system.

**AQ-21** All applicable components shall be maintained to a state that is leak free and vapor tight (ICAPCD Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-22** The District shall be notified when installation of all piping and control fittings required by aforementioned Rules has been completed. Vapor control piping and fittings shall remain exposed until the District has inspected the installation or given approval to complete back fill (ICAPCD Rule 415 & 108).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-23** Each vent pipe shall be equipped with an ARB certified pressure/vacuum relief valve. Plumbing may be manifolded to reduce the number of relief valves needed. The settings of the pressure/vacuum relief valve(s) shall be as follows:

a) Positive Pressure Setting: 2.5 to 6.0 inches $H_2O$.
b) Negative Pressure Setting: 6.0 to 10.0 inches $H_2O$ (ARB E.O. G-70-102-A).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-24** The project owner shall successfully conduct the following performance tests of the Phase I Vapor Recovery System within thirty (30) days of start-up:

a) ARB TP-201.3B – Determination of Static Pressure Performance of Vapor Recovery Systems of Dispensing Facilities with Aboveground Storage Tanks (ARB E.O. G-70-102-A; ICAPCD Rule 415)

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-25** For the purpose of compliance determination, all tests shall be conducted after all back-filling, paving, and installation of all Phase I and Phase II components, including P/V valves, have been completed (ICAPCD Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-26** The project owner shall submit all test results for the initial performance tests required pursuant to condition **AQ-24** within twenty (20) days of start-up (ICAPCD Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-27** The performance tests required pursuant to condition **AQ-24** shall be successfully conducted at least once in each twelve (12) month period after the date of successful completion of the startup performance testing. Test results shall be submitted to the Air District within twenty (20) days of conducting these annual tests (ICAPCD Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**AQ-28** The project owner shall annually submit to the Air District a report containing the gasoline throughput from the preceding calendar year. This annual report shall be submitted to this office no later than February 28th.

**Verification:** As part of the Annual Compliance Report, the project owner shall include gasoline throughput and annual VOC emission estimates.

**AQ-29** The project owner shall maintain an operational and maintenance manual for the Phase I and Phase II vapor recovery system of the facility. The manual must be kept at the facility and made available to the APCD upon request (ICAPCD Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

**AQ-30** The project owner shall perform monthly liquid and vapor leak inspections during product transfer operations. Information record shall include date of inspection, findings, leak determination method, corrective action, and name and signature of person performing the inspection (District Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

**AQ-31** Uncertified, missing, or improperly installed equipment and emission related defects shall be tagged out of service immediately. Such defects include, but are not limited to, suffered damage or wear which prevents proper operation of equipment (ICAPCD Rule 415).

**Verification:** During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or Energy Commission staff.

## C. PUBLIC HEALTH

The public health analysis supplements the previous discussion on air quality and considers the potential public health effects from project emissions of toxic air contaminants. In this analysis, we review the evidence concerning whether such emissions will result in significant public health impacts or violate standards for public health protection.[1] (5/24/10 RT 103-114, Exs. 1, §§ 5.16, 5.18, Appen. DD; 14, 16, 27, 28, 32, § 2.16; 28; 102, 116, 302,§C.6.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

Project construction and operation will result in routine emissions of toxic air contaminants for which no ambient air quality standards have been established. These substances are categorized as noncriteria pollutants. In the absence of standards, state and federal regulatory agencies have developed health risk assessment procedures to evaluate potential health effects due to these toxic air contaminants.

The risk assessment consists of the following steps:

- Identify the types and amounts of hazardous substances that the Imperial Valley project could emit into the environment;
- Estimate worst-case concentrations of project emissions in the environment using dispersion modeling;
- Estimate amounts of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact;[2] and
- Characterize potential health risks by comparing worst-case exposure from the project with the scientific safety standards based on known health effects. (Ex. 302, p. C.6-3.)

Typically, the initial health risk analysis is performed at a "screening level," which is designed to estimate potential health risks. The risks for screening purposes are based on examining conditions that would lead to the highest, or worst-case,

[1] This Decision discusses other potential public health concerns under various topics. For instance, the accidental release of hazardous materials is discussed in **Hazardous Materials Management** and **Worker Safety and Fire Protection**. Electromagnetic fields are discussed in **Transmission Line Safety and Nuisance**. Potential impacts to soils and surface water sources are discussed in the **Soil and Water Resources** section. Potential exposure to contaminated soils and hazardous wastes is described in **Waste Management**.

[2] Exposure pathways, or ways in which people might come into contact with toxic substances, include inhalation, dermal (through the skin) absorption, soil ingestion, consumption of locally grown plant foods, and mother's milk.

risks and then modeling those conditions to analyze results. Such conditions include:

- Using the highest levels of pollutants that could be emitted from the power plant;
- Assuming weather conditions that would lead to the maximum ambient concentration of pollutants;
- Using the type of air quality computer model which predicts the greatest plausible impacts;
- Calculating health risks at the location where the pollutant concentrations are estimated to be the highest;
- Assuming that an individual's exposure to cancer-causing agents occurs continuously for 70 years; and
- Using health-based standards designed to protect the most sensitive members of the population (i.e., the young, elderly, and those with respiratory illnesses). (Ex. 302, pp. C.6-3 to C.6-4.)

The risk assessment for the Imperial Valley project addresses two categories of potential health impacts: chronic (long-term) non-cancer effects and cancer risk (also long-term). Chronic non-cancer health effects occur as a result of long-term exposure (8 to 70 years) to lower concentrations of pollutants. For carcinogenic substances, the health assessment considers the total risk of developing cancer and assumes that continuous exposure to the cancer-causing substance occurs over a 70-year lifetime. (Ex. 302, pp. C.6-4 – C.6-5.)

The analysis for chronic health effects compares the maximum project contaminant levels to safe levels called Reference Exposure Levels or RELs. These exposure levels are designed to protect the most sensitive individuals in the population such as infants, the elderly, and people suffering from illness or disease, which make them more susceptible to the effects of toxic substance exposure. The RELs are based on the most sensitive adverse health effects reported in medical and toxicological literature, and include margins of safety.

The assessment considers risk from all cancer-causing chemicals from the source of emissions. The calculated risk is not meant to predict the actual expected incidence of cancer, but is rather a theoretical estimate based on worst-case assumptions.

Cancer risk is expressed in chances per million and is a function of the maximum expected pollutant concentration, the probability that a particular pollutant will cause cancer, and the length of the exposure period. Cancer risks for each

carcinogen are added to yield total cancer risk. The conservative nature of the screening assumptions means that actual cancer risks due to project emissions are likely to be considerably lower than those estimated. (Ex. 302, p. C.6-5.)

If the screening analysis predicts no significant risks, then no further analysis is required. However, if the predicted risk is significant, then further analysis using more realistic, site-specific assumptions is performed to obtain a more accurate assessment of potential health risks. If the site-specific analysis confirms that the risk exceeds the significance level, then appropriate mitigation measures are necessary to reduce the risk to less than significant. If a refined analysis identifies a cancer risk that exceeds the significance level after all risk reduction measures have been considered, then Staff would not recommend approval of the project. (Ex. 302, p. C.6-6.)

The evidence shows that both the Applicant and Staff independently performed screening risk assessments and concluded that no adverse health effects are expected from project construction or operation.

1. Construction Impacts and Mitigation

Construction of Imperial Valley's two phases is anticipated to take place over a period of 40 months, with some expected overlap between construction of Phase II and operation of Phase I. Potential construction-phase health impacts could occur from exposure to toxic substances in contaminated soil disturbed during site preparation and to diesel exhaust from heavy equipment. Excavation, grading, and earth moving activities also have potential to affect public health through mechanisms such as windblown dust, soil erosion, and the uncovering of hazardous substances. (Exs. 1, p. 5.16-2; 302, pp. C.6-10 – C.6-11.)

A Phase I Environmental Site Assessment identified no "Recognized Environmental Conditions" (i.e., found no evidence or record of any use, spillage, or disposal of hazardous substances on the site). If, however, any unexpected contamination is encountered during construction, then compliance with Conditions of Certification **Waste Management Waste-1** and **Waste-2** will ensure that contaminated soil does not affect the public. These Conditions require a registered professional engineer or geologist to be available during soil excavation and grading to ensure proper handling and disposal of contaminated soil. (Ex. 302, p. C.6-10.)

With respect to the air emissions from diesel-fueled engines, the Applicant estimated worst-case emissions of 457 pounds per day of particulate matter less than 10 microns in diameter (PM 10) and 57.56 pounds per day and 71 pounds of per day of fine particulate matter less than 2.5 microns in diameter (PM2.5) during construction. (Exs. 1, § 5.2, Table 5.2-2-0 Revised; 10, § 5.2.) Because assessment of chronic (long-term) health effects assumes continuous exposure to toxic substances over a period from eight to 70 years, the Applicant did not estimate the health risks resulting from the short duration of the construction activities. Similarly, Staff did not conduct a quantitative assessment of construction impacts on public health given the distance from the site to the sparsely populated area surrounding the site and based on its prior experience using quantitative risk assessment tools showing that construction vehicle emissions impacts are generally less than significant. (Exs. 1, p. 5.16-4; 300, p. C.6-11.)

Even though the Applicant and Staff independently determined that the construction impacts would be less than significant, they both proposed mitigation measures to reduce the maximum calculated PM10 and PM2.5 emissions and further reduce any potential impacts. (Ex. 1, § 5.2; 302, p. C.6-11.) We have adopted the recommended mitigation measures the **Air Quality** section of this Decision. Included in these measures are requirements for use of aggressive fugitive dust and diesel exhaust control measures. For instance, these Conditions will reduce exposure to diesel emissions from construction equipment by requiring the use of ultra-low sulfur diesel fuel and Tier 2 or Tier 1 California Emission Standards for Off-Road Compression-Ignition Engine or the installation of an oxidation catalyst and soot filters on diesel equipment.

2. Operation Impacts and Mitigation

The record shows that the only stationary source of emissions will be the emergency diesel generator to be operated once a week for about 15 minutes.[3] Thus, the only toxic air contaminants (TAC) that would be emitted from Imperial Valley would be diesel particulate matter from the emergency generator. (Ex. 300, pp. C.6-11 - C.6-14.)

[3] The initial project proposal contemplated that the mobile sources would include diesel vehicles for washing the mirrors and other on-site maintenance vehicles. The Applicant modified the initial proposal to instead use an electric fire water pump instead of a diesel pump, gasoline instead of diesel vehicles for mirror washing and other maintenance purposes, electric or hybrid vehicles for security purposes. Thus, Staff determined the only TAC emitted will be diesel particulate matter from the emergency generator. (Ex. 302, p. C.6-12.)

The record includes the methodology used in identifying and quantifying the emission rates of the toxic noncriteria pollutants that could adversely affect public health. The Applicant's screening health risk assessment for the project was performed for the project as initially proposed with the use of two diesel emergency engines. (Exs. 32, § 2.16.2; 302, p. C.6-12.) Under the initial proposal, the screening assessment resulted in a maximum chronic Hazard Index of 0.00003 and a worst-case individual cancer risk of 0.01 in 1 million at the location of maximum impact. (Ex. 1, § 5.16, Table 5.16-2.) As shown in **Public Health Table 1** below, both the chronic hazard index and the cancer risk are below the level of significance indicating that no long-term adverse health effects are expected.

**PUBLIC HEALTH Table 1**
**Operation Hazard/Risk at Point of Maximum Impact: Applicant Assessment**

| Type of Hazard/Risk | Hazard Index/Risk | Significance Level | Significant? |
|---|---|---|---|
| **Chronic Noncancer** | 0.00003 | 1.0 | No |
| **Individual Cancer** | 0.01 in a million | 10.0 in a million | No |

Source: Exs. 1, Table 5.16-2; 302, p. C.6-13.

The record shows that the Applicant did not revise the health risk assessment to reflect the elimination of the diesel fire water pump in favor of an electric pump because (1) the results of the initial study show that no significant public health effects would occur and (2) the decrease in TAC emissions due to removal of the diesel-fueled fire water pump would serve to reduce the projected health impacts that were already found to be insignificant under the worst-case conditions. (Exs. 32, § 2.16.2; 302, pp. C.6-12 - C.6-13.)

The record further shows, however, that Staff performed an independent qualitative analysis of the risk assessment results using the Applicant's emission factors and considering several specified aspects of facility operations. (Ex. 302, p. C.6-14.) **Public Health Table 2** below summarizes Staff's results as compared to the Applicant's.

**PUBLIC HEALTH Table 2: Results of Staff's Analysis and the Applicant's Analysis for Cancer Risk and Chronic Hazard Index (HI).**

| | Staff's Analysis *(emissions from diesel emergency generator only)* | | Applicant's Analysis *(emissions from diesel emergency generator and diesel fire pump)* | |
|---|---|---|---|---|
| | Cancer Risk (per million) | Chronic HI | Cancer Risk (per million) | Chronic HI |
| PMI | 0.0470 | 0.000029 | 0.01 | 0.00003 |
| MEIR | 0.0020 | 0.0000012 | n/a | n/a |
| MEIW | 0.046 | 0.00015 | n/a | n/a |
| Sensitive Receptor | 0.00082 | 0.00000052 | n/a | n/a |

Note:

PMI= point of maximum impact determined in staff's analysis; the PMI is located at the facility fenceline
MEIR = maximally exposed individual, residential is located at a residence approximately 3.7 miles west of the site of the diesel emergency generator
MEIW = maximally exposed individual, worker; the MEIW is located on-site
Sensitive Receptor is located at Westside Elementary School, located approximately 8.3 miles east of the site of the diesel emergency generator
n/a = not addressed

As shown, Staff similarly concluded that the risk assessment under the initial project description shows that no adverse cancer or chronic non-cancer health effects are expected from project operation.

The evidence also establishes that the modifications reflected in the supplemental project description submitted by the Applicant on May 5, 2010, will not result in any significant impacts to public health. The modification included changes to the transmission line alignment, waterline alignment, an alternative water supply, and modifications to onsite hydrogen storage. (Exs. 32, 302, p. C.6-15.)

3. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects (Cal. Code Regs., tit.14, § 15130). NEPA states that cumulative effects can result from individually minor but

collectively significant actions taking place over a period of time. (40 CFR §1508.7.)

Cumulative impacts can occur if implementation of the Imperial Valley project could combine with those of other local or regional projects. Cumulative impacts would occur locally if Imperial Valley project impacts combined with impacts of projects located within the same air basin. Cumulative impacts could also occur as a result of development of some of the many proposed solar and wind development projects that have been or are expected to be under consideration by the BLM and the Energy Commission in the near future.

The Applicant concluded that under Energy Commission requirements, its cumulative impacts analysis need not extend beyond projects within a 6-mile radius of the Imperial Valley project site. The Applicant further concluded there were no such projects. Although the Applicant did not perform an impacts analysis for projects beyond the 6-mile radius, it identified existing and foreseeable projects in Imperial County and beyond. (Ex. 1, p. 5.16-8.)

Staff's analysis of cumulative impacts explains that the emissions from construction or operation of the Imperial Valley project could potentially combine with emissions from present and reasonably foreseeable projects to result in adverse health effects to the public. The geographic extent for the analysis of local cumulative impacts associated with the Imperial Valley project includes the Salton Sea Air Basin, which contains all of Imperial County and parts of Riverside County. Thus, Staff determined that there is a potential for substantial future development in the project area and throughout the southern California desert region, as indicated by the list of planned projects within a 10-mile radius that were identified by the Applicant in the Application for Certification. The record contains Staff's analysis of the public health and safety effects of existing and foreseeable projects listed in the Cumulative Impacts section of the AFC. The record, including the data and information provided by the Applicant, supports Staff's conclusion that the incremental impact of the additional risk posed by Imperial Valley is neither individually nor cumulatively significant. (Exs. 1, § 5.18, table 5.18-3; 302, pp. C.6-18 - C.6-20.)

4. Public Benefits

The evidence shows that a solar electric generating facility such as the proposed Imperial Valley project would emit significantly fewer TACs to the environment than other energy sources available in California such as natural gas or biomass,

thereby reducing the health risks that would otherwise occur with these non-renewable energy sources. At the same time, the proposed Imperial Valley project would provide much needed electrical power to California residences and businesses, and will contribute to electric reliability.

**FINDINGS OF FACT**

Based on the evidence, we make the following findings and conclusions:

1. Construction and operation of the project will result in the routine release of criteria and noncriteria pollutants that have the potential to adversely impact public health.

2. Exposure to diesel particulate emissions from construction equipment is short-term and will not result in long-term carcinogenic or non-cancer effects.

3. Exposure to construction-related diesel particulates will be mitigated to the extent feasible by implementing measures to reduce equipment emissions.

4. Exposure to fugitive dust due to excavation and construction activities will be mitigated to insignificant levels by implementing measures to reduce dust production and dispersal.

5. Emissions of criteria pollutants, as discussed in the **AIR QUALITY** section of this Decision, will be mitigated to levels consistent with applicable state and federal standards.

6. Emissions of noncriteria pollutants or toxic air contaminants are assessed according to procedures developed by state and federal regulatory agencies to evaluate potential health effects.

7. Both the Applicant and Staff performed a screening health risk assessment of the project's potential health effects due to emissions of toxic air contaminants.

8. Emissions of toxic air contaminants from the project will not cause acute or chronic non-cancer adverse public health effects or long-term carcinogenic effects at the points of maximum impact.

9. The maximum cancer and non-cancer health risks associated with the project are below the significance thresholds commonly accepted for risk analysis purposes.

10. Since the project's contributions to health risks are well below the significance level, the project is not expected to contribute significantly to a cumulative health impact.

## CONCLUSIONS OF LAW

1. Project emissions of toxic air contaminants do not pose a significant direct, indirect, or cumulative adverse public health risk.

2. With the implementation of the Conditions of Certification listed in the **Air Quality** and **Waste Management** and sections of this Decision, the project will not result in significant public health impacts during construction or operation.

3. The project will comply with the applicable laws, ordinances, regulations, and standards specified in the appropriate portion of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

No conditions of certification or mitigation measures are proposed.

## D. WORKER SAFETY AND FIRE PROTECTION

Industrial workers are exposed to potential health and safety hazards on a daily basis. Implementation of various existing laws and standards suffices to reduce these hazards to minimal levels. (Ex. 302, p. C.15-3.) Therefore, this subsection focuses on whether Applicant's proposed health and safety plans are in accordance with all applicable LORS and thus adequate to protect industrial workers. The record also addresses the availability and adequacy of fire protection and emergency response services, as well as potential threats from wildfires. (7/27/2010 RT 393-405; Exs. 1; 14; 27; 28; 32; 122; 139; 144; 300, § C.15; 302, § C.15; 303; 304; 305.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Worker Safety

Industrial environments are potentially dangerous during construction, operation, and demolition activities. Workers at the Imperial Valley Solar Project (Imperial or Imperial Valley) will be exposed to loud noises, moving equipment, trenches, and confined space entry and egress problems. The workers may experience falls, trips, burns, lacerations, and various other injuries. They may be exposed to falling equipment or structures, chemical spills, hazardous waste, fires, explosions, electrical sparks, and electrocution. (Ex. 302, p. C.15-4.)

This power plant presents a work environment that includes a solar field located in the high desert. The area under the solar arrays must be kept free from weeds by applying herbicides as necessary. Inhalation and ingestion of dusts containing herbicides can pose a health risk. Cleaning, servicing, and inspecting the mirrors will be conducted on a routine schedule. These activities will take place year-round, especially during the summer months of peak solar power generation when outside ambient temperatures routinely reach 115º Fahrenheit and above. (Ex. 302, p. C.15-9.) Thus, it is important that the project have well-defined policies and procedures, training, hazard recognition, and controls to minimize injuries and protect workers.

The evidence extensively details the type and content of various plans which must be developed to ensure the protection of worker health and safety, as well as compliance with applicable LORS. (Ex. 302, pp. C.15-4 to C.15-9.) For example, the project owner will develop and implement a "Construction Safety and Health Program" and an "Operations and Maintenance Safety and Health

Program," both of which must be reviewed by the Compliance Project Manager prior to project construction and operation. (Ex. 302, p. C.15-4.) A separate "Injury and Illness Prevention Program," a "Personal Protective Equipment Program," an "Emergency Action Plan," a "Fire Prevention Plan," and other general safety procedures will be prepared for both the construction and operation phases of the project. Conditions of Certification **WORKER SAFETY-1** and **-2** ensure that these measures will be developed and implemented. (Ex. 302, pp. C.15-8 to C.15-9.) Condition **WORKER SAFETY-6** requires the development and implementation of Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds beneath and around the solar array. (Ex. 302, pp. C.15-9 to C.15-10.)

OSHA and Cal-OSHA standards encourage employers to monitor worker safety by employing a "competent person" who has knowledge and experience enforcing workplace safety standards, can identify hazards relating to specific project operations, and has authority to take appropriate action. To implement the intent to provide a safe workplace during power plant construction, Condition **WORKER SAFETY-3** requires the project owner to designate a power plant Construction Safety Supervisor. This individual will coordinate and implement the Construction and Operation Safety and Health Programs, as well as investigate any safety-related incidents and emergency responses. (Ex. 302, p. C.15-11.)

To reduce and/or eliminate safety hazards during project construction and operation, it is also necessary to employ a professional Safety Monitor. The Safety Monitor, who is hired by the project owner but reports to the Chief Building Official and the Compliance Project Manager, will track compliance with OSHA/Cal-OSHA regulations and serve as an on-site OSHA expert. This professional will periodically audit safety compliance during construction, commissioning, and the transition to operational status as well as ensure that safety procedures and practices are fully implemented. (Ex. 302, pp. C.15-11 to 15.12.) Condition **WORKER SAFETY-4** describes the role of the Safety Monitor.

The project owner will maintain an automatic portable defibrillator on-site to provide immediate response in the event of medical emergency.[1] Condition **WORKER SAFETY-5** requires the project owner to ensure this device is

[1] Staff's testimony indicates that the potential for both work-related and non work-related heart attacks exists at power plants. The quickest medical intervention can be achieved with the use of an on-site defibrillator. Many modern industrial and commercial enterprises maintain defibrillators for emergency use. Staff therefore endorses this as an appropriate safety and health precaution. (Ex. 302, pp. C.15-17 to C.15-18.)

available during construction and operation, and that appropriate personnel are trained to use it. (Ex. 302, pp. C.15-17 to C.15-18.)

The evidence also discusses the occurrence of Coccidioidomycosis (Valley Fever or VF), a respiratory disease linked to inhaling a fungus during soil disturbances such as construction activities or windy periods. The evidence shows, however, that it is difficult to accurately assess the level of risk to workers at the Imperial project. Nevertheless, we have included Conditions in the **Air Quality** section of this Decision (e.g. **AQ-SC3** and **AQ-SC4**) and below (**Worker Safety-9**) to control the creation of dust and worker exposure thereto. (Ex. 302, pp. C.15-12 to C.15-15.)

2. Fire Protection and Emergency Response

Project construction and operation pose the potential for both small fires and major structural fires. Electrical sparks, combustion of diesel fuel oil, natural gas, hydraulic fluid, mineral oil, insulating fluid or flammable liquids, explosions, and over-heated equipment may cause small fires. Wildfires fueled by local vegetation could also potentially affect workers and project facilities.[2] Wildfire protective measures will reduce the potential for harm to plant personnel and damage to facilities. Therefore, vegetation in the vicinity of the solar power towers, substation, and administration areas will be removed; in the solar field it will be cut and maintained. The access road along the perimeter fence lines will also serve as a fire break. (Ex. 302, p. C.15-16.)

The project will rely upon both on-site and local fire protection services. The on-site fire protection system provides the first line of defense for such occurrences. During construction, these measures include the placement of portable fire extinguishers, safety procedures, and training. (Ex. 302, p. C.15-16.) During operation, the project will meet the fire protection and suppression requirements of the California Fire Code, all applicable recommended National Fire Protection Association (NFPA) standards (including Standard 850 addressing fire protection at electric generating plants), and all Cal/OSHA requirements. (*Id*.) Conditions of Certification **Worker Safety-1** and **-2** require the project owner, prior to construction and operation of the project, to provide the final Fire Prevention Program to the Compliance Project Manager and the local fire authorities. These entities will then confirm its adequacy. (*Id*.)

[2] These are not expected to be caused by the project. Wildfires external to the Imperial Project boundaries are not the responsibility of the project owner to suppress. (Ex. 302, p. C. 15-15.)

The fire protection system will be designed to protect personnel and limit property loss and plant downtime in the event of a fire. The primary source of fire protection water will be a 175,000 gallon demineralized water storage tank. A diesel engine-driven fire water pump will increase the water pressure to the level required to serve all fire fighting systems. (*Id*.) In addition to the fixed fire protection system, smoke detectors, flame detectors, high temperature detectors, appropriate class of service portable extinguishers, and fire hydrants must be located throughout the facility at code-approved intervals. These systems are standard requirements of the NFPA and the Uniform Fire Code (UFC). (*Id.*)

The evidence establishes that the project includes construction of an on-site hydrogen generator and distributed hydrogen storage and handling systems. The project's total combined storage capacity will be over 5,000,000 scf of hydrogen. The Imperial County Fire Department, the local authority with jurisdiction over the project, has determined that the size and complexity of the hydrogen systems will place a significant demand upon local fire protection and emergency services for plan reviews, inspections, and permitting; fire response; hazardous materials spill response; rescue; and emergency medical services. (Exs. 302, p. C.15-17; 303, pp. 55-56.) These additional demands will require that the Imperial County Fire Department augment its existing equipment and personnel.

The record shows that there are various alternatives for funding any needed augmentation. (Ex. 303, pp. 57-59.) Applicant and Staff have stipulated to several alternative approaches aimed at reaching an adequate level of mitigation. (7/27/2010 RT 401-404; see also, Applicant's Opening Brief (August 11, 2010, pp. 18-19); Staff's Opening Brief (August 11, 2010, p. 27 and Appendix A, pp. 11-14.) We have incorporated these measures as Conditions **Worker Safety-7** and **Worker Safety-8** below. (Ex. 304.)

Finally, the evidence addresses the impacts of the 300 MW, Drainage Avoidance #1, Drainage Avoidance #2, and No Project Alternatives in regard to this topic area. None of the Alternatives would significantly alter the level of impacts posed by the project. Since the Imperial Project, as mitigated, does not create significant adverse impacts in this topic area, it is not necessary to consider any of the alternatives as a means of reducing impacts to below a level of significance. (Ex. 302, pp. C.15-18 to C.15-22.)

## FINDINGS OF FACT

Based on the evidence of record, the Commission makes the following findings:

1. Industrial workers are exposed to potential health and safety hazards on a daily basis.

2. To protect workers from job-related injuries and illnesses, the project owner will implement comprehensive Safety and Health Programs for both the construction and the operation phases of the project.

3. The project will employ an on-site professional Safety Monitor during construction and operation.

4. The Imperial Valley Solar Project will include on-site fire protection and suppression systems as the first line of defense in the event of a fire.

5. The Imperial County Fire Department will provide fire protection and emergency response services to the project.

6. Existing fire and emergency service resources are not adequate to meet project needs.

7. Conditions of Certification **Worker Safety-7** and **Worker Safety-8**, below, are necessary to reduce project-related impacts to below a level of significance.

8. The record addresses the impacts of the 300 MW, Drainage Avoidance #1, Drainage Avoidance #2, and No Project Alternatives in regard to this topic area.

9. None of the Alternatives mentioned above would significantly affect the level of impacts posed by the project as proposed.

## CONCLUSION OF LAW

1. We therefore conclude that the Imperial Valley Solar Project will not create significant health and safety impacts to workers, and will comply with all applicable laws, ordinances, regulations, and standards listed in the appropriate portion of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**WORKER SAFETY-1** The project owner shall submit to the Compliance Project Manager (CPM) a copy of the Project Construction Safety and Health Program containing the following:

- A Construction Personal Protective Equipment Program;
- A Construction Exposure Monitoring Program;
- A Construction Injury and Illness Prevention Program;
- A Construction Emergency Action Plan; and
- A Construction Fire Prevention Plan.

The Personal Protective Equipment Program, the Exposure Monitoring Program, and the Injury and Illness Prevention Program shall be submitted to BLM's authorized officer and the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Construction Emergency Action Plan and the Fire Prevention Plan shall be submitted to the Imperial County Fire Department for review and comment prior to submittal to the BLM's authorized officer and CPM for approval.

**Verification:** At least thirty (30) days prior to the start of construction, the project owner shall submit to CPM for review and approval a copy of the Project Construction Safety and Health Program. The project owner shall provide a copy of a letter to the CPM from the Imperial County Fire Department stating the Fire Department's comments on the Construction Fire Prevention Plan and Emergency Action Plan.

**WORKER SAFETY-2** The project owner shall submit to the CPM a copy of the Project Operations and Maintenance Safety and Health Program containing the following:

- An Operation Injury and Illness Prevention Plan;
- An Emergency Action Plan;
- Hazardous Materials Management Program;
- Fire Prevention Program (8 CCR § 3221); and;
- Personal Protective Equipment Program (8 CCR §§ 3401-3411).

The Operation Injury and Illness Prevention Plan, Emergency Action Plan, and Personal Protective Equipment Program shall be submitted to BLM's authorized officer and the CPM for review and approval concerning compliance of the program with all applicable Safety Orders. The Operation Fire Prevention Plan and the Emergency Action Plan shall also be submitted to the Imperial County Fire Department for review and comment.

**Verification:** At least thirty (30) days prior to the start of first-fire or commissioning, the project owner shall submit to CPM for approval a copy of the Project Operations and Maintenance Safety and Health Program. The project owner shall provide a copy of a letter to BLM's authorized officer and the CPM from the Imperial County Fire Department stating the Fire Department's comments on the Operations Fire Prevention Plan and Emergency Action Plan.

**WORKER SAFETY-3** The project owner shall provide a site Construction Safety Supervisor (CSS) who, by way of training and/or experience, is knowledgeable of power plant construction activities and relevant laws, ordinances, regulations, and standards, is capable of identifying workplace hazards relating to the construction activities, and has authority to take appropriate action to assure compliance and mitigate hazards. The CSS shall:

- Have overall authority for coordination and implementation of all occupational safety and health practices, policies, and programs;
- Assure that the safety program for the project complies with Cal/OSHA and federal regulations related to power plant projects;
- Assure that all construction and commissioning workers and supervisors receive adequate safety training;
- Complete accident and safety-related incident investigations, emergency response reports for injuries, and inform the CPM of safety-related incidents; and
- Assure that all the plans identified in Worker Safety 1 and 2 are implemented.

**Verification:** At least thirty (30) days prior to the start of site mobilization, the project owner shall submit to the CPM the name and contact information for the Construction Safety Supervisor (CSS). The contact information of any replacement (CSS) shall be submitted to the CPM within one business day. The CSS shall submit in the Annual Compliance Report documentation of monthly safety inspection reports to include:

- Record of all employees trained for that month (all records shall be kept on site for the duration of the project);

- Summary report of safety management actions and safety-related incidents that occurred during the month;

- Report of any continuing or unresolved situations and incidents that may pose danger to life or health; and

- Report of accidents and injuries that occurred during the month.

**WORKER SAFETY-4** The project owner shall make payments to the Chief Building Official (CBO) for the services of a Safety Monitor based upon a reasonable fee schedule to be negotiated between the project owner and the CBO. Those services shall be in addition to other work performed by the CBO. The Safety Monitor shall be selected by and report directly to the CBO, and will be responsible for verifying that the Construction Safety Supervisor, as required in Worker Safety 3, implements all appropriate Cal/OSHA and Commission safety requirements. The Safety Monitor shall conduct on-site (including linear facilities) safety inspections at intervals necessary to fulfill those responsibilities.

**Verification:** At least thirty (30) days prior to the start of construction, the project owner shall provide proof of its agreement to fund the Safety Monitor services to BLM's authorized officer and the CPM for review and approval.

**WORKER SAFETY-5** The project owner shall ensure that a portable automatic external defibrillator (AED) is located on site during construction and operations and shall implement a program to ensure that workers are properly trained in its use and that the equipment is properly maintained and functioning at all times. During construction and commissioning, the following persons shall be trained in its use and shall be on-site whenever the workers that they supervise are on-site: the Construction Project Manager or delegate, the Construction Safety Supervisor or delegate, and all shift foremen. During operations, all power plant employees shall be trained in its use. The training program shall be submitted to the CPM for review and approval.

**Verification:** At least thirty (30) days prior to the start of site mobilization the project owner shall submit to the CPM proof that a portable AED exists on site and a copy of the training and maintenance program for review and approval.

**WORKER SAFETY-6** The project owner shall prepare and implement a Best Management Practices (BMPs) for the storage and application of herbicides used to control weeds beneath and around the solar array. These plans shall be submitted to the CPM for review and approval.

**Verification:** At least thirty (30) days prior to the start of site mobilization, the project owner shall submit to the CPM for review and approval a copy of the Best Management Practices (BMPs) for the storage and application of herbicides.

**WORKER SAFETY-7** The project owner shall either:

(1) Reach an agreement, either individually or in conjunction with a power generation industry association or group that negotiates on behalf of its members, with the Imperial County Fire Department (ICFD) regarding funding of its project-related share of capital and operating costs to build and operate new fire protection/emergency response infrastructure and provide appropriate equipment as mitigation of project-related impacts on fire protection/emergency response services within the jurisdiction.

**or**

(2) Shall fund its share of the ICFD capital costs in the amount of $1,400,000 and provide an annual payment of $667,000 to the ICFD for the support of new fire department staff, operations, and maintenance commencing with the start of construction and continuing annually thereafter on the anniversary of the payment until the final date of power plant decommissioning.

**or**

(3) The Project Owner shall fund a Fire Needs Assessment and Risk Assessment conducted by an independent contractor who shall be selected and approved by the CEC Compliance Project Manager (CPM) and fulfill all mitigation identified in the independent fire needs assessment and a risk assessment. The Fire Needs Assessment would address emergency response and equipment/staffing/location needs while the Risk Assessment would be used to establish the risk (chances) of significant impacts occurring. In no event shall the Project Owner's cost responsibility under this option exceed that under option (2), above.

Should the applicant pursue option (3), above, the Fire Needs Assessment and Risk Assessment shall evaluate the following:

(a) Potential for impacts on the ICFD and the project allocated costs of new and/or enhanced fire protection/emergency response services (which shall include services for inspections, permitting, fire response, hazardous materials spill/leak response, rescue, and emergency medical services) necessary to mitigation such impacts;

(b) The risk of impact on the local population that could result from potential unmitigated impacts on local fire protection and

emergency services (i.e. “drawdown” of emergency response resources);

(c) The extent that the project’s exemption from local taxes will impact local fire protection and emergency response services; and

(d) Recommendation of an amount of funding that should be provided to mitigate any identified significant impacts on local fire protection and emergency response services.

Compliance Protocols for the Fire Needs Assessment and Risk Assessment shall be as follows:

(a) The Fire Needs Assessment and Risk Assessment shall be conducted by an independent consultant(s) selected and approved by the CPM;

(b) The Fire Needs Assessment and Risk Assessment shall be fully funded by the project owner. The independent consultant(s) preparing the Fire Needs Assessment and Risk Assessment shall work directly for the Energy Commission;

(c) The project owner shall provide the protocols for conducting the independent fire needs assessment for review and comment by the ICFD and review and approval by the CPM prior to the independent consultant’s commencement of the fire needs assessment;

(d) The CPM shall be copied in any correspondence including emails or letters and included in any conversations between the project owner and consultant; and

(e) The CPM shall verify that the Fire Needs Assessment and Risk Assessment are prepared consistent with the approved fire needs assessment protocols and a risk assessment protocols.

No construction of permanent above ground structures shall occur until full funding of mitigation occurs either (i) pursuant to an agreement reached between the project owner (or a power generation industry association or group that includes the project owner) and the ICFD, or (ii) after payment of the fees described above for capital improvements and the first annual payment, or (iii) pursuant to the independent Fire Needs and Risk Assessments conducted by an independent consultant approved by the CPM.

**Verification:** At least thirty (30) days prior to the start of site mobilization, the project owner shall provide to the CPM:

(1) A copy of the individual agreement with the ICFD or, if the owner joins a power generation industry association, a copy of the group's bylaws and a copy of the group's agreement with the ICFD; and evidence in each January Monthly Compliance Report that the project owner is in full compliance with the terms of such bylaws and/or agreement **or**

(2) Documentation that the amount of $1,400,000 has been paid to the ICFD, documentation that the first annual payment of $667,000 has been made, and shall also provide evidence in each January Monthly Compliance Report during construction and the Annual Compliance Report during operation that subsequent annual payments have been made **or**

(3) A protocol, scope and schedule of work for the independent Fire Needs Assessment and Risk Assessment and the qualifications of proposed contractor(s) for review and approval by the CPM; a copy of the completed Fire Needs Assessment and Risk Assessment showing the precise amount the project owner shall pay for mitigation; and documentation that the amount has been paid.

Annually thereafter, the owner shall provide the CPM with verification of funding to the Imperial County Fire Department for required fire protection services mitigation pursuant to the agreement with the Fire Department or the CPM approved independent fire needs assessment.

**WORKER SAFETY-8** As security only in the event that the project owner does not reach an agreement with Imperial County Fire Department pursuant to WORKER SAFETY-7(1), the project owner shall:

Provide a $2,067,000 payment to Imperial County Fire Department prior to the start of construction. This funding shall off-set any initial funding required by **WORKER SAFETY-7** above until the funds are exhausted. This offset will be based on a full accounting by the Imperial County Fire Department regarding the use of these funds.

**Verification:** At least 30 days prior to the start of site mobilization the project, if project owner has not reached an agreement with the Imperial Fire Department pursuant to **WORKER SAFETY-7** (1), owner shall provide documentation of the payment described above to the CEC CPM. The CEC CPM shall adjust the payments initially required by WORKER SAFETY-7 based upon the accounting provided by the Imperial County Fire Department.

**WORKER SAFETY-9** The project owner shall develop and implement an enhanced Dust Control Plan that includes the requirements described as **AQ-SC3** and additionally requires:

i. site worker use of dust masks (NIOSH N-95 or better) whenever visible dust is present;

ii. implementation of methods consistent with Rule 402 of the Kern County Air Pollution Control District (as amended Nov. 3, 2004); and

iii. implementation of enhanced dust control methods (increased frequency of watering, use of dust suppression chemicals, etc. consistent with **AQ-SC4**) immediately whenever visible dust comes from or onto the site or when PM10 measurements exceed 50 $\mu g/m^3$.

**Verification:** At least sixty (60) days prior to the commencement of the site mobilization, the enhanced Dust Control Plan shall be provided to the CPM for review and approval.

## E. HAZARDOUS MATERIALS MANAGEMENT

This section considers whether the construction and operation of the Imperial Valley Solar Project will create significant impacts to public health and safety resulting from the use, handling, transportation, or storage of hazardous materials.[1] Several locational factors affect the potential for project-related hazardous materials to cause adverse impacts. These include meteorological conditions, terrain characteristics, any special site factors, and the proximity of population centers and sensitive receptors. (Ex. 302, pp. C.5-4 to C.5-5.) In addition, sensitive subgroups such as the young, the elderly, and those with existing conditions may be at heightened risk from exposure to emitted pollutants.[2] (5/24/2010 (day 1) RT 54-68, 169-79; 5/24/2010 (day 2) RT 15-45, 276-78; Exs. 1; 3; 9; 13; 14; 27; 28; 32; 38, pp. 22-23; 114, p. 45; 115; 122, pp. 22-23; 300, § C.5; 302, § C.5.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Potential Risks

The evidence chronicles the method used to assess risks posed by hazardous materials. This method included the following elements:

- A review of chemicals, the amounts proposed for on-site use, and a determination of the need and appropriateness of their use.
- Chemicals which would be used in small amounts, or whose physical state is such that there is virtually no chance that a spill would migrate off the site and impact the public, were removed from further consideration.
- Measures proposed to prevent spills were reviewed and evaluated. These included engineering controls such as automatic shut-off valves and different size transfer-hose couplings, as well as administrative controls such as worker training and safety management programs.
- Measures proposed to respond to accidents were reviewed and evaluated. These included engineering controls such as catchment basins and methods to keep vapors from spreading, as well as administrative controls such as training emergency response crews.

[1] The **Worker Safety and Fire Protection** portion of this Decision addresses the protection of workers from such risks. (Ex. 302, p. C.5-1.)

[2] In this instance, there are no sensitive receptors in the project vicinity. The nearest residence is more than a mile from the project. (Ex. 302, p. C.5-5.)

- An analysis of the theoretical impacts on the public of a worst-case spill of hazardous materials even with the mitigation measures in place. (Ex. 302, p. C.5-6.)

Hazardous materials used during construction will include gasoline, diesel fuel, motor oil, welding gases, lubricants, solvents, and paint. These will be used in small quantities, and any spills or other releases will be confined to the site. No acutely toxic materials will be used on-site during construction. During operations, hazardous materials such as cleaning agents, sodium hydroxide, ammonium hydroxide, lube oil, and diesel fuel will be used or stored only in small quantities; these present limited off-site dangers because of their low volatility and/or toxicity. (Ex. 302, pp. C.5-2, C.5-7.)

**ATTACHMENT A** (incorporated in Condition of Certification **HAZ-1** at the end of this section) lists the hazardous materials that will be used and stored on-site. Condition **HAZ-1** prohibits the project owner from using hazardous materials not listed in **ATTACHMENT A**, or storing them in greater quantities than specified, without prior approval of the Energy Commission's Compliance Project Manager. (Ex. 302, p. C.5-9.) None of these materials, except for hydrogen as discussed below, pose significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, their physical state, and/or their environmental mobility. (Ex. 302, pp. C.5-6 to C.5-7.)

a. Hydrogen

The project involves roughly 30,000 individual engines and solar collectors. Hydrogen is used as the working fluid in the Stirling cycle engines. The project includes on-site hydrogen generation, distribution, and storage. (5/24/2010 (day 1) RT 54-60; Ex. 302, p. C.5-7.)

Over 5,000,000 standard cubic feet (scf) of hydrogen will be present on-site. (5/24/2010 (day 1) RT 65; Ex. 302, p. C.5-8.) The evidence explains that Applicant conducted an analysis assuming a worst case release of all the hydrogen. (5/24/2010 (day 2) RT 15-41.) The analysis assumed that a hydrogen release would form a vapor cloud and detonate, causing an unconfined vapor cloud explosion. An overpressure could cause some damage to structures and injury to exposed members of the general population. Expert testimony explains that a "worst case" scenario involves 28,400 pounds of hydrogen being released; this would result in a one psi overpressure.[3] In the present instance, this means

[3] EPA Risk Management guidelines state that a one psi over pressurization is capable of partially demolishing houses. (5/24/2010 (day 2) RT 33-34.)

there could be an impact for up to .06 mile from an individual hydrogen assembly incident or up to 0.3 mile from a cumulative release. (5/24/2010 (day 2) RT 38; Ex. 115.) In either case, the testimony establishes that there are no public receptors which would be severely affected by such an explosion and that such overpressures would generally be confined to the project site. (5/24/2010 (day 2) RT 36-40.) Moreover, it is nearly impossible to detonate hydrogen in an unconfined cloud since hydrogen disperses very rapidly due to its low density relative to air. The release scenarios examined in the evidence are very conservative. The evidence further shows that actual experience with hydrogen releases has not resulted in unconfined cloud explosions since unconfined hydrogen will not detonate without a high explosive initiating event. (Ex. 302, pp. C.5-7 to C.5-8.)

Staff concurs and independently concludes that the Applicant's analysis is very conservative and grossly overestimates both the magnitude and the potential risk of any actual explosion that could occur at the facility. Both Staff's and Applicant's expert testimony indicates that an unconfined hydrogen explosion is not plausible at the Imperial Project. (5/24/2010 (day 2) RT 43; Ex. 302, p. C.5-8.) We have included Condition **HAZ-2** which requires the project owner to submit a risk management plan to the Imperial County Department of Toxic Substances Control (ICDTSC) for review and to the CPM for approval. Condition **HAZ-7** contains provisions to ensure the hydrogen system is designed to applicable engineering safety codes. (Ex. 302, p. C.5-8.) The language for these two Conditions is reflected in the August 11, 2010 Opening Briefs of Applicant (Attachment A, pp. 2-3) and Staff (Appendix, p.2.)

Thus, the evidence establishes that the Imperial Valley Solar Project poses no risk of off-site impacts because of a hazardous materials release. Additionally, since there are no nearby facilities using large amounts of hazardous chemicals, there is no possibility that vapor plumes would combine to produce a significant cumulative impact. (Ex. 302, pp. C.5-17. to C.5-19.)

2. Risk Mitigation

a. Engineering and Administrative Controls

Engineering controls and administrative controls affect the significance of potential impacts from hazardous materials usage. Engineering controls are those physical or mechanical systems (such as storage tanks or automatic shut-off valves) which can prevent a hazardous material spill from occurring, which can limit the spill to a small amount, or which can confine it to a small area.

Administrative controls are those rules and procedures that workers at the facility must follow. These are designed to help prevent accidents or keep them small if they do occur. Timely and adequate emergency spill response is also a crucial factor.

The engineered safety features which will be used at the Imperial Valley Solar Project include:

- Secondary containment areas, surrounding each of the hazardous materials storage areas (excluding hydrogen; 5/24/2010 RT 28, 34-35), designed to contain accidental releases that might happen during storage; and
- Physical separation of stored chemicals in isolated containment areas, separated by a non-combustible partition in order to prevent accidental mixing of incompatible materials which could result in the formation and release of toxic gases or fumes. (Ex. 302, p. C.5-9.)

Administrative controls, such as those required in Conditions of Certification **HAZ-1** (limitations on the use and storage of hazardous materials and their strength and volume) and Condition **HAZ-2** (development of a Hazardous Materials Business Plan), also help prevent accidents and spills from moving off-site. For example, the Business Plan will incorporate state requirements for the handling of hazardous materials. Condition of Certification **HAZ-2** also ensures that this Plan, which includes the Inventory and Site Map, Emergency Response Plan, Owner/Operator Identification, and Employee Training, is provided to the ICDTSC so that it can better prepare emergency response personnel for handling potential emergencies at the facility.[4] The Imperial County Fire Department, with a response time of about 30 minutes, will provide emergency response services. (Ex. 302, p. C.5-10.)

Furthermore, worker training programs, process safety management programs, and compliance with all applicable health and safety laws, ordinances, and standards will reduce risks. The project owner's worker health and safety program will include (but not be limited to) the following elements:

- Worker training regarding chemical hazards, health and safety issues, and hazard communications;
- Procedures to ensure the proper use of personal protective equipment;

[4] The ICDTSC is responsible for reviewing Hazardous Materials Business Plans. (Ex. 302, p. C.5-4.)

- Safety procedures for the operation and maintenance of systems utilizing hazardous materials;
- Fire safety and prevention; and
- Emergency response actions including facility evacuation, hazardous material spill clean-up, and fire prevention. (Ex. 302, p. C.5-9.)

b. Transportation

Containerized hazardous materials such as cleaning chemicals will be transported to the facility via truck. These materials can be released during a transportation accident, and the extent of their impact in the event of a release depends on the location of the accident and the rate of vapor dispersion from the surface of the spilled pool. The likelihood of an accidental release during transport is dependent upon three factors:

- The skill of the tanker truck driver;
- The type of vehicle used for transport; and
- Accident rates.

The evidence shows that the risk of an accidental transportation release in the project area was evaluated. The analysis focused on the project area after the delivery vehicle leaves the main Interstate highway (I-18) and State Route 98. The evidence indicates that an extensive regulatory program applies to shipment of hazardous materials on California Highways to ensure safe handling in general transportation. These regulations also address issues of driver competence. The evidence establishes that: 1) the minimal amount and types of hazardous materials to be transported do not pose a significant risk; and, 2) compliance with the regulatory scheme suffices to alleviate significant concerns over transportation risks. (Ex. 302, pp. C.5-10 to C.5-11.)

3. Site Security

The evidence establishes that a minimum level of security measures is appropriate in order to protect California's electrical infrastructure from malicious mischief, vandalism, or terrorist attack. (Ex. 302, p. C.5-12.) The project falls into the "low" vulnerability category, so the project owner need not conduct its own vulnerability assessment. (*Id*.) The facility will nevertheless use special site security measures during both the construction and operation phases to prevent unauthorized access.

Perimeter fencing and breach detectors will be used. Site personnel will undergo background checks and site access will be strictly controlled. Consistent with current state and federal regulations governing the transport of hazardous materials, hazardous materials vendors will have to maintain their transport vehicle fleet and employ only properly licensed and trained drivers. The project owner is required, through the use of contractual language with vendors, to ensure that the hazardous materials suppliers strictly adhere to the U.S. DOT requirements to prepare and implement security plans and to ensure that all hazardous materials drivers are in compliance through personnel background security checks. The CPM may authorize modifications to these measures or may require additional measures in response to guidance provided by the U.S. Department of Homeland Security, the U.S. DOE, or the NERC after consultation with both appropriate law enforcement agencies and the project owner. (Ex. 302, pp. C.5-12 to C.5-13.) Conditions of Certification **HAZ-4** and **HAZ-5** embody these requirements.

Finally, the evidence addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and various No Project Alternatives in regard to this topic area. None of these Alternatives would substantially alter the level of hazardous materials impacts posed by the project. The evidence also shows that the Imperial Valley Solar Project does not create significant hazardous materials impacts. Therefore, it is unnecessary to consider any of the Alternatives as a means of reducing these impacts to below a level of significance. (Ex. 302, pp. C.5-14 to C.5-17.)

## FINDINGS OF FACT

Based on the evidence of record, we make the following findings:

1. The Imperial Valley Solar Project will use hazardous materials during construction and operation.

2. The major theoretical public health and safety danger associated with the project from hazardous materials use is explosion from hydrogen.

3. The evidence establishes that the risk of an unconfined hydrogen explosion, which would severely impact nearby receptors, is implausible.

4. Potential impacts from the other hazardous substances used on-site are not significant since quantities will be limited and appropriate storage will be maintained in accordance with applicable law.
5. There is no possibility of cumulative impacts originating from simultaneous releases of hazardous materials from the Imperial Valley Solar Project and other nearby facilities.
6. Local emergency responders are adequately equipped and trained to deal with hazardous materials accidents at the Imperial Valley Solar Project.
7. Implementation of the mitigation measures described in the evidence and contained in the Conditions of Certification, below, ensures that the project will not cause significant impacts to public health and safety as the result of the handling, use, storage, or transportation of hazardous materials.
8. The record addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and various No Project Alternatives in regard to this topic area.
9. None of the Alternatives mentioned above would result in an increased construction or operational risk from the use, transportation, storage, or handling of hazardous materials.
10. Implementation of any of the Alternatives mentioned above is not necessary or preferable as a means of reducing project related impacts to below a level of significance.
11. With implementation of the Conditions of Certification, below, the Imperial Valley Solar Project will comply with all applicable laws, ordinances, regulations, and standards related to hazardous materials management as identified in the evidentiary record and in the pertinent portion of **Appendix A** of this Decision.

## CONCLUSION OF LAW

1. The Commission concludes, therefore, that the storage, use, handling, and transportation of hazardous materials associated with the Imperial Valley Solar Project will not result in any significant indirect, direct, or cumulative adverse public health and safety impacts.

## CONDITIONS OF CERTIFICATION

**HAZ-1** The project owner shall not use any hazardous materials not listed in **Appendix A**, below, or in greater quantities than those identified by chemical name in **Appendix A,** unless approved in advance by the BLM's authorized officer and Compliance Project Manager (CPM).

**Verification:** The project owner shall provide to BLM's authorized officer and the CPM in the Annual Compliance Report, a list of hazardous materials contained at the facility.

**HAZ-2** The project owner shall concurrently provide a Hazardous Materials Business Plan and level 3 RMP to the Imperial County Department of Toxic Substances Control for review and the CPM for review and approval. After receiving comments from the Imperial County and the CPM, the project owner shall reflect all received recommendations in the final documents. If no comments are received from the county within 30 days of submittal, the project owner may proceed with preparation of final documents upon receiving comments from BLM's authorized officer and the CPM. . Copies of the final Hazardous Materials Business Plan shall then be provided to the Imperial County Department of Toxic Substances Control for information and to the BLM's authorized officer and CPM for approval.

**Verification:** At least 60 days prior to receiving any hazardous material on the site for commissioning or operations, the project owner shall provide a copy of a final Hazardous Materials Business Plan to BLM's authorized officer and the CPM for approval.

At least 60 days prior to receiving any hydrogen on the site for commissioning or operations, the project owner shall provide a copy of a final level 3 RMP to BLM's authorized officer and the CPM for approval.

**HAZ-3** The project owner shall develop and implement a Safety Management Plan for delivery of liquid hazardous materials. The plan shall include procedures, protective equipment requirements, training and a checklist. It shall also include a section describing all measures to be implemented to prevent mixing of incompatible hazardous materials. This plan shall be applicable during construction, commissioning, and operation of the power plant.

**Verification:** At least sixty (60) days prior to the delivery of any liquid hazardous material to the facility, the project owner shall provide a Safety Management Plan as described above to BLM's authorized officer and the CPM for review and approval.

**HAZ-4** At least thirty (30) days prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall

be prepared and made available to BLM's authorized officer and the CPM for review and approval. The Construction Security Plan shall include the following:

1. Perimeter security consisting of fencing enclosing the construction area;

2. Security guards;

3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors;

4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and 6. Evacuation procedures.

**Verification:** At least thirty (30) days prior to commencing construction, the project owner shall notify BLM's authorized officer and the CPM that a site-specific Construction Security Plan is available for review and approval.

**HAZ-5** The project owner shall prepare a site-specific Security Plan for the operational phase and shall be made available to BLM's authorized officer and the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002).

The Operation Security Plan shall include the following:

1. Permanent full perimeter fence, at least eight feet high around the Solar Field;

2. Main entrance security gate, either hand operable or motorized;

3. Evacuation procedures;

4. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency;

5. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site;

6. a. A statement (refer to sample, attachment "A") signed by the project owner certifying that background investigations have been conducted on all project personnel. Background

investigations shall be restricted to ascertain the accuracy of employee identity and employment history, and shall be conducted in accordance with state and federal law regarding security and privacy;

b. A statement(s) (refer to sample, attachment “B”) signed by the contractor or authorized representative(s) for any permanent contractors or other technical contractors (as determined by the CPM after consultation with the project owner) that are present at any time on the site to repair, maintain, investigate, or conduct any other technical duties involving critical components (as determined by the CPM after consultation with the project owner) certifying that background investigations have been conducted on contractor personnel that visit the project site.

7. Site access controls for employees, contractors, vendors, and visitors;

8. Closed Circuit TV (CCTV) monitoring system, recordable, and viewable in the power plant control room and security station (if separate from the control room) capable of viewing, at a minimum, the main entrance gate; and

9. Additional measures to ensure adequate perimeter security consisting of either:

   a. Security guard present 24 hours per day, seven days per week, **OR**

   b. Power plant personnel on-site 24 hours per day, seven days per week and **all** of the following:

      1) The CCTV monitoring system required in number 8 above shall include cameras that are able to pan, tilt, and zoom (PTZ), have low-light capability, are recordable, and are able to view 100% of the perimeter fence, the outside entrance to the control room, and the front gate from a monitor in the power plant control room; **AND**

      2) Perimeter breach detectors **or** on-site motion detectors.

The project owner shall fully implement the security plans and obtain BLM’s authorized officer and CPM approval of any substantive modifications to the security plans. BLM’s authorized officer and the CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power pant components (e.g., transformers, gas lines, compressors, etc.) depending on circumstances unique to the facility or in response to

industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with appropriate law enforcement agencies and the applicant.

**Verification:** At least 30 days prior to the initial receipt of hazardous materials onsite, the project owner shall notify BLM's authorized officer and the CPM that a sitespecific Operations Site Security Plan is available for review and approval. In the Annual Compliance Report, the project owner shall include a statement that all current project employee and appropriate contractor background investigations have been performed, and updated certification statements are appended to the Operations Security Plan. In the Annual Compliance Report, the project owner shall include a statement that the Operations Security Plan includes all current hazardous materials transport vendor certifications for security plans and employee background investigations.

**HAZ-6** The holder (project owner) shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder(s) shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, et seq.) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, Section 102b .

**Verification:** A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to BLM's authorized officer and the CPM concurrent with the filing of the reports to the involved Federal agency or State government.

**HAZ-7** The project owner shall have the hydrogen storage and handling system reviewed and stamped by a Mechanical Engineer registered in California to ensure that it complies with all applicable ANSI, ASME, and NFPA design codes.

**Verification:** At least 30 days prior to receiving any hydrogen on the Project site, the Project owner shall provide a copy of design drawings, documentation, and specification of the hydrogen storage and handling system reviewed and stamped by a Mechanical Engineer registered in the state of California.

# HAZARDOUS MATERIALS
# ATTACHMENT A

## Hazardous Materials Used
## at the
## Imperial Valley Solar Power Project

# Hazardous Materials Attachment A

## Hazardous Materials Proposed for Use at the Imperial Valley Solar Project

| Hazardous Materials Usage and Storage During Operations | | | | |
|---|---|---|---|---|
| **Chemical** | **Use** | **Storage Location/Type** | **State** | **Storage Quantity** |
| Insulating oil | Electrical equipment | Electrical equipment (contained in transformers and electrical switches) | Liquid | 60,000 gallons initial fill |
| Lubricating oil | Stirling Engine/ dish drives PCU | Equipment 150-gallon recycle tank located in Maintenance Building | Liquid | 40,000 gallons initial fill with usage of 21 gallons per month |
| Hydrogen | PCU working fluid | Generated on-site and stored in pressure vessel | Gas | 4,000,000 scf |
| Acetylene | Welding | Cylinders stored in maintenance buildings | Gas | 1,000 cubic feet |
| Oxygen | Welding | Cylinders stored in maintenance buildings | Gas | 1,000 cubic feet |
| Ethylene glycol | PCU Radiator Coolant, antifreeze | PCU radiator Maintenance Buildings | Liquid | 40,000 gal initial fill with usage of 21 gallons per month |
| Various solvents, detergents, paints, and other cleaners | Building maintenance and equipment cleaning | Three (3) 55-gallon drums and 1-gallon containers will be stored Maintenance Buildings | Liquid | Ten (10) 55-gallon drums Commercial 1-gallon containers |
| Gasoline | Maintenance vehicles | 5,000 gallon AST at refueling station with containment | Liquid | 5,000 gallons |
| Diesel fuel | Firewater pump Maintenance Vehicles | Firewater skid 5,000-gallon AST refueling station with containment | Liquid | 100 gallons initial fill 5,000 gallons |
| Sodium hypochlorite 12.5 percent solution (bleach) | Disinfectant for potable water | Water treatment structure | Liquid | 4 gallons |

Source: SES2008a.
Notes:
AST = aboveground storage tank
PCU = power conversion unit

# SAMPLE CERTIFICATION

## (Attachments “B” and “C”)

**SAMPLE CERTIFICATION (Attachment "B")**

**Affidavit of Compliance for Project Owners**

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____

(Company Name)

for employment at

_____

(Project name and location)

have been conducted as required by the U.S. Bureau of Land Management Right-of-Way and California Energy Commission Decision for the above- named project.

_____

(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

**THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY BLM's AUTHORIZED OFFICERAND THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.**

**SAMPLE CERTIFICATION (Attachment "C")**

**Affidavit of Compliance for Contractors**

I,

_____

(Name of person signing affidavit)(Title)

do hereby certify that background investigations to ascertain the accuracy of the identity and employment history of all employees of

_____

(Company Name)

for contract work at

_____

(Project name and location)

have been conducted as required by the U.S. Bureau of Land Management Right-of-Way and California Energy Commission Decision for the above- named project.

_____

(Signature of Officer or Agent)

Dated this _____ day of _____, 20 _____.

**THIS AFFIDAVIT OF COMPLIANCE SHALL BE APPENDED TO THE PROJECT SECURITY PLAN AND SHALL BE RETAINED AT ALL TIMES AT THE PROJECT SITE FOR REVIEW BY BLM's AUTHORIZED OFFICERAND THE CALIFORNIA ENERGY COMMISSION COMPLIANCE PROJECT MANAGER.**

## F. WASTE MANAGEMENT

Imperial Valley Solar will generate non-hazardous and hazardous wastes during construction and operation. This section reviews the project's waste management plans for reducing the risks and environmental impacts associated with handling, storage, and disposal of project-related non-hazardous and hazardous wastes. (Ex. 1, § 5.14, Appendix T; Ex. 7; Ex. 27; Ex. 114; Ex. 302, p. C.14-1 et seq.)

Non-hazardous wastes are degradable or inert materials, which do not contain soluble pollutants at levels that could potentially degrade water quality and are therefore eligible for disposal at Class II or III disposal facilities. (Cal. Code Regs., tit. 14, § 17200 et seq.)

Hazardous waste consists of materials that exceed criteria for toxicity, corrosivity, ignitability, or reactivity as established by the California Department of Toxic Substances Control (DTSC).[1] State law requires hazardous waste generators to obtain U.S. EPA identification numbers and contract with registered hazardous waste transporters to transfer hazardous waste to appropriate Class I disposal facilities. (Cal. Code Regs., tit. 22, § 66262.10 et seq.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Site Excavation

The site certification process requires a Phase I Environmental Site Assessment (ESA) to provide the history of how the site has been used and to identify hazardous waste releases on or near the site that would indicate the presence of actual or potential soil or water contamination. If the Phase I ESA finds a reasonable likelihood that the site contains hazardous substances, a Phase II ESA must be conducted to analyze the contamination and to establish a remediation plan. (Ex. 302, p. C.14-10.)

Applicant's Phase I ESA, dated March 4, 2008, was prepared in accordance with the American Society for Testing and Materials (ASTM) Standard Practice E 1527-05 for ESAs. (Ex. 1, § 5.14.1.1, Appendix T; Ex. 302; p. C.14-10.) The Phase I ESA found no evidence of any recognized environmental conditions

[1] California Health and Safety Code, section 25100 et seq. (Hazardous Waste Control Act of 1972, as amended) and Title 22, California Code of Regulations, Section 66261.1 et seq.

(RECs) at the project site but recommended further investigation of the adjacent U.S. Gypsum property because its waste disposal ponds, storage tanks, and hazardous waste generation could have created RECs in the groundwater beneath the project site.[2] The evidence indicates, however, that a Phase II ESA is not required to investigate groundwater contamination since the project will not utilize groundwater nor encounter it during excavation.[3] (*Id*. at p. C.14-12; Ex. 14, pp. 1-5; Ex. 27.)

We have adopted Conditions of Certification **WASTE-1** and **WASTE-2** to mitigate any impacts from undetected contaminated soils that may be encountered during excavation and construction. The Conditions require a registered professional geologist or engineer with experience in remedial investigation to monitor earth moving activities and to determine the necessity for investigation and remediation of suspicious soils. We believe that implementation of these Conditions will reduce any potential exposure to contaminated soils to insignificant levels. (Ex. 302, p. C.14-12.)

2. Construction

Site preparation and construction of the power plant and its associated facilities will generate both non-hazardous and hazardous wastes in solid and liquid forms. Condition **WASTE-3** requires the project owner to develop and implement a Construction Waste Management Plan that identifies all waste streams and the methods of managing each waste. (Ex. 1, § 5.14.2.1; Ex. 302, p. C.14-12.)

a. Non-hazardous Wastes

Project construction will generate an estimated 80 cubic yards per week of non-hazardous solid wastes, consisting of scrap wood, steel, glass, plastic, and paper with additional waste from construction of the water pipeline, upgrades to the wastewater treatment facility, and the distributed hydrogen system. In addition, construction of the substation will generate an estimated 1,050 cubic yards of waste. These wastes will be recycled where practical. Non-recyclable wastes

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[2] An REC is considered to be the presence or likely presence of any hazardous substances or petroleum products on a property under the conditions that indicated an existing release, past release, or a material threat of a release of any hazardous substance or petroleum products into structures on the property or in the ground, groundwater, or surface water of the property. (Ex. 302, p. C.14-10.)

[3] Since the water pipeline is located entirely within the Evan Hewes Highway ROW and the 10.3-mile transmission interconnection parallels the Southwest Powerlink line within the designated ROW, no ESA is required for the linear corridors. (Ex. 302, p. C.14-11.)

will be collected and deposited at Class II or Class III landfills pursuant to applicable LORS. The SunCatcher assembly buildings will be removed from the site after construction, generating approximately 80 cubic yards of waste consisting of surplus packing materials, lumber, cardboard, lighting, gaskets, and wiring. Concrete pads under the buildings will be removed and recycled, if feasible. (Ex. 1, § 5.14.2.1, **Table 5.14-2**; Ex. 302, pp. C.14-12 to C.14-13; Ex. 7, DR 48.)

Non-hazardous liquid wastes during construction will include sanitary wastes, dust suppression drainage, and equipment wash water. Sanitary wastes will be collected in portable, self-contained toilets and pumped periodically for disposal at an appropriate facility. Stormwater runoff during construction and operation will be managed in accordance with the project's Stormwater Pollution Prevention Plan (SWPPP). The Conditions of Certification in the **Soil and Water Resources** section of this Decision ensure that the SWPPP complies with applicable LORS. (Ex. 1, § 5.14.2.1, p. 5.14-11; Ex. 302, p. C.14-13.)

b. Hazardous Wastes

Construction will also generate waste paint, spent construction solvents, waste cleaners, waste oil, oily rags, waste batteries, and spent welding materials. Estimated amounts include two cubic yards of empty containers (per week), 400 gallons of oils, solvents, and adhesives (every 90 days), and 40 batteries (per year).[4] Many of these wastes will be transported to a permitted TSD or transfer facility for treatment or recycling. (Ex. 1, § 5.14.2.1, **Table 5.14-2**; Ex. 302, p. C.14-13.)

Hazardous wastes, which cannot be recycled, will be accumulated onsite for less than 90 days and then manifested, transported, and deposited at a permitted Class I hazardous waste management facility by licensed hazardous waste collection and disposal companies. The disposal methods described in the evidentiary record indicate that hazardous wastes will be handled in accordance with all applicable LORS. (Ex. 1, § 5.14.2.1; Ex. 302, p. C.14-13.)

Condition of Certification **WASTE-4** requires the project owner to obtain a unique hazardous waste generator identification number for the site prior to construction. Condition **WASTE-5** requires the project owner to notify the Energy Commission's Compliance Project Manager (CPM) whenever a regulatory

[4] This estimate does not include undetected contaminated soils that may require remediation. (Ex. 300, p. C.14-13.)

agency initiates any waste management enforcement action relating to Imperial Valley Solar or its waste disposal contractors. (Ex. 302, p. C.14-13.)

c. Waste Diversion and Mitigation

Condition of Certification **WASTE-6** requires the project owner to provide a reuse/recycling plan for construction and demolition materials to meet the 50 percent waste diversion goal established by the Integrated Waste Management Act.[5] Compliance with Condition **WASTE-6** will ensure that project wastes are managed properly and that the project's potential impacts on local landfills are reduced to insignificant levels. (Ex. 302, p. C.14-14.)

3. Operation

Condition **WASTE-7** requires the project owner to develop and implement an Operation Waste Management Plan to identify all waste streams and the methods of managing each waste. (Ex. 302, p. C.14-14.)

a. Non-hazardous Wastes

During operations, the project will generate approximately 10 cubic yards of non-hazardous solid waste per week consisting of glass, paper, wood, plastic, cardboard, deactivated equipment and parts, defective or broken electrical materials, empty non-hazardous containers, and other miscellaneous solid wastes. Such wastes will be recycled to the extent possible, and the remainder will be removed on a regular basis for disposal in a Class III landfill. Sanitary wastewater solids will be treated with an onsite septic system, and sludge will be delivered to an appropriate off-site disposal facility. Non-hazardous liquid wastes generated during project operation are discussed in the **Soil and Water Resources** section of this Decision.[6] (Ex. 1, § 5.14.2.2. **Table 5.14-3**; Ex. 302, pp. C.14-15 to C.14-16, **Table 2**.)

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[5] Public Resources Code Section 40000 et seq.; Title 14, California Code of Regulations, Section 17387 et seq.

[6] The project includes a local, site-specific wastewater treatment plant designed to process sanitary wastewater in accordance with applicable LORS. (Ex. 1, § 5.14.2.2, p. 5.14-12.).

b. Hazardous Wastes

Hazardous wastes generated during routine project operation include motor oil and coolant from the power conversion unit, batteries, oily absorbent and spent oil filters, and used hydraulic fluid but the total amount is considered low due to source reduction and recycling when feasible. Hazardous wastes will be accumulated onsite and transported by licensed hazardous waste haulers to authorized disposal facilities in accordance with applicable LORS. (Ex. 1, § 5.14.2.2, p. 5.14-9, **Table 5.14-3**; Ex. 302, pp. C.14-16.)

Condition **WASTE-4**, *supra*, requires the project owner to obtain a unique hazardous waste generator identification number for the site that would be retained and used for hazardous waste generated during operations. Condition **WASTE-5**, *supra*, requires the project owner to report any waste management-related enforcement action that occurs during operations. (Ex. 302, pp. C.14-15 to C.14-16.)

The presence of hazardous materials and hazardous wastes at the site creates the potential for spills and unauthorized releases that may result in contaminated soils. To ensure proper cleanup and management of contamination due to spills or releases, Condition **WASTE-8** requires the project owner to report, clean up, and remediate any hazardous materials spills or releases in accordance with applicable LORS. See the **Hazardous Material Management** section of this Decision. (Ex. 302, p. C.14-16.)

4. Closure

The Conditions of Certification for **Waste Management**, listed below, will continue to apply during temporary or permanent closure and eventual decommissioning and demolition of the project. The project owner must submit a Project Closure Plan consistent with Conditions of **Compliance-11**, **12**, and **13**, including provisions for site restoration. (Ex. 302, pp. C.14-17 to C.14-18.)

5. Potential Impacts on Waste Disposal Facilities

Applicant's **Waste Table 5.14-1** identifies three currently operating local Class III waste disposal facilities and one new Class III landfill, which could accept the

project's non-hazardous construction and operation wastes.[7] (Ex. 1, pp. 5.14-4 to 5.14-5, **Table 5.14-1**.) The combined remaining capacity for the three currently operating landfills is over 3.78 million cubic yards. The new Mesquite Landfill will open in 2012 with a capacity of 600 million tons. According to the evidentiary record, the total amount of non-hazardous waste generated during project construction and operation will contribute to less than one percent of the available landfill capacity. Therefore, disposal of the project's non-hazardous solid waste will not significantly impact the capacity or remaining life of these landfill facilities. (Ex. 302, p. C.14-19.)

Hazardous wastes are eligible for transport to two of California's available Class I landfills: Clean Harbors Buttonwillow Landfill in Kern County and the Chemical Waste Management Kettleman Hills Landfill in Kings County. The Kettleman Hills facility also accepts Class II and III waste. In addition, there are several other certified hazardous waste disposal facilities throughout California. Evidence indicates there is sufficient capacity at these facilities to handle the project's hazardous wastes during its operating lifetime. (Ex. 1, pp. 5.14-4 to 5.14-5, **Table 5.14-1**; Ex. 302, p. C.14-19.)

5. Cumulative Impacts

Regarding potential cumulative impacts, the quantities of solid and hazardous wastes generated by the Imperial Valley Solar project will add to the total quantities of waste generated by new residential and commercial development in Southern California, including several proposed solar and wind power plants in the region. However the project's waste stream is relatively low, recycling efforts will be prioritized, and sufficient disposal capacity is available. Therefore, the project will not result in significant adverse cumulative impacts on Class I, II, or III disposal facilities. (Ex. 302, p. C.14-23.)

6. Project Alternatives

The evidence describes the potential waste management impacts of three smaller alternative project proposals and the no project alternative. Although the alternative project proposals would reduce the waste streams generated by the fully built-out project, the Conditions of Certification, listed below, ensure that the

[7] The four facilities include the Calexico Solid Waste Landfill in Calexico, the Imperial Solid Waste Landfill in Imperial, the Allied Imperial Landfill in Imperial, and the Mesquite Regional Landfill scheduled to open by 2012. (Ex. 1, pp. 5.14-4 to 5.14-5, **Table 5.14-1**.)

project will not result in significant adverse impacts to waste management even when it is built-out. (Ex. 302, pp. C.14-20 to C.14-23.)

**FINDINGS OF FACT**

Based on the uncontroverted evidence, the Commission makes the following findings:

1. Applicant's Phase I Environmental Site Assessment (ESA) found no evidence of any recognized environmental conditions (RECs) at the project site.

2. In the event that suspicious soils are encountered during excavation and construction of the project, the project owner will implement appropriate characterization, disposal, and remediation measures to ensure that the risk of exposure to previously undetected contaminated soils is reduced to insignificant levels.

3. The project will generate non-hazardous and hazardous wastes during excavation, construction, and operation.

4. The project will implement a Construction Waste Management Plan and an Operation Waste Management Plan to ensure compliance with applicable law.

5. The project will recycle non-hazardous and hazardous wastes to the extent feasible and in compliance with applicable law.

6. The project owner will obtain a hazardous waste generator identification number from the U.S. EPA prior to generating any hazardous waste during project construction and operations.

7. Hazardous wastes that cannot be recycled will be stored according to applicable law and transported by registered hazardous waste transporters to appropriate Class I landfills.

8. The project owner will implement a reuse/recycling plan for at least 50 percent of construction and demolition materials to meet the landfill waste diversion goals established by law.

9. Solid non-hazardous wastes that cannot be recycled will be deposited at Class II and III landfills in the local area.

10. Liquid wastes will be classified for appropriate disposal and managed in accordance with the Conditions of Certification listed in the **Soil and Water Resources** section of this Decision.

11. Disposal of project wastes will not result in any significant direct, indirect, or cumulative adverse impacts on existing waste disposal facilities.

## CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification, below, and the waste management practices described in the evidentiary record will reduce potential impacts to insignificant levels and ensure that project wastes are handled in an environmentally safe manner.

2. The management of project wastes will comply with all applicable laws, ordinances, regulations, and standards related to waste management as identified in the pertinent portions of **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**WASTE-1** The IVS project owner (project owner) shall provide the resume of an experienced and qualified professional engineer or professional geologist, who shall be available for during site characterization (if needed), demolition, excavation, and grading activities, to the CPM for review and approval. The resume shall show experience in remedial investigation and feasibility studies.

The professional engineer or professional geologist shall be given authority by the project owner to oversee any earth moving activities that have the potential to disturb contaminated soil and impact public health, safety and the environment.

**Verification:** At least 30 days prior to the start of site mobilization, the project owner shall submit the resume to the CPM for review and approval.

**WASTE-2** If potentially contaminated soil is identified during site characterization, demolition, excavation or grading at either the proposed site or linear facilities, as evidenced by discoloration, odor, detection by handheld instruments, or other signs, the professional engineer or professional geologist shall inspect the site, determine the need for sampling to confirm the nature and extent of contamination, and provide a written report to the project owner, representatives of Department of Toxic Substances Control or Regional Water Quality Control Board, and the CPM stating the recommended course of action.

Depending on the nature and extent of contamination, the professional engineer or professional geologist shall have the authority to temporarily suspend construction activity at that location for the protection of workers or the public. If in the opinion of the professional

engineer or professional geologist, significant remediation may be required, the project owner shall contact the CPM and representatives of the Department of Toxic Substances Control or Regional Water Quality Control Board, for guidance and possible oversight.

**Verification:** The project owner shall submit any reports filed by the professional engineer or professional geologist to the CPM within five days of their receipt. The project owner shall notify the CPM within 24 hours of any orders issued to halt construction.

**WASTE-3** The project owner shall prepare a Construction Waste Management Plan for all wastes generated during construction of the facility and shall submit the plan to the CPM and AO for review and approval prior to the start of construction. The plan shall contain, at a minimum, the following:

- A description of all construction waste streams, including projections of frequency, amounts generated, and hazard classifications; and

- Management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans.

**Verification:** The project owner shall submit the Construction Waste Management Plan to the CPM for approval no less than 30 days prior to the initiation of construction activities at the site.

**WASTE-4** The project owner shall obtain a hazardous waste generator identification number from the United States Environmental Protection Agency (USEPA) prior to generating any hazardous waste during project construction and operations.

**Verification:** The project owner shall keep a copy of the identification number on file at the project site and provide documentation of the hazardous waste generation and notification and receipt of the number to the CPM in the next scheduled Monthly Compliance Report after receipt of the number. Submittal of the notification and issued number documentation to the CPM is only needed once unless there is a change in ownership, operation, waste generation, or waste characteristics that requires a new notification to USEPA. Documentation of any new or revised hazardous waste generation notifications or changes in identification number shall be provided to the CPM in the next scheduled compliance report.

**WASTE-5** Upon notification of any impending waste management-related enforcement action related to project site activities by any local, state, or federal authority, the project owner shall notify the CPM of any such action taken or proposed against the project itself, or against any waste hauler or disposal facility or treatment operator with which the owner contracts for the project, and describe the owner's response to the impending action or if a violation has been found, how the violation will be corrected.

**Verification:** The project owner shall notify the CPM in writing within 10 days of receiving written notice from authorities of an impending enforcement action. The CPM shall notify the project owner of any changes that will be required in the way projectrelated wastes are managed as a result of a finalized action against the project.

**WASTE-6** The project owner shall provide a reuse/recycling plan for at least 50 percent of construction and demolition materials prior to any building or demolition, including closure/decommissioning. The project owner shall ensure compliance and shall provide proof of compliance documentation to the CPM, including a recycling and reuse summary report, receipts, and records of measurement. Project mobilization and construction shall not proceed until the CPM issues an approval document.

**Verification:** At least 30 days prior to the start of any construction or demolition activities, the project owner shall submit a reuse recycling plan to the CPM s for review and approval. The project owner shall ensure that project activities are consistent with the approved reuse/recycling plan and provide adequate documentation of the types and volumes of wastes generated, how the wastes were managed, and volumes of wastes diverted. Project mobilization and construction shall not proceed until the CPM issues an approval document. Not later than 60 days after completion of project construction, the project owner shall submit documentation of compliance with the diversion program requirements to the CPM. The required documentation shall include a recycling and reuse summary report along with all necessary receipts and records of measurement from entities receiving project wastes.

**WASTE-7** The project owner shall prepare an Operation Waste Management Plan for all wastes generated during operation of the IVS facility and shall submit the plan to the CPM for review and approval. The plan shall contain, at a minimum, the following:

- A detailed description of all operation and maintenance waste streams, including projections of amounts to be generated, frequency of generation, and waste hazard classifications;

- Management methods to be used for each waste stream, including temporary on-site storage, housekeeping and best management practices to be employed, treatment methods and companies providing treatment services, waste testing methods to assure correct classification, methods of transportation, disposal requirements and sites, and recycling and waste minimization/source reduction plans;

- Information and summary records of conversations with the local Certified Unified Program Agency and the Department of Toxic Substances Control regarding any waste management requirements necessary for project activities. Copies of all required waste management permits, notices, and/or authorizations shall be included in the plan and updated as necessary;

- A detailed description of how facility wastes will be managed, and any contingency plans to be employed, in the event of an unplanned closure or planned temporary facility closure; and

- A detailed description of how facility wastes will be managed and disposed of upon closure of the facility.

**Verification:** The project owner shall submit the Operation Waste Management Plan to the CPM for approval no less than 30 days prior to the start of project operation. The project owner shall submit any required revisions to the CPM within 20 days of notification from the CPM that revisions are necessary.

The project owner shall also document in each Annual Compliance Report the actual volume of wastes generated and the waste management methods used during the year; provide a comparison of the actual waste generation and management methods used to those proposed in the original Operation Waste Management Plan; and update the Operation Waste Management Plan as necessary to address current waste generation and management practices.

**WASTE-8** The project owner shall ensure that all spills or releases of hazardous substances, hazardous materials, or hazardous waste are documented and cleaned up and that wastes generated from the release/spill are properly managed and disposed of, in accordance with all applicable federal, state, and local requirements.

**Verification:** The project owner shall document management of all unauthorized releases and spills of hazardous substances, hazardous materials, or hazardous wastes that occur on the project property or related linear facilities. The documentation shall include, at a minimum, the following information: location of release; date and time of release; reason for release; volume released; how release was managed and material cleaned up; amount of contaminated soil and/or cleanup wastes generated; if the release was reported;

to whom the release was reported; release corrective action and cleanup requirements placed by regulating agencies; level of cleanup achieved and actions taken to prevent a similar release or spill; and disposition of any hazardous wastes and/or contaminated soils and materials that may have been generated by the release. A copy of the unauthorized release/spill documentation shall be provided to the CPM within 30 days of the date the release was discovered.

# VI. ENVIRONMENTAL ASSESSMENT

## A. BIOLOGICAL RESOURCES

The California Environmental Quality Act (CEQA) requires the evaluation of a project's potential to impact biological resources, including state and federally listed species, species of special concern, wetlands, and areas of critical environmental concern. The evidence of record includes a description of the biological resources on and in the vicinity of the project site and linear facilities, an assessment of the potential for adverse impacts, and an identification of mitigation measures to reduce potentially significant impacts to biological resources. The record also describes the project's compliance with applicable laws, ordinances, regulations, and standards (LORS) and proposed Conditions of Certification. (Ex. 302, p. C.2-17.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Overview

The proposed Imperial Valley Solar (IVS) project site that will be fenced and subject to disturbance comprises approximately 6,000 acres (roughly 10 square miles) in the southwest portion of Imperial County, roughly 14 miles west of the town of El Centro. The site lies at the northern boundary of the Yuha Desert, a section of the Colorado Desert. (Ex. 302, p. C.2-18.)

The project site is bounded by the Union Pacific Railroad to the north and Interstate 8 to the south. The western edge would be located approximately one mile west of the junction of the Union Pacific Railroad and Interstate 8, and the eastern edge would be located west of Dunaway Road. The United States Gypsum Corporation (Plaster City) processing plant is just north of the site along Evan Hewes Highway. Sand and gravel operations occur north of Evan Hewes Highway.

North of the project site is the Plaster City Open OHV Area which is designated by BLM as being open to off road travel. Areas to the west and south of the project site are undeveloped, whereas the area to the east includes sand and gravel operations and agricultural production. More sand and gravel operations occur five miles west of the site in unincorporated Ocotillo.

Off-highway vehicle (OHV) use within the project site is posted as limited to designated routes only. Sand and gravel operations occurred in the past on the project site, but the site has been subsequently revegetated. The plant site consists of Sonoran creosote bush scrub habitat. (Ex. 302, pp. C.2-18 to C.2-19.)

The project includes, on the plant site, 30,000 solar dish Stirling systems referred as SunCatchers, a 230-kilovolt (kV) substation, administration buildings, support facilities, evaporation ponds, and access roads. Off-site, the project includes the upgrade of the Seeley Waste Water Treatment Facility (SWWTF) to supply reclaimed water to the IVS project, the reclaimed water supply pipeline along Evan Hewes Highway from the SWWTF, and the transmission line and accompanying access roads to the south of Interstate 8.

The project would be constructed in two phases. Phase I would develop approximately 2,600 acres and would begin in the southwestern corner of the plant site west of the San Diego Gas & Electric (SDG&E) transmission line. Phase I development includes the construction and/or partial development of the following:

- Access roads;
- 12-mile off-site waterline;
- Installation of 12,000 SunCatchers;
- Main services complex;
- Hydrogen generator;
- Water treatment system;
- 230-kV substation;
- Two 2,500,000-gallon evaporation ponds;
- Retention basins;
- 10.35-mile transmission line; and
- 100-acre laydown area east of Dunaway Road.

Phase II development would encompass approximately 3,500 acres on the remainder of the project site. Phase II development would include the installation of 18,000 additional SunCatchers with accompanying access roads and would extend to the north and east of the Phase I area.

An Environmental Impact Report is currently being prepared for a required SWWTF upgrade. Reclaimed water from the SWWTF would be used for IVS project construction and plant operations. An approximately 12-mile-long, 6-inch-diameter water pipeline would be constructed mostly within a 30-foot right-of-way (ROW) following the Evan Hewes Highway ROW where feasible to reduce environmental impacts. The pipeline would deliver tertiary treated effluent from the

SWWTF to the proposed water treatment plant on the IVS project site along Evan Hewes Highway. Also included in the acreage totals are the onsite SWWTF and the offsite SWWTF elements which include the effluent drainage channel (Wildcat Drain), any areas proposed to receive surface disturbance during construction, and areas 500 feet upstream and 500 feet downstream of Wildcat Drain's confluence with the New River (SES 2010g). (Ex. 302, p. C.2-19.)

A 10.35 mile long transmission line would be constructed to interconnect the project to the existing SDG&E 230-kV Imperial Valley Substation, located 7.56 miles southeast of the proposed plant site. Approximately 2.79 miles of the proposed 10.35-mile transmission line would be within the project site boundary. Approximately 7.56 miles of the transmission line would be built outside of the project site within an existing utility corridor in the Yuha Desert Flat-tailed Horned Lizard Management Area (MA) south of Interstate 8. The transmission line would be constructed in Sonoran creosote bush scrub habitat and in already disturbed areas comprised of dirt and OHV roads along an existing transmission line corridor. (Ex. 302, p. C.2-19.)

a. Vegetation and Wildlife

**Plant Communities.** The Sonoran creosote bush scrub community covers the project site and the transmission line alignment. This plant community is dominated by creosote bush (*Larrea tridentata*), bursage (*Ambrosia dumosa*), and brittlebush (*Encelia farinosa*). Other plant species observed includes ocotillo (*Fouquieria splendens*) and silver cholla (*Opuntia echinocarpa*). Mesquite (*Prosopis glandulosa*) and three species of non-native tamarisk (*Tamarix* spps.), mixed with creosote are found primarily within the dry washes that transect the project site. Other non-native plants observed on-site include Sahara mustard (*Brassica tournefortii*), red brome (*Bromus madritensis* ssp. *rubens*), and Mediterranean schismus (*Schismus barbatus*). Shrub density varied from low to moderate density, in which shrub spacing ranges from several feet to tens of feet. (Ex. 302, p. C.2-20.)

The tamarisk scrub community is dominated by one or more species of tamarisk. Tamarisk is highly invasive and usually associated with prior disturbance. Other species that occur with tamarisk include arrowweed, quailbush (Atriplex lentiformis), and salt grass (Distichlis spicata). The tamarisk scrub occurs near the canals, ditches, drainages, and along the New River within the proposed reclaimed water pipeline corridor. (Ex. 302, p. C.2-21.)

The disturbed areas are associated with a high level of human disturbance and have very limited natural vegetation. For the project area, disturbed areas are dominated by ruderal plants which cover 15 percent or less of this vegetation type. Disturbed areas are limited to the road shoulders, OHV and dirt roads, abandoned pads, and other man-made covers. (Ex. 302, p. C.2-21.)

The developed areas include paved roads, the rail line, transmission line, parking lots, buildings, landscape plantings, and structures associated with the SWWTF within the study area. (*Id.*)

Open channel areas are characterized by constant flowing water, which includes the seven irrigation canals and the New River that occur along the proposed reclaimed water pipeline corridor. Cattail (*Typha* sp.), annual beard grass (*Polypogon monspeliensis*), giant reed (*Arundo donax*), and nutsedge (*Cyperus squarrosus*) were present in scarce quantities along the channel banks. (*Id.*)

No sensitive natural vegetation communities occur in the survey area or within one mile of the proposed project boundaries. (*Id.*)

**Ephemeral Drainages/Waters of the U.S./Jurisdictional State Waters.** Several dry desert washes traverse the site. The ephemeral washes generally contain a greater vegetative diversity and density than the creosote bush scrub habitat outside of the washes. The ephemeral washes on the eastern half of the project site drain east across the project site to the Westside Main Canal. The Westside Main Canal and Coyote Wash are tributaries to the New River and eventually to the Salton Sea, which is currently the nearest Traditionally Navigable Waterbody (TNW) as defined by the US Army Corps of Engineers (USACE). There is overlap between Waters of the U.S. and jurisdictional state waters. (Ex. 302, p. C.2-22.)

**Wildlife**

The project site supports a diversity of wildlife species. Reptiles detected during the 2007/2008 surveys include flat-tailed horned lizard (*Phrynosoma mcallii*), side-blotched lizard (*Uta stansburiana*), desert iguana (*Dipsosaurus dorsalis*), Great Basin whiptail (*Cnemidophorus tigris tigris*), zebra-tailed lizard (*Callisaurus draconoides*), desert horned lizard (*Phrynosoma platyrhinos*), and Colorado Desert sidewinder (*Crotalus cerastes*). Mammals recorded during the surveys include black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), and desert kit fox (*Vulpes macrotis arsipus*) (SES 2008a). A recent site visit to the proposed IVS project site on May 25, 2010 by staff, BLM, and USFWS

noted vocalizations of roundtail ground squirrels (*Spermophilus tereticaudus*), which were not present during the 2007/2008 surveys. Along the proposed reclaimed water pipeline extension, commonly observed reptiles and mammals include the side-blotched lizard, whiptail lizard, desert cottontail, and California ground squirrel (SES 2009q).

The project area provides forage, cover, roosting, and nesting habitat for a variety of bird species, despite the moderate to low shrub density. Common resident and migratory birds detected in and near the IVS site in 2007 and/or 2008 surveys include lesser nighthawk (*Chordeiles acutipennis*), mourning dove (*Zenaida macroura*), black-tailed gnatcatcher (*Polioptila melanura*), white-crowned sparrow (*Zonotrichia leucophrys*), California horned lark (*Eremophila alpestris actia*), verdin (*Auriparus flaviceps*), cliff swallow (*Hirundo pyrrhonota*), common raven (*Corvus corax*), great-tailed grackle (*Quiscalus mexicanus*), house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), lesser goldfinch (*Carduelis psaltria*), northern mockingbird (*Mimus polyglottos*), rock dove (*Columba livia*), western kingbird (*Tyrannus verticalis*), western meadowlark (*Sturnella neglecta*), and white-winged dove (*Zenaida asiatica*). Raptors detected at the site include American kestrel (*Falco sparverius*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*). Burrowing owls (*Athene cunicularia*) were also detected along the transmission line route with potential burrows on the project site (SES 2008a). Along the proposed reclaimed water pipeline extention, commonly observed birds include the killdeer (*Charadrius vociferous*), song sparrow (*Melospiza melodia*), cliff swallow (*Petrochelidon pyrrhonota*), common raven, house finch, and mourning dove (SES 2009q). The highest densities of burrowing owls would most likely occur in the agricultural areas near the proposed water pipeline route.

**Special Status Species.** Special status species are plant and wildlife species that have been afforded special recognition by federal, state, or local resource agencies or organizations such as the California Native Plant Society (CNPS). Listed and special status species are of relatively limited distribution and typically require unique habitat conditions. **Biological Resources Table 1** includes special status species that are known to occur or have the potential to occur in the project area according to the California Natural Diversity Database (CNDDB). None of the special status plant species listed below was detected during the 2007/2008 surveys. During the applicant's spring 2010 surveys five special status plant species were detected. Five special status wildlife species were detected during the 2007/2008 surveys. Special status species (or their sign) observed during the 2007/2008/2010 surveys are indicated by **bold-face type.**

**Biological Resources Table 1**
**Special Status Species Known or Potentially Occurring in the IVS Project Area**
Special status species (or their sign) observed during the 2007/2008/2010 surveys are indicated by **bold-face type.**

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| chaparral sand verbena (*Abronia villosa* var. *aurita*) | __/__/S/1B.1/ S2.1/G5T3T4 | **Low**—not observed during focused surveys in 2007, 2008, and 2010. Historic CNDDB occurrence in Seeley in the area of the proposed water pipeline. Unsuitable habitat conditions for this species caused by roadway maintenance and agricultural development. |
| **Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)** | __/__/__/2.2/ S2.2/G5T3 | **Present**—Species observed within the proposed project site during 2010 focused surveys. Closest CNDDB occurrence two miles southwest of proposed IVS project site. Suitable habitat occurs on project site. |
| little-leaf elephant tree (*Bursera microphylla*) | __/__/__/2.3/ S2.3/G4 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 10 miles west of the proposed IVS project site. |
| pink fairy duster (*Calliandra eriophylla*) | __/__/__/2.3/ S2.3/G5 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is from 1989 approximately 4 miles southwest of the proposed IVS project site. |
| crucifixion thorn (*Castela emoryi*) | __/__/__/2.3/ S2.2/G3 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is from 1997 from the BLM Crucifixion Thorn Natural Area approximately 5.5 miles south of the proposed IVS project site. Suitable habitat occurs on the project site. |
| Peirson's pincushion (*Chaenactis carphoclinia* var. *peirsonii*) | __/__/S/1B.3/ S1.3/G5T1 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 23 miles northwest of the proposed IVS project site. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| Abrams' spurge (*Chamaesyce abramsiana*) | __/__/__/2.2/ S1.2/G4 | **Moderate**—not observed during 2007, 2008, and 2010 focused plant surveys. Fall survey to be conducted 2010. Nearest CNDDB occurrence is approximately 20 miles east of the proposed IVS project site. |
| flat-seeded spurge (*Chamaesyce platysperma*) | __/__/S/1B.2/ S1.2/G3 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is from the vicinity of Superstition Mountain approximately 14 miles north of the proposed IVS project site. |
| **Wiggins' croton (*Croton wigginsii*)** | SR/__/S/2.2/ S1.2/G2G3 | **Present**—Found within the proposed water line alignment during focused 2010 surveys. Known to occur in the Yuha Desert south of the project site (Trouette 2010). Suitable habitat occurs on the proposed IVS project site. |
| **Utah vine milkweed (*Cynanchum utahense*)** | __/__/__/4.2/ S3.2/G4 | **Present**—Species found during 2010 focused surveys. Herbarium records indicate a collection from Coyote Wells, approximately 2 miles southwest of the proposed IVS project site. |
| glandular ditaxis (*Ditaxis claryana*) | __/__/__/2.2/ S1S2/G4G5 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 60 miles east of the proposed IVS project site. |
| annual rock nettle (*Eucnide rupestris*) | __/__/__/2.2/ S1/G3 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is approximately 4.5 miles northwest of the proposed IVS project site. Suitable habitat occurs on the project site; however, the site is located below the typical elevation range that this species usually occurs. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| curly herissantia (*Herissantia crispa*) | __/__/__/2.3/ S1.3?/G5 | **Moderate**—Species not found during 2007, 2008, and 2010 spring surveys. Fall survey to be conducted in 2010. Nearest CNDDB occurrence is approximately 17 miles southwest of the proposed IVS project site. |
| Mexican hulsea (*Hulsea mexicana*) | __/__/__/2.3/ S1.3/G3G4 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 17 miles southwest of the proposed IVS project site. |
| Baja California ipomopsis (*Ipomopsis effusa*) | __/__/__/2.1/ S1.1/G3? | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is from Pinto Wash immediately north of Highway 98 approximately 9 miles southeast of the proposed IVS project site. Suitable habitat occurs on the project site. |
| slender-leaved ipomopsis (*Ipomopsis tenuifolia*) | __/__/__/2.3/ S2.3?/G3G4 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is a historic record (1927) from the summit of Mountain Springs Grade approximately 10 miles southwest of the proposed IVS project site. Suitable habitat occurs on the project site; however, the site is located below the typical elevation range that this species usually occurs. |
| pygmy lotus (*Lotus haydonii*) | __/__/S/1B.3/ S2.3?/G3 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 17 miles southwest of the proposed IVS project site. |
| Mountain Springs bush lupine (*Lupinus excubitus* var. *medius*) | __/__/S/1B.3/ S2.3?G4T2T3 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest record is from Myers Valley approximately 9 miles southwest of the proposed IVS project site. Suitable habitat does not occur on the project site. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| Parish's desert-thorn (*Lycium parishii*) | __/__/__/2.3/ S2S3/G3? | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 10 miles west of the proposed IVS project site. |
| **brown turbans (*Malperia tenuis*)** | __/__/__/2.3/ S1.3/G4? | **Present**—Individuals found within the proposed IVS project area during 2010 focused surveys. The nearest CNDDB record is from the Yuha Desert, south of Pinto Wash, approximately 5 miles southeast of the project site. Suitable habitat occurs within the site. |
| hairy stickleaf (*Mentzelia hirsutissima*) | __/__/__/2.3/ S2S3/G3? | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. The nearest CNDDB occurrence is from Mountain Spring Grade approximately 11 miles southwest of the proposed IVS project site. Suitable habitat occurs within the project site. |
| creamy blazing star (*Mentzelia tridentata*) | __/__/S/1B.3/ S2.3/G2 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 120 miles northwest of the proposed IVS project site. |
| slender woolly-heads (*Nemacaulis denudata* var. *gracilis*) | __/__/__/2.2/ S2S3/G3G4T3? | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. The nearest CNDDB record is approximately 3 miles west of the proposed IVS project site. Suitable habitat occurs within the project site. |
| **Thurber's pilostyles (*Pilostyles thurberi*)** | __/__/__/4.3/ S3.3/G5 | **Present**—Individuals found within the proposed IVS project site during 2010 focused surveys. Historic CNDDB occurrence on northwest edge of project site. Suitable habitat is present as three species of *Psorothamnus* spp., the host plants for Thurber's pilostyles, occur on project site. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| desert spike-moss (*Selaginella eremophila*) | __/__/__/2.2/ S2.2?/G4 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence is approximately 15 miles southwest of the proposed IVS project site. |
| dwarf germander (*Teucrium cubense* ssp. *depressum*) | __/__/__/2.2/ S2/G4G5T3T4 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB occurrence six miles southwest of proposed IVS project site. Suitable habitat occurs on project site. |
| Orcutt's woody-aster (*Xylorhiza orcuttii*) | __/__/S/1B.2/ ?S2.2/G2G3 | **Low**—not observed during 2007, 2008, and 2010 focused plant surveys. Nearest CNDDB record is from Basin Wash into Tule Wash in the Anza-Borrego State Park approximately 12.5 miles northwest of the proposed IVS project site. Suitable habitat occurs on project site. |
| **WILDLIFE** | | |
| Common Name (*Scientific Name*) | Status State/Fed/BLM | Potential for Occurrence |
| **Reptiles** | | |
| barefoot banded gecko (*Coleonyx switaki*) | ST/__/__ | **Low**—not observed; nearest CNDDB occurrence approximately six miles northwest of proposed IVS project site. Lack of rocky habitat makes the project site unsuitable for this species. |
| **flat-tailed horned lizard (*Phrynosoma mcallii*)** | CSC/__/S | **Present**—observed on proposed IVS project site during surveys. |
| Colorado Desert fringe-toed lizard (*Uma notata*) | CSC/__/S | **Low**—not observed. Nearest CNDDB occurrence is approximately 11 miles northwest of proposed project site. General lack of dune habitat makes the site generally unsuitable for this species. Marginal habitat exists in the sandy portions of dry washes within site. |
| **Birds** | | |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| golden eagle (*Aquila chrysaetos*) | SFP/__/__ | **Moderate**—not observed though within winter range of this species. Rarely seen in Imperial County, only five known occurrences documented in Imperial County; nearest occurrence approximately two miles northeast of Seeley (McCaskie 2010). Suitable nesting habitat does not occur on the proposed IVS project site; however, suitable foraging habitat does occur on the project site. |
| **burrowing owl (*Athene cunicularia*)** | CSC/BCC/S | **Present**—observed on proposed IVS project site during surveys. |
| Swainson's hawk (*Buteo swainsoni*) | ST/__/__ | **Low**—no records in vicinity of proposed IVS project site. May migrate through area in spring and fall and forage in nearby agricultural areas. Nearest CNDDB occurrence is approximately 170 miles northwest of proposed project site. |
| mountain plover (*Charadrius montanus*) | CSC/BCC/S | **Moderate**— Species may winter in agricultural lands in vicinity of proposed IVS project site. Nearest CNDDB record is approximately 20 miles northeast of the proposed project site south of the Salton Sea. |
| fulvous whistling duck (*Dendrocygna bicolor*) | CSC/__/__ | **Low**—Species may occur along the New River in the vicinity of the proposed water pipeline which provides some limited habitat for this species. Nearest CNDDB record is approximately 250 miles northwest of the proposed IVS project site. |
| little willow flycatcher (*Empidonax trailii brewsteri*) | SE/__/__ | **Low**—This species is found during migration within riparian areas near the Salton Sea. There are no CNDDB records for this species in the vicinity of the project site. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| southwestern willow flycatcher (*Empidonax trailii extimus*) | SE/FE/__ | **Moderate**—The New River and associated riparian areas near the proposed water pipeline provide some limited habitat for this species. The nearest CNDDB occurrence is approximately 70 miles north of the proposed project site. |
| **California horned lark (*Eremophila alpestris*)** | CSC/__/__ | **Present**—observed on proposed IVS project site during surveys. |
| bald eagle (*Haliaeetus leucocephalus*) | SE/FT-D/__ | **Low**—not observed though within winter range of this species. Nearest occurrence is from the south shore of the Salton Sea, approximately 18 miles northeast of the proposed IVS project site (Patten et al. 2003). Suitable foraging and nesting habitat does not occur on the project site. |
| Yellow-breasted chat (*Icteria virens*) | CSC/__/__ | **Low**—The New River and associated riparian areas near the proposed water pipeline provide some limited habitat for this species. The nearest CNDDB occurrence is approximately 35 miles northeast of the proposed IVS project site. |
| least bittern (*Ixobrychus exilis*) | CSC/__/__ | **Low**—The New River and associated riparian areas near the proposed water pipeline provide some limited habitat for this species. The nearest CNDDB occurrence is approximately 70 miles northeast of the proposed IVS project site. |
| **loggerhead shrike (*Lanius ludovicianus*)** | CSC/BCC/__ | **Present**—observed on proposed IVS project site during surveys. |
| California black rail (*Laterallus jamaicensis coturniculus*) | ST, SFP/BCC/__ | **Low**—not observed during 2010 protocol field surveys. Nearest CNDDB occurrence is approximately 2 miles east of the proposed water pipeline. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| Gila woodpecker (*Melanerpes uropygialis*) | SE/BCC/__ | **Low**—The New River and associated riparian areas near the proposed water pipeline provide some limited foraging habitat for this species, but no suitable nest trees are present. The nearest CNDDB occurrence is approximately 70 miles east of proposed IVS project site. |
| **black-tailed gnatcatcher (*Polioptila melanura*)** | WL/__/__ | **Present**—observed on proposed IVS project site during surveys. |
| vermillion flycatcher (breeding) (*Pyrocephalus rubinus*) | CSC/__/__ | **Moderate**—not observed; nearest CNDDB occurrence two miles south of proposed water pipeline. Suitable habitat occurs in the riparian areas associated with the irrigation canals and New River. |
| Yuma clapper rail (*Rallus longirostris yumamensis*) | SE, SFP/FE/__ | **Low**—not observed during 2010 protocol field surveys; nearest documented occurrence 4 miles from the SWWTF. Suitable large areas of open water, marsh habitat, and adjacent upland areas do not occur near the SWWTF for this species. |
| Crissal thrasher (*Toxostoma crissale*) | CSC/__/__ | **Low**—The New River and associated riparian areas near the proposed water pipeline provide some limited habitat for this species. The nearest CNDDB occurrence is approximately 20 miles northeast of the proposed IVS project site. |
| **Le Conte's thrasher (*Toxostoma lecontei*)** | WL/BCC/__ | **Present**—observed on proposed IVS project site during surveys. Several CNDDB records within the vicinity of the site. |
| least Bell's vireo (*Vireo bellii pusillus*) | SE/FE/__ | **Moderate**—The New River and associated riparian areas near the proposed water pipeline provide some limited habitat for this species. The nearest CNDDB occurrence is approximately 15 miles northwest of proposed IVS project site. |
| **Mammals** | | |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| pallid bat (*Antrozous pallidus*) | CSC/__/S | **Moderate**—no roost sites observed during field survey although focused surveys for bat roosts were not conducted; nearest CNDDB record is 20 miles northwest of proposed IVS project site at Fish Creek Wash at the south end of Split Mountain in Anza Borrego State Park in 1996. Suitable foraging habitat occurs in the project area and suitable roosting habitat occurs along the Evan Hewes Highway for the proposed recycled water pipeline. |
| ringtail (*Bassariscus astulus*) | __/__/__ | **Low**—The New River and associated riparian areas along the proposed water pipeline provide some limited habitat for this species. There are no CNDDB records for this species in the vicinity of the proposed IVS project site. |
| western yellow bat (*Lasiurus xanthinus*) | CSC/__/__ | **High**—no roost sites observed during field surveys although focused surveys for bat roosts were not conducted; nearest CNDDB occurrence is 11 miles east of proposed IVS project site in El Centro during 1989-1990. Suitable roosting and foraging habitat occurs along the proposed recycled water pipeline. |
| big free-tailed bat (*Nyctinomops macrotis*) | CSC/__/__ | **Low**—no roost sites observed during field survey although focused surveys for bat roosts were not conducted; nearest CNDDB occurrence is near El Centro during 1987 approximately 12 miles east of proposed IVS project site. Though the project site may be suitable foraging habitat, roosting habitat does not occur on the project site. |
| **Peninsular bighorn sheep (*Ovis canadensis nelsoni*)** | ST,SFP/FE/S | **Present**—observed on proposed IVS project site. Habitat on project site is not optimal for bighorn sheep due to lack of cover, escape routes, human recreational OHV use, but the project site provides foraging habitat. |

| **PLANTS** | | |
|---|---|---|
| Common Name (*Scientific Name*) | Status State/Fed/BLM/CNPS/ State Rank/Global Rank | Potential for Occurrence |
| **American badger (*Taxidea taxus*)** | CSC/__/__ | **High**—not observed though potential burrows observed on proposed IVS project site during surveys. Nearest occurrence south across Interstate 8 from project site. |

Sources: CDFG 2009; CNPS 2009; SES 2010

## Biological Resources Table 2 – Notes

**STATUS CODES:**

**State**

CSC: California Species of Special Concern. Species of concern to CDFG because of declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.
SE: State listed as endangered
SR: State listed as rare
ST: State listed as threatened
SFP: Fully protected
WL: Watch List: includes species formerly on California Species of Special Concern List (Remsen 1978) but which did not meet the criteria for the current list of special concern bird species (Shuford and Gardali 2008).

**Federal**

FE: Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT: Federally listed, threatened: species likely to become endangered within the foreseeable future
BCC: Fish and Wildlife Service: Birds of Conservation Concern: Identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent highest conservation priorities
http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf
D: Delisted taxon that is considered recovered

**BLM**

S: BLM Sensitive. Species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. BLM Sensitive species also include all Federal Candidate species and Federal Delisted species which were so designated within the last 5 years and CNPS List 1B plant species that occur on BLM lands.
http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_manual.Par.43545.File.dat/6840.pdf

**California Native Plant Society (CNPS)**

List 1B: Rare, threatened, or endangered in California and elsewhere
List 2: Rare, threatened, or endangered in California but more common elsewhere
List 3 = Plants which need more information
List 4 = Limited distribution – a watch list
0.1: Seriously threatened in California (high degree/immediacy of threat)
0.2: Fairly threatened in California (moderate degree/immediacy of threat)
0.3: Not very threatened in California (low degree/immediacy of threats or no current threats known)

**Global Rank/State Rank**

**Global rank (G-rank)** is a reflection of the overall condition of an element throughout its global range. Subspecies are denoted by a T-Rank; multiple rankings indicate a range of values
G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals
G2 = 6-20 EOs OR 1,000-3,000 individuals
G3 = 21-100 EOs OR 3,000-10,000 individuals
G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.
**State rank (S-rank)** is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank. An H-rank indicates that all sites are historical
S1 = Less than 6 EOs OR less than 1,000 individuals
S1.1 = very threatened
S1.2 = threatened
S1.3 = no current threats known
S2 = 6-20 EOs OR 1,000-3,000 individuals
S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known
S3 = 21-100 EOs or 3,000-10,000 individuals
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known

**Potential to Occur:**

**High –** Suitable habitat is present within the proposed site: occurrence records exist for species in proximity to the site; species expected to occur on site

**Moderate –** Low quality suitable habitat is present within or near the proposed site; species was not identified during reconnaissance surveys of the site; species may occur on site

**Low –** Suitable habitat is not present on site; species not expected to occur on site

Source: Ex. 302, pp. C.2-25 to C.2-37, Biological Resources Table 2

**Special-Status Plants**

The project area is known to support a variety of special-status plant species. Of the 27 special-status species identified in Biological Resources Table 1, none are federally listed, eight are BLM Sensitive species, and one is state listed. The spring 2010 surveys confirmed most of the special-status plant species listed in Table 2 have a low potential of occurring on the project site. The low potential for occurrence for many species is mainly due to the project site being located below the typical elevation range for the particular species. Staff did not consider the 2007/2008 survey results adequate due to the following reasons: surveyors with varying degrees of botanical expertise; conducting rare plant surveys in conjunction with FTHL surveys; an incomplete list of potential special-status plants that may occur on the proposed project site; and lack of special-status plant surveys conducted in the fall after the late summer/early fall monsoonal rains. As a result, staff and BLM requested that the applicant repeat and expand rare plant surveys for the spring and fall of 2010. Additional species were added to the list of plants to be targeted during the 2010 surveys, including two CNPS List 2 species, Abrams' spurge and curly herissantia, which bloom in the fall. The results of the spring 2010 plant surveys documented the following special status species: Harwood's milk-vetch, Wiggins' croton, Utah vine milkweed, brown turbans, and Thurber's pilostyles on the proposed IVS project site and linears. These spring-blooming species are discussed in more detail below. (Ex. 307, p. C.2-37.)

The spring 2010 surveys confirmed most of the special status plant species listed in Table 1 have a low potential of occurring on the project site. The low potential for occurrence for many species is mainly due to the project site being located below the typical elevation range for the particular species. (Ex. 302, pp. C.2-37 to C.2-38.) The bolded species shown in Table 1 are discussed more fully below.

***Harwood's Milk-Vetch (Astragalus insularis var. harwoodii)***

Harwood's milk-vetch is an annual herb in the pea family (Fabaceae). It occurs in Sonoran Desert scrub within San Diego, Riverside, and Imperial counties from sea level to 1,000 feet in elevation. It is typically associated with dunes or areas with sandy soils. The flowering period is typically January through May. The nearest occurrence for this species in the CNDDB is approximately 6 miles west of the proposed project site along Interstate 8. Focused surveys conducted in the spring of 2010 found 36 individuals in the southwestern corner of the proposed IVS project site north of Interstate 8 within the Phase I portion of the site. (Ex. 302, p. C.2-38.)

***Wiggins' Croton (Croton wigginsii)***

Wiggins' croton is a perennial shrub in the spurge family (Euphorbiaceae) and is state listed as Rare. It occurs in Sonoran Desert scrub within Imperial County in California from sea level to 300 feet in elevation. It is typically associated with dunes or areas with sandy soils. The flowering period is typically March through May. Most of the CNDDB records for this species are 50 miles east of the proposed project site within the Algodones Dunes, though it is known to occur in the Yuha Desert south of the proposed project site. Focused surveys conducted in the spring of 2010 found 7 individuals along the Evan Hewes Highway in the northern portion of the proposed project area within the proposed waterline ROW. (Ex. 302, p. C.2-39.)

***Utah Vine Milkweed (Cynanchum utahense)***

Utah vine milkweed is a perennial wine in the dogbane family (Apocynaceae). It occurs in Sonoran Desert scrub within Riverside, San Bernardino, San Diego, and Imperial counties in California between 500 and 4,500 feet in elevation. It is typically associated with sandy or gravelly soils. The flowering period is typically April through June. The closest documented record for this species is approximately 2 miles southwest of the proposed project site in Coyote Wells. Focused surveys conducted in the spring of 2010 found 85 locations of the species throughout the western portion of the proposed project site. (*Id*.)

***Brown Turbans (Malperia tenuis)***

Brown turbans is an annual herb in the daisy family (Asteraceae). It occurs in Sonoran Desert scrub within Imperial and San Diego counties between 50 and 1,000 feet in elevation. The flowering period is typically March through April. The nearest CNDDB record for this species is approximately 5 miles southeast of the proposed project site. Focused surveys in the spring of 2010 found five locations of the species totaling just a few individuals along the southern boundary of the proposed project site just north of Interstate 8. (*Id*.)

***Thurber's Pilostyles (Pilostyles thurberi)***

Thurber's pilostyles is a perennial herb parasite that flowers on the stems of the indigobush (*Psorothamnus* spp.), especially Emory indigobush (*P. emoryi*), which is a fairly common shrub on the proposed project site. It occurs in Sonoran desert scrub habitat in San Diego and Imperial counties from 0 to 1,200 feet in elevation and blooms in January. CNDDB shows a historic element occurrence of this

species from 1957 in the project area two miles west of Plaster City. Focused special status plant surveys conducted in the spring 2010 noted five occurrences within the proposed project site, one occurrence just outside of the project site along Evan Hewes Highway, and the greatest concentration 4.4 miles southeast of Interstate 8 along the proposed transmission line corridor. (*Id*.)

**Special Status Wildlife**

Due to the suitable habitat being present, most of the special status wildlife species listed in **Biological Resources Table 1** have a moderate potential of occurring on the project site, though they were not detected during surveys. Species which were detected onsite, the detection of wildlife signs (i.e., scats, burrows, or tracks), or those species with a high potential for occurrence are discussed in more detail below.

***Flat-Tailed Horned Lizard (Phrynosoma mcallii)***

The flat-tailed horned lizard's range includes southeastern California, southwestern Arizona, and adjacent portions of Baja California and Sonora, Mexico in the Lower Colorado River Valley Subdivision of the Sonoran Desert. Typical habitat for the FTHL is sandy desert hardpan or gravel flats with fine, windblown sand. The vegetation is scattered and sparse vegetation with low species diversity. (Ex. 302, pp. C.2-40 to C.2-42.)

Some FTHLs may be active when temperatures are warm with peak activity occurring in spring, early-summer, and in the fall. Winter dormancy normally begins mid-November and continues until mid-February, but may begin as early as October and continue until March. The FTHL primarily feed on harvester ants. They obtain water from their food source, and FTHL generally do not use free-standing water, however, rain harvesting has been noted in FTHL that have been opportunistically sprayed with water. (*Id*.)

Annual home ranges have been estimated between 0.15 and 146.3 acres and are sex and rainfall dependent and possibly resource density dependent. During their active period, FTHL retreat to shallow burrows and aboveground shade to escape the heat of the day, and also bury themselves just beneath the surface of the sand at night. (*Id*.)

The FTHL populations have declined throughout their range because of loss and degradation of habitat caused by urbanization, agricultural development, military activities, recreational OHV use, and Border Patrol and illegal drive-through

traffic. The FTHL has also been impacted by increased predation by loggerhead shrikes, roadrunners, raptors, round-tailed squirrels, common ravens, coyotes, kit foxes, and collisions with vehicles on paved and unpaved roads. (*Id*.)

Due to the occurrence of harvester ants (*Pogonomyrmex* spp.) a primary food source for FTHL throughout the project area, and suitable soil and vegetation to support FTHL, it was determined that surveys in accordance with the FTHL Rangewide Management Strategy (Ex. 440) would be necessary. From May 1, 2007, to May 7, 2008, modified project evaluation protocol surveys were conducted for FTHL (increased plot size from 1 hectare [approximately 2.5 acres] to 4 hectares [approximately 9.9 acres]). The project site was divided into 26-acre plots. Within each 26-acre plot, a 4-hectare survey plot was surveyed for one hour by two or three biologists, giving a sample-survey coverage rate of 38 percent. During the second year, transect survey protocol was four parallel transects on each side of the linear project feature center-line. Live or dead horned lizards, their scats and tracks were recorded and mapped on a Global Positioning System (GPS) receiver with 5-meter accuracy. Photographs were taken and survey forms were completed for each horned lizard sighting. Two live FTHLs were observed within the site boundary and two deceased FTHLs were observed along the off-site transmission line. (*Id*.)

The proposed IVS project site is located just north of Interstate 8 and the Yuha Desert FTHL MA and approximately three miles south of the West Mesa FTHL MA. The Plaster City Open OHV Area is located between the project site and the West Mesa FTHL MA. 7.56 miles of the 10.35-mile transmission line is located off-site within the Yuha Desert FTHL MA and an existing BLM-designated transmission right-of-way (ROW). The Yuha Desert and West Mesa FTHL MAs are two of five established by the FTHL Interagency Coordinating Committee (ICC), consisting of representatives from federal, state, and local governments who have entered into a conservation agreement with the objective of reducing threats to a candidate species and its habitat. The goal of designating the MAs is to maintain or increase self-sustaining FTHL populations within the MAs. The FTHL ICC developed the FTHL Rangewide Management Strategy (Ex. 440) which lists maintaining connectivity between the MAs as one of the Planning Actions. (*Id*.)

The proposed project site is bounded by Interstate 8 to the south and the railroad and Evan Hewes Highway to the north, which may serve as a filter for movement in and out of the project site. Trestle openings under the railroad tracks and

Evan Hewes Highway provide a movement corridor between the Yuha Desert MA and the West Mesa MA. (*Id*.)

The Plaster City Open OHV Area north of Evan Hewes Highway may also serve as another filter for FTHL movement between the proposed project site and the West Mesa FTHL MA. This open OHV area is very popular with off-road enthusiasts. The OHV traffic can be very busy in the non-vegetated staging areas adjacent to Evan Hewes Highway, likely injuring or killing FTHLs in the immediate area. Once past the staging areas, the FTHLs are likely to take refuge under the remaining vegetation in the open OHV area. (*Id*.)

Another possible movement corridor for FTHLs between the Yuha Desert and West Mesa FTHL MAs may be the South Fork Coyote Wash, located approximately 1 mile west of the proposed project site. Interstate 8 is elevated over the sandy South Fork Coyote Wash, which is a very large open area that allows for easier movement under the freeway. Also, recent sightings of FTHLs have been noted in Ocotillo, approximately 4 miles west of the project site which increases the likelihood that the wash may be a FTHL movement corridor. (*Id*.)

The evidence shows that there has never been a detection probability survey for FTHL at the proposed site. (RT 7/27/10 205:25 – 207:10.) A survey conducted by the applicant found two live and two dead FTHL, and extrapolating from that using a conservative detection rate assumption of 5 percent, estimated the population of FTHL on site to be 150 – 200. (RT 7/27/10 205:17 - 18.) By contrast, Staff and the USFWS estimated the population at roughly ten times that. (Ex. 302, p. C.2-41.) The parties agreed, nonetheless, that the plant site and the 92.6-acre off-site transmission line area provide suitable habitat to support FTHLs and that FTHLs are known to be present at the project site. Furthermore, applicant and staff agreed that compensatory mitigation in the amount of 6,619.9[1] acres is necessary to fully mitigate loss of FTHL habitat. (Applicant's Opening Post-Hearing Brief at 21.)

***American Badger (Taxidea taxus)***

American badgers were once fairly widespread throughout open grassland habitats of California. They are now rare, permanent residents throughout most of the state, with the exception of the northern North Coast area. No American badgers were detected during project surveys in 2007 or 2008, although several

[1] This figure is obtained by using a 1:1 ratio for the site (6,063.1 acres) and a 6:1 ratio for the 92.6 acres of transmission line are which are in the FTHL Management area.

potential burrows occurred on-site. The CNDDB indicates occurrences in the adjacent Coyote Wells and Seeley quads with the closest occurrence immediately south of Interstate 8 from the project site. Due to the existence of potential burrows and nearby occurrences of this species, we find that the site offers potential habitat for badger. (Ex. 302, p. C.2-42.)

***Peninsular Bighorn Sheep (Ovis canadensis nelsoni) Distinct Population Segment***

The Peninsular bighorn sheep (PBHS) occupy the Peninsular Ranges of southern California ranging from the San Jacinto Mountains in California south to the Volcan Tres Virgenes Mountains in Baja California, Mexico. Bighorn sheep are typically found on open, rocky, steep areas used for escape cover and shelter with available water and herbaceous vegetation for forage. Bighorn sheep are agile in steep, rocky terrain, allowing them to escape predators such as coyotes (*Canis latrans*), golden eagles (*Aquila chrysaetos*), and cougars (*Felis concolor*). Most of the bighorn sheep live between 300 to 4,000 feet in elevation where the annual precipitation is less than 4 inches and daily high temperatures average 104°F in the summer. (Ex. 302, pp. C.2-42 to C.2-44.)

Bighorn sheep primarily browse shrubs and graze on native grasses throughout the year. The pulp and fruits of various cacti are eaten during the dry season. Bighorn sheep have a large rumen, relative to body size, which allows digestion of grasses, even in a dry state. This gives them flexibility to select diets that optimize nutrient content from available forage. Consequently, bighorn sheep feed on a large variety of plant species and diet composition varies seasonally and among locations. While diet quality varies greatly among years, it is most predictably high in late winter and spring, and this period coincides with the lambing season between January and June. (*Id*.)

Surface water is another element of desert bighorn habitat considered to be important to population health. Bighorn sheep congregate near dependable water sources from May through October. Females tend to choose particularly steep, safe areas for bearing and initial rearing of lambs. Areas associated with ridge benches or canyon rims adjacent to steep slopes or escarpments are commonly preferred lambing areas if available. Males frequently occupy much less precipitous habitat during the lamb-rearing season. Alluvial fan areas are also used for breeding and feeding activities. (*Id*.)

The U.S. Fish and Wildlife Service designated a total of 376,938 acres of critical habitat for Peninsular bighorn sheep in the Peninsular Ranges along the

northwestern edge of the Sonoran Desert. A 79,220-acre area of critical habitat in the Carrizo Canyon area of San Diego and Imperial Counties west of the proposed project site is referred to as “Unit 3.” Unit 3 encompasses the Carrizo Canyon area and the surrounding In-Ko-Pah Mountains, Tierra Blanca Mountains, and the Jacumba and Coyote Mountains near the project site in San Diego and Imperial Counties, extending south to the U.S.-Mexico border. The recovery objective for Peninsular bighorn sheep is to secure and manage habitat in order to alleviate threats so that population levels will increase to the point that this species may be reclassified to threatened status and ultimately delisted. (*Id*.)

The presence of Peninsular bighorn sheep on the project site was confirmed in March 2009. A group of five ewes and/or juveniles, one which was pregnant, were sighted in an ephemeral wash approximately one mile southwest of Plaster City. Peninsular bighorn sheep do use lowland habitat periodically for foraging and dispersal. According to Steve Torres of the CDFG, this is the furthest east that a sighting of Peninsular bighorn sheep has been documented from known habitat approximately six miles to the west of the project site. (*Id*.)

Although there is conflicting evidence in the record on the site’s habitat value for PBHS, the applicant agreed to provide mitigation for loss of potential PBHS habitat. Sightings of PBHS at the site have been so rare that it is probably inadvisable for us draw any conclusions from those sightings other than finding that PBHS can use the site and that therefore it has habitat potential. Regardless of our finding, however, the fact that the loss of potential habitat will be mitigated resolves this issue for purposes of this Decision. We discuss the nature of that mitigation in the Impacts and Mitigation section, *infra*.

***Western Yellow Bat (Lasiurus xanthinus)***

Western yellow bat is an uncommon species which ranges from southwestern U.S. into northern Mexico. In California, western yellow bats have been reported below 2,000 feet elevation in valley foothill riparian, desert riparian, desert wash and palm oasis habitats. The species shows a particular association with palm oases and is believed to be expanding its range and abundance with the increased usage of ornamental palms in landscaping. This species feeds on flying insects and forages over water and among trees and commonly roosts in the skirt of dead fronds of palm trees.

No western yellow bats were observed during the surveys, but no surveys were specifically conducted for this species or any other bats. A western yellow bat specimen was collected approximately 11 miles east of the project site in 1977.

Due to the lack of palms on the project site and the off-site transmission line route, staff considers it unlikely that western yellow bats occur there. However, ornamental palms planted along the Evan Hewes Highway where the reclaimed water pipeline is proposed could serve as roosting sites for the bats. Given that western yellow bats are in the project area, we find there is some potential for this species to be present along the reclaimed water pipeline corridor. (Ex. 302, p. C.2-44.)

***Western Burrowing Owl (Athene cunicularia)***

Western burrowing owls inhabit arid lands throughout much of the western United States and southern interior of western Canada, and the Imperial Valley has been a population stronghold for burrowing owls. It is estimated that 71 percent of the state's burrowing owl pairs occur in the Imperial Valley.

Burrowing owls are unique among the North American owls in that they nest and roost in abandoned burrows, especially those created by ground squirrels, kit fox (*Vulpes macrotis*), and other wildlife. Burrowing owls have a strong affinity for previously occupied nesting and wintering habitats. In the Imperial Valley, burrowing owls generally occur in high densities near agricultural lands where rodent and insect prey tend to be more abundant.

Habitat within the project area and along the linear features is suitable for burrowing owls. Three active burrowing owl burrows were located on the project site, one was found along the transmission line corridor, one was found near the off-site reclaimed waterline, and four were found at adjacent off-site locations. We find that there is potential for presence of burrowing owls as the pipeline would cross suitable habitat such as canal banks with ground squirrel burrows. (Ex. 302, p. C.2-45.)

***Southwestern Willow Flycatcher (Empidonax trailii extimus)***

The southwestern willow flycatcher is found in riparian areas of the southwest United States and northern Mexico. The species has suffered declines primarily due to habitat loss from water diversions, stream channelization, cattle grazing, agricultural conversions and development. It typically feeds on flying insects and will sometimes capture insects on the ground.

Focused surveys for southwestern willow flycatcher are being conducted in 2010 by the project applicant within Wildcat Drain and nearby New River near the Seeley Wastewater Treatment Facility (SWWTF) to assess if the SWWTF treated

effluent diversion from Wildcat Drain would impact this species. This habitat is dominated by saltcedar and arroweed and is composed of intermittent dense patches of vegetation. We find that these areas provide potential habitat for the species. (Ex. 302, pp. C.2-45 to C.2-46.)

***California Horned Lark (Eremophila alpestris actia)***

Horned larks prefer areas with sparse vegetation and exposed soil. In western North America, this species is associated with desert brushlands, grasslands, and similar open habitats, as well as alpine meadows. Throughout their range, horned larks avoid all habitats dominated by dense vegetation and become scarce and locally distributed in heavily forested areas. Horned larks are also commonly found in agricultural areas where they breed in fallow fields. The nests are destroyed by planting and other agricultural activities, which has contributed to an 84 percent decline in horned lark populations since 1967. As a result, Audubon California considers this species one of California's most vulnerable common birds. Multiple individuals of this species were observed frequently throughout the survey area during the 2007 and 2008 surveys, and accordingly we find that the site provides habitat for this species. (Ex. 302, p. C.2-46.)

***Loggerhead Shrike (Lanius ludovicianus)***

Loggerhead shrikes are uncommon residents throughout most of the southern portion of their range, including southern California. In southern California they are generally much more common in interior desert regions than along the coast. They are fairly common breeding residents in the Imperial Valley, and are typically associated with desert scrub. Agricultural areas, which are common in the Imperial Valley, are suitable habitat for loggerhead shrike. Thus, they occur throughout the scrub habitats within the project survey area. Moreover, loggerhead shrikes were observed during the 2007 and 2008 surveys. Accordingly we find that the project site offers potential habitat for this species. (*Id*.)

***California Black Rail (Laterallus jamaicensis coturniculus)***

In California, the California black rail is limited to marshes in the San Francisco Bay and Sacramento River Delta, marshes near the Salton Sea, and the lower Colorado River. Focused surveys for rails were conducted by the applicant in 2010 along Wildcat Drain and adjacent New River. These surveys were conducted in order to confirm whether the SWWTF treated effluent diversion from Wildcat Drain to the IVS project site would impact this species. No black

rails were found (J. Konecny, 2010). The areas around Wildcat Drain support very little freshwater marsh habitat and in very small patches. We find that the Wildcat Drain is probably marginal habitat and would not support a viable population of California black rails. (Ex. 302, p. C.2-47.)

***Black-tailed Gnatcatcher (Polioptila melanura)***

Black-tailed gnatcatchers are restricted to arid and semiarid zones in the Sonoran and Mojave deserts and are year-round residents in the deserts. Black-tailed gnatcatchers were commonly observed throughout the IVS project site during the surveys, and we therefore find that the site provides habitat for this species. (*Id*.)

***Vermilion Flycatcher (Pyrocephalus rubinus)***

Vermilion flycatchers are a tropical species which barely extends into the southwestern U.S. Suitable habitat for vermilion flycatcher occurs in the riparian areas associated with the irrigation canals and the New River along the proposed reclaimed waterline. We therefore find that the waterline area offers potential habitat for this species. (Ex. 302, pp. C.2-47 to C.2-48.)

***Yuma Clapper Rail (Rallus longirostris yumanensis)***

In the United States, the Yuma clapper rail occurs within marshes along the Colorado River and its tributaries within California, Nevada, Arizona, and Utah and the Salton Sea. This subspecies is limited to freshwater marshes. Focused surveys for rails were conducted by the applicant in 2010 along Wildcat Drain and adjacent New River. The areas around Wildcat Drain support very little freshwater marsh habitat and in very small patches. Therefore, this habitat is probably marginal habitat and would not support a viable population of Yuma clapper rails. (Ex. 302, p. C.2-48.)

***Le Conte's Thrasher (Toxostoma lecontei)***

This species inhabits some of the hottest and driest habitats in the arid southwest, including the deserts of southeastern California where they occur year-round. LeConte's thrasher is one of the focal bird species identified by The Desert Bird Conservation Plan[2] that is vulnerable to habitat loss and

[2] The Desert Bird Conservation Plan was developed by California Partners in Flight in 2009 and is described by that organization as "a strategy for protecting and managing desert habitats and

fragmentation. LeConte's thrashers are also affected during nesting season by off-highway vehicle use, which is heavy both on designated unimproved roads and elsewhere throughout the project site.

One LeConte's thrasher was observed just west of the project boundary within the one-mile buffer survey area during the 2007 surveys. Nonetheless, there is high potential for LeConte's thrashers to utilize the project area for foraging and cover, so we find that the site offers potential habitat for this species. (Ex. 302, pp. C.2-48 to C.2-49.)

***Least Bell's Vireo (Vireo bellii pusillus)***

The least Bell's vireo breeds in southern California and parts of northern Mexico. Least Bell's vireos are restricted to riparian habitats found mostly in southern California lowlands. Focused surveys for least Bell's vireo are being conducted in 2010 by the project applicant within Wildcat Drain and nearby New River near the SWWTF to assess if the SWWTF treated effluent diversion from Wildcat Drain would impact this species. This habitat is dominated by saltcedar and arroweed and is composed of intermittent dense patches of vegetation. As such, these areas provide low quality potential habitat for the species.

We now turn to a discussion of the project's construction and operational impacts to biological resources.

2. Construction and Operation Impacts and Mitigation

a. Avian Predators

Construction and operation of the IVS project could provide new sources of food, water, and nesting and perching sites that might attract unnaturally high numbers of FTHL predators such as the common raven, loggerhead shrikes, and American kestrel. Ravens depend on human encroachment to expand into areas where they were previously absent or in low abundance. Ravens habituate to human activities and are subsidized by the food and water, as well as roosting and nesting resources that are introduced or augmented by human encroachment. Common raven populations in the Colorado and Mojave deserts increased 1,000 percent from 1968 to 1992 in response to expanding human use of the desert. This increase has had a negative impact on sensitive species such as the desert tortoise and flat-tailed horned lizard. (Ex. 302, p. C.2-80.)

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associated birds in the Mojave and Sonoran deserts. The document is available online at http://www.prbo.org/calpif/plans.html.

Construction and operation of the proposed IVS project would provide new attractants and subsidies that might result in changes in raven population or behavior, which could subsequently affect the FTHL population in the region by increased predation. The following have been identified as raven attractants and subsidies:

- Water in evaporation ponds;
- Creation of new perching/roosting/nesting sites;
- Water ponding due to dust suppression; and
- Construction/operation waste.

Since operation of the IVS's evaporation ponds could have impacts on multiple species (*Id*.), its effects are discussed later in this subsection. Impacts and mitigation for the remaining three factors are discussed below.

**Perching, Roosting, and Nesting Sites**. IVS structures such as towers, transmission poles and lines, maintenance buildings, facility fencing, and 30,000 SunCatcher units that offer new nesting and/or perching substrates could facilitate avian predation. The applicant has proposed project design features to reduce nesting and includes physical deterrents to nesting such as bird spikes and nest removal, and monitoring to make sure these design features were working as intended. These measures are described in more detail in Condition of Certification **BIO-12**, which we adopt to require development of the Raven Monitoring and Management Plan. These measures have been applied on past projects with desert tortoise as prey items and have been modified for the FTHL. We expect these measures to reduce the impacts, including FTHL predation, to a less than significant level. (*Id*.)

**Ponding**. Ponding water resulting from dust suppression activities has the potential to attract ravens and other predators of FTHL, thereby potentially resulting in increased FTHL predation. We adopt Condition of Certification **BIO-8** (Impact and Avoidance Minimization Measures), to reduce this potential impact by requiring use of the minimum amount of water needed for dust abatement, so that impacts are reduced to a less than significant level. (Ex. 302, pp. C.2-80 to C.2 – 81.)

**Food Waste**. Both construction and operation of the IVS would result in increased waste generation in the project area and improper management of food waste could attract ravens. To discourage scavenger activity we adopt Condition of Certification **BIO-8**, which requires that all food-related waste be handled in an appropriate manner and that animal roadkills be promptly removed from the project site. (Ex. 302, p. C.2-81.)

b. Other Predators

In addition to avian predators, roundtail ground squirrels (*Spermophilus tereticaudus*) have emerged as significant predators of the FTHL. A potential effect of the SunCatchers is increased shade and water from the periodic washing. The increase in water would increase the amount of vegetation. Even though roundtail ground squirrels were not observed on the project site during the 2007 and 2008 surveys, vocalizations of the roundtail ground squirrel were heard during a recent site visit conducted by staff, BLM, and USFWS on May 25, 2010. The higher density of vegetation, specifically perennials, could attract roundtail ground squirrels that may not have previously been sustained under the current arid conditions. The possibility of roundtail ground squirrels inhabiting the site would also increase predator species which prey on them, and in turn, could also prey on FTHLs. Implementation of Conditions of Certification **BIO-8**, the Impact Avoidance and Minimization Measures, and **BIO-18**, the Weed Management Plan, would reduce the potential for these impacts. Measures to minimize impacts from noxious weeds in Condition of Certification **BIO-8** include minimizing soil disturbance so habitat is decreased for disturbance-adapted invasive species, and maintaining vehicle wash and inspection stations to prevent the spread of potential invasive weeds. Condition of Certification **BIO-18** includes measures to minimize impacts from invasive weeds. Implementation of the measures in the Weed Management Plan described above and other impact avoidance and minimization measures would reduce impacts from these FTHL predators to less than significant levels. (Ex. 302, pp. C.2-81 to C.2 – 82.)

c. Disruption to Wildlife Movement Corridors

The FTHL Rangewide Management Strategy (Ex. 440) lists maintaining connectivity between the FTHL Management Areas as one of the Planning Actions. The USFWS is concerned that the development of the proposed project would impact what limited connectivity exists between FTHL Management Areas, which would be in direct conflict with the FTHL Rangewide Management Strategy. Permeable fencing is proposed for the project site, which would allow small animals such as FTHL, movement in and out of the project site. With the development of SunCatchers in the washes for the proposed project, the USFWS is concerned that what FTHLs remain or move onsite after operations are underway, will allow the project site to become a sink for FTHLs, where the FTHLs onsite perish from operational activities. The proposed project site is bounded by I-8 to the south and the railroad and Evan Hewes Highway to the north, which currently acts as a filter to FTHL movement between Management

Areas. Immediately north across the Evan Hewes Highway is the BLM Plaster City Open OHV Area, which is situated between the proposed IVS plant site and the West Mesa FTHL Management Area. However, the washes are considered the major corridors for wildlife in general. Elsewhere in this Decision, we have recommended that the project be constructed and operated in accord with Applicant's 709MW Alternative, which is also the preliminary Least Environmentally Damaging Practicable Alternative (LEDPA) selected by the US Army Corps of Engineers and the BLM's Agency Preferred Alternative. This alternative was designed to reduce development within certain major washes. Staff has determined that impacts on FTHL connectivity through the undeveloped washes would be substantially reduced with implementation of such an alternative. With Staff's Drainage Avoidance Alternative #1, connectivity for FTHL under would be largely maintained and the impacts to connectivity would therefore be less than significant. The same holds true for the preliminary LEDPA/Agency Preferred Alternative. The Corps determined that the preliminary LEDPA would provide ample movement corridors across the site for FTHL. (Exs. 129, pp. 50 – 53; 302, p. C.2-82.) We therefore find that under the 709MW Alternative impacts to movement corridors for FTHL would be less than significant.

Peninsular bighorn sheep are not documented to utilize the project site as a movement corridor, but have instead been documented to utilize movement corridors west of the project site. Based on the lack of telemetry data and roadkill records, the flatter topography of the project site, and the Yuha Desert to the south, project impacts to a potential movement corridor for PBHS through the project site are speculative and are therefore considered less than significant.
(Ex. 302, pp. C.2 – 81 to C.2 – 82.)

d. Impacts of Evaporation Ponds

The IVS project includes two evaporation ponds that would collect wastewater from the reverse osmosis water treatment system. The Applicant has proposed two 2,500,000-gallon ponds, each one acre in size.

Creation of a new water source in an area where water is scarce would attract predators to the IVS site, potentially increasing predation rates on FTHL. Second, waterfowl, shorebirds, and other resident or migratory birds that drink or forage at the ponds might be harmed by hyper-saline conditions that could result in high total dissolved solids (TDS) concentrations. The location of the evaporation ponds near the proposed transmission towers on the project site where attraction to the ponds by birds could increase their attractiveness to birds.

A project design feature proposed by the applicant for the evaporation ponds to discourage wildlife use would include construction of exclusionary fencing and installation of netting to cover the evaporation ponds. We have incorporated theses features into Condition of Certification **BIO-13** (Evaporation Pond Fencing, Netting, and Monitoring). In addition to the installation of the fencing and netting, the evaporation ponds would be monitored should any corrective action be needed. Implementation of **BIO-13** would reduce evaporation pond impacts to wildlife to less than significant levels under CEQA.
(Ex. 302, p. C.2-83.)

e. Increased Risk from Roads/Traffic

Vehicle traffic would increase as a result of IVS construction and operation, increasing the risk of injuring or killing wildlife To minimize the risks of increased traffic fatality and other hazards associated with roads at the IVS project site, we adopt Conditions of Certification **BIO-6** (WEAP) and **BIO-8**, Impact Avoidance and Minimization Measures. These measures include confining vehicular traffic to and from the project site to existing routes of travel, prohibiting cross country vehicle and equipment use outside designated work areas, and imposing a speed limit within the project site of 20 miles per hour on paved routes, and 10 miles per hour on unpaved routes for the life of the project to lessen impacts to wildlife. The 20 MPH speed limit is justified because of the potential for FTHL to persist on the site during construction and operation and the cryptic nature of the species. Common sense tells us that vehicle operators have a greater opportunity to see and avoid FTHL on the road while driving slowly. In addition, Condition of Certification **BIO-9** (Flat-Tailed Horned Lizard Construction Monitoring Program and Occupancy Study) would move any FTHLs encountered during construction out of harm's way. Similar measures have been applied on past projects and experience has shown that they reduce impacts from traffic. We find that these measures will reduce impacts related to construction and operation traffic to less than significant levels. (Ex. 302, pp. C.2 – 83 to C.2 – 84.)

f. Collisions and Electrocution

Birds and bats are known to collide with communication towers, transmission lines, and other elevated structures. The tallest structures at the plant site would be the assembly building, which would be approximately 78 feet tall. All other structures except for the transmission line support structures are 50 feet or less in height. Two types of transmission line towers are proposed for use in IVS. The 71-foot H-frame towers would be placed at the undercrossing of the existing 500-kV transmission line, whereas the double-circuit lattice steel towers and/or steel poles, which are a height of 90 to110 feet, would be used elsewhere. These

structures at the IVS site are unlikely to pose a collision risk because they are shorter than those typically associated with bird collision events and do not require guy wires. The number of birds that utilize native habitat would be even lower after the solar fields are built as the patchy habitat would only attract birds that are adapted to living under disturbed conditions and in close proximity to development. However, since the evaporation ponds create an attractive nuisance, in order to decrease the collision and electrocution risk for birds, the evaporation ponds shall be located away from the transmission towers, which pose a collision risk as addressed in Condition of Certification **BIO-13** (Evaporation Pond Fencing, Netting, and Monitoring).

Large raptors such as golden eagles can be electrocuted by transmission lines when a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these elements. To minimize risk of electrocution, Staff recommends use of "raptor-friendly" construction design for the transmission line with conductor wire spacing greater than the wingspans of large birds to help prevent electrocution as described in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006. With implementation Conditions of Certification **BIO-8** (Impact Avoidance and Minimization Measures) which incorporates guidelines for transmission line construction and **BIO-13** (Evaporation Pond Netting and Monitoring), which discourages large flocks of birds from utilizing the evaporation ponds, we conclude that the proposed transmission lines would not pose a significant threat to birds under CEQA.

The extent of collision hazard for avian species with SunCatchers is currently unknown due to the limited experience with this product in the field. The reflective mirror surfaces may increase the potential for avian collision since avian species may mistake the SunCatchers for a water surface. However, since the extent of this impact will not be known until there has been some operational experience with SunCatchers in the quantities envisioned for the project, we adopt staff-recommended Condition of Certification **BIO-21** (Monitoring Bird Impacts from Solar Technology). This measure allows for long-term monitoring of avian collisions from SunCatchers to determine if impacts result that may require additional mitigation. (Ex. 302, pp. C.2 – 84 to C.2 – 85.)

g. Lighting

Lighting plays a significant role in collision risk with tall towers because lights can attract nocturnal migrant songbirds, and major bird kill events have been reported

at lighted communications towers, with most kills from towers higher than 300 to 500 feet. IVS operations would require onsite nighttime lighting for safety and security, which can disturb nocturnal wildlife. To reduce offsite lighting impacts, the applicant has proposed that lighting at the IVS facility would be restricted to areas required for safety, security, and operation. Exterior lights would be hooded, and lights would be directed onsite so that light or glare would be minimized. Low-pressure sodium lamps and fixtures of a non-glare type would be specified. Switched lighting would be provided for areas where continuous lighting is not required for normal operation, safety, or security; this would allow these areas to remain un-illuminated (dark) most of the time and thereby minimizing the amount of lighting potentially visible offsite. The measures are described in Condition of Certification **VIS-2**. These measures will significantly reduce the attraction of birds, and with their implementation, lighting at the IVS would have a less than significant effect on wildlife under CEQA.
(Ex. 302, p. C.2 – 85.)

h. Glare

Glare from the reflection of sunlight off the SunCatcher units is another factor that may contribute to the risk of avian collision on the project site. To date little is known regarding the avian response to glare from solar technology. However, it is likely that glare will affect birds to some degree. In the same way that large mirrored buildings may be confused by birds as open sky; the mirrors will reflect light and take on the color of the image being reflected. This may result in birds confusing the SunCatchers as either open sky or water and increase the collision risk. Another factor that must be considered is how reflected light may result in damage to a bird's vision. The SunCatchers are designed so that sun rays from the mirrors would be reflected directly at the receiver and not at surrounding viewers or overhead. However when the mirrors rotate from the stowed position to a vertical position exposure to light intensity equal to or greater than levels considered safe for the human retina is possible. We agree with Staff that any wildlife on the ground in the area could experience similar hazards from unsafe light intensity.

Bird response to glare from the proposed SunCatcher technology is not well understood. Given the lack of research-based data on glare impacts related to this particular technology on birds, we cannot reach a conclusion on their significance. However, due to potential for significant impacts to both resident and migrant birds, we adopt Condition of Certification **BIO-21** [Monitoring Impacts of Solar Technology on Birds]). It is intended that **BIO-21** would yield further information on migrants' use of the site. This measure requires further coordination with regulatory agencies pending results of ongoing monitoring, and

therefore, allows agencies to assess the type and level of impacts to migrants from implementation of the project. The condition also requires preparation of adaptive management measures for operation of the plant in the event that significant avian impacts from glare do occur. (Ex. 302, pp. C.2 – 85 to C.2 – 86.)

i. Noise

The primary noise sources associated with operation of the IVS project include the reciprocating Stirling Engines (including generator, cooling fan, and air compressor) utilized on each of the SunCatchers, step-up transformers, and substation. As discussed in the Occupational Noise Section under 5.12.2.2 of the Application for Certification (Ex. 1), the occupational noise is modeled to be below 85dBA within ten feet of the SunCatcher assemblies, an acceptable noise level for worker safety.

Noise may affect birds in several ways, including annoyance which causes birds to abandon nests that are otherwise suitable; raise the level of stress hormones, interfering with sleep and other activities; cause permanent injury to the auditory system; and interfere with acoustic communication by masking important sounds or sound components. Many bird species rely on vocalizations during the breeding season to attract a mate within their territory, and noise from operations and maintenance activities could disturb nesting birds and other wildlife and adversely affect nesting and other activities. Studies have shown that noise levels over 60 dBA can affect the behavior of certain bird species.

With the adjacent highways and roads, the nearby railroad, and various OHV areas in and adjacent to the project boundaries, off-site noise impacts to nearby wildlife are anticipated to be less than significant given that the estimated noise at the project fence-line would be within the current estimated noise level. Therefore, resident wildlife would presumably be acclimated to a similar level of background noise.

However, on the project site, the noise level would be higher. With imposed impact and avoidance minimization measures such as speed limits, driving restrictions, and implementation of annual Worker Environmental Awareness Program training, as well as a vegetation management schedule that allows for the preservation of some remnant vegetation within the project boundaries, there is some potential that FTHLs and other local wildlife species may remain on the site during operations. We conclude that the operational noise levels on the project site will contribute to noise impacts to nesting birds and other wildlife which is significant within the boundaries of the project site and will contribute to a significant cumulative noise impact to wildlife in the region. No on-site

operational mitigation measures are feasible. Noise impacts would be mitigated below a level of significance by conditions of certification **BIO-10** and **BIO-17** which consider the entire site to be impacted with regards to biological resources and require compensation acreage for the entire project site. (Ex. 302, pp. C.2-86 to C.2-88.)

j. Vibration

No studies have been carried out which would address groundborne vibration from operating SunCatchers. Due to the small mass of the rotating components of the SunCatcher and the fact that no combustion or compression ignition takes place within the Stirling engine, the level of groundborne vibration generated would be extremely small relative to that arising from construction and site traffic. We conclude in the **Noise and Vibration** section of this Decision that groundborne vibration is not likely to be detected by humans as the operating components of the SunCatchers need to be carefully balanced in order to function properly. Though the groundborne vibration may not be detectible by humans, it is unknown how ground dwelling animals are affected by vibration. Vibration attenuates quickly as vibration waves are a logarithmic function with the greatest intensity at the source of vibration, which quickly drops in dBA within a short distance. As with noise and other impacts, we find that the entire project site will be impacted with respect to various wildlife species. Implementation of Conditions **BIO-10** and **BIO-17** are expected to reduce this impact to below the level of significance. (Ex. 302, p. C.2 – 88.)

k. Dust

Disturbance of the soil's surface caused by operations traffic and other activities such as mirror washing would result in increased wind erosion of the soil by impacting soil crusts. The impacts of increased dust and other operation impacts can be minimized with implementation of Condition of Certification **BIO-8** (Impact Avoidance and Minimization Measures) to less than significant levels under CEQA. (*Id*.)

l. Invasive Weeds

It is anticipated that invasive weeds would follow in the wake of disturbance along the linears and project boundary, and could further spread weeds already present in the project vicinity. The introduction of artificial shading caused by the SunCatchers in an arid environment where light availability was not considered a limiting factor would result in changes to the micro-environments under these structures favoring weedy ephemerals. Studies conducted in the Sonoran and

Mojave Deserts have demonstrated that shading resulted in a cooler, moister microhabitat below and near structures.

To avoid and minimize the spread of existing weeds and the introduction of new ones, an active weed management strategy and control methods must be implemented. We adopt Condition of Certification **BIO-18**, (Weed Management Plan). The Weed Management Plan will include a discussion of weed eradication and control methods, preventative measures to be implemented during operation such as weed monitoring and management, weed control in areas where irrigation and mirror washing take place, reestablishing vegetation on disturbed sites with native seed mixes that are weed free, and long-term reporting requirements. In addition, Condition of Certification **BIO-8,** the Impact Avoidance and Minimization Measures, includes measures to minimize soils disturbance so habitat is decreased for disturbance adapted invasive species and maintaining vehicle wash and inspection stations to prevent the spread of potential invasive weeds. Implementation of the Weed Management Plan and other impact avoidance and minimization measures would reduce impacts of invasive weeds to less than significant levels under CEQA. (Ex. 302, p. C.2 – 89.)

m. Waters of the US and Jurisdictional State Waters Impacts and Mitigation.

Ephemeral drainages in the project area provide beneficial functions generally categorized as hydrologic, physical, and biologic. Some of these functions are groundwater recharge, flood peak attenuation, floodwater storage, sediment trapping and transport, nutrient trapping, and maintenance of wildlife corridors and habitat. These functions would be impaired by construction of the IVS project. Permanent impacts to the ephemeral washes result from the placement of SunCatchers on 24-inch bases, the construction of debris/sediment basins, the construction and regular maintenance of roads, the placement of culverts at grade crossings and in the streambeds, construction for bank stabilization after bioengineering/recontouring, and the construction of storm drain outfall structures. Temporary impacts to the ephemeral streambeds will result from the underground placement of the electrical collection system, the hydrogen distribution system, and the reclaimed waterline, and the mowing of brush down to a height of 3 inches. An indirect effect of the SunCatchers in the washes would be the scour created around the pedestals after a rain event due to the obstruction in the flow path and due to the bare soil following vegetation removal. It has been estimated that a 24-inch-diameter foundation in the bed of the desert wash would have a scour depth of approximately five feet for flow velocities of 8

to 10 feet per second (a 100-year storm event). At more common flow velocities of 2 to 5 feet per second, the scour depths are estimated from 2 to 3.5 feet.

The potential project impacts to Waters of the U.S. and jurisdictional state waters caused by the placement of the SunCatchers in ephemeral washes are the same. Permanent loss of jurisdictional state waters and fill to Waters of the U.S. is a potentially significant impact.

Condition of Certification **BIO-17** (Lake and Streambed and Peninsular Bighorn Sheep Foraging Habitat Impact Minimization and Compensation Measures) specifies that, in addition to minimizing impacts to drainages where feasible, the replacement of the functions and services of the jurisdictional state waters on the IVS project site at specified ratios, is required. This mitigation will be integrated with the requirement to acquire off-site special status species habitat. In consultation with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California State Parks, the applicant proposes to conduct enhancement and rehabilitation of Carrizo Creek and marsh located west/northwest of the project at Anza Borrego State Park. This area is within the same watershed as the project and is within known Peninsular Bighorn Sheep populations, one of the species that may use the site for foraging. The measures focus on removal of Tamarisk, an invasive non-native plant species, which will restore and enhance the aquatic functions of the area and of PBHS foraging habitat. The efficacy of this method of mitigation has ample support in the record. (RT 7/27/10 55:18 – 56:16; 370:22-374:7.) CURE's witnesses Cashen and Bleich expressed concern over this form of mitigation, but they offered no alternative. (RT 7/27/10, 322:12 – 323:17; 338:1 – 339:20.) Section 15204(a) of the CEQA Guidelines, (CCR Tit. 14) provides: Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate the significant environmental effects.

We therefore find that with implementation of this proposed condition of certification, impacts to the project area's jurisdictional waters would be reduced to less than CEQA significant levels.

(Ex. 302, pp. C.2-61 to C.2-63.)

n. Special Status Plants Impacts and Mitigation.

Ground-disturbing activity associated with the IVS project has the potential to disturb special status plant species present in the project area. Direct impacts to sensitive plant species could occur from construction activities that remove vegetation, grade soils, or cause sedimentation, including the construction of the proposed IVS project, the placement of transmission lines, maintenance of construction equipment and supplies, staging of equipment and materials, the use or improvement of existing access roads, and the construction of access roads. Indirect impacts could include the disruption of native seed banks through soil alterations, the accumulation of fugitive dust, increased erosion and sediment transport, and the colonization of non-native, invasive plant species.

The Applicant has proposed off-site acquisition of habitat for Harwood's milk-vetch and brown turbans, at a 2:1 ratio. The Harwood's milk-vetch and brown turbans occur over an approximate 20-acre area, requiring the acquisition of 40 acres. Staff and BLM have proposed mitigation that requires surveys for special status plants in the late summer/fall of 2010. Condition of Certification **BIO-19** not only requires acquisition of habitat, but also includes detailed measures for avoiding and minimizing accidental impacts and indirect impacts to avoided plants. The measures include having a designated botanist onsite to oversee botanical survey and monitoring work and preparing a Special Status Plant Impact Avoidance and Minimization Plan which will designate procedures for designing site modifications to minimize impacts to newly discovered populations of special status plants and designate environmentally sensitive areas for plant avoidance.

These measures will allow for adaptive management approaches to special status plant avoidance in the event that additional special status plants are found onsite.

To address indirect effects, we adopt a number of additional conditions of certification that would minimize direct and indirect impacts to special-status plants. **BIO-18** requires finalizing and implementing the detailed Weed Management Plan. The avoidance and minimization measures contained in **BIO-1** through **BIO-8** would also benefit special-status plants by protecting the avoided occurrences of Harwood's milk-vetch and brown turbans, and other avoided special-status plants from accidental effects during construction. **BIO-1** through **BIO-8** are summarized as follows:

- **BIO-1** (Designated Biologist Selection) which states the minimum qualifications to the satisfaction of Compliance Project Manager and BLM Biologist;

- **BIO-2** (Designated Biologist Duties) which outlines the duties performed during any site mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities;
- **BIO-3** (Biological Monitor Qualifications);
- **BIO-4** (Biological Monitor Duties) in which the Biological Monitor assists the Designated Biologist during any site mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities;
- **BIO-5** (Designated Biologist and Biological Monitor Authority) in which the Designated Biologist and Biological Monitor can call a halt to any activities that would be an adverse impact to biological resources;
- **BIO-6** (Worker Environmental Awareness Program) in which workers on the project site or any related facilities are informed about sensitive biological resources;
- **BIO-7** (Biological Resources Mitigation Implementation and Monitoring Plan)(BRMIMP) which identifies all biological resources mitigation, monitoring, compliance measures, Conditions of Certification, and permits; and
- **BIO-8** (Impact Avoidance and Minimization Measures) in which all feasible measures which avoid or minimize impacts to the local biological resources are incorporated in any modification or finalization of project design; and in other proposed conditions of certification.

- **BIO-18** requires the implementation of a Weed Management Plan, which would prevent the spread and propagation of invasive weeds. Invasive weeds can immediately colonize disturbed areas and spread into undisturbed habitats, outcompeting native plant species if not managed. **BIO-7** (preparation of BRMIMP) would ensure implementation of all mitigation measures under a mitigation monitoring plan and enforced under the authority of the Compliance Project Manager (CPM). Implementation of staff's proposed Conditions of Certification **BI0-1** through **BIO-8**, **BIO-18**, and **BIO-19** would reduce impacts to special status plants to less than significant levels under CEQA.

(Ex. 302, pp. C.2-62 to C.2-68.)

o. Raptors and Migratory/Special Status Bird Species Impacts and Mitigation

Vegetation at the plant site and along linear facilities provides foraging, cover, and/or breeding habitat for migratory birds, including a number of special status bird species confirmed to be present at the site. Loggerhead shrike, LeConte's thrasher, and California horned lark are special status species known to breed

and forage at the site. Western burrowing owls, which also occur at the IVS plant site and linear facilities, are discussed below. Power plant construction would eliminate nesting habitat for these and other species, and could result in direct and cumulative impacts to these species due to habitat loss or injury/fatality of individuals. Though no impacts to raptors are anticipated because these species occur only infrequently at the IVS project area, and do not breed there, the IVS plant site is potential foraging habitat. For golden eagles, the project site may contain suitable foraging habitat; if so, the loss of foraging habitat would be a significant impact.

Condition of Certification **BIO-10** (Special Status Species Habitat Compensatory Mitigation) would minimize the impact of the loss of foraging habitat to less than significant levels because the habitat acquired for FTHL will also constitute suitable golden eagle foraging habitat.

Conditions of Certification **BIO-8** (Impact Avoidance and Minimization Measures) and **BIO-14** (Pre-construction Nest Surveys), set forth guidelines for performing the pre-construction surveys. Measures to minimize impacts to nesting birds in Condition of Certification **BIO-8** include minimizing vegetation disturbance and clearance, flagging disturbed areas to confine equipment and vehicles within the flagged areas, and reducing the likelihood of large bird electrocutions and collisions, by following the Avian Power Line Interaction Committee guidance. Measures in Condition of Certification **BIO-14** would minimize impacts to nesting birds by conducting a pre-construction survey should construction activities occur during bird nesting season, and establishing a no disturbance buffer zone should a nest be present. Similar measures have been applied on past projects and have shown that they are effective in minimizing impacts to nesting birds. Implementation of these conditions of certification would avoid direct impacts to nests, eggs, or young of migratory birds, and would minimize the impacts to less than CEQA significant levels.

Burrowing owls nesting on the project site could be directly impacted by construction of the IVS project. Burrowing owl adults, eggs or young could be crushed or entombed by grading activities, and nesting and foraging activities would be directly and indirectly impacted by construction and operation of the project. The project would also result in permanent loss of some 6000 acres that is currently used by burrowing owls for nesting and foraging. We consider these potential impacts significant under CEQA.

In addition to the potential direct impacts to burrows, the IVS project would permanently eliminate a large expanse of habitat on the plant site and along the

linear facilities that is currently available for foraging and breeding by burrowing owls. Habitat loss is one of the primary threats to California's burrowing owl population and the IVS project would contribute incrementally to this significant loss under CEQA.

To avoid potential impacts to burrowing owls that might be nesting within the project impact area, the applicant has proposed conducting pre-construction surveys on the plant site and along all linear facilities, using methods recommended by the California Burrowing Owl Consortium. To avoid and offset potentially significant impacts to nesting owls, the applicant has also proposed passive removal. Passive removal involves encouraging owls to move from occupied burrows to alternate natural or artificial burrows that are at least 150 feet from the impact zone and that are within or contiguous to a minimum of 6.5 acres of foraging habitat for each pair of relocated owls. Passive relocation of owls is only implemented during the non-breeding season unless a qualified biologist can verify through non-invasive methods that egg laying/incubation has not begun or juveniles are foraging independently and able to fly. The unoccupied burrows would be collapsed in accordance with CDFG-approved guidelines.

The applicant has also proposed ground-disturbing activities occurring outside the burrowing owl breeding season (February 1 through August 30) when practicable and clearance surveys prior to each phase of project construction.

Implementation of Condition of Certification **BIO-16** in addition to Conditions of Certification **BIO-8** (Impact Avoidance and Minimization Measures) and **BIO-10** (Special Status Species Habitat Compensatory Mitigation) would mitigate impacts to burrowing owl to less than significant levels by avoiding take of these species and by offsetting habitat loss. The compensation lands acquired under BIO-10 are assumed to be suitable nesting and foraging habitat for burrowing owls. If compensation lands do not contain suitable burrowing owl burrows, artificial burrows may be constructed as specified in **BIO-16**. (Ex. 302, pp. C.2-68 to C.2-70.)

p. American Badger and Desert Kit Fox Impacts and Mitigation

American badgers were not detected on the IVS site, but several potential burrows were discovered onsite in addition to a documented occurrence across Interstate 8 from the project site. The site includes moderately suitable foraging and denning habitat for this species. The American badger is not a protected species, but is a California Species of Concern. Potential impacts to individuals

of this species must be mitigated to less than significant levels under CEQA from either project only or cumulative effects.

The desert kit fox (*Vulpes macrotis*) is not a special status species. However, take of these furbearing mammals and potential impacts to individuals of these species must be avoided. Desert kit fox sign were detected on the IVS site, and the site includes marginally suitable foraging and denning habitat for this species.

Condition of Certification **BIO-15** requires that a qualified biologist perform a pre-construction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. Should a badger or desert kit fox occur onsite, the applicant shall initiate passive removal of the animal and collapse the burrow after its removal per guidance provided in **BIO-15**. Conditions of Certification **BIO-15** and **BIO-10** (Flat-Tailed Horned Lizard Habitat Compensatory Mitigation) would mitigate impacts to American badger and desert kit fox to less than significant levels by avoiding take of these species and by likely offsetting habitat loss. The compensation lands acquired under **BIO-10** are assumed to be suitable as compensation for American badger and desert kit fox. (Ex. 302, pp. C.2-70 to C.2-71.)

q. Peninsular Bighorn Sheep Impacts and Mitigation.

A group of five female/yearling Peninsular bighorn sheep (PBHS) have been observed in an ephemeral wash on the western half of the project site. PBHS could use the IVS project site as foraging habitat and as a possible movement corridor. CURE asserted that the project would reduce the availability of seasonal forage for PBHS and interfere with their activities as they move between the nearby Peninsular mountain range and the Yuha Desert. However, the weight of the evidence shows that use of the site by PBHS is transitory at most (Ex. 302, p. C.2-71), and even CURE's witness, Dr. Bleich agreed (RT7/27/10 350:21 – 351:8.) Nonetheless, because the project could eliminate potentially suitable foraging habitat for PBHS, mitigation is required.

In order to reduce loss of foraging habitat to PBHS to less than significant levels, Condition of Certification **BIO-17** (Waters of the U.S., Waters of the State, and Peninsular Bighorn Sheep Foraging Habitat Impact Minimization and Compensatory Mitigation) require acquisition of compensation land that would offset the loss of bighorn sheep foraging habitat, and would result in the restoration of PBHS foraging habitat currently overtaken by invasive Tamarisk. Condition of Certification **BIO-8** would reduce construction-related impacts to

PBHS. Implementation of these Conditions of Certification would reduce impacts to PBHS to less than significant levels.
(Ex. 302, pp. C.2-71 to C.2-72.)

r. Wildlife Movement Corridors and Habitat Connectivity Impacts and Mitigation.

The USFWS is concerned that the development of the proposed project would impact the connectivity between FTHL Management Areas, which would be in direct conflict with the FTHL Rangewide Management Strategy. (Ex. 440.) Permeable fencing is proposed for the project site, which would allow small animals, such as FTHLs, movement in and out of the project site. Condition of Certification **BIO-10** (Special Status Species Habitat Compensatory Mitigation) would lessen the impact to movement and connectivity to some extent by acquiring FTHL habitat, but the loss of the corridors from development in the washes for the proposed project would make the site a barrier to FTHL movement between MAs. The applicant proposes, and both the Energy Commission and the BLM have approved, use of the LEDPA/Agency Preferred Alternative, which avoids construction in a substantial portion of the washes. This will reduce the direct loss of FTHL connectivity to a less than significant level.
(Ex. 302, pp. C.2-72 to C.2-73.)

s. Flat-tailed Horned Lizard (FTHL) Impacts and Mitigation.

Although there is evidence on both sides of the issue, there is consensus among the parties that the site contains FTHL and that loss of this habitat must be mitigated. The FTHL Interagency Coordinating Committee (ICC), consisting of USFWS, CDFG, BLM, U.S. Marine Corps, U.S. Navy, Arizona Game and Fish, and California State Parks, developed a Flat-tailed Horned Lizard Rangewide Management Strategy (RMS) in 1997, which was updated in 2003. As the USFWS and the BLM are signatory agencies to the FTHL ICC, the BLM expects USFWS to follow the recommendations of the RMS for the Conference Opinion. Conditions of Certification **BIO-9** (Flat-tailed Horned Lizard Construction Monitoring Program and Occupancy Study), **BIO-10** (Special Status Species Habitat Compensatory Mitigation) which identifies the compensation costs to mitigate for habitat loss and selection criteria for compensation lands; and **BIO-11** (Flat-tailed Horned Lizard Compliance Verification) in which the Designated Biologist verifies for the Energy Commission staff and the BLM that all FTHL impact avoidance, minimization, and compensatory measures have been implemented, will reduce impacts to FTHL, but not below significant levels.

The LEDPA/Agency Preferred Alternative, which does not allow development within certain major washes and avoids most development in others, may possibly allow some FTHLs to persist onsite. However, as the project would develop the entire site, except for the washes identified in the LEDPA, the loss of some FTHL is likely. While staff estimates there are 1,300 to 2,000 FTHLs currently onsite and most would perish, the evidence more strongly supports a finding that the actual number is far less and it is not realistic to assume that all would perish. The evidence shows that only 4 FTHL were found during a recent survey of 38% of the site. We are persuaded that Applicant's estimate of 150 – 200 is closer to the actual number for the project site. While the loss of even this number of FTHL, or any animal, for that matter, as a result of construction of a project is possible and regrettable, we are required to determine the significance of impacts. And given the evidence showing that FTHL populations in the nearby Yuha Basin and East Mesa Management Areas were estimated in a study published in 2005 at 25,514 and 42,619, respectively (Ex. 440, p. 1050), we must conclude that this loss would not be a significant impact.

However, the loss of FTHL habitat is significant. One of the stated goals in the RMS is to prevent the net loss of FTHL habitat. In order to achieve this goal, compensation for habitat lost outside of a FTHL Management Area (MA), which would include the 6,063.1-acre project site, including the 1,038.7 of dirt and OHV roads that already exist on site, would be at a 1:1 ratio. The 7.56-mile transmission line outside of the project site is located in the Yuha Desert Flat-tailed Horned Lizard Management Area (MA). As 92.8 acres would be impacted within an MA, the compensation for habitat lost would be increased to a 6:1 ratio, thus requiring compensation acquisition of 556.8 acres (92.9 acres x 6 = 556.8 acres). The requirements are set forth in Condition of Certification **BIO-10**. It is anticipated that direct pipeline construction impacts to vegetation and wildlife would be temporary and can be reduced to less than CEQA significant levels with implementation of impact avoidance and minimization measures described in Conditions of Certification **BIO-1** through **BIO-9** as described previously.

The primary focus of acquisition is to acquire FTHL habitat both within and contiguous with MAs. Staff believes, and we agree, that 100 percent acquisition is feasible because approximately 10,000 acres of private lands may be available. (Ex. 302, p. C.2-75.) Some participants in this proceeding have raised concerns that sufficient habitat may not be available for acquisition. We disagree, but in the unlikely event that 100 percent acquisition either cannot be or is reasonably unlikely to be achieved in 18 months, the Applicant will be required to seek an amendment approving other actions to provide the remainder of the needed mitigation, including habitat restoration of unauthorized vehicle routes in

limited use areas, particularly in the Yuha Desert and West Mesa FTHL Management Areas, control of invasive plant species, and building and maintenance of fences on the boundary of open OHV areas to prevent illegal incursions by OHV's. We find that all of these options have the potential to effectively mitigate for the loss of FTHL habitat. These options are a few that are approved in the FTHL Rangewide Management Strategy.

The BLM, in the FEIS, of which we have taken official notice, concludes that even with implementation of the FEIS' mitigation measures BIO-1 through BIO-20, the IVS project and the other build alternatives will result in unavoidable adverse impacts to the FTHL, both direct and cumulative. We find that this conclusion is supported by substantial evidence in the record before us. The issue of impacts to FTHL through loss of habitat is extremely difficult, and we have received conflicting expert opinion evidence on this issue. Nonetheless, we adopt herein the findings regarding impacts to FTHL set forth in the FEIS. (FEIS, docketed August 6, 2010, docket nos. 58032, 58033, p. 4.3-28.)

The Applicant must provide financial assurances to guarantee that an adequate level of funding is available to implement all impact avoidance, minimization, and compensation measures. In order to make the mitigation feasible, Staff and Applicant have agreed that phased implementation of mitigation is appropriate. They disagree, however, over phasing of security. Applicant points out that under the phasing scheme they propose, security for mitigation payments for all biological resources collectively would be in place before corresponding impacts could occur. At least $1 million will be in place before the pre-financial closing disturbance of 200 - 300 acres. Staff articulated its concern over phasing of security as allowing a scenario to exist where applicant failed to pay a phase of mitigation security and therefore would fail to perform its mitigation obligations. While we understand their concern, we believe that the phasing of security is a reasonable approach and the impact would be sufficiently mitigated. Payment of a phase of mitigation security would be a prerequisite to the commencement of any construction on that phase. Furthermore, applicant has provided evidence that for us to require otherwise would impose a financial hardship, and possibly make the mitigation infeasible. (Applicant's Post-Hearing Opening Brief at 26; Exs. 132, 136, 137.) Accordingly, we adopt Applicant's proposed Condition of Certification **BIO-10** (Ex. 147) to allow for the phased mitigation scheme requested by Applicant.

(Ex. 302. Pp. C.2-73 to C.2-79)

The evidence is in conflict as to whether or not the BLM requires a long-term maintenance and management fee or other funding to manage the acquired FTHL mitigation lands. However, at the August 16 Evidentiary Hearing, Staff and the Applicant informed the Committee that they had agreed that payment of the BLM Long-term Management and Maintenance (LTMM) fee was acceptable, subject only to BLM's final calculation of the amount. The FEIS, dated July 28, 2010, of which we take Official Notice, includes the LTMM in its Mitigation Measures.

Condition of Certification **BIO-10** (Special Status Species Habitat Compensation Mitigation) would reduce impacts of the loss of FTHL habitat, but not to less than significant levels.

5. Project Closure and Decommissioning Impacts and Mitigation.

The planned life of the IVS project is approximately 40 years. Facility closure will include the removal of all project equipment, facilities, structures, and appurtenant facilities from the project site. (Ex. 302, p. C.2-89.) The impacts associated with project closure/decommissioning will be similar to those identified for construction. These impacts include the introduction of noxious weeds, creation of dust, and noise associated with vehicles and deconstruction of facilities. Facility structures are planned in ephemeral washes on the project site. Their removal will impact Waters of the US and jurisdictional State waters. We agree with staff's recommended measures to require recontouring of the washes to their original condition, and restoration of washes with native vegetation and weeding as part of the closure requirements, and have incorporated these measures in Condition of Certification **BIO-18** and **BIO-20**. We find that these conditions reduce impacts to less than significant levels. (Ex. 302, p. C.2-91.)

Noise and facility closure activities may impact migratory birds and wildlife living in the vicinity of the plant site such as the burrowing owls. Identification of burrowing owls and passive relocation will be necessary to reduce impacts. We adopt staff's recommended Conditions of Certification **BIO-8** and **BIO-16** to reduce impacts to burrowing owls. Closure activities may also impact FTHL, although the potential for their occurrence during site operation is low, and therefore at closure occurrence may also be low. We agree with staff's recommendation to include measures from the USFWS Conference Opinion in Conditions of Certification **BIO-9** and **BIO-11**. These conditions require removal protocol and the assignment of a Designated Biologist to verify implementation of FTHL protection measures. (Ex. 302, p. C.2-94.)

6. Cumulative Impacts

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. [14 Cal. Code Regs, §15355.] The cumulative project assessment considered both renewable energy projects and foreseeable future projects. The geographic area considered by Staff for cumulative impacts on biological resources is FTHL habitat in California. The historical range of the FTHL in California encompassed approximately 1.8 to 2.2 million acres mainly in Imperial County, but also in central Riverside County and eastern San Diego County, but is now reduced to approximately 50 percent of its historical range. (Ex. 302, p. C.2-109.)

The construction of the IVS project is expected to result in short term adverse impacts related to construction activities because of the large area of ground disturbance. Project construction may overlap with the construction of some of the cumulative projects. However, the project will not significantly contribute short-term cumulative impacts to biological resources because conditions of certification have been adopted to minimize and offset the loss of native plant communities and wildlife, including special status species. See discussion above for more information on these adopted conditions.

Operation will result in long-term adverse impacts to biological resources because of the large area of land that will be used for the project. As a result, there may be substantial long-term cumulative impacts during operation. In addition, decommissioning of the IVS project is expected to result in adverse impacts related to biological resources similar to the impacts identified for construction activities. It is unlikely that decommissioning of any of the cumulative projects would occur concurrently with the decommissioning of this project, because decommissioning will not occur for approximately 40 years. We find the anticipated biological impacts, other than impacts to FTHL, of the IVS project in combination with other past and foreseeable future projects are not considered cumulatively considerable because conditions of certification have been adopted to mitigate the project's impacts below the level of significance. However, in light of our finding that unavoidable impacts will occur to FTHL due to loss of habitat, and that loss of FTHL habitat has been ongoing, we conclude that the projects impacts to FTHL will be cumulatively considerable when considered in conjunction with other foreseeable solar and wind projects that will occupy large tracts of desert land. (Ex. 302 p. C.2-111.)

7. LORS Compliance

A summary of the LORS applicable to the proposed project is provided in Staff's **Biological Resources Table 1**.(Ex. 302, pp. C.2-11 to C.2-15.)

The proposed project must comply with state and federal laws, ordinances, regulations, and standards (LORS) (see summary in **Biological Resources Table 1**) that address state and federally listed species, as well as other sensitive species and habitats, and must secure the appropriate permits to satisfy these LORS. The Energy Commission has jurisdiction over all thermal power plants rated 50 MW or more under the Warren-Alquist Act (Pub. Resources Code § 25500). Under the Act, the Energy Commission's certificate is "in lieu of" other state, local, and regional permits (*Ibid*.), but not federal permits.

a. State LORS (Ex. 302, pp. C.2-94 to C.2-95.)

We have incorporated all required terms and conditions that might otherwise be included in state permits into the Energy Commission's certification process. When the Conditions of Certification adopted herein are implemented, they would satisfy the following state LORS and take the place of terms and conditions that, but for the Commission's exclusive authority, would have been included in the following state permits:

**Incidental Take Permit: California Endangered Species Act (Fish and Game Code §§2050 et seq.)** The California Endangered Species Act (CESA) prohibits the "take" (defined as "to hunt, pursue, catch, capture, or kill") of State-listed species except as otherwise provided in state law. The bighorn sheep is listed as threatened under CESA and is also a State Fully Protected species. Due to the Peninsular bighorn sheep being listed as a Fully Protected species, take cannot be authorized for this species and must be avoided. Therefore, no take authorization will be issued by the Energy Commission for the Peninsular bighorn sheep. However, the loss of big horn sheep foraging habitat is a significant impact under CEQA. In order to mitigate for the loss of foraging habitat to a less than significant level, acquisition of foraging habitat at a 1:1 ratio will be required.

The southwestern willow flycatcher and the least Bell's vireo, both state listed as Endangered, may occur in riparian habitat that may be potentially impacted by the diversion of treated effluent. We have found that the diversion of treated effluent would not affect these bird species by impacting their habitat, but should future surveys and studies prove otherwise, acquisition or restoration of habitat along the New River would be required by CDFG.

**Lake and Streambed Alteration Agreement: California Fish and Game Code §§1600-1607**. Pursuant to these sections, CDFG typically regulates all changes to the natural flow, bed or bank, of any river, stream, or lake that supports fish or wildlife resources. Construction of the IVS project would result in permanent impacts to 48 acres of jurisdictional state waters. Conditions of Certification **BIO-17** and **BIO-**7 were developed in coordination with CDFG to ensure that implementation of these conditions would minimize and offset impacts to jurisdictional state waters, and would assure compliance with CDFG requirements that provide protection to jurisdictional state waters.

b. Federal LORS (Ex. 302, pp. C.2-95 to C.2-97.)

The IVS project is located on federal land under BLM's jurisdiction and is therefore subject to the provisions of BLM's California Desert Conservation Area (CDCA) Plan. The BLM has worked with the USFWS to develop a variety of land designations as tools to protect sensitive biological resources, including the FTHL and Peninsular bighorn sheep. The siting of the IVS project considered the management direction of these designations, as described below:

Flat-tailed Horned Lizard Management Areas (MA): The goal of the establishment of these areas is to secure and/or manage sufficient habitat to maintain self-sustaining FTHL populations. The closest MA is the Yuha Desert FTHL MA, south across Interstate 8 from the IVS project site. A 7.56-mile segment of the proposed transmission line would be built in an existing utility corridor in the MA. The West Mesa FTHL MA is approximately 3 miles north of the IVS project site.

Critical Habitat: Consists of specific areas defined by the USFWS as areas designated for the conservation of the listed species, which support physical and biological features essential for survival and that may require special management considerations or protection. Critical habitat for the Peninsular bighorn sheep was designated in 2001 and revised in 2009 to encompass a smaller area. The IVS project would be approximately six miles east of the closest Peninsular bighorn sheep critical habitat.

Area of Critical Environmental Concern (ACEC): These areas are specific, legally defined, BLM designations where special management is needed to protect and prevent irreparable damage to important historical, cultural, scenic values, fish and wildlife, and natural resources or to protect life and safety from natural hazards. The IVS project would not impact any ACEC.

BLM provides management direction for species such as FTHL within the CDCA and the FTHL MA, by identifying five designated management areas within California and Arizona. The FTHL Interagency Coordinating Committee has developed the Flat-tailed Horned Lizard Rangewide Management Strategy (Ex. 440) to provide guidance for the conservation and management of sufficient habitat to maintain extant populations of FTHL in the five management areas. Guidelines on mitigation and compensation to limit the loss of habitat and effects on FTHL populations within and outside the management areas are described in the FTHL Rangewide Management Strategy. The FTHL Rangewide Management Strategy also lists maintaining connectivity between MAs as one of the Planning Actions.

The BLM permit/consultation/conferencing required for the IVS project is with the USFWS to comply with the federal Endangered Species Act (ESA) for potential take of the Peninsular bighorn sheep and FTHL and with the USACE impacts to Waters of the U.S. “Take” of a species listed under the federal SA (16 USC §§1531 et seq.) is prohibited except as authorized through consultation with USFWS and issuance of an Incidental Take Statement under Section 7 or under Section 10 of the ESA, depending on whether there is federal agency action required for the proposed project (i.e., a federal permit required or funding involved). Since federal agency action has been identified for the IVS project, Section 7 consultation/conferencing between BLM and the USFWS would therefore be required for take authorization under ESA Section 7. The Carlsbad Field Office of the USFWS oversees ESA permitting actions in the project area and the BLM has submitted a Biological Assessment for take of Peninsular bighorn sheep and FTHL for the SES Solar Two project. Though the FTHL is not federally listed at this time, it is anticipated that this species may be listed during the construction or operation of the proposed IVS project. In order to decrease possible time constraints, the FTHL was included in the Biological Assessment should this species become federally listed. Since the BLM and USFWS are signatories in the FTHL ICC, it is anticipated that many of the recommendations stated in the FTHL Rangewide Management Strategy would be used as conservation measures in the USFWS conferencing opinion. The BLM has issued its Final Environmental Impact Statement (FEIS), of which we have taken official notice, and stated, at p. 4.3-6, that the IVS project would be consistent with the Rangewide Management Strategy with adoption and implementation of measures such as those we have adopted in this Decision.

The southwestern willow flycatcher and the least Bell’s vireo are federally listed as Endangered. We have found that the diversion of treated effluent would not affect these bird species by impacting their habitat, but should future surveys and

studies prove otherwise, acquisition or restoration of habitat along the New River would be required by CDFG.

Permit for Take Under the Bald and Golden Eagle Protection Act (Eagle Act): The USFWS requires a take permit to be issued for take of bald or golden eagles where the taking is associated with, but not the purpose of the activity, and cannot be practicably avoided. Take under the terms of the act is defined as “to pursue, shoot, shoot at, wound, kill, capture, trap, collect, molest, or disturb.” Disturb is defined as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, injury to an eagle; a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior.” Neither Golden nor Bald eagles were detected on the IVS project site, and are unlikely to nest there because of the absence of suitable nesting habitat. There are only five occurrences of golden eagles known to Imperial County. The loss of foraging habitat would be mitigated at a ratio of 1:1 by the acquisition of FTHL habitat compensation lands in staff’s proposed Condition of Certification **BIO-10**.

Federal Clean Water Act 404 Permit: Fill of Waters of the U.S. would require a Standard Individual Permit subject to CWA Section 404(b)(1) guidelines. The U.S. Environmental Protection Agency (USEPA) Section 404(b)(1) Guidelines (40 CFR 230 et seq.) are substantive environmental criteria used by the USACE to evaluate permit applications. Under these guidelines, an analysis of practicable alternatives is the primary tool used to determine whether a proposed discharge can be authorized. An alternative is considered practicable if it is available and capable of being implemented after considering cost, existing technology, and logistics in light of the overall project purpose (40 CFG Part 230[a][2]). The guidelines suggest a sequential approach to project planning such that the USACE must first consider avoidance and minimization of impacts to the extent practicable. Mitigation for unavoidable impacts to Waters of the U.S. is addressed only after the analysis has determined the Least Environmentally Damaging Practicable Alternative (LEDPA). A formal 404(b)(1) analysis is still pending; however the project owner would need to comply with the requirements of the 404 permit issued by the USACE. Since the BLM has since adopted the preliminary LEDPA as the Agency Preferred Alternative, we are satisfied that the project will be in compliance with the requirements of Section 404.

## FINDINGS OF FACT

Based on the evidence of record, we find and conclude as follows:

**1.** The IVS Project site supports a diversity of mammals, birds, and reptiles, including some special status wildlife species, such as flat-tailed horned lizard, American Badger, Peninsular Bighorn Sheep, and burrowing owl.

2. The IVS project site supports a diversity of plant species, including some special-status species, such as Harwood's milk-vetch, Wiggins' croton, Utah vine milkweed, and brown turbans.

3. The conditions of certification include compensation for loss of FTHL habitat consistent with the FTHL Rangewide Management Strategy, including mitigation for loss of habitat on the project site at a 1:1 ratio and within the Management Area at a 6:1 ratio. Even with implementation of these conditions of certification, direct impacts to FTHL will remain significant.

4. No sensitive natural vegetation communities occur in the survey area or within one mile of the project boundaries.

5. The removal of vegetation will result in the loss of cover, foraging, and breeding habitat.

6. To address indirect effects to special status plants, we have adopted a number of conditions of certification that would minimize direct and indirect impacts to special-status plants. **BIO-18** requires finalizing and implementing the detailed Weed Management Plan. **BIO-19** includes detailed measures for avoiding and minimizing accidental impacts and indirect impacts to avoided plants. The avoidance and minimization measures contained in **BIO-1** through **BIO-8** would also benefit special-status plants by protecting the avoided occurrences of Harwood's milk-vetch and brown turbans, and other avoided special-status plants from accidental effects during construction.

7. Loss of potential foraging habitat for special status birds and mammals will be mitigated through the conditions of certification requiring impact avoidance and purchase of mitigation lands. Condition of Certification **BIO-17** (Waters of the U.S., Waters of the State, and Peninsular Bighorn Sheep Foraging Habitat Impact Minimization and Compensatory Mitigation) require acquisition of compensation land that would offset the loss of bighorn sheep foraging habitat, and would result in the restoration of PBHS foraging habitat currently overtaken by invasive Tamarisk. Condition of Certification **BIO-8** would reduce construction-related impacts to Peninsular bighorn sheep through impact minimization and avoidance measures.

8. Impacts to special status birds, raptors, and burrowing owls will be mitigated through Condition of Certification **BIO-8** which includes minimizing vegetation disturbance and clearance, flagging disturbed areas to confine equipment and vehicles within the flagged areas, and reducing the likelihood of large bird electrocutions and collisions, by following the Avian Power Line Interaction Committee guidance. Measures in Condition of Certification **BIO-14** would minimize impacts to nesting birds by conducting a pre-construction survey should construction activities occur during bird nesting season, and establishing a no disturbance buffer zone should a nest be present. Implementation of Condition of Certification **BIO-16** in addition to Conditions of Certification **BIO-8** (Impact Avoidance and Minimization Measures) and **BIO-10** (Special Status Species Habitat Compensatory Mitigation) would mitigate impacts to burrowing owls by avoiding take of these species and by offsetting habitat loss. The compensation lands acquired under **BIO-10** will be suitable nesting and foraging habitat for burrowing owls. If compensation lands do not contain suitable burrowing owl burrows, artificial burrows may be constructed as specified in **BIO-16.**

9. Impacts to American Badger and Desert Kit Fox would be mitigated through implementation of Condition of Certification **BIO-15,** which requires that a qualified biologist perform a pre-construction survey for badger and kit fox dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. Should a badger or desert kit fox occur onsite, the applicant shall initiate passive removal of the animal and collapse the burrow after its removal per guidance provided in **BIO-15**. Conditions of Certification **BIO-15** and **BIO-10** (Flat-Tailed Horned Lizard Habitat Compensatory Mitigation) would mitigate impacts to American badger and desert kit fox by avoiding take of these species and by offsetting habitat loss. The compensation lands acquired under BIO-10 will be to be suitable as compensation for American badger and desert kit fox.

10. The IVS project will result in significant cumulative impacts to FTHL due to loss of habitat.

11. We have adopted the Preliminary LEDPA/Agency Preferred Alternative as achieving the best balance of minimization of impacts and maximization of generation.

## CONCLUSIONS OF LAW

1. Implementation of the Conditions of Certification would mitigate impacts to FTHL, a candidate species for federal listing, to the extent possible, but not below the level of significance.

2. Implementation of the conditions of certification, below, will ensure that the IVS project complies with all applicable laws, ordinances, regulations, and standards relating to the protection of biological resources identified in the pertinent portion of Appendix A of this Decision.

3. The contribution of the IVS project to cumulative biological resources impacts will be less than considerable with implementation of the conditions of certification we have adopted herein, except for unavoidable cumulative impacts to FTHL.

4. Overriding considerations warrant the acceptance of the project's unavoidable impacts, and a statement of overriding considerations will need to be adopted with this Decision.

## CONDITIONS OF CERTIFICATION

## DESIGNATED BIOLOGIST SELECTION

**BIO-1** The project owner shall assign at least one Designated Biologist to the project. The project owner shall submit the resume of the proposed Designated Biologist, with at least three references and contact information, to the Energy Commission Compliance Project Manager (CPM) and BLM Biologist for approval in consultation with CDFG and USFWS.

The Designated Biologist must meet the following minimum qualifications:

- Bachelor's degree in biological sciences, zoology, botany, ecology, or a closely related field;

- Three years of experience in field biology or current certification of a nationally recognized biological society, such as The Ecological Society of America or The Wildlife Society; and

- At least one year of field experience with biological resources found in or near the project area.

In lieu of the above requirements, the resume shall demonstrate to the

satisfaction of the CPM and BLM Biologist, in consultation with CDFG and USFWS, that the proposed Designated Biologist or alternate has the appropriate training and background to effectively implement the conditions of certification.

**Verification:** The project owner shall submit the specified information at least 45 days prior to the start of site mobilization or construction-related ground disturbance activities. No site or related facility activities shall commence until an approved Designated Biologist is available to be on site.

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM and BLM Biologist at least ten working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM and BLM Biologist to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM and BLM Biologist for consideration.

## DESIGNATED BIOLOGIST DUTIES

**BIO-2** The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner, BLM Biologist, and CPM. The Designated Biologist Duties shall include the following:

- Advise the project owner's Construction and Operation Managers on the implementation of the biological resources conditions of certification;

- Consult on the preparation of the Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) to be submitted by the project owner;

- Be available to supervise, conduct and coordinate mitigation, monitoring, and other biological resources compliance efforts, particularly in areas requiring avoidance or containing sensitive biological resources, such as special status species or their habitat;

- Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions;

- Inspect active construction areas where animals may have become trapped prior to construction commencing each day. At the end of the day, inspect for the installation of structures that prevent

entrapment or allow escape during periods of construction inactivity. Periodically inspect areas with high vehicle activity (e.g., parking lots) for animals in harm's way;

- Notify the project owner, BLM Biologist, and the CPM of any noncompliance with any biological resources condition of certification;

- Notify CDFG and USFWS within 24 hours of a Peninsular bighorn sheep become entrapped within the site, and coordinate an appropriate effort to steer animals toward safe methods of egress, preferably located away from Highway I-8.

- Respond directly to inquiries of BLM Biologist and the CPM regarding biological resource issues;

- Maintain written records of the tasks specified above and those included in the BRMIMP. Summaries of these records shall be submitted in the Monthly Compliance Report and the Annual Compliance Report;

- Train the Biological Monitors as appropriate, and ensure their familiarity with the BRMIMP, Worker Environmental Awareness Program (WEAP) training, and all permits; and

- Maintain the ability to be in regular, direct communication with representatives of BLM, CDFG, USFWS, and CPM, including notifying these agencies of dead or injured listed species and reporting special status species observations to the California Natural Diversity Database.

**Verification:** The Designated Biologist shall submit in the Monthly Compliance Report to the BLM Biologist and the CPM copies of all written reports and summaries that document construction activities that have the potential to affect biological resources. If actions may affect biological resources during operation a Designated Biologist shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties cease, as approved by the BLM Biologist and the CPM.

## BIOLOGICAL MONITOR QUALIFICATIONS

**BIO-3** The project owner's BLM- and CPM-approved Designated Biologist shall submit the resume, at least three references, and contact information of the proposed Biological Monitors to the BLM Biologist and the CPM for approval. The resume shall demonstrate, to the satisfaction of the BLM Biologist and the CPM, the appropriate

education and experience to accomplish the assigned biological resource tasks. Specifically, the Biological Monitors shall have experience and are capable of conducting FTHL field monitoring, have sufficient education and field experience to understand FTHL biology, to be able to identify horned lizard scat, and to be able to identify and follow FTHL tracks.

Biological Monitor(s) training by the Designated Biologist shall include familiarity with the conditions of certification, BRMIMP, WEAP, and all permits.

**Verification:** The project owner shall submit the specified information to the BLM Biologist and the CPM for approval at least 30 days prior to the start of any projectrelated site disturbance activities. The Designated Biologist shall submit a written statement to the BLM Biologist and the CPM confirming that individual Biological Monitor(s) have been trained including the date when training was completed. If additional biological monitors are needed during construction, the specified information shall be submitted to the BLM Biologist and the CPM for approval at least ten days prior to their first day of monitoring activities.

## BIOLOGICAL MONITOR DUTIES

**BIO-4** The Biological Monitors shall assist the Designated Biologist in conducting surveys and in monitoring of mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities. The Designated Biologist shall remain the contact for the project owner, BLM Biologist, and the CPM.

**Verification:** The Designated Biologist shall submit in the Monthly Compliance Report to the BLM Biologist and the CPM copies of all written reports and summaries that document biological resources activities, including those conducted or monitored by Biological Monitors. If actions may affect biological resources during operation a Biological Monitor, under the supervision of the Designated Biologist, shall be available for monitoring and reporting. During project operation, the Designated Biologist shall submit record summaries in the Annual Compliance Report unless their duties cease, as approved by the BLM Biologist and the CPM.

## DESIGNATED BIOLOGIST AND BIOLOGICAL MONITOR AUTHORITY

**BIO-5** The project owner's construction/operation manager shall act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources conditions of certification.

If required by the Designated Biologist and Biological Monitor(s) the project owner's construction/operation manager shall halt all site mobilization, ground disturbance, grading, construction, and operation

activities in areas specified by the Designated Biologist. The Designated Biologist shall:

- Require a halt to all activities in any area when determined that there would be an unauthorized adverse impact to biological resources if the activities continued;

- Inform the project owner and the construction/operation manager when to resume activities; and

- Notify the BLM Biologist and the CPM if there is a halt of any activities and advise the CPM of any corrective actions that have been taken or would be instituted as a result of the work stoppage.

If the Designated Biologist is unavailable for direct consultation, the Biological Monitor shall act on behalf of the Designated Biologist.

**Verification:** The project owner shall ensure that the Designated Biologist or Biological Monitor notifies the BLM Biologist and the CPM immediately (and no later than the morning following the incident, or Monday morning in the case of a weekend) of any non-compliance or a halt of any site mobilization, ground disturbance, grading, construction, and operation activities. The project owner shall notify the BLM Biologist and the CPM of the circumstances and actions being taken to resolve the problem.

Whenever corrective action is taken by the project owner, a determination of success or failure would be made by the BLM Biologist and the CPM within five working days after receipt of notice that corrective action is completed, or the project owner would be notified by the BLM Biologist and the CPM that coordination with other agencies would require additional time before a determination can be made.

## WORKER ENVIRONMENTAL AWARENESS PROGRAM (WEAP)

**BIO-6** The project owner shall develop and implement project-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from the BLM Biologist, USFWS, CDFG, and the CPM. The WEAP shall be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure. The WEAP shall:

- Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation in which supporting electronic media and written material, including wallet-

sized cards with summary information on special status species and sensitive biological resources, is made available to all participants;

- Discuss the locations and types of sensitive biological resources on the project site and adjacent areas, explain the reasons for protecting these resources, and the function of flagging in designating sensitive resources and authorized work areas;

- Place special emphasis on FTHL, including information on physical characteristics, distribution, behavior, ecology, sensitivity to human activities, legal protection and status, penalties for violations, reporting requirements, and protection measures;

- Include signage to be posted at the entrance to the project site and throughout the project site which has the following information:

    - 10 m.p.h. speed limit (for all unpaved roads that are not stabilized) or 20 m.p.h. speed limit (for all paved or stabilized roads); except in specific areas identified by the Designated Biologist where the speed limit on paved an stabilized roads needs to be less than 20 miles per hour to lessen wildlife impacts;

    - A picture of the FTHL; and

    - Reminder to check under vehicles before driving.

- Include a discussion of fire prevention measures to be implemented by workers during project activities; request workers to dispose of cigarettes and cigars appropriately and not leave them on the ground or buried;

- Present the meaning of various temporary and permanent habitat protection measures;

- Identify whom to contact if there are further comments and questions about the material discussed in the program; and

- Include a training acknowledgment form to be signed by each worker indicating that they received the WEAP training and shall abide by the guidelines.

- The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

**Verification:** At least 30 days prior to the start of any project-related site disturbance activities, the project owner shall provide to the BLM Biologist and the CPM a copy of the draft WEAP and all supporting written materials and

electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program.

The project owner shall provide in the Monthly Compliance Report the number of persons who have completed the training in the prior month and a running total of all persons who have completed the training to date. At least ten days prior to site and related facilities mobilization, the project owner shall submit two copies of the BLM- and CPM-approved final WEAP.

Training acknowledgement forms signed during construction shall be kept on file by the project owner for at least six months after the start of commercial operation.

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

During project operation, signed statements for operational personnel shall be kept on file for six months following the termination of an individual's employment.

Should the Designated Biologist, in consultation with the BLM Biologist and the CPM, identify an area where the speed limit must be lowered on paved and stabilized roads, new signage must be posted with the new lowered speed limit within one week of this determination and photographic verification provided to the CPM within the same time period. This speed limit would be adhered to until additional signage specifies otherwise. Announcement of the location(s) of the area designated with the lowered speed limits must be made to the employees within 24 hours of the Designated Biologist’s determination.

## BIOLOGICAL RESOURCES MITIGATION IMPLEMENTATION AND MONITORING PLAN (BRMIMP)

**BIO-7** The project owner shall develop a BRMIMP and submit two copies of the proposed BRMIMP to the BLM Biologist and the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate avoidance and minimization measures described in final versions of the Raven Management Plan, the USFWS Biological Opinion, Burrowing Owl Mitigation and Monitoring Plan, Special Status Plant Impact Avoidance and Minimization Plan, Frac-Out Contingency Plan, State waters compensation lands management plan, Construction Monitoring

Program, FTHL Occupancy Study, and the Weed Management Plan, and the Closure Plan. The BRMIMP shall be prepared in consultation with the Designated Biologist and shall and shall include the following:

- All biological resources mitigation, monitoring, and compliance measures proposed and agreed to by the project owner;

- All biological resources conditions of certification identified as necessary to avoid or mitigate impacts;

- All biological resource mitigation, monitoring and compliance measures required in federal agency terms and conditions, such as those provided in the USFWS Biological Opinion/Conferencing Opinion for Peninsular bighorn sheep and FTHL and the federal Clean Water Act (CWA) 404 permit;

- All biological resource mitigation, monitoring, and compliance measures required in other state agency terms and conditions;

- All sensitive biological resources to be impacted, avoided, or mitigated by project construction, operation, and closure;

- A detailed description of measures that shall be taken to avoid or mitigate temporary disturbances from construction activities;

- A Frac-Out Contingency Plan approved by the CPM and USACE in consultation with CDFG prior to commencement of construction of the reclaimed water pipeline for horizontal directional drilling under the waterways;

- All locations on a map, at an approved scale, of sensitive biological resource areas subject to disturbance and areas requiring temporary protection and avoidance during construction;

- Aerial photographs, at an approved scale, of all areas to be disturbed during project construction activities; include one set prior to any site or related facilities mobilization disturbance and one set subsequent to completion of project construction. Provide planned timing of aerial photography and a description of why times were chosen. Provide a final accounting of the before/after acreages and a determination of whether additional habitat compensation is necessary in the Construction Termination Report;

- Duration for each type of monitoring and a description of monitoring methodologies and frequency;

- Performance standards to be used to help decide if/when proposed mitigation and conditions are or are not successful;

- All performance standards and remedial measures to be implemented if performance standards are not met;

- A discussion of biological resources-related facility closure measures including a description of funding mechanism(s);

- A process for proposing plan modifications to the CPM and appropriate agencies for review and approval; and

- A requirement to submit any sightings of any special-status species that are observed on or in proximity to the project site, or during project surveys, to the California Natural Diversity Database (CNDDB) per CDFG requirements.

**Verification:** The project owner shall submit the BRMIMP to the BLM Biologist and the CPM at least 30 days prior to start of any preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and the final BRMIMP at least 7 days prior to start of any construction-related ground disturbance, grading, boring, and trenching. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No construction-related ground disturbance, grading, boring, and trenching may occur prior to approval of the final BRMIMP by the CPM.

The BLM Biologist and the CPM, in consultation with other appropriate agencies, would determine the BRMIMP's acceptability within 30 days of receipt. If there are any permits that have not yet been received when the final BRMIMP is submitted, these permits shall be submitted to the CPM within five days of their receipt, and the BRMIMP shall be revised or supplemented to reflect the permit condition within at least ten days of their receipt by the project owner. Under no circumstances shall ground disturbance proceed without implementation of all permit conditions.

To verify that the extent of construction disturbance does not exceed that described in this analysis, the Project owner shall submit aerial photographs, at an approved scale, taken before and after construction to the CPM. The first set of aerial photographs shall reflect site conditions prior to any preconstruction site mobilization and construction related ground disturbance, grading, boring, and trenching, and shall be submitted prior to initiation of such activities. The second set of aerial photographs shall be taken subsequent to completion of construction, and shall be submitted to the CPM no later than 90 days after completion of construction. The Project owner shall also provide a final accounting of the acreages of vegetation communities/cover types present before and after construction.

Any changes to the approved BRMIMP must be approved by the CPM and in consultation with CDFG and USFWS.

Implementation of BRMIMP measures (for example, construction activities that were monitored, species observed) shall be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of Project construction, the Project owner shall provide to the CPM, for review and approval, a written construction termination report identifying which items of the BRMIMP have been completed, a summary of all modifications to mitigation measures made during the Project's preconstruction site mobilization and construction-related ground disturbance, grading, boring, and trenching, and which mitigation and monitoring items are still outstanding.

## IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-8** The project owner shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to biological resources during construction and operation:

- The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities. Spoils shall be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. Spoil sites shall not be located within drainages or locations that may be subjected to high storm flows, where spoil shall be washed back into a drainage or lake. Disturbance of shrubs and surface soils due to stockpiling shall be minimized. All disturbances, vehicles and equipment shall be confined to the flagged areas.

- Whenever possible, equipment and vehicles shall use existing surfaces or previously disturbed areas rather than clearing vegetation and grading the ROW. Where grading is necessary, surface soils shall be stockpiled and replaced following construction to facilitate habitat restoration.

- To the extent possible, existing roads shall be used for travel and equipment storage. New and existing roads that are planned for construction, widening or other improvements shall not extend beyond the flagged impact area as described above. All vehicles passing or turning around would do so within the planned impact area or in previously disturbed areas. Where new access is required outside of existing roads (e.g. new spur roads associated with both transmission line options) or the construction zone, the route would be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.

- Newly created access routes shall be restricted by constructing barricades, erecting fences with locked gates at road intersections, and/or by posting signs. In these cases, the project proponent shall maintain, including monitoring, all control structures and facilities for the life of the project and until habitat restoration is complete.

- Vehicular traffic during project construction and operation shall be confined to existing routes of travel to and from the project site, and cross country vehicle and equipment use outside designated work areas shall be prohibited. The speed limit shall not exceed 10 miles per hour on all unpaved roads that are not stabilized and 20 miles per hour on all paved or stabilized roads; except in specific areas identified by the Designated Biologist where the speed limit on paved an stabilized roads needs to be less than 20 miles per hour to lessen wildlife impacts.

- Transmission lines, access roads, pulling sites, storage and parking areas shall be designed, installed, and maintained with the goal of minimizing impacts to native plant communities and sensitive biological resources.

- Transmission lines and all electrical components shall be designed, installed, and maintained in accordance with the Avian Power Line Interaction Committee's (APLIC's) Suggested Practices for Avian Protection on Power Lines (APLIC 2006) and Mitigating Bird Collisions with Power Lines (APLIC 2004) to reduce the likelihood of large bird electrocutions and collisions.

- Road surfacing and sealants as well as soil bonding and weighting agents used on unpaved surfaces shall be non-toxic to wildlife and plants.

- Facility lighting shall be designed, installed, and maintained to prevent side casting of light towards wildlife habitat. Lighting shall be kept to the minimum level for safety and security needs by using motion or infrared light sensors and switches to keep lights off when not required, and shielding operational lights downward to minimize skyward illumination. No high intensity, steady burning, bright lights such as sodium vapor or spotlights shall be used. FAA visibility lighting shall employ only strobed, strobe-like or blinking incandescent lights, preferably with all lights illuminating simultaneously. Minimum intensity, maximum "off-phased" duel strobes are preferred, and no steady burning lights (e.g., L-810s) shall be used.

- Parking and storage shall occur where FTHL removal surveys have been conducted.

- At the end of each work day, the Designated Biologist shall ensure that all potential wildlife pitfalls (trenches, bores and other excavations) have been inspected for wildlife and then backfilled. If backfilling is not feasible, all trenches, bores, and other excavations shall be sloped at a 3:1 slope at the ends to provide wildlife escape ramps, or covered to completely prevent wildlife access. All trenches, bores and other excavations outside the permanently fenced area shall be inspected periodically throughout and at the end of each workday by the Designated Biologist or a Biological Monitor. Should a FTHL or other wildlife become trapped, the Designated Biologist or Biological Monitor shall remove and relocate the individual to a safe location.

- During construction, examine areas of active surface disturbance periodically—at least hourly when surface temperatures exceed 29°C (85°F) for the presence of FTHL.

- Any construction pipe, culvert, or similar structure with a diameter greater than three inches, stored less than eight inches aboveground for one or more nights, would be inspected for wildlife before the material is moved, buried, or capped. As an alternative, all such structures may be capped before being stored outside the fenced area, or placed on pipe racks.

- Water applied to dirt roads and construction areas (trenches or spoil piles) for dust abatement shall use the minimal amount needed to meet safety and air quality standards in an effort to prevent the formation of puddles, which could attract FTHL predators to construction sites. During construction, a Biological Monitor shall patrol these areas to ensure water does not puddle and attract common ravens, and other wildlife to the site, and shall take appropriate action to reduced water application rates where necessary.

- During construction, road killed animals or other carcasses detected by personnel on roads associated with the Project area will be reported immediately to a Biological Monitor or Designated Biologists, who will remove the roadkill promptly. During operations, the Project Environmental Compliance Monitor will be notified of any roadkills and promptly remove and dispose of any roadkills to discourage scavenger activity. For special-status species road-kill, the Biological Monitor shall contact CDFG and USFWS within 1 working day of receipt of the carcass for guidance on disposal or storage of the carcass. The Biological Monitor shall report the special-status species record as described in BIO-11 below.

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

- All contractors, subcontractors, employees and visitors shall comply with litter and pollution laws. During construction all trash and food-related waste shall be placed in self-closing containers and removed regularly to prevent overflow. Workers shall not feed wildlife, or bring pets to the project site. Except for law enforcement personnel, no workers or visitors to the site shall bring firearms or weapons.

- Standard erosion control measures shall be implemented for all phases of construction and operation where sediment run-off from exposed slopes threatens to enter “Waters of the State” and/or “Waters of the U. S.”. Sediment and other flow-restricting materials shall be moved to a location where they shall not be washed back into the stream. All disturbed soils and roads within the Project site shall be stabilized to reduce erosion potential, both during and following construction, except for those portions of roads crossing Waters of the U.S. where soil tackifiers shall not be used. Areas of disturbed soils (access and staging areas) with slopes toward drainages shall be stabilized to reduce erosion potential.

- If preconstruction site mobilization requires ground-disturbing activities such as for geotechnical borings or hazardous waste evaluations, a Designated Biologist or Biological Monitor shall be present to monitor any actions that could disturb soil, vegetation, or wildlife.

- The owner shall minimize road building, construction activities, and vegetation clearing within ephemeral drainages to the extent feasible.

- The project owner shall not allow water containing mud, silt or other pollutants from grading, aggregate washing, or other activities to enter a lake or flowing stream or be placed in locations that may be subjected to high storm flows.

- Raw cement/concrete, broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, asphalt or washings thereof, paint or other

coating material, oil or other petroleum products, or any other substances which could be hazardous to vegetation or wildlife resources, resulting from project related activities shall be prevented from contaminating the soil and/or entering waters of the state. These materials, placed within or where they may enter a drainage or lake, by project owner or any party working under contract or with the permission of the project owner shall be removed immediately.

- When operations are completed, any excess materials or debris shall be removed from the work area. No rubbish shall be deposited within 150 feet of the high water mark of any drainage.

- No equipment maintenance shall be done within 150 feet of any ephemeral drainage except in designated maintenance areas where petroleum products or other pollutants from the equipment may not enter these areas under any flow.

- The project owner must have a Frac-Out Contingency Plan approved by CDFG and the CPM prior to commencement of construction of the reclaimed water pipeline for horizontal directional drilling under the waterways.

**Verification:** All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented. Implementation of the measures would be reported in the Monthly Compliance Reports by the Designated Biologist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, a written construction termination report identifying how measures have been completed.

Should the Designated Biologist, in consultation with the BLM Biologist and the CPM, identify an area where the speed limit must be lowered on paved and stabilized roads, new signage must be posted with the new lowered speed limit within one week of this determination and photographic verification provided to the CPM within the same time period. This speed limit would be adhered to until additional signage specifies otherwise. Announcement of the location(s) of the area designated with the lowered speed limits must be made to the employees within 24 hours of the Designated Biologist's determination.

## FLAT-TAILED HORNED LIZARD CONSTRUCTION MONITORING PROGRAM AND OCCUPANCY STUDY

**BIO-9** The project owner shall implement conservation measures and/or design features identified in the USFWS Conferencing Opinion that would avoid, minimize, and offset potential adverse effects to the FTHL into the Project's BRMIMP.

In addition, the project owner shall prepare a Before-After Control-Impact (BACI) Occupancy Estimation Study that would analyze the

persistence of FTHL onsite after construction and during plant operations. At a minimum, the Study shall include:

- Parameters to be measured;
- Sample size;
- Level of effort per plot;
- Assessment approach; and
- Verification of scat source and extirpation of habitat. The Study shall be approved by USFWS, BLM, and Energy Commission in consultation with CDFG, and shall be incorporated into the project's BRMIMP and implemented.

**Verification:** No more than 30 days following the publication of the Energy Commission License Decision or the Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the CPM, BLM's Biologist, USFWS, and CDFG a final BACI Occupancy Estimation Study. Modifications to the BACI Occupancy Estimation Study shall be made only after approval from BLM's Biologist, USFWS, and the CPM, in consultation with CDFG. Within 30 days of completion of FTHL preconstruction occupancy surveys, the Designated Biologist shall submit a report to the CPM, BLM Biologist, USFWS, and CDFG describing the results of the survey.

During construction, the Designated Biologist shall submit a quarterly report describing the results of any removal surveys required by the Conferencing Opinion to the CPM, BLM Biologist, USFWS, and CDFG. The removal survey report shall include the FTHL survey results, capture and release locations of any FTHL encountered, description of any project related deaths or injuries detected during the study or at any other time, and any other information needed to demonstrate compliance with the measures described above. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any project-related FTHL fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The Annual Report shall be provided to the CPM, BLM's Biologist, CDFG, and USFWS. Post-construction sampling reports will be due to the CPM, BLM Biologist, USFWS, and CDFG by January 31st after sampling has taken place. The post-construction sampling report shall include the FTHL survey results, capture and release locations of any FTHL encountered, whether mitigation and adaptive management measures are necessary, and any other information needed to demonstrate compliance with the measures described above. After the BACI Occupancy Estimation Study is completed, the project owner or contractor shall prepare a draft document that describes the study design and results to be submitted to the Flat-Tailed Horned Lizard Interagency Coordinating Committee

for review. Proof of submittal shall be provided to BLM's Biologist and the CPM within one year of concluding the monitoring study.

**SPECIAL STATUS SPECIES HABITAT COMPENSATORY MITIGATION**

This condition is designed to compensate for project-related impacts to habitat for FTHL, burrowing owl, golden eagle, American badger, and desert kit fox. However, to the extent that any compensation land acquired under this condition satisfies the selection criteria for **BIO-17,** such compensation acreage acquired pursuant to this condition may be used to fulfill all or a portion of **BIO-17**.

**FLAT-TAILED HORNED LIZARD COMPENSATORY MITIGATION**

**BIO-10** The project owner shall provide compensatory land to mitigate for habitat loss and direct impacts to flat-tailed horned lizards based on revised estimates of suitable flat-tailed horned lizard habitat on-site. The project owner shall provide compensatory mitigation at a 1:1 ratio for 6,063.1 acres of impacts outside of the FTHL Management Area (MA) and at a 6:1 ratio for impacts to 92.6 acres within the FTHL MA. These impact acreages are to be adjusted to reflect the final approved project footprint.

For purposes of this condition, the project footprint means all lands disturbed in the construction and operation of the IVS Project, including the offsite transmission line, as well as undeveloped areas inside the Project's boundaries that will no longer provide viable long-term habitat for the species mentioned above. To satisfy this condition, the project owner shall acquire, protect and transfer to an approved land manager no fewer than 6,619.9 acres of FTHL habitat (adjusted to reflect the final project footprint), and shall also provide funding for the initial improvement and long-term maintenance and management of the acquired lands, and comply with other related requirements in this condition.

Funding of this mitigation shall be phased to ensure that appropriate compensation lands and/or funding reflect the phasing of actual project impacts and will ensure that all impacts are fully compensated prior to occurring.

**COMPENSATORY MITIGATION LAND ACQUISITION**

**1. Method of Acquisition.** Compensation lands required to meet this condition shall be acquired in whole or in part either:

- By the project owner for donation, as approved by the CPM, to a state or federal land management agency or non-profit land management organization,

- By BLM with funds provided by the project owner,

- By a third party approved by the CPM to acquire or donate the lands with funds provided by the project owner, or

- By the National Fish and Wildlife Foundation (NFWF) with in lieu funds deposited into the Renewable Energy Action Team (REAT) Account.

If the project owner chooses to delegate responsibility for acquisition of all or portions of compensation lands to a third party such as a nongovernmental organization supportive of desert habitat conservation, such delegation shall be subject to approval by the CPM, in consultation with the project owner and CDFG, BLM and USFWS, prior to land acquisition, enhancement or management activities. The CPM shall provide a written response and explanation to the project owner within 30 days of receiving the proposal. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the Energy Commission's certification of the project or initiation of each phase of the project.

**2. Selection Criteria for Compensation Lands**. The compensation lands selected for acquisition to meet Energy Commission requirements shall:

- be within in or near FTHL Management Areas (MAs) in the Colorado Desert, with potential to contribute to FTHL habitat connectivity and build linkages between FTHL MAs, known populations of FTHLs, and/or other preserve lands;

- provide high to moderate quality habitat for FTHL with capacity to regenerate naturally when disturbances are removed, though moderate to good quality habitat is acceptable near protected FTHL habitats;

- be near larger blocks of lands that are either already protected or planned for protection, or which could feasibly be protected long- term by a public resource agency or a non-governmental organization dedicated to habitat preservation;

- be connected to lands where FTHLs can be reasonably expected to occur currently occupied by FTHL, based on habitat or historic occurrences, ideally with populations that are stable, recovering, or likely to recover;

- ideally contain soils that are stable and not suffering erosional damage;. not be characterized by high densities of invasive

species, either on or immediately adjacent to the parcels under consideration, that might jeopardize habitat recovery and restoration;

- not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and

- have water and mineral rights included as part of the acquisition, unless the CPM, in consultation with CDFG, BLM and USFWS, agrees in writing to the acceptability of land without these rights.

These requirements may be adjusted upon mutual agreement with the resource agencies (CEC, CDFG, BLM, and USFWS) depending on the specific lands available and in consideration of larger flat-tailed horned lizard mitigation efforts.

**3. Review and Approval of Compensation Lands Prior to Acquisition**. If the project owner assumes responsibility for acquiring the compensation lands, the project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for flat-tailed horned lizard in relation to the criteria listed above and must be approved by the CPM. The CPM will share the proposal with and consult with CDFG, BLM, and the USFWS before deciding whether to approve or disapprove the proposed acquisition. The CPM shall provide a written response and explanation to the project owner within 30 days of receiving the proposal.

**4. Compensation Lands Acquisition Conditions**: If the project owner assumes responsibility to acquire the compensation lands, the project owner shall comply with the following conditions relating to acquisition of the compensation lands after the CPM, in consultation with CDFG, BLM and the USFWS, has approved the proposed compensation lands:

a. Preliminary Report: The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with CDFG, BLM and the USFWS. For conveyances to the State, approval may

also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance: The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement as required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the CPM in consultation with CDFG.

c. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands. .

**5. Compensation Lands Acquisition Costs**: If the project owner assumes responsibility to acquire all or a part of the compensation lands to meet Energy Commission and CESA requirements, the project owner shall fund the following items in addition to actual land costs:

- Level 1 Environmental Site Assessment,
- Appraisal,
- Closing and Escrow costs,
- Biological survey for determining mitigation value of the land, and
- Agency costs to accept the land.

If the project owner uses BLM to acquire all or a portion of the compensation lands, the project owner shall provide the BLM with funds for items a. to e. above as well as actual land costs.

If the project owner uses in lieu funds deposited into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF) to acquire some or all of the compensation lands, the project owner shall provide funds for items a. to e. above as well as actual land costs and third party administrative costs. If the Project owner elects to use the REAT Account with NFWF, the Project owner will be responsible for providing sufficient funds to cover actual acquisition costs and fees not to exceed 10% of the estimated costs below.

Estimated costs associated with acquisition of compensation lands are:

**ESTIMATED LAND ACQUISITION COSTS PER ACRE OR PARCEL**

| | **ACQUISITION METHOD** | | |
|---|---|---|---|
| **COST ITEM** | **PROJECT OWNER** | **BLM** | **REAT/NFWF** |
| Land cost/acre | Covered by Owner | $500 | $500 |
| Level 1 Environmental Site Assessment | Covered by Owner | $3,000 | $3,000 |
| Appraisal/parcel | Covered by Owner | $5,000 | $5,000 |
| Closing and Escrow Costs/parcel | Covered by Owner | $5,000 | $5,000 |
| Biological Survey/parcel | Covered by Owner | $5,000 | $5,000 |
| 3rd Party Admin. Costs/parcel | $0 | $0 | 10% of land cost |
| Agency Cost to Accept | $580,896.23 | $580,896.23 | $580,896.23 |

These costs are current estimates and shall be modified based on actual costs or with the concurrence of the REAT agencies. The number of parcels are estimated based on 160 acres per parcel.

**TOTAL ESTIMATED LAND ACQUISITION COSTS**

| | **ACQUISITION METHOD** | | |
|---|---|---|---|
| **COST ITEM** | **PROJECT OWNER** | **BLM** | **REAT/NFWF** |
| Acres Purchased | 6618.7 | 6618.7 | 6618.7 |
| Parcels Purchased | 41.4 | 41.4 | 41.4 |
| Land cost | Covered by Owner | $3,309,350 | $3,309,350 |
| Level 1 | Covered by Owner | $124,100 | $165,468 |

| | | | |
|---|---|---|---|
| Environmental Site Assessment | | | |
| Appraisal | Covered by Owner | $206,834 | $206,834 |
| Closing and Escrow Costs | Covered by Owner | $206,834 | $206,834 |
| Biological Survey | Covered by Owner | $206,834 | $206,834 |
| 3rd Party Admin. Costs | $0 | $0 | $330,935 |
| Agency Cost to Accept | $580,896 | $580,896 | $580,896 |
| TOTAL | $4,179,814 | $4,634,850 | $4,965,785 |

## COMPENSATORY MITIGATION LAND IMPROVEMENT

**1. Land Improvement Requirements**: The Project owner shall fund activities that the CPM, in consultation with the CDFG, USFWS and BLM, requires for the initial protection and habitat improvement of the compensation lands. These activities will be implemented by the state or federal land management agency or non-profit organization holding the land or their representative. The specific activities will vary depending on the condition and location of the land acquired but may include:

- Installation of signs,
- Removal of trash,
- Construction and repair of fences,
- Surveys of boundaries and property lines,
- Removal of invasive plants,
- Removal of roads,
- And similar measures to protect habitat and improve habitat quality.

The costs of these activities are estimated at $250 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to

the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

**2. Compensation Lands Improvement Costs**: Land improvement costs will vary depending on the activities undertaken. The cost of those actions is $27/acre.

Assuming all of the compensation is met with land acquisition, the total land improvement costs is estimated to be $178,705.

**COMPENSATORY MITIGATION LAND LONG-TERM MANAGEMENT**

**1. Long-term Management Requirements**: Long-term management is required to ensure that the compensation lands are managed and maintained to protect FTHL. This may include maintenance of signs, fences, removal of invasive weeds, and elimination of unauthorized use.

**2. Long-term Management Plan:** The owner of or the entity responsible for management of the compensation lands shall prepare a Management Plan for the compensation lands. The Management Plan shall reflect site-specific enhancement measures on the acquired compensation lands. The plan shall be submitted for approval of the CPM, in consultation with CDFG, BLM and USFWS.

**3. Long-term Management Costs:** For those compensation lands that are donated to or owned by the BLM, the long-term management costs will be determined by BLM in consultation with the CDFG, CEC, and USFWS.

For those compensation lands that are donated to or owned by a state land management agency or a non-profit organization, the Project owner shall provide money to establish an account with a non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands.
The CPM will consult with the project owner and CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds on any lands. For any compensation lands that are not managed by a federal land management agency, the CPM, in consultation with the project owner and CDFG, will designate another state agency or non-profit

organization to hold the long-term maintenance and management fee if the organization is qualified to manage the compensation lands in perpetuity.

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

The long-term maintenance and management fee holder/manager shall be subject to the following conditions:

- Interest. Interest generated from the initial capital shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action approved by CDFG designed to protect or improve the habitat values of the compensation lands.

- Withdrawal of Principal. The long-term maintenance and management fee principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or the approved third-party long-term maintenance and management fee manager to ensure the continued viability of the species on the compensation lands. If CDFG takes fee title to the compensation lands, monies received by CDFG pursuant to this provision shall be deposited in a special deposit fund established solely for the purpose to manage lands in perpetuity unless CDFG designates NFWF or another entity to manage the long-term maintenance and management fee for CDFG.

- Pooling Funds. A CPM- approved non-profit organization qualified to hold long-term maintenance and management fees solely for the purpose to manage lands in perpetuity, may pool the fund with other funds for the operation, management, and protection of the compensation lands for local populations of FTHL. However, for reporting purposes, the long-term maintenance and management fee fund must be tracked and reported individually to the CDFG and CPM.

- Reimbursement Fund. The project owner shall provide reimbursement to CDFG or an approved third party for reasonable

expenses incurred during title, easement, and documentation review

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Long-term management on lands donated to or owned by BLM are to be determined by BLM and are currently anticipated to include costs associated with managing the lands for the benefit of the FTHL that are different from the management activities generally implemented by BLM on its lands. Such tasks may include dedicating a one-quarter time biologist and one one-half time ranger for patrols. The estimated cost of this long-term management is $692 per acre for a total of $4,580,140. This amount shall be adjusted based on final analysis by the BLM and/or a PAR analysis.
If the compensation lands are administered with in lieu funds deposited into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), the project owner shall pay the following additional fees:

- Project Specific Account Establishment - $12,000

- Management fee for acquisition and enhancement – 3% of all acquisition and enhancement costs

- Management fee for long-term management account – 1% of long-term management costs

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**COMPENSATORY MITIGATION LAND FUNDS**

**1. Compensation Mitigation Fund**: The project owner shall provide funding for acquisition, improvement, and long-term management of FTHL compensation land. The current estimated funding shall be $9,931,405 based on the costs itemized below. This amount shall be updated and verified prior to payment and shall be adjusted to reflect actual costs or more current estimates during phasing:

**EXAMPLE of TOTAL COMPENSATION LAND COSTS**

| | **ACQUISITION METHOD** | | |
|---|---|---|---|
| **COST ITEM** | **PROJECT OWNER** | **BLM** | **REAT/NFWF** |
| Acres Purchased | 6618.7 | 6618.7 | 6618.7 |
| Parcels Purchased | 41.4 | 41.4 | 41.4 |
| Land Acquisition | $4,179,814 | $4,634,850 | $4,965,785 |

| | | | |
|---|---|---|---|
| Cost | | | |
| Land Improvement Cost | $178,705 | $178,705 | $178,705 |
| Long-term Management Cost | $4,580,140 | $0 | $4,580,140 |
| NFWF Fees | $0 | $0 | $206,775 |
| TOTAL | $8,938,660 | $4,813,555 | $9,931,405 |
| | | | |
| | | | |

**2. Fund Payment**: Because the project is phased, the mitigation funding will also be phased. The phasing of funding will ensure that the security is in place to ensure mitigation for any impact before it occurs. This will be accomplished by requiring funding for all the mitigation necessary to mitigate the impacts associated with a specific phase. Specific payments shall reflect the approach chosen by the project owner for land acquisition and shall include funds for land enhancement and long-term management consistent with the amount of land to be disturbed during each phase. The project owner shall make the following compensatory mitigation payments based on the following project phasing and assuming REAT/NFWF funding:

| TIME | PROJECT ACTIVITY | MITIGATION PAYMENT |
|---|---|---|
| Phase 1a – October 2010 | Start of construction, no more than 378.3 acres of site disturbance activities. | $574,758 |
| Phase 1b – (estimated after the close of financing during the 1st quarter 2011) | Completion on Phase 1 construction (300 MW); mitigation provided for 2,682.3 acres | $3,819,470 less adjustments from phase 1a and for phase 1 b for land acquisition method, and land improvement and long-term management costs |
| Phase 2 | Initiation and completion of Phase 2 (450 MW) mitigation provided for 3,558.1 acres | $5,052,854 less adjustments from phase 1 b and for land acquisition method, and land improvement and long-term management costs |

**4. REAT/NFWF Payment**: If the project owner elects to comply with the requirements in this condition for acquisition, initial improvement, long-term maintenance and management, or any

combination of these three requirements by providing funds to implement those measures into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF), the Project owner shall make an initial deposit to the REAT Account in an amount equal to the estimated costs of administering these requirements.

If the actual cost of the acquisition, initial protection and habitat improvements, or long-term funding is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, or the long-term funding requirements as established in an approved PAR or PAR-like analysis. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

**5. Security**: The Project owner shall provide financial assurances to the CPM with copies of the document(s) to BLM, CDFG and the USFWS, to guarantee that an adequate level of funding is available to implement the mitigation required by this condition is available prior to the start of ground-disturbing activities for each phase of the project discussed in the described in section 2 immediately above.

The CPM may use money from the Security solely for implementation of the requirements of this condition or if nesting of mitigation is obtained, to satisfy the conditions of BIO-17. The CPM's use of the security to implement measures in this condition may not fully satisfy the Project owner's obligations under this condition. Any amount of the Security that is not used to carry out mitigation shall be returned to the Project owner upon successful completion of the associated requirements in this condition. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval, in consultation with CDFG, BLM and the USFWS, of the form of the Security.

The amount of the Security shall correspond to the mitigation fund payments described in "fund payment" above.

**6. Audit**: The project owner may request the CPM to for an independent audit of the compensatory mitigation funds.

**Verification:** The project owner shall provide the CPM with written notice of intent to start ground disturbance at least 30 days prior to the start of ground-disturbing activities on the project site.

If the mitigation actions required under this condition are not completed prior to the start of ground-disturbing activities, the Project owner shall provide the CPM and CDFG with an approved Security in accordance with this condition of certification prior to beginning Project ground-disturbing activities. Financial assurance can be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security"). Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG, BLM and the USFWS, of the form of the Security. The project owner, or an approved third party, shall complete and provide written verification to the CPM, CDFG, BLM and USFWS of the compensation lands acquisition and transfer within 18 months of the start of Project ground-disturbing activities.

No later than 12 months after the start of any phase of ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG, BLM and USFWS, prior to the acquisition. The agencies shall have 30 days to respond to the CPM. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM, CDFG, BLM and USFWS of such completion, no later than 18 months after the issuance of the Energy Commission Decision. If NFWF or another approved third party is being used for the acquisition, the project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition associated with any phase of construction. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands for that phase of construction no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands for any phase of construction, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands for that phase of construction shall be

completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

If a third party is responsible for management of the compensation lands, they shall provide the CDFG, BLM and USFWS with a management plan for the compensation lands associated with any phase of construction within 180 days of the land or easement purchase, as determined by the date on the title. The CPM, in consultation with CDFG, BLM and the USFWS, shall approve the management plan after its content is acceptable to the CPM.

Within 90 days after completion of all project related ground disturbance, the project owner shall provide to the CPM, CDFG, BLM and USFWS an analysis, based on aerial photography, with the final accounting of the amount of habitat disturbed during Project construction. This shall be the basis for the final number of acres required to be acquired.

## FLAT-TAILED HORNED LIZARD COMPLIANCE VERIFICATION

**BIO-11** The project owner shall provide Energy Commission staff, BLM, CDFG, USFWS, and USACE representatives with reasonable access to the project site and compensation lands under the control of the project owner and shall otherwise fully cooperate with the Energy Commission staff, CDFG, USFWS, USACE, and BLM's efforts to verify the project owner's compliance with, or the effectiveness of, mitigation measures set forth in the conditions of certification. The project owner shall hold the Designated Biologist, the Energy Commission staff, CDFG, USFWS, USACE, and BLM harmless for any costs the project owner incurs in complying with the management measures, including stop work orders issued by the CPM, the BLM Biologist, or the Designated Biologist. The Designated Biologist shall do all of the following:

- Notify the BLM Biologist and the CPM at least 14 calendar days before initiating ground-disturbing activities.

- Immediately notify the BLM Biologist and the CPM in writing if the project owner is not in compliance with any conditions of certification, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods specified in the conditions of certification.

- Remain onsite daily while grubbing and grading are taking place to avoid or minimize take of special status species, to check for compliance with all impact avoidance and minimization measures, and to check all FTHL clearance areas to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones.

- Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and submit a monthly compliance report to the BLM Biologist, USFWS, CDFG and the CPM.

- No later than January 31 of every year the project facility remains in operation, provide the CPM, BLM Biologist, USFWS, CDFG, and the FTHL ICC an annual FTHL Status Report, which shall include, at a minimum: 1) a general description of the status of the project site and construction activities, including actual or projected completion dates, if known; 2) a copy of the table in the BRMIMP with notes showing the current implementation status of each mitigation measure; 3) an assessment of the effectiveness of each completed or partially completed mitigation measure in minimizing and compensating for project impacts; 4) completed Horned Lizard Observation Data Sheet Sheets and a Project Reporting Form from the *Flat-tailed Horned Lizard Rangewide Management Strategy* (FTHL ICC 2003); 5) a summary of information regarding the numbers of captured, relocated, and dead FTHLs; and 6) other relevant information associated with the project.

- Ensure that all observations of FTHL and their sign during construction project activities are reported to the Designated Biologist for inclusion in the next monthly compliance report submitted to the BLM Biologist and the CPM.

- No later than 45 days after the initial production of energy in the project's equipment, provide the BLM Biologist and the CPM a FTHL Mitigation Report that shall include, at a minimum: 1) a copy of the table in the BRMIMP with notes showing when each of the mitigation measures was implemented; 2) all available information about project-related incidental take of FTHLs; 3) information about other project impacts on the FTHL; 4) construction dates; 5) an assessment of the effectiveness of conditions of certification in minimizing and compensating for project impacts; 6) recommendations on how mitigation measures might be changed to more effectively minimize and mitigate the impacts of future projects on the FTHL; and 7) any other pertinent information, including the level of take of the FTHL associated with the project.

- Any sightings of FTHLs during construction will be recorded per the conservations measures set forth by the USFWS Conferencing Opinion.

**Verification:** No later than two calendar days following the above required notification of a sighting, kill, or relocation of a listed species, the project owner shall deliver to the BLM Biologist, the CPM, CDFG, USACE, and USFWS via

FAX or electronic communication the written report from the Designated Biologist describing all reported incidents of injury, kill, or relocation of a listed species, identifying who was notified, and explaining when the incidents occurred. In the case of a sighting in an active construction area, the project owner shall, at the same time, submit a map (e.g., using Geographic Information Systems) depicting both the limits of construction and sighting location to the BLM Biologist, the CPM, CDFG, USACE, and USFWS. Information regarding sightings, kills, or relocation of FTHLs will be summarized in monthly compliance reports per conditions of **BIO-9.**

Should the Designated Biologist, in consultation with the BLM Biologist and the CPM, identify an area where the speed limit must be lowered on paved and stabilized roads, new signage must be posted with the new lowered speed limit within one week of this determination and photographic verification provided to the CPM within the same time period. This speed limit would be adhered to until additional signage specifies otherwise. Announcement of the location(s) of the area designated with the lowered speed limits must be made to the employees within 24 hours of the Designated Biologist's determination.

## RAVEN MONITORING, MANAGEMENT, AND CONTROL PLAN

**BIO-12** The project owner shall implement a Raven Monitoring, Management, and Control Plan that is consistent with the most current USFWS-approved raven management guidelines, and which meets the approval of the USFWS BLM, and Energy Commission staff, in consultation with CDFG. The draft Raven Monitoring, Management, and Control Plan submitted by the applicant (SES 2009f) shall provide the basis for the final plan, subject to review and revisions from USFWS, CDFG, BLM, and the Energy Commission staff.

**Verification:** At least 30 days prior to start of any construction-related ground disturbance activities, the project owner shall provide the CPM, BLM Biologist, USFWS, and CDFG with the final version of the Raven Monitoring, Management, and Control Plan that has been reviewed and approved by USFWS, BLM Biologist, and Energy Commission staff. The CPM would determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved Raven Monitoring, Management, and Control Plan must be made only after consultation with the BLM, Energy Commission staff, USFWS, and CDFG. The project owner shall notify the BLM Biologist and the CPM no less than five working days before implementing any BLM- and CPM-approved modifications to the Raven Monitoring, Management, and Control Plan.

Within 30 days after completion of project construction, the project owner shall provide to the BLM Biologist and the CPM for review and approval, a written report identifying which items of the Raven Monitoring, Management, and Control Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which items are still outstanding.

On January 31st of each year following construction, the Designated Biologist shall provide a report to the CPM that includes: a summary of the results of raven management and control activities for the year; a discussion of whether raven control and management goals for the year were met; and recommendations for raven management activities for the upcoming year.

**EVAPORATION POND FENCING, NETTING, AND MONITORING**

**BIO-13** The project owner shall install exclusionary fencing around the evaporation ponds and cover the evaporation ponds prior to any discharge with 1.5-inch or smaller mesh netting designed to exclude birds and other wildlife from drinking or landing on the water of the ponds. The netted ponds shall be monitored regularly to verify that the netting remains intact, is fulfilling its function in excluding birds and other wildlife from the ponds, and does not pose an entanglement threat to birds and other wildlife. The ponds shall include a visual deterrent in addition to the netting, and the pond shall be designed such that the netting will never contact the water. Monitoring of the evaporation ponds shall include the following:

- The Designated Biologist or Biological Monitor shall regularly survey the ponds at least once per month starting with the first month of operation of the evaporation ponds. The purpose of the surveys shall be to determine if the netted ponds are effective in excluding birds, and to determine if the nets pose an entrapment hazard to birds and wildlife. Surveys shall be of sufficient duration and intensity to provide an accurate assessment of bird and wildlife use of the ponds during all seasons. Surveyors shall be experienced with bird identification and survey techniques. Operations staff at the project site shall also report finding any dead birds or other wildlife at the evaporation ponds to the Designated Biologist within one day of the detection of the carcass. The Designated Biologist shall report any bird or other wildlife deaths or entanglements within two days of the discovery to the CPM, BLM Biologist, CDFG, and USFWS.

- If dead or entangled birds are detected, the Designated Biologist shall take immediate action to correct the source of mortality or entanglement. The Designated Biologist shall make immediate efforts to contact and consult the CPM, BLM Biologist, CDFG, and USFWS by phone and electronic communications prior to taking remedial action upon detection of the problem, but the inability to reach these parties shall not delay taking action that would, in the judgment of the Designated Biologist, prevent further mortality of birds or other wildlife at the evaporation ponds.

- If after 12 consecutive monthly site visits no bird or wildlife deaths or entanglements are detected by or reported to the Designated Biologist, monitoring can be reduced to quarterly visits.

- If after 12 consecutive quarterly site visits no bird or wildlife deaths or entanglements are detected by or reported to the Designated Biologist, the site visits can be reduced to two surveys per years, during spring and fall migration.

**Verification:** No less than 30 days prior to operation of the evaporation ponds the project owner shall provide to the CPM and BLM Biologist as-built drawings and photographs of the ponds indicating that the bird exclusion netting has been installed. The Designated Biologist shall submit annual monitoring reports to the CPM, BLM Biologist, CDFG, and USFWS describing the dates, durations and results of site visits conducted at the evaporation ponds. The annual reports shall fully describe any bird or wildlife death or entanglements detected during the site visits or at any other time, and shall describe actions taken to remedy these problems. The report shall be submitted to the CPM, BLM Biologist, CDFG, and USFWS no later than January 31st of every year for the life of the project.

**PRE-CONSTRUCTION NEST SURVEYS**

**BIO-14** Pre-construction nest surveys shall be conducted if construction activities would occur from February 1 through July 31. The Designated Biologist or Biological Monitor conducting the surveys shall be experienced bird surveyors familiar with standard nest-locating techniques such as those described in Martin and Guepel (1993). The goal of the nesting surveys shall be to identify the general location of the nest sites, sufficient to establish a protective buffer zone around the potential nest site, and need not include identification of the precise nest locations. Surveyors performing nest surveys shall not concurrently be conducting FTHL surveys. The bird surveyors shall perform surveys in accordance with the following guidelines:

- Surveys shall cover all potential nesting habitat in the project site and within 500 feet of the boundaries of the plant site and linear facilities;

- At least two pre-construction surveys shall be conducted, separated by a minimum 10-day interval. One of the surveys needs to be conducted within the 14-day period preceding initiation of construction activity. Additional follow-up surveys may be required if periods of construction inactivity exceed three weeks, an interval during which birds may establish a nesting territory and initiate egg laying and incubation;

- If active nests are detected during the survey, a no-disturbance buffer zone (protected area surrounding the nest, the size of which is to be determined by the Designated Biologist in consultation with CDFG) and monitoring plan shall be developed. Nest locations shall be mapped and submitted, along with a weekly report stating the survey results, to the BLM Biologist and the CPM; and

- The Designated Biologist shall monitor the nest until he or she determines that nestlings have fledged and dispersed; activities that might, in the opinion of the Designated Biologist, disturb nesting activities, shall be prohibited within the buffer zone until such a determination is made.

**Verification:** At least 10 days prior to the start of any project-related ground disturbance activities or construction equipment staging, the project owner shall provide the BLM Biologist and the CPM a letter-report describing the findings of the preconstruction nest surveys, including the time, date, and duration of the survey; identity and qualifications of the surveyor (s); and a list of species observed. If active nests are detected during the survey, the report shall include a map or aerial photo identifying the location of the nest and shall depict the boundaries of the no-disturbance buffer zone around the nest(s) that would be avoided during project construction.

No later than January 31st of every year following construction, a follow-up report shall be provided to the CPM, CDFG, and BLM describing the success of the buffer zones in preventing disturbance to nesting activity and a brief description of the outcome of the nesting effort (for example, whether young were successfully fledged from the nest or if the nest failed.

## AMERICAN BADGER AND DESERT KIT FOX IMPACT AVOIDANCE AND MINIMIZATION MEASURES

**BIO-15** To avoid direct impacts to American badgers and desert kit fox, pre-construction surveys shall be conducted for these species concurrent with the FTHL clearance surveys. Surveys shall be conducted as described below:

- Biological Monitors shall perform pre-construction surveys for badger and kit fox dens for any areas subject to disturbance from construction no less than 30 days prior to the start of initial ground disturbance activities, including areas within 250 feet of all project facilities, utility corridors, and access roads. If dens are detected each den would be classified as inactive, potentially active, or definitely active.

- Inactive dens that would be directly impacted by construction activities shall be excavated by hand and backfilled to prevent reuse

by badgers or kit fox. Potentially and definitely active dens would be monitored by the Biological Monitor for three consecutive nights using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance. If not tracks are observed in the tracking medium or no photos are taken of the target species after three nights, the den would be excavated and backfilled by hand. If tracks are observed, the den shall be progressively blocked with natural materials (rocks, dirt, sticks, and vegetation piled in front of the entrance) for the next three to five nights to discourage the badger or kit fox from continued use. After verification that the den is unoccupied, it shall then be excavated and backfilled by hand to ensure that no badgers or kit fox are trapped in the den.

**Verification:** The project owner shall submit a report to the BLM Biologist, the CPM, and CDFG at least 30 days prior to the start of any project-related site disturbance activities that describes when badger and kit fox surveys were completed, field observations, implemented mitigation measures, and the results of the mitigation.

**BURROWING OWL IMPACT AVOIDANCE AND MINIMIZATION MEASURES**

**BIO-16** The project owner shall implement the following measures to avoid and offset impacts to burrowing owls:

- Preconstruction Surveys. Complete a pre-construction survey for burrowing owls for any areas subject to disturbance from construction no more than 30 days prior to the start of initial ground disturbance activities. Surveys shall be focused exclusively on detecting burrowing owls, and shall be conducted from two hours before sunset tone hour after or from one hour before to two hours after sunrise. The survey area shall include the Project Disturbance Area and surrounding 500 foot survey buffer.

- Implement Avoidance Measures. If an active burrowing owl burrow is detected within 500 feet of the Project Disturbance Area (the Project Disturbance Area means all lands disturbed in the construction and operation of the IVS Project), the following avoidance and minimization measures shall be implemented

    - Establish Non-Disturbance Buffer: Fencing shall be installed at a 250-foot radius from the occupied burrow to create a nondisturbance buffer around the burrow. The non-disturbance buffer and fence line may be reduced to 160 feet if all Project-related activities that might disturb burrowing owls would be conducted during the non-breeding season (September 1st through January 31st). Signs shall be posted

in English and Spanish at the fence line indicating no entry or disturbance is permitted within the fenced buffer.

- Monitoring: If construction activities would occur within 500 feet of the occupied burrow during the nesting season (February 1 – August 31st) the Designated Biologist or Biological Monitor shall monitor to determine if these activities have potential to adversely affect nesting efforts, and shall implement measures to minimize or avoid such disturbance.

- Implement Burrowing Owl Mitigation and Monitoring Plan. If preconstruction surveys indicate the presence of burrowing owls within the Project Disturbance Area, the project owner shall prepare a Burrowing Owl Mitigation and Monitoring Plan, in addition to the avoidance measures described above. The final Burrowing Owl Mitigation Plan shall be approved by the BLM Biologist and the CPM, in consultation with USFWS and CDFG prior to relocation of owls (and incorporated into the project's BRMIMP) as well as a construction termination report with results to CDFG, BLM Biologist, and the CPM 30 days after completing owl relocation and monitoring and at least 30 days prior to the start of commercial operation. This plan shall:

    - Identify and describe suitable relocation sites within 1 mile of the Project Disturbance Area, and describe measures to ensure that burrow installation or improvements would not affect sensitive species habitat or existing burrowing owl colonies in the relocation area;

    - Provide guidelines for the creation or enhancement of no less than four artificial burrows, or at least two burrows for each owl displaced by the project as close as possible to the existing location if owls are detected in the project footprint or within 250 feet of construction. Design of the artificial burrows shall be consistent with CDFG guidelines (CDFG 1995). The Designated Biologist shall survey the site selected for artificial burrow construction to verify that such construction will not affect FTHL. The design of the burrows shall be approved by the CPM and BLM Wildlife Biologist in consultation with CDFG and USFWS. If artificial burrows are required, the project owner shall obtain by purchase the land required to support the burrows or ensure the

burrows are located in an area such as the transmission line easement where construction/development would not occur.

- Provide detailed methods and guidance for passive relocation of burrowing owls occurring in the Project Disturbance Area; and prepare a Burrowing Owl Relocation Area Management Plan. If artificial burrows are constructed, the project owner shall develop a Burrowing Owl Relocation Area Management Plan. The Burrowing Owl Relocation Area Management Plan shall include monitoring and maintenance requirements, details on methods for measuring compliance goals, and remedial actions to be taken if management goals are not met. A report describing results of monitoring and management of the relocation area shall be submitted to the CPM, BLM Biologist, CDFG, and USFWS no later than January 31st of each year for the life of the project.

**Verification:** Within 30 days of publication of the Energy Commission Decision, the project owner shall submit to CDFG, USFWS, BLM Biologist, and the CPM a draft Burrowing Owl Relocation Area Management Plan if burrowing owls will need to be relocated. Prior to any ground-disturbing activities on the project site, the project owner shall submit to the CPM a final Burrowing Owl Relocation Area Management Plan that reflects review and approval by staff in consultation with CDFG and USFWS.

If pre-construction surveys detect burrowing owls within 500 feet of proposed construction activities, the Designated Biologist shall provide to CDFG, USFWS, BLM Biologist, and the CPM a Burrowing Owl Monitoring and Mitigation Plan at least 30 days prior to the start of any project-related site disturbance activities. The project owner shall report monthly to CDFG, USFWS, the BLM Wildlife Biologist, and the CPM for the duration of construction on the implementation of burrowing owl avoidance and minimization measures described in the Burrowing Owl Monitoring and Mitigation Plan. Within 30 days after completion of construction the project owner shall provide to the CDFG, the BLM Wildlife Biologist, and the CPM a written construction termination report identifying how mitigation measures described in the plan have been completed.

## WATERS OF THE U.S., WATERS OF THE STATE AND PENINSULAR BIGHORN SHEEP FORAGING HABITAT IMPACT MINIMIZATION AND COMPENSATION MEASURES

**BIO-17** The project owner is required to compensate for the loss of 247 acres

of ephemeral wash foraging habitat for the Peninsular bighorn sheep (PBHS) defined as the 28% of the ephemeral washes on site that provide sufficient vegetation to potentially provide PBHS foraging opportunities, as well as the functional loss of 38.2 of permanently impacted,14 acres of temporarily impacted, 1.63 acres of indirectly impacted waters of the U.S and 48 acres of indirectly impacted waters of the state. Mitigation presented within this proposed Condition of Certification is designed to mitigate for impacts resulting from implementation of the alternative preliminarily determined by the U.S. Army Corps of Engineers to be the least environmentally damaging practicable alternative. This alternative substantially reduces impacts to federal and state jurisdictional waters. Further review and possible revision of compensation land acreage requirements will be necessary following determination of the final project footprint and impacts. If changes are made to the project footprint, the mitigation requirement will be equal to the amount of the 247 acres of ephemeral washes on the site that provide potential PBHS foraging habitat at a 1:1 ratio, the amount of permanently impacted waters of the U.S. at a 5:1 ratio and the amount of temporarily impacted waters of the U.S. at a 1:1 ratio.

If all or any portion of the acquired habitat compensation lands from **BIO-10** meets the criteria for bighorn sheep foraging habitat and provide for the replacement of the functional values associated with the impacted waters of the U.S. and the impacted waters of the state, then the requirements of **BIO-17** are reduced by that amount.

In coordination with the U.S. Army Cops of Engineers, the U.S. Fish and Wildlife Service and State Parks, the applicant has proposed to conduct enhancement and rehabilitation of Carrizo Creek and marsh located west/northwest of the project on the Anza Borrego State Park. This area was chosen because it is within the same watershed as the project and is within known PBHS populations. The measures are focused on Tamarisk (*Tamarix* ssp.) removal which will restore and enhance the aquatic functions of this area and PBHS foraging habitat. If this mitigation option is chosen, the applicant shall do the following:

- Carrizo Creek Enhancement Plan: the applicant shall prepare an enhancement and rehabilitation plan that shall cover approximately 25 miles of Carrizo Creek from the headwaters downstream through Carrizo Marsh (Carrizo Creek Enhancement Plan). The enhancement and rehabilitation plan shall be prepared in accordance with the Corps' and EPA's Final Mitigation Rule (33 CFR Part 325 and 332 [40 CFR Part 230]) and will include detailed methods for the initial removal, retreatment methods, limited native species replanting, monitoring and reporting protocols, and performance standards.

- Mitigation Plan. Prepare a Mitigation Plan which provides for the rehabilitation and enhancement of 247 ephemeral washes consistent with the Carrizo Creek Plan. Although the applicant will prepare the enhancement and rehabilitation plan for the entire 25-mile reach of Carrizo Creek, the applicant will only be responsible for the enhancement and rehabilitation the amount necessary to mitigate direct and indirect impacts to waters of the U.S. and PBHS foraging habitat. The amount of mitigation shall be 247 acres of the Carrizo Creek. The Mitigation Plan shall include the measures needed to rehabilitate and enhance 247 acres of Carrizo Creek, monitoring of the rehabilitated and enhanced areas for 5 years, submitting annual reports to the CPM, Corps, USFWS, CDFG and BLM; success criteria; long term management requirements; and adaptive management provisions if the success criteria are not being met. The Mitigation Plan shall be submitted to the CPM, Corps, and USFWS for approval.

- Long Term Management. Following completion of the initial 5 year monitoring period and concurrence from the Corps that the Mitigation Plan's success criteria, the long term management shall be the responsibility of State Parks and shall be done in connection with the overall management of the Anza Borrego State Park.

- Funding. The applicant shall be responsible for funding the measures outlined in the approved Management Plan. It is estimated that the initial rehabilitation and enhancement will cost approximately $494,000 ($2,000 per acre) and that the 5 years of monitoring and active management will cost approximately $230,000 ($60,000 for the first three years when it is anticipated that some follow up control for tamarisk will be required as well as replanting of native vegetation and other weed control; $50,000 for years four and five of the monitoring period where it is anticipated that efforts will be limited mostly to monitoring and maintenance). Long term management is estimated to cost $170,924 (based on an assumed cost of $692 per acre). The estimates regarding the cost associated with carrying out the enhancement/rehabilitation methods, monitoring and maintenance are based on Tamarisk Coalition cost estimates that were updated as of 2008. These numbers are appropriate for planning purposes; the actual cost, however, will depend on the degree of infestation

present. The total cost of meeting the requirements of this condition is estimated to be $994,924.

- Security. The project owner shall provide security to ensure satisfaction of the terms of this condition as follows: (1) prior to initiation of ground-disturbing activity for Phase 1A, the applicant shall provide security in the amount of $494,000 to ensure the implementation of the enhancement and rehabilitation measures; (2) remainder of the security associated with this mitigation measure equaling $400,924 shall be provided prior to initiation of ground-disturbing activity for Phase 1B. For purposes of this Condition, financial close shall be defined as sixty days following receipt of the DOE loan guarantee.

Should the applicant not proceed with the above described mitigation of the Carrizo Creek, the applicant shall either, in coordination with the CEC, BLM, Corps, USFWS and CDFG, identify similar enhancement and rehabilitation measures on state or federally owned lands or acquire lands on which similar enhancement and rehabilitation measures can be implemented. If alternative measures are proposed, the mitigation land shall meet the following criteria. Although the criteria for ephemeral wash foraging habitat and habitat of the waters of U.S. and of waters of the state are listed separately below, any alternative compensation lands acquired pursuant to this conditions must meet both sets of criteria.

1. Selection Criteria for Compensation Lands: Land selected as compensation for loss of ephemeral wash PBHS foraging habitat must satisfy the following criteria;

Be within the “Essential Habitat Line” for PBHS, as delineated by the USFWS Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California (USFWS 2000). If sufficient available suitable habitat is not found within the Essential Habitat Line, then habitat immediately adjacent to the Essential Habitat Line must be purchased, and also of equal or higher quality habitat than present within the project site.

Be comprised of the same or higher quality habitat of demonstrated known utilization by PBHS as forage, and selected in conjunction with input from CDFG and the USFWS.

- Land selected as compensation for impacts to waters of the U.S. and for impacts to waters of the state must satisfy the following criteria:

- Compensation land purchased in Sonoran creosote scrub habitat must include ephemeral washes with at least 48 acres of waters of the state and 247 acres of waters of the U.S. and must allow for enhancement measures that will fully mitigate for the functional values of waters of the U.S. and waters of the state impacted by the project.

- Be characterized by similar soil permeability, hydrological and biological functions as the impacted drainages.

- Located in the Colorado Desert.

2. Review and Approval of Compensation Lands Prior to Acquisition: The Project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for FTHL in relation to the criteria listed above, and must be approved by the CPM. The CPM will share the proposal with and consult with Corps, CDFG, BLM, and the USFWS before deciding whether to approve or disapprove the proposed acquisition.

3. Compensation Lands Acquisition Requirements: The project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM, in consultation with Corps, CDFG, BLM, and the USFWS, has approved the proposed compensation lands:

   a. Preliminary Report. The Project owner, or approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM, in consultation with Corps, CDFG, BLM and the USFWS. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

   b. Title/Conveyance. The Project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the CPM in consultation with CDFG. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code

section 65965), or to BLM or other public agency approved by the CPM in consultation with CDFG. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The Project owner shall obtain approval of the CPM, in consultation with CDFG, of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. Initial Protection and Habitat Improvement. The project owner shall fund activities that the CPM, in consultation with the Corps, CDFG, USFWS and BLM, requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include trash removal, construction and repair of fences, invasive plant removal, and similar measures to protect habitat and improve habitat quality on the compensation lands. The costs of these activities are estimated at $27 an acre, but will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

d. Property Analysis Record. Upon identification of the compensation lands, the Project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM, in consultation with CDFG, before it can be used to establish funding levels or management activities for the compensation lands.

e. Long-term Maintenance and Management Funding. The Project owner shall provide money to establish an account with non-wasting capital that will be used to fund the long-term maintenance and management of the compensation lands. The

amount of money to be paid will be determined through an approved PAR or PAR-like analysis conducted for the compensation lands. The amount of required funding is initially estimated to be $692 for every acre of compensation lands. If compensation lands will not be identified and a PAR or PAR-like analysis completed within the time period specified for this payment (see the verification section at the end of this condition), the Project owner shall either provide initial payment of $170,924 (calculated at $692 an acre for 247 acres) or the project owner shall include $170,924 to reflect this amount in the security that is provided to the Energy Commission under section 3.h. of this condition. The amount of the required initial payment or security for this item shall be adjusted for any change in the project footprint as described above. If an initial payment is made based on the estimated per-acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long-term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $692 an acre will be required for long-term maintenance and management, the excess paid will be returned to the project owner. The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds. The project owner shall ensure that an agreement is in place with the long-term maintenance and management fund holder/manager to ensure the following requirements are met:

i. Interest. Interest generated from the initial capital long-term maintenance and management fund shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action that is approved by the CPM in consultation with CDFG and is designed to protect or improve the habitat values of the compensation lands.

ii. Withdrawal of Principal. The long-term maintenance and management fund principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM, in consultation with CDFG, or by the approved third-party long-term maintenance and management fund manager, to

ensure the continued viability of the species on the compensation lands.

iii. Pooling Long-Term Maintenance and Management Funds. An entity approved to hold long-term maintenance and management funds for the Project may pool those funds with similar non-wasting funds that it holds from other projects for long-term maintenance and management of compensation lands for local populations of desert tortoise. However, for reporting purposes, the long-term maintenance and management funds for this Project must be tracked and reported individually to the CPM and CDFG.

f. Other Expenses. In addition to the costs listed above, the project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to the title and document review costs incurred from other state agency reviews, overhead related to providing compensation lands to CDFG or an approved third party, escrow fees or costs, environmental contaminants clearance, and other site cleanup measures.

g. Management Plan. The project owner shall prepare a Management Plan for the compensation lands in consultation with the entity that will be managing the lands. The Management Plan shall reflect site-specific enhancement measures for the drainages on the acquired compensation lands. The objective of the Management Plan shall be to enhance the wildlife value and the aquatic functions of the drainages and may include enhancement actions such as weed control, fencing to exclude livestock and OHVs, or erosion control. The plan shall be submitted for approval of the CPM, in consultation with CDFG, BLM and USFWS.

h. Mitigation Security. The project owner shall provide financial assurances as provided above to the CPM, with copies of the final document to CDFG, to guarantee that an adequate level of funding is available to implement any of the mitigation measures required by this condition that are not completed prior to the start of ground-disturbing project activities. Financial assurances shall be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") approved by the CPM in consultation with CDFG. Prior to submitting the Security to the CPM, the project owner shall obtain the CPM's approval, in consultation with CDFG, of the form of the Security. The CPM may draw on the Security if the CPM determines the project owner has failed to comply with

the requirements specified in this condition. The CPM may use money from the Security solely for implementation of the requirements of this condition, The CPM's use of the Security to implement measures in this condition may not fully satisfy the project owner's obligations under this condition. The Security shall be returned to the Project owner in whole or in part upon successful completion of the associated requirements in this condition.

Security shall be provided in the amount of $894,924 or ($910,479 if the project owner elects to use the REAT Account with NFWF pursuant to paragraph 3.h. of this condition, below). The security is calculated in part, from the items that follow but adjusted as specified below (consult **Biological Resources Mitigation/Compensation Cost Estimate Table** for the calculation of estimated costs):

- land acquisition costs for compensation land, calculated at $500/acre x 881 acres = $123,500;
- initial protection and habitat improvement activities on the compensation land, calculated at $2,000/acre x 247 acres = $494,000;
- long-term maintenance and management on the compensation land calculated at $692/acre x 247 acres = $170,924;
- pre-acquisition liability survey at no less than $3,000 per parcel (assuming 160 acres per 2 parcels): = $6,000;
- appraisal fees at $5,000 per parcel = $10,000;
- Agency cost to accept land calculated at (land cost x 15%) x 1.17 (17% of the 15% for overhead) = $21,674.25;
- Closing and escrow cost at $5,000 per parcel = $10,000;
- Third party administrative costs (land cost x 10%) = $12,350.
- NFWF fee = $63,031 (if NFWF is used for acquisition).

The amount of security shall be adjusted for any change in the project footprint as described above. In addition the amount of security that is required may be phased to be consistent with phased development. The amount of Security required would be

based on the amount of waters of the U.S., waters of the state or PBHS impacted, whatever is the greatest. For Phase 1A, the amount of security is estimated to be $46,536.05.[3] In addition, the amount of Security specified in this section may be reduced in proportion to any of the secured mitigation requirements that the project owner has completed at the time the Security is required to be submitted. If all or any portion of required habitat compensation lands from **BIO-10** and **BIO-17** meets the criteria set forth for special status compensation lands may be used to fulfill that portion of the obligation for this condition, thus reducing the compensation acreage amount needed to fulfill the needed 247 acres. Also, if the project owner transfers funds for long-term management of the compensation lands to an entity approved to hold those funds, the Security would not include any amount for long-term maintenance and management of the lands. The project owner will be entitled to partial or complete release of the Security as the secured mitigation requirements are successfully completed.

i. The project owner may elect to comply with the requirements in this condition for acquisition of compensation lands, initial protection and habitat improvement on the compensation lands, or long-term maintenance and management of the compensation lands by funding, or any combination of these three requirements, by providing funds to implement those measures into the Renewable Energy Action Team (REAT) Account established with the National Fish and Wildlife Foundation (NFWF). To use this option, the Project owner must make an initial deposit to the REAT Account in an amount equal to the estimated costs (as set forth in the Security section of this condition) of implementing the requirement. If the actual cost of the acquisition, initial protection and habitat improvements, or long-term funding is more than the estimated amount initially paid by the project owner, the project owner shall make an additional deposit into the REAT Account sufficient to cover the actual acquisition costs, the actual costs of initial protection and habitat improvement on the compensation lands, or the long-term funding requirements as established in an approved PAR or PAR-like analysis. If those actual costs or PAR projections are less than the amount initially transferred by the applicant, the remaining balance shall be returned to the project owner.

   The responsibility for acquisition of compensation lands may be delegated to a third party other than NFWF, such as a non-

[3] This number is conservatively estimated based on the entire amount of ephemeral washes located within the Phase 1A disturbance area, although not all these washes will be disturbed and only a subset would be considered PBHS foraging habitat.

governmental organization supportive of desert habitat conservation, by written agreement of the Energy Commission. Such delegation shall be subject to approval by the CPM, in consultation with CDFG, BLM and USFWS, prior to land acquisition, enhancement or management activities. Agreements to delegate land acquisition to an approved third party, or to manage compensation lands, shall be executed and implemented within 18 months of the Energy Commission's certification of the project.

4. The project owner may choose to satisfy its mitigation obligations identified in this condition by paying an in lieu fee instead of acquiring compensation lands, pursuant to Fish and Game code sections 2069 and 2099 or any other applicable in-lieu fee provision, to the extent the in-lieu fee provision is found by the Commission to be in compliance with CEQA and CESA requirements.

5. Notification. The project owner shall notify the CPM and CDFG in writing, at least five days prior to initiation of project activities in jurisdictional areas as noted and at least five days prior to completion of project activities in jurisdictional areas. The project owner shall notify the CPM and CDFG of any change of conditions to the project, the jurisdictional impacts, or the mitigation efforts, if the conditions at the site of a proposed project change in a manner which changes risk to biological resources that may be substantially adversely affected by the proposed project. The notifying report shall be provided to the CPM and CDFG no later than seven days after the change of conditions is identified. As used here, change of condition refers to the process, procedures, and methods of operation of a project; the biological and physical characteristics of a project area; or the laws or regulations pertinent to the project as defined below. A copy of the notifying change of conditions report shall be included in the annual reports.

   - Biological Conditions: a change in biological conditions includes, but is not limited to, the following: 1) the presence of biological resources within or adjacent to the project area, whether native or non-native, not previously known to occur in the area; or 2) the presence of biological resources within or adjacent to the project area, whether native or non-native, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California Code of Regulations.

   - Physical Conditions: a change in physical conditions includes, but is not limited to, the following: 1) a change in the morphology of a river, stream, or lake, such as the lowering of a

bed or scouring of a bank, or changes in stream form and configuration caused by storm events; 2) the movement of a river or stream channel to a different location; 3) a reduction of or other change in vegetation on the bed, channel, or bank of a drainage, or 4) changes to the hydrologic regime such as fluctuations in the timing or volume of water flows in a river or stream.

- Legal Conditions: a change in legal conditions includes, but is not limited to, a change in Regulations, Statutory Law, a Judicial or Court decision, or the listing of a species, the status of which has changed to endangered, rare, or threatened, as defined in section 15380 of Title 14 of the California.

6. Waters of the U.S. and Waters of the State Impact Minimization and Compensation Measures. The project owner shall provide a copy of Condition of Certification **BIO-17** from the Energy Commission Decision to all contractors, subcontractors, and the Applicant's project supervisors. Copies shall be readily available at work sites at all times during periods of active work and must be presented to any CDFG personnel or personnel from another agency upon demand. The CPM reserves the right to issue a stop work order or allow CDFG to issue a stop work order after giving notice to the project owner and the CPM, if the CPM in consultation with CDFG, determines that the project owner has breached any of the terms or conditions or for other reasons, including but not limited to the following:

   - The information provided by the applicant regarding streambed alteration is incomplete or inaccurate;

   - New information becomes available that was not known to it in preparing the terms and conditions;

   - The project or project activities as described in the SAA have changed; or

   - The conditions affecting biological resources changed or the CPM or BLM Biologist, in consultation with CDFG or USACE, determines that project activities would result in a substantial adverse effect on the environment. Should project conditions change and impacts to bed, bank, or channel occur on any of the water ways along the reclaimed water pipeline route, a revised Lake and Streambed Alteration Agreement (LSAA) application must be submitted to the Commission in consultation with CDFG either (1) for a Commission determination that the revised LSAA application complies with CEQA and CESA; or (2)

should the project conditions change after a final decision in on the AFC in this proceeding, through an application for amendment to the Commission's final decision issued in this proceeding.

**Verification:** Prior to groundbreaking activities, the applicant shall submit to the CPM an enhancement and rehabilitation plan for the Carrizo Creek and a Mitigation Plan for restoring the 247 acres of Carrizo Creek consistent with the restoration and rehabilitation plan. The applicant shall submit documentation that the enhancement and rehabilitation plan and the Mitigation Plan have been approved by the Corps, USFWS, and State Parks. No later than 18 months after ground-disturbing activities, the applicant shall submit documentation that the initial enhancement and rehabilitation measures have been completed. The applicant shall submit annual monitoring reports to the CPM, Corps, USFWS, CDFG, State Parks and CDFG documenting the success of the enhancement and rehabilitation activities. At the end of the initial 5 year monitoring period, applicant shall submit documentation to the CPM that the Corps has accepted the mitigation as being complete and documentation that funding has been provided to State Parks for the long term management of the mitigation lands and that State Parks has accepted such funds and has agreed to carry out long term management of these areas.

If the applicant elects to acquire lands to satisfy this condition, no later than 12 months after the start of ground-disturbing project activities, the project owner, or a third-party approved by the CPM, in consultation with CDFG and BLM, shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase containing no less than 247 acres of PBHS foraging habitat and 247 acres of ephemeral drainages, and shall obtain approval from the CPM, in consultation with CDFG, BLM, and USFWS, prior to acquisition.

Draft agreements to delegate land acquisition to CDFG, BLM, or an approved third party and agreements to manage compensation lands shall be submitted to Energy Commission staff for review and approval (in consultation with CDFG) prior to land acquisition. Such agreements shall be mutually approved and executed at least 30 days prior to start of any project-related ground disturbance activities. The project owner shall provide written verification to the CPM that the compensation lands have been acquired and recorded in favor of the approved recipient(s). Alternatively, before beginning project ground-disturbing activities, the project owner shall provide Security in accordance with section 3.h of this condition. Within 180 days after the land purchase, as determined by the date on the title, the project owner shall provide the CPM with a management plan for review and approval, in consultation with CDFG, BLM, and USFWS, for the compensation lands and associated funds.

The project owner shall complete and submit to the CPM a PAR or PAR-like analysis no later than 60 days after the CPM approves compensation lands for acquisition. The project owner shall fully fund the required amount for long-term maintenance and management of the compensation lands no later than 30 days after the CPM approves a PAR or PAR-like analysis of the anticipated long-term

maintenance and management costs of the compensation lands. Written verification shall be provided to the CPM and CDFG to confirm payment of the long-term maintenance and management funds.

No later than 60 days after the CPM determines what activities are required to provide for initial protection and habitat improvement on the compensation lands, the project owner shall make funding available for those activities and provide written verification to the CPM of what funds are available and how costs will be paid. Initial protection and habitat improvement activities on the compensation lands shall be completed, and written verification provided to the CPM, no later than six months after the CPM's determination of what activities are required on the compensation lands.

If electing to satisfy the requirements of this condition by utilizing the options created by CDFG pursuant to SBX8 34, the Project owner shall notify the Commission that it would like a determination that the Project's in-lieu fee proposal meets CEQA and CESA requirements.

No fewer than 30 days prior to the start of work potentially affecting jurisdictional state waters, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented and provide a discussion of work in jurisdictional state waters in Compliance Reports for the duration of the project.

**WEED MANAGEMENT PLAN**

**BIO-18** The project owner shall implement a Weed Management Plan that meets the approval of BLM and Energy Commission staff. The draft Weed Management Plan submitted by the applicant (SES 2009e) shall provide the basis for the final plan, subject to review and revisions from BLM, USFWS, CDFG, and the Energy Commission staff. In addition to describing weed eradication and control methods, and a reporting plan for weed management during and after construction, the final Weed Management Plan shall include at least the following Best Management Practices to prevent the spread and propagation of invasive weeds:

- Limit the size of any vegetation and/or ground disturbance to the absolute minimum, and limit ingress and egress to defined routes.
- Maintain vehicle wash and inspection stations and closely monitor the types of materials brought onto the site.
- Reestablish vegetation quickly on disturbed sites with native seed mixes.
- Monitoring and rapid implementation of control measures to ensure early detection and eradication for weed invasions.

- Use only weed-free straw or hay bales used for sediment barrier installations, and weed-free seed.

- Reclamation and revegetation shall occur on all temporarily disturbed areas, including pipelines, transmission lines, and staging areas.

- Control weeds in areas where irrigation and mirror washing take place.

**Verification:** At least 30 days prior to start of any project-related ground disturbance activities, the project owner shall provide the BLM Biologist and the CPM with the final version of the Weed Management Plan that has been reviewed and approved by BLM, USFWS, CDFG, and Energy Commission staff. The CPM and BLM Biologist would determine the plan's acceptability within 15 days of receipt of the final plan. All modifications to the approved Weed Management Plan shall be made only after consultation BLM, Energy Commission staff, USFWS, and CDFG. The project owner shall notify the CPM and BLM Biologist no less than five working days before implementing any BLM- and CPM-approved modifications to the Weed Management Plan.

Within 30 days after completion of project construction, the project owner shall provide to the BLM Biologist and the CPM for review and approval, a written report identifying which items of the Weed Management Plan have been completed, a summary of all modifications to mitigation measures made during the project's construction phase, and which items are still outstanding. A summary report on weed management on the project site shall be submitted in the Annual Compliance Report during plant operations.

**SPECIAL STATUS PLANT SURVEYS AND PROTECTION PLAN**

**BIO-19** This condition contains the following four sections:

- Section A: Special-Status Plant Impact Avoidance and Minimization Measures contains the Best Management Practices and other measures designed to avoid accidental impacts to special status plants on the project site that occur outside of the Project Disturbance Area and within 100 feet of the Project Disturbance Area and special status plants occurring within the rights of way for the off-site water pipeline and, transmission line, as practicable, during construction, operation, and closure.

- Section B: Conduct Late Season Botanical Surveys describes guidelines for conducting summer-fall 2010 surveys to detect special-status plants that would have been missed during the spring 2010 surveys.

- Section C: Avoidance Requirements for Special-Status Plants Detected in the Summer/Fall 2010 Surveys outlines the level of

avoidance required for plants detected during the summer-fall surveys, based on the species' rarity and status codes.

- Section D: Off-Site Compensatory Mitigation for Special-Status Plants describes performance standards for mitigation for a range of options for compensatory mitigation through acquisition, restoration/enhancement, in lieu fees, or a combination of acquisition and restoration/enhancement.
- "Project Disturbance Area" encompasses all areas to be temporarily and permanently disturbed by the Project, including the plant site, linear facilities, and areas disturbed by temporary access roads, fence installation, construction work lay-down and staging areas, parking, storage, or by any other activities resulting in disturbance to soil or vegetation.
- The Project owner shall implement the following measures in Section A, B, C, and D to avoid, minimize, and compensate for impacts to special -status plant species:
- Section A. Special Status Plant Avoidance and Minimization Measures

To protect all special status plants[1] located on site outside of the Project Disturbance Area and within 100 feet of the permitted Project Disturbance Area (including access roads, staging areas, laydown areas, parking and storage areas) and special status plants occurring within the rights of way for the offsite pipeline and transmission line, from accidental and indirect impacts during construction, operation, and closure, the Project owner shall implement the following measures:

1. Designated Botanist. An experienced botanist who meets the qualifications described in Section B-2 below shall oversee compliance with all special-status plant avoidance, minimization, and compensation measures described in this condition throughout construction, operation, and closure. The Designated Botanist shall oversee and train all other Biological Monitors tasked with conducting botanical survey and monitoring work. During operation of the project, the Designated Biologist shall be responsible for protecting special status plant on site occurring within 100 feet of the Project Disturbance Area and special status plant occurring with the right of way for the offsite pipeline and transmission line, as practicable.
2. Special Status Plant Impact Avoidance and Minimization Plan. The project owner shall develop and implement a Special Status Plant

[1] Staff defines special-status plants as described in *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Natural Resources Agency, Department of Fish and Game, issued November 24, 2009.

Impact Avoidance and Minimization Plan and shall incorporate the Plan into the BRMIMP (BIO-7). The Plan shall include the following elements:

a. Site Design Modifications: Incorporate site design modifications to minimize impacts to special-status plants along the Project linears: limiting the width of the work area; adjusting the location of staging areas, lay downs, spur roads and poles or towers; driving and crushing vegetation as an alternative to blading temporary roads to preserve the seed bank, and minor adjustments to the alignment of the roads and pipelines within the constraints of the right-of-way (ROW). These modifications shall be clearly depicted on the grading and construction plans, and on report-sized maps in the BRMIMP;

b. Establish Environmentally Sensitive Areas (ESAs). Before construction, the Designated Botanist shall establish ESAs to protect avoided special status plants that occur onsite outside of the Project Disturbance Areas and within 100 feet of Project Disturbance Areas, and avoided special status plants that occur within the rights of way for the offsite pipeline and transmission line. This includes plant occurrences identified during the spring 2010 surveys and the late season 2010 surveys. The locations of ESAs shall be clearly depicted on construction drawings, which shall also include all avoidance and minimization measures on the margins of the construction plans. The boundaries of the ESAs shall be placed a minimum of 20 feet from the uphill side of the occurrence and 10 feet from the downhill side. Where this is not possible due to construction constraints, other protection measures, such as silt-fencing and signs prohibiting movement of the fencing or sediment controls, may be employed to protect the occurrences. ESAs shall be clearly delineated in the field with temporary construction fencing and signs prohibiting movement of the fence under penalty of work stoppages and additional compensatory mitigation. ESAs shall also be clearly identified (with signage or other markers) to ensure that avoided plants are not inadvertently harmed during construction, operation, or closure. Where avoidance will not allow for long-term viability of the species, no ESA shall be established.

c. Special-Status Plant Worker Environmental Awareness Program (WEAP). The Plan shall include training components specific to protection of special-status plants, and shall be incorporated into the WEAP described in BIO-6;

d. Herbicide and Soil Stabilizer Drift Control Measures. The Plan shall provide detailed specifications for avoiding herbicide and soil stabilizer drift, and shall include a list of herbicides and soil

stabilizers that will be used on the Project with manufacturer's guidance on appropriate use. The Plan shall Indicate where the herbicides will be used, and what techniques will be used to avoid chemical drift or residual toxicity to special-status plants, consistent with guidelines provided by the Nature Conservancy's *The Global Invasive Species Team*[2], the U.S. Environmental Protection Agency, and the Pesticide Action Network Database.[3]

e. Erosion and Sediment Control Measures. The Plan shall include measures to ensure that erosion and sediment control measures do not inadvertently impact special-status plants located within an ESA (e.g., by using invasive or non-native plants in seed mixes, introducing pest plants through contaminated seed or straw, etc.). These measures shall be incorporated in the Storm Water Pollution Prevention Plan.

f. Avoid Special-Status Plant Occurrences. Designate spoil areas; equipment, vehicle, and materials storage areas; parking; equipment and vehicle maintenance areas, and; wash areas at least 100 feet from any ESAs.

g. Monitoring and Reporting Requirements. The Designated Botanist shall conduct weekly monitoring of the ESAs that protect special-status plant occurrences during construction and decommissioning activities and quarterly monitoring during operations. The Project owner shall also conduct annual monitoring of the avoided occurrences on site, and off site occurrences that are adjacent to the Project, for the life of the Project (see Verification, below).

h. Seed Collection. As feasible, conduct pre construction collection of seed (or other propagules) of the affected special status plants within the Project Disturbance Area in the summer fall season prior to the start of construction and according to the seed collection and storage guidelines contained in (Wall 2009a; Bainbridge 2007). Collection of seed (or other propagules) shall be done by the Rancho Santa Ana Botanic Garden (RSABG) Conservation Program staff or other qualified seed or restoration specialist. The Project owner shall be responsible for all costs associated with seed storage. All seed storage shall occur at RSABG or other qualified seed dealer and at least 40 percent of the collected seed shall remain in long-term storage at RSABG Seed Conservation Program, San Diego Natural History Museum, or other qualified seed

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[2] Hillmer, J. & D. Liedtke. 2003. Safe herbicide handling: a guide for land stewards and volunteer stewards. Ohio Chapter, The Nature Conservancy, Dublin, OH. 200 pp. Online: <http://www.invasive.org/gist/products.html.

[3] Pesticide Action Network of North America. Kegley, S.E., Hill, B.R., Orme, S., Choi, A.H., 2010. PAN Pesticide Database, Pesticide Action Network, North America. San Francisco, CA. Online: <http://www.pesticideinfo.org>

conservation program, and made available for contingency efforts in the event of on site or off site mitigation failure. Feasibility shall be determined based on the availability of seeds prior to construction activities. For Phase 1(a) and 1(b), it is recognized that seed collection may not be possible given the timing of approvals and the scheduled initiation of construction.

Section B. Conduct Late-Season Botanical Surveys

The Project owner shall conduct late-summer/fall botanical surveys for late-season special-status plants as described below:

1. Survey Timing. Surveys shall be timed to detect summer annuals triggered to germinate by the warm, tropical summer storms (which may occur any time between June and October). Fall-blooming perennials that respond to the cooler, later season storms that originate in the Pacific northwest (typically beginning in September or October) shall only be required if blooms and seeds are necessary for identification or the species are summer-deciduous and require leaves for identification. The surveys shall not be timed to coincide with the statistical peak bloom period of the target species but shall instead be based on plant phenology and the timing of a significant storm event (i.e., a 10mm or greater rain or multiple storm events of sufficient volume to trigger germination, as measured at or within 1 mile of the Project site). Surveys at the appropriate time to capture the characteristics necessary to identify the taxon.

2. Surveyor Qualifications and Training. Surveys shall be conducted by a qualified botanist knowledgeable in the complex biology of the local flora, and consistent with CDFG protocols (CDFG 2009). The botanical survey crew shall be prepared to mobilize quickly to conduct appropriately timed surveys. Each surveyor shall be equipped with a GPS unit and record a complete tracklog; these data shall be compiled and submitted along with the Summer-Fall Survey Botanical Report (described below). Prior to the start of surveys, all crew members shall, at a minimum, visit reference sites (where available) and/or review herbarium specimens of all BLM Sensitive plants, CNPS List 1B or 2 (Nature Serve rank S1 and S2) or proposed List 1B or 2 taxa, and any new reported or documented taxa, to obtain a search image. Because the potential for_range extensions is unknown, the list of potentially occurring special-status plants shall include all special-status taxa known to occur within the Sonoran Desert region in California. The list shall also include taxa with bloom seasons that begin in fall and extend into the early spring as many of these are reported to be easier to detect in fall, following the start of the fall rains.

3. Survey Coverage.

   a. Survey protocol utilized for the 2010 late spring surveys for the project site could be utilized for summer/fall botanical surveys (see Methods section of the URS report titled "Imperial Valley Solar (formerly Solar Two) (08-AFC-5) Applicant's Submittal of Late Spring Botany Report, URS Project No. 27657106.00804", dated June 11, 2010; or the project owner can do the following:

   b. The survey coverage or intensity shall be in accordance with BLM Survey Protocols (issued July 2009), which specify that intuitive controlled surveys shall only be accomplished by botanists familiar with the habitats and species that may reasonably be expected to occur in the project area.

4. Documenting Occurrences. If a special-status plant is detected, the full extent of the population onsite shall be recorded using GPS in accordance with BLM survey protocols. Additionally, the extent of the population within one mile of project boundaries shall be assessed at least qualitatively to facilitate an accurate estimation of the proportion of the population affected by the project. For populations that are very dense or very large, the population size may be estimated by simple sampling techniques. When populations are very extensive or locally abundant, the survey must provide some basis for this assertion and roughly map the extent on a topographic map. All but the smallest populations (e.g., a population occupying less than 100 square feet) shall be recorded as area polygons; small populations may be recorded as point features. All GPS-recorded occurrences shall include: the number of plants, phenology, observed threats (e.g., OHV or invasive exotics), and habitat or community type. The map of occurrences submitted with the final botanical report shall be prepared to ensure consistency with definition of an occurrence by CNDDB , i.e., occurrences found within 0.25 miles of another occurrence of the same taxon, and not separated by significant habitat discontinuities, shall be combined into a single 'occurrence'. The project owner shall also submit the raw GPS shape files and metadata, and completed CNDDB forms for each 'occurrence' (as defined by CNDDB).

5. Reporting. Raw GPS data, metadata, and CNDDB field forms shall be provided to the CPM within two weeks of the completion of each survey. If surveys are split into two or more periods (e.q., a late summer survey and a fall survey), then a summary letter shall be submitted following each survey period.

The Final Summer-Fall Botanical Survey Report shall be prepared consistent with CDFG guidelines (CDFG 2009), and BLM guidelines and shall include the following components:

- the BLM designation, NatureServe Global and State Rank of each species or taxon found (or proposed rank, or CNPS List);
- the number or percent of the occurrence that will be directly affected, and indirectly affected by changes in drainage patterns or altered geomorphic processes;
- the habitat or plant community that supports the occurrence and the total acres of that habitat or community type that occurs in the Project Disturbance Area;
- an indication of whether the occurrence has any local or regional significance (e.g., if it exhibits any unusual morphology, occurs at the periphery of its range in California, represents a significant range extension or disjunct occurrence, or occurs in an atypical habitat or substrate);
- a completed CNDDB field form for every occurrence (occurrences of the same species within 0.25 mile or less of each other combined as one occurrence, consistent with CNDDB methodology), and;
- two maps: one that depicts the raw GPS data (as collected in the field) on a topographic base map with Project features; and a second map that follows the CNDDB protocol for occurrence mapping.

Section C. Avoidance Requirements for Special-Status Plants Detected in the Summer/Fall 2010 Surveys

The project owner shall apply the following avoidance standards to late blooming special status plant species that might be detected during late summer/fall season surveys. Avoidance and/or the mitigation measures described in Section D below would reduce impacts to any special-status plant species detected during the late summer/fall plant surveys to less than significant levels.

1. <u>Mitigation for CNDDB Rank 1 Plants (Critically Imperiled) – Avoidance Required</u>: If late blooming species with a CNDDB rank of 1 are detected within the Project Disturbance Area, the project owner shall prepare and implement a Special Status Plant Mitigation Plan (Plan). The goal of the Plan shall be to retain at least 75 percent of the local population of the affected species. Compensatory mitigation, as described in Section D of this condition, and at a mitigation ratio of 3:1, shall be required

for the 25 percent or portion that is not avoided. If after agency consultation, avoidance would not satisfy the long-term viability of the plant population, compensatory mitigation alone will be allowed. The Plan shall include at a minimum, the following components and definitions:

a. A description of the occurrences of the CNDDB rank 1 species on and off the project site, the percent of the local population affected, and a description of how these occurrences would be impacted by the project, including direct and indirect effects. The local population shall be measured by the number of individuals occurring on the project site and within the local watershed of the project for wash-dependent species or species of unknown dispersal mechanism. Occurrences shall be considered impacted if they are within the project footprint or if they would be affected by project-related hydrologic changes.

b. A description of how avoidance and minimization measures would be implemented on the project, with the requirement of retaining at least 75 percent of the local population of this species and avoiding all CNDB rank 1 species located in off-site linears. Compensatory mitigation, at a ratio of 3:1, and in accordance with the standards and specifications described in Section D of this condition, shall be required for the remaining 25 percent of the local population that is not avoided. Isolated 'islands' of protected plants disconnected by the project from natural fluvial processes shall not be considered to be protected and shall not be credited as contributing to the 75 percent avoidance requirement because such isolated populations are not sustainable. For currently isolated plant occurrences, the 75 % avoidance shall not be required as the isolated populations are unlikely to be sustainable. Mitigation as provided in Section D shall be required for such isolated occurrences.

2. Mitigation for CNDDB Rank 2 Plants (Imperiled): If species with a CNDDB rank of 2 are detected within the Project Disturbance Area, the project owner shall prepare and implement a Special Status Plant Mitigation Plan (Plan).The Plan shall include mitigation, at a ratio of 2:1 as described below in Section D for Rank 2 plants that cannot be avoided. If after agency consultation, it is determined that avoidance would not satisfy the long-term viability of the plant, compensatory mitigation alone will be allowed. The content of the Plan and definitions shall be as described above in subsection C.1.

a. A description of the occurrences of the CNDDB rank 2 species on and off the project site, the percent of the local population affected,

and how these occurrences would be affected by the project. The local population shall be measured, and the impacts defined, as described above under #1(a).

b. Avoidance and minimization measures that would achieve maximize practicable avoidance of occurrences, including the requirement of avoiding all CNDDB rank 2 species located in off-site linears. If after agency consultation, it is determined that avoidance would not satisfy the long-term viability of the plant, compensatory mitigation alone will be allowed.

c. Compensatory mitigation, at a ratio of 2:1, and in accordance with the standards and specifications described in Section D of this condition, shall be required for any special status plant species that cannot be avoided.

3. Mitigation for CNDDB Rank 3 Plants (Vulnerable) – No Onsite Avoidance Required Unless Local or Regional Significance: If species with a CNDDB rank of 3 are detected within the Project Disturbance Area, no onsite avoidance or compensatory mitigation shall be required unless the occurrence shall be treated as a CNDDB rank 2 plant species. A plant occurrence would be considered to have local or regional significance, in which case, the plant occurrence shall be treated as a CNDDB 2 ranked plant. A plant occurrence would be considered to have local or regional significance if:

   - It occurs at the outermost periphery of its range in California;
   - It occurs in an atypical habitat, region, or elevation for the taxon that suggests that the occurrence may have genetic significance (e.g., that may increase its ability to survive future threats), or;
   - It exhibits any unusual morphology that is not clearly attributable to environmental factors that may indicate a potential new variety or subspecies.

4. Pre-Construction Notification for State- or Federal-Listed Species, or BLM Sensitive Species. If a state or federal-listed species or BLM Sensitive species is detected, the project owner shall immediately notify the CDFG, USFWS, BLM, and the CPM.

5. Preservation of the Germplasm of Affected Special Status Plants: As additional mitigation for the significant impacts to special status plants, regardless of whether compensatory mitigation is required, prior to construction, the project owner shall collect seeds from all available affected special status plants onsite to conserve the germplasm and provide a seed source for restoration efforts. The seed shall be collected

under the supervision or guidance of a reputable seed storage facility such as the Rancho Santa Ana Botanical Garden Seed Conservation Program, San Diego Natural History Museum, or the Missouri Botanical Garden. The costs associated with the long term storage of the seed shall be the responsibility of the project owner. Any efforts to propagate and reintroduce special status plants from seeds in the wild shall be carried out under the direct supervision of specialists such as those listed above and as part of a Habitat Restoration/Enhancement Plant approved by the CPM and made available for contingency efforts in the event of on site or off site mitigation failure. Feasibility shall be determined based on the availability of seeds prior to construction activities. For Phase 1(a) and 1(b), it is recognized that seed collection may not be possible given the timing of approvals and the scheduled initiation of construction.

Section D. Mitigation Measures for Special Status Plants

Where compensatory mitigation is required under the terms of Section C, above, the project owner shall mitigate project impacts to special status plant occurrences with compensatory mitigation. Compensatory mitigation shall consist of acquisition of habitat supporting the target species, or restoration/enhancement of populations of the target species, and shall meet the performance standards for mitigation described below. In the event that no opportunities for acquisition or restoration/enhancement exist, the Project owner can fund a species distribution study designed to promote the future preservation, protection or recovery of the species. Finally, if the project owner chooses, an in lieu fee can be paid to satisfy these requirements. If all or a portion of the acquired habitat compensation lands for Bio-10 or Bio-17 provide for the replacement of the Special Status Plants impacted, then the requirements of this condition will be reduced by that amount. Compensatory mitigation shall be at a ratio of 3:1 for CNDDB Rank 1 plants, with three acres of habitat acquired or restored/enhanced for every acre of habitat occupied by the special status plant that will be disturbed by the Project Disturbance Area (for example if the area occupied by the special status plant collectively measured is ¼ acre than the compensatory mitigation will be ¾ of an acre). The mitigation ratio for CNDDB Rank 2 plants shall be 2:1. So, for the example above, the mitigation ratio would be one-half acre for the Rank 2 plants.

The project owner shall provide funding for the acquisition and/or restoration/enhancement, initial improvement, and long-term maintenance and management of the acquired or restored lands or pay in lieu fees to satisfy this requirement. The actual costs to comply with this condition will vary depending on the Project Disturbance Area, the actual costs of acquiring compensation habitat, the actual costs of initially improving the habitat, the actual costs of long-term management as determined by a Property Analysis Record (PAR) report, and other transactional costs related to the use of compensatory mitigation.

The project owner shall comply with other related requirements in this condition:

I. Compensatory Mitigation by Acquisition: The requirements for the acquisition, initial protection and habitat improvement, and long-term maintenance and management of special-status plant compensation lands include all of the following:

1. Selection Criteria for Acquisition Lands. The compensation lands selected for acquisition may include any of the following three categories:

- Occupied Habitat, No Habitat Threats. The compensation lands selected for acquisition shall be occupied by the target plant population and shall be characterized by site integrity and habitat quality that are required to support the target species, and shall be of equal or better habitat quality than that of the affected occurrence. The occurrence of the target special-status plant on the proposed acquisition lands should be viable, stable or increasing (in size and reproduction).

- Occupied Habitat, Habitat Threats. Occupied compensation lands characterized by habitat threats may also be acquired as long as the population could be reasonably expected to recover with habitat restoration efforts (e.g., OHV or grazing exclusion, or removal of invasive non-native plants) and is accompanied by a Habitat Enhancement/Restoration Plan as described in Section D.II, below.

- Unoccupied but Adjacent. The project owner may also acquire habitat for which occupancy by the target species has not been documented, if the proposed acquisition lands are adjacent to occupied habitat. The Project owner shall provide evidence that acquisitions of such unoccupied lands would improve the defensibility and long -term sustainability of the occupied habitat by providing a protective buffer around the occurrence and by enhancing connectivity with undisturbed habitat. This acquisition may include habitat restoration efforts where appropriate, particularly when these restoration efforts will benefit adjacent habitat that is occupied by the target species.

2. Review and Approval of Compensation Lands Prior to Acquisition. The project owner shall submit a formal acquisition proposal to the CPM describing the parcel(s) intended for purchase. This acquisition proposal shall discuss the suitability of the proposed parcel(s) as compensation lands for special - status plants in relation to the criteria listed above, and must be approved by the CPM. The CPM shall provide a written

response to the proposal within 30 days of receipt, explaining the reasons for approving or disapproving the proposal.

3. Management Plan. The project owner or approved third party shall fund the development of a management plan for the compensation lands for the entity that will be managing the lands. The goal of the management plan shall be to support and enhance the long-term viability of the target special-status plant occurrences. The Management Plan shall be submitted for review and approval to the CPM, in consultation with BLM.

4. Integrating Special-Status Plant Mitigation with Other Mitigation lands. If all or any portion of the acquired special status species habitat, state jurisdictional waters, or other required compensation lands meets the criteria above for special-status plant compensation lands, the portion of the other species' or habitat compensation lands that meets any of the criteria above may be used to fulfill that portion of the obligation for special-status plant mitigation.

5. Compensation Lands Acquisition Requirements. The project owner shall comply with the following requirements relating to acquisition of the compensation lands after the CPM, has approved the proposed compensation lands:

a. Preliminary Report. The project owner, or an approved third party, shall provide a recent preliminary title report, initial hazardous materials survey report, biological analysis, and other necessary or requested documents for the proposed compensation land to the CPM. All documents conveying or conserving compensation lands and all conditions of title are subject to review and approval by the CPM. For conveyances to the State, approval may also be required from the California Department of General Services, the Fish and Game Commission and the Wildlife Conservation Board.

b. Title/Conveyance. The project owner shall acquire and transfer fee title to the compensation lands, a conservation easement over the lands, or both fee title and conservation easement, as required by the CPM. Any transfer of a conservation easement or fee title must be to CDFG, a non-profit organization qualified to hold title to and manage compensation lands (pursuant to California Government Code section 65965), or to BLM or other public agency approved by the CPM. If an approved non-profit organization holds fee title to the compensation lands, a conservation easement shall be recorded in favor of CDFG or another entity approved by the CPM. If an entity other than CDFG holds a conservation easement over the compensation lands, the CPM may require that CDFG or

another entity approved by the CPM, in consultation with CDFG, be named a third party beneficiary of the conservation easement. The project owner shall obtain approval of the CPM of the terms of any transfer of fee title or conservation easement to the compensation lands.

c. Protection and Habitat Improvement. The project owner shall fund activities that the CPM requires for the initial protection and habitat improvement of the compensation lands. These activities will vary depending on the condition and location of the land acquired, but may include trash removal, construction and repair of fences, invasive plant removal, and similar measures to protect habitat and improve habitat quality on the compensation lands. The costs of these activities are estimated to be $27 per acre, using the estimated cost per acre for special status species habitat mitigation as a best available proxy, but actual costs will vary depending on the measures that are required for the compensation lands. A non-profit organization, CDFG or another public agency may hold and expend the habitat improvement funds if it is qualified to manage the compensation lands (pursuant to California Government Code section 65965), if it meets the approval of the CPM in consultation with CDFG, and if it is authorized to participate in implementing the required activities on the compensation lands. If CDFG takes fee title to the compensation lands, the habitat improvement fund must be paid to CDFG or its designee.

d. Property Analysis Record. Upon identification of the compensation lands, the project owner shall conduct a Property Analysis Record (PAR) or PAR-like analysis to establish the appropriate amount of the long-term maintenance and management fund to pay the in-perpetuity management of the compensation lands. The PAR or PAR-like analysis must be approved by the CPM before it can be used to establish funding levels or management activities for the compensation lands.

e. Long-term Maintenance and Management Funding. The project owner shall provide money to establish an account with non-wasting capital that will be used to fund long-term maintenance and management of the compensation lands. The amount of money to be paid will be determined through an approved Property Analysis Record (PAR) or PAR-like analysis conducted for the compensation lands. Until an approved PAR or PAR-like analysis is conducted for the compensation lands, the amount of required funding is initially estimated to be $692 for every acre of compensation lands, using as the best available proxy, the estimated cost for special status species habitat compensatory mitigation. If compensatory lands will not be identified and a PAR or PAR-like analysis completed

within the time period specified for this payment (see verification section at the end of this condition), the project owner shall either: (i) provide initial payment equal to the amount of $692 per acre, multiplied by a mitigation ratio of 3:1 (for Rank 1 species) or 2:1 (for Rank 2 species), and multiplied by the number of acres the project owner proposes to acquire for compensatory mitigation; or (ii) provide security to the Energy Commission under subsection (g), "Mitigation Security" below, in an amount equal to $692 multiplied by the number of acres the project owner proposes to acquire for compensatory mitigation at the established mitigation ratio. The amount of the required initial payment or security for this item shall be adjusted for any change in the Project Disturbance Area as described above. If an initial payment is made based on the estimated per acre costs, the project owner shall deposit additional money as may be needed to provide the full amount of long term maintenance and management funding indicated by a PAR or PAR-like analysis, once the analysis is completed and approved. If the approved analysis indicates less than $692 per acquired acre will be required for long-term maintenance and management, the excess paid will be returned to the project owner. The project owner must obtain the CPM's approval of the entity that will receive and hold the long-term maintenance and management fund for the compensation lands. The CPM will consult with CDFG before deciding whether to approve an entity to hold the project's long-term maintenance and management funds.

f. Interest, Principal, and Pooling of Funds. The Project owner shall ensure that an agreement is in place with the long-term maintenance and management fund (endowment) holder/manager to ensure the following requirements are met:

   i. Interest. Interest generated from the initial capital long-term maintenance and management fund shall be available for reinvestment into the principal and for the long-term operation, management, and protection of the approved compensation lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action that is approved by the CPM and is designed to protect or improve the habitat values of the compensation lands.

   ii. Withdrawal of Principal. The long-term maintenance and management fund principal shall not be drawn upon unless such withdrawal is deemed necessary by the CPM or by the approved third-party long-term maintenance and management fund manager, to ensure the continued viability of the species on the compensation lands.

iii. Pooling Long-Term Maintenance and Management Funds. An entity approved to hold long-term maintenance and management funds for the Project may pool those funds with similar non-wasting funds that it holds from other projects for long-term maintenance and management of compensation lands for special-status plants. However, for reporting purposes, the long-term maintenance and management funds for this Project must be tracked and reported individually to the CPM.

g. Other Expenses. In addition to the costs listed above, the Project owner shall be responsible for all other costs related to acquisition of compensation lands and conservation easements, including but not limited to the title and document review costs incurred from other state agency reviews, overhead related to providing compensation lands to CDFG or an approved third party, escrow fees or costs, environmental contaminants clearance, and other site cleanup measures.

6. Security. It is anticipated that the mitigation lands required under this condition will be nested in the mitigation lands required under BIO-10. Therefore, the security required under BIO-10 is adequate security for the mitigation required under this condition. However, the CPM's use of the security to implement measures in this condition and in BIO-10 may not fully satisfy the project owner's obligations under this condition.

   If it is determined that the mitigation lands acquired under BIO-10 do not satisfy the requirements of this condition, then the project owner will be required to provide additional security: Financial assurances shall be provided to the CPM in the form of an irrevocable letter of credit, a pledged savings account or another form of security ("Security") approved by the CPM. The amount of the Security shall be $692 per acre, using the estimated cost per acre for special status species habitat mitigation as a best available proxy, and multiplied by the established mitigation ratio, for every acre of habitat supporting the target special status plant species which is significantly impacted by the project. The actual costs to comply with this condition will vary depending on the actual costs of acquiring compensation habitat, the costs of initially improving the habitat, and the actual costs of long-term management as determined by a PAR report. Prior to submitting the Security to the CPM, the Project owner shall obtain the CPM's approval of the form of the Security. The CPM may draw on the Security if the CPM determines the project owner has failed to comply with the requirements specified in this condition. The CPM may use money from the Security solely for implementation of the requirements of this condition. The CPM's use of the Security to implement measures in this condition may not fully satisfy the project owner's obligations under this condition, and the project owner remains responsible for satisfying the

obligations under this condition if the Security is insufficient. The unused Security shall be returned to the Project owner in whole or in part upon successful completion of the associated requirements in this condition.

**II.** Compensatory Mitigation by Habitat Enhancement/Restoration: As an alternative or adjunct to land acquisition for compensatory mitigation the project owner may undertake habitat enhancement or restoration for the target special-status plant species. Habitat enhancement or restoration activities must achieve protection at a 3:1 ratio for Rank 1 plants and 2:1 for Rank 2 plants, with improvements applied to three acres, or two acres, respectively, of habitat for every acre special-status plant habitat directly or indirectly disturbed by the Project Disturbance Area (for example if the area occupied by the special status plant collectively measured is 1/4 acre than the improvements would be applied to an area equal to 3/4 of an acre at a 3:1 ratio, or one-half acre at a 2:1 ratio). Examples of suitable enhancement projects include but are not limited to the following: i) control unauthorized vehicle use into an occurrence (or pedestrian use if clearly damaging to the species); ii) control of invasive non-native plants that infest or pose an immediate threat to an occurrence; iii) exclude grazing by wild burros or livestock from an occurrence; or iv) restore lost or degraded hydrologic or geomorphic functions critical to the species by restoring previously diverted flows or increasing groundwater availability for dependent species.

If the project owner elects to undertake a habitat enhancement project for mitigation, the project must meet the following performance standards: The proposed enhancement project shall achieve rescue of an off-site occurrence that is currently assessed, based on the NatureServe threat ranking system[4] with one of the following threat ranks: a) long-term decline >30%; b) an immediate threat that affects >30% of the population, or c) has an overall threat impact that is High to Very High. "Rescue" would be considered successful if it achieves an improvement in the occurrence trend to "stable" or "increasing" status, or downgrading of the overall threat rank to slight or low (from "High" to "Very High").

If the Project owner elects to undertake a habitat enhancement project for mitigation, they shall submit a Habitat Enhancement/Restoration Plan to the CPM for review and approval, and shall provide sufficient funding for implementation and monitoring of the Plan. The amount of the Security shall be $692 per acre, using the estimated cost per acre for special status species habitat mitigation as a best available proxy, at the ratio of 3:1 for Rank 1 plants and 2:1 for Rank 2

[4] Master, L., D. Faber-Langendoen, R. Bittman, G. A., Hammerson, B. Heidel, J. Nichols, L. Ramsay, and A. Tomaino. 2009. *NatureServe Conservation Status Assessments: Factors for Assessing Extinction Risk*. NatureServe, Arlington, VA. Online:

http://www.natureserve.org/publications/ConsStatusAssess_StatusFactors.pdf, "Threats". See also: Morse, L.E., J.M. Randall, N. Benton, R. Hiebert, and S. Lu. 2004. An Invasive Species Assessment Protocol: Evaluating Non-Native Plants for Their Impact on Biodiversity. Version 1. NatureServe, Arlington, Virginia. Online:

http://www.natureserve.org/publications/pubs/invasiveSpecies.pdf

plants, for every acre of habitat supporting the target special-status plant species which is directly or indirectly impacted by the project. The amount of the security may be adjusted based on the actual costs of implementing the enhancement, restoration and monitoring. The implementation and monitoring of the enhancement/restoration may be undertaken by an appropriate third party such as NFWF, subject to approval by the CPM. The Habitat Enhancement/Restoration Plan shall include each of the following:

1. Goals and Objectives. Define the goals of the restoration or enhancement project and a measurable course of action developed to achieve those goals. The objective of the proposed habitat enhancement plan shall include restoration of a target special-status plant occurrence that is currently threatened with a long-term decline. The proposed enhancement plan shall achieve an improvement in the occurrence trend to “stable” or “increasing” status, or downgrading of the overall threat rank to slight or low (from “High” to “Very High”).
2. Historical Conditions. Provide a description of the pre -impact or historical conditions (before the site was degraded by weeds or grazing or ORV, etc.), and the desired conditions.
3. Site Characteristics. Describe other site characteristics relevant to the restoration or enhancement project (e.g., composition of native and pest plants, topography and drainage patterns, soil types, geomorphic and hydrologic processes important to the site or species.
4. Ecological Factors. Describe other important ecological factors of the species being protected, restored, or enhanced such as total population, reproduction, distribution, pollinators, etc.
5. Methods. Describe the restoration methods that will be used (e.g., invasive exotics control, site protection, seedling protection, propagation techniques, etc.) and the long-term maintenance required. The implementation phase of the enhancement must be completed within five years.
6. Budget. Provide a detailed budget and time-line, and develop clear, measurable, objective-driven annual success criteria.
7. Monitoring. Develop clear, measurable monitoring methods that can be used to evaluate the effectiveness of the restoration and the benefit to the affected species. The Plan shall include a minimum of five years of quarterly monitoring and then annual monitoring for the remainder of the enhancement project, and until the performance standards for rescue of a threatened occurrence are met. At a minimum the progress reports shall include: quantitative measurements of the projects progress in meeting the enhancement project success criteria, detailed

description of remedial actions taken or proposed, and contact information for the responsible parties.

8. Reporting Program. The Plan shall ensure accountability with a reporting program that includes progress toward goals and success criteria. Include names of responsible parties.

9. Contingency Plan. Describe the contingency plan for failure to meet annual goals.

10. Long-term Protection. Include proof of long-term protection for the restoration site. For private lands this would include conservations easements or other deed restrictions; projects on public lands must be contained in a Flat-Tailed Horned Lizard Management Area, Wildlife Habitat Management Area, or other land use protections that will protect the mitigation site and target species.

**Verification**: The Special Status Plant Impact Avoidance and Minimization Measures shall be incorporated into the BRMIMP as required under Condition of Certification BIO-7.

Raw GPS data, metadata, and CNDDB field forms shall be submitted to the CPM within two weeks of the completion of each survey. A preliminary summary of results for the late summer/fall botanical surveys shall also be submitted to the CPM and BLM's State Botanist within two weeks following the completion of the surveys. If surveys are split into more than one period, then a summary letter shall be submitted following each survey period. The Final Summer-Fall Botanical Survey Report, GIS shape files, and metadata shall be submitted to the BLM State Botanist and the CPM no less than 30 days prior to the start of ground-disturbing activities. The Final Report shall include a detailed accounting of the acreage of Project impacts to special status plant occurrences. Where avoidance shall not provide for the long-term viability of the special status plants, the report will document the reasons why avoidance is deemed to not be effective.

A draft Conceptual Special Status Plant Mitigation Plan as described in Section C shall be submitted to the BLM State Botanist and the CPM for review and approval no less than 30 days prior to the start of ground-disturbing activities, if required.

The Project owner shall immediately provide written notification to the CPM, CDFG, USFWS, and BLM if it detects a State- or Federal-Listed Species, or BLM Sensitive Species at any time during its late summer/fall botanical surveys or at any time thereafter through the life of the project, including conclusion of project decommissioning.

No less than 30 days prior to the start of ground-disturbing activities, the project owner shall submit grading plans and construction drawings to the CPM which depict the location of Environmentally Sensitive Areas and the Avoidance and Minimization Measures contained in Section A of this Condition.

If the mitigation actions required under this condition are not completed prior to ground-disturbing activities, the project owner shall provide the CPM with approved Security as described above.

No later than 12 months after the start of ground-disturbing project activities, the project owner shall submit a formal acquisition proposal to the CPM describing the parcels intended for purchase, and shall obtain approval from the CPM, in consultation with CDFG, BLM and USFWS, prior to the acquisition. If NFWF or another approved third party is handling the acquisition, the project owner shall fully cooperate with the third party to ensure the proposal is submitted within this time period; the project owner, however, shall be deemed in compliance of this condition if it has provided the required funding and satisfied the provisions of this condition no later than 12 moths after start of ground-disturbing project activities. The project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM, CDFG, BLM and USFWS of such completion, no later than 18 months after the issuance of the Energy Commission Decision. If NFWF or another approved third party is being used for the acquisition, the project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline. Provision of such funds will satisfy the project owner's obligations under this condition.

No fewer than 90 days prior to acquisition of compensatory mitigation lands, the project owner shall submit a formal acquisition proposal and draft Management Plan for the proposed lands to the CPM, with copies to CDFG, USFWS, and BLM, describing the parcels intended for purchase and shall obtain approval from the CPM prior to the acquisition. No fewer than 90 days prior to acquisition of compensatory mitigation lands, the project owner shall submit to the CPM and obtain CPM approval of any agreements to delegate land acquisition to an approved third party, or to manage compensation lands; such agreement shall be executed and implemented within 18 months of the Energy Commission's certification of the project.

The Project owner or an approved third party shall complete the acquisition and all required transfers of the compensation lands, and provide written verification to the CPM of such completion no later than 18 months after the start of project ground-disturbing activities. If NFWF or another approved third party is being used for the acquisition, the project owner shall ensure that funds needed to accomplish the acquisition are transferred in timely manner to facilitate the planned acquisition and to ensure the land can be acquired and transferred prior to the 18-month deadline.

If habitat enhancement is proposed, no later than six months following the start of ground-disturbing activities, the project owner shall obtain CPM approval of the final Habitat Enhancement/Restoration Plan, prepared in accordance with Section D, and submit to the CPM or a third party approved by the CPM Security

adequate for long-term implementation and monitoring of the Habitat Enhancement/Restoration Plan.

Enhancement/restoration activities shall be initiated no later than 12 months from the start of construction. The implementation phase of the enhancement project shall be completed within five years of initiation. Until completion of the five-year implementation portion of the enhancement action, a report shall be prepared and submitted as part of the Annual Compliance Report. This report shall provide, at a minimum: a summary of activities for the preceding year and a summary of activities for the following year; quantitative measurements of the project's progress in meeting the enhancement project success criteria; detailed description of remedial actions taken or proposed; and contact information for the responsible parties.

If a Status and Distribution Study is proposed, the study shall commence no later than six months following the start of ground-disturbing activities. The draft study shall be submitted to the CPM and BLM Botanist for review and approval no more than two years following the start of ground-disturbing activities. The final study shall be submitted no more than 30 months following the start of ground-disturbing activities.

Within 18 months of ground-disturbing activities, the Project owner shall transfer to the CPM or an approved third party the difference between the Security paid and the actual costs of (1) acquiring compensatory mitigation lands, completing initial protection and habitat improvement, and funding the long-term maintenance and management of compensatory mitigation lands; and/or (2) implementing and providing for the long-term protection and monitoring of habitat enhancement or restoration activities.

Implementation of the special status plant impact avoidance and minimization measures shall be reported in the Monthly Compliance Reports prepared by the Designated Botanist. Within 30 days after completion of project construction, the project owner shall provide to the CPM, for review and approval, in consultation with the BLM State Botanist, a written construction termination report identifying how measures have been completed.

The Project owner shall submit a monitoring report every year for the life of the project to monitor effectiveness of protection measures for all avoided special-status plants to the CPM and BLM State Botanist. The monitoring report shall include: dates of worker awareness training sessions and attendees, completed CNDDB field forms for each avoided occurrence on-site and within 100 feet of the Project boundary off-site, and description of the remedial action, if warranted and planned for the upcoming year. The completed forms shall include an inventory of the special-status plant occurrences and description of the habitat conditions, an indication of population and habitat quality trends.

**DECOMMISSIONING AND RECLAMATION PLAN**

**BIO-20** Upon project closure the project owner shall implement a final Decommissioning and Reclamation Plan to remove all structures from

the project site and fill from Waters of the U.S. and restore the natural topography, hydrology and vegetation/wildlife habitat. The Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall be consistent with the guidelines in BLM's 43 CFR 3809.550 et seq., subject to review and revisions from BLM's Biologist and the CPM in consultation with USFWS, USACE, and CDFG.

**Verification:** No less than 30 days from publication of the Energy Commission Decision or the Record of Decision, whichever comes first, the project owner shall provide to the BLM Biologist and the CPM a draft Decommissioning and Reclamation Plan. No more than 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide the BLM Biologist and the CPM with the final version of a Decommissioning and Reclamation Plan that has been reviewed and approved by the BLM Biologist and the CPM, in consolation with USFWS, and CDFG. All modifications to the approved Channel Decommissioning Plan shall be made only after approval from the BLM Biologist and the CPM, in consultation with USFWS, USACE, and CDFG.

No more that 60 days prior to initiating project-related ground disturbance activities the project owner shall provide financial assurances to the BLM Biologist and the CPM to guarantee that an adequate level of funding will be available to implement measures described in the Decommissioning and Reclamation Plan.

## MONITORING BIRD IMPACTS FROM SOLAR TECHNOLOGY

**BIO-21** The project owner shall prepare and implement a Bird Monitoring Study to monitor the death and injury of birds from collisions with facility features such as reflective mirror-like surfaces and from heat, and bright light from concentrating sunlight. The study design shall be approved by BLM's Biologist and the CPM in consultation with CDFG and USFWS, and shall be incorporated into the project's BRMIMP and implemented. The Bird Monitoring Study shall include detailed specifications on data and carcass collection protocol and a rationale justifying the proposed schedule of carcass searches. The study shall also include seasonal trials to assess bias from carcass removal by scavengers as well as searcher bias. The Plan shall include adaptive management strategies that include the placement of bird flight diverters, aerial markers, or other strategies to minimize collisions with the SunCatcher units.

**Verification:** No more than 30 days following the publication of the Energy Commission License Decision or the Record of Decision/ROW Issuance, whichever comes first, the project owner shall submit to the CPM, BLM's Biologist, USFWS, and CDFG, a final Bird Monitoring Study. Modifications to the Bird Monitoring Study shall be made only after approval from BLM's Biologist and the CPM.

For one year following the beginning of power plant operation the Designated Biologist shall submit quarterly reports to BLM's Biologist, CPM, CDFG, and USFWS describing the dates, durations, and results of monitoring. The quarterly reports shall provide a detailed description of any project-related bird or wildlife deaths or injuries detected during the monitoring study or at any other time. Following the completion of the fourth quarter of monitoring the Designated Biologist shall prepare an Annual Report that summarizes the year's data, analyzes any project-related bird fatalities or injuries detected, and provides recommendations for future monitoring and any adaptive management actions needed. The Annual Report shall be provided to the CPM, BLM's Biologist, CDFG, and USFWS. Quarterly reporting shall continue until BLM's Biologist and the CPM, in consultation with CDFG and USFWS determine whether more years of monitoring are needed, and whether mitigation and adaptive management measures are necessary. After the Bird Monitoring Study is determined by BLM's Biologist and the CPM to be complete, the project owner or contractor shall prepare a report that describes the study design and monitoring results to be submitted to the CPM, CDFG, BLM,and USFWS. Proof of submittal shall be provided to BLM's Wildlife Biologist and the CPM within one year of concluding the monitoring study.

## B. SOIL AND WATER RESOURCES

This section addresses the soil and water resources associated with the Imperial Valley Solar Project (IVS or Project), including the Project's potential to induce erosion and sedimentation, modify drainage and flooding conditions, adversely affect groundwater supplies, and degrade water quality. The analysis also considers potential cumulative impacts to soil and water resources related to future foreseeable projects and site decommissioning.

The subject of soil and water resources was thoroughly addressed by the parties. Some 260 pages of the transcript of the July 26, 2010 Evidentiary Hearing are devoted to this topic, as well as hundreds of pages of exhibits. The contested issues included impacts of the project's proposed temporary use of groundwater, impacts of the proposed use of treated effluent from the Seeley Wastewater Treatment Facility, and hydrologic impacts of the placement of SunCatchers in areas subject to flash flooding and erosion.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Background and Setting

The proposed Imperial Valley Solar project site is approximately 6,500 acres located in the southwest region of Imperial County. The site consists of an estimated 6,140 acres of public land administered by the Bureau of Land Management (BLM), and approximately 360 acres of private land under the jurisdiction of Imperial County.

Features and facilities associated with the proposed project, the majority of which are located on the proposed project site or construction laydown area, include:

- Approximately 30,000 38-foot-diameter solar disks, referred to as SunCatchers, and associated equipment and infrastructure within a fenced boundary;
- A 12-mile, 6-inch water pipeline approximately 30 inches underground off-site in the existing Evan Hewes Highway right-of-way (ROW). The pipeline would provide recycled waste water from the Seeley Waste Water Treatment Facility (SWWTF) located approximately 12 miles east of the proposed project site;
- An on-site, 42-acre Main Services Complex located generally in the center of the site for administration and maintenance activities. The complex would include an administration building, a maintenance building, a solar disk assembly building, a water treatment facility

(described below), a perimeter fence, parking areas, a vehicle washing area, a 5,000-gallon fuel storage tank for vehicles, a 1-acre storm water retention pond, a chemical storage area, access roads, a storage area for hydrogen bottles, a water treatment facility, a lubricating oil recycling tank, a waste water treatment facility (or sewage holding tank), and various ancillary features.

- An on-site, 6-acre 750-MW Substation located generally in the center of the site, near the Main Services Complex.
- A 10.3-mile 730-MW/230-kV transmission line intended to connect to the existing San Diego Gas & Electric (SDG&E) Imperial Valley Substation located southeast of the project site. The proposed transmission line would parallel the existing Southwest Powerlink transmission line in the existing right of way; and
- Approximately 27 miles of unpaved arterial roads, approximately 14 miles of unpaved perimeter roads, and approximately 234 miles of unpaved access roads.

(Ex. 302, pp. C.7-5 to C.7-6.)

The Applicant proposes to install 30,000 SunCatchers, each of which would contain a single Stirling engine. Stirling engines are designed to use closed loop air-cooled radiators, which achieves maximum water conservation with cooling. Other than dust suppression, workforce potable consumption and sanitary needs, and washing mechanical parts prior to conducting routine maintenance, water use would be limited to mirror washing and hydrogen gas generation. Water is the only feasible means of cleaning mirrors, which must be clean to maintain efficiency of output of Stirling engine power plants.

The SunCatcher foundations would be metal pipe pedestals 24 inches in diameter secured in place using metal fins for stabilization and driven hydraulically into the ground. The 30,000 SunCatchers would be installed in straight, parallel rows. Each row would consist of a series of SunCatchers in pairs, one on each side of a central access road. The distance between paired dishes along a row would be 112 feet. The distance between successive pairs in a row would be approximately 55 feet. Thus, a row 1,000 feet long would have approximately 38 SunCatchers. A 12-foot-wide unpaved access road would run along the centerline of each row, with a 15-foot unpaved maintenance road extending 60 feet to each side of the maintenance road at each SunCatcher pair. A row 1000 feet long would be serviced by approximately 28,200 square feet of unpaved roadway. The distance between rows would be 72 feet.

Foundation elements for the SunCatchers would typically be mounted on a foundation consisting of a metal fin-pipe that is hydraulically driven into the

ground. This foundation requires no concrete, generates no spoils, and the foundations can be completely removed when the project is decommissioned. The metal fin-pipe foundation eliminates conventional drilling techniques that would generate soil cuttings, require dust suppression, and require the trucking and disposal of the cuttings. When conditions are not conducive to the use of the metal fin-pipe foundation, the foundation would consist of rebar-reinforced concrete constructed below grade.

The site layout would maintain pre-development drainage patterns where feasible. Grading would mostly be limited to smoothing of local surface undulations for SunCatcher and access road construction. Paved roadways would utilize roadway dip crossings, referred to as Arizona Crossings, or low-flow culverts, at watercourse crossings. The Arizona Crossings would be at-grade and protected from erosion upstream and downstream by at-grade riprap blankets. The low-flow culverts would be 8- to 24-inch-diameter circular pipes buried beneath an above-grade roadway surface. The east-west on-site paved arterial roadway between the Main Services Complex and Dunaway Road would be designed as an evacuation route. Culverts on this roadway would have capacity for a 25-year flood, leaving the roadway surface drivable for all flows less than a 25-year return period.

Maintenance after flood events would consist of sediment removal from roadway surfaces and removal of sediment from around stem pipe risers upstream of low-flow culverts. More extensive roadway repairs may be required after major flow events. Sediment (desilting) basins are proposed upstream of 100 low flow crossings and at other areas within the project and at project boundaries for collection of sediment. Sediment basins are intended as a best management practice for water quality and to minimize roadway maintenance (sediment clearing) after minor runoff events. Sediment periodically removed from these basins would be distributed on-site at undetermined locations as deemed necessary by the project owner. Basin sizes would range from 200 cubic yards to 600 cubic yards, with several larger basins to be sized at the time of final design. Sizing is intended to collect estimated annual sediment production for two years using a regional procedure developed for the Mojave Desert.

Ex. 302, pp. C.7-13 to C.7-14.)

a. Project Site

The project site, located in the Yuha Desert in the southwestern corner of Imperial County approximately 14 miles west of the city of El Centro, consists of

undeveloped desert land with sparse vegetation and crossed by numerous well-defined dry wash drainage-ways. The Yuha Desert, part of the larger Sonoran Desert, is one of the hottest deserts in North America, with very sparse rainfall.

The site is on a north-sloping alluvial surface with ground elevations ranging from approximately 320 feet above mean sea level (msl) along the southern boundary of the western half of the property (Phase 1 construction area), to approximately 40 feet msl at the eastern boundary (Phase 2 construction area). The proposed laydown area to the east of the site is approximately 10 feet msl. Site topography is gently rolling to relatively flat, with more pronounced slopes and canyons in the western half of the site, roughly corresponding to the Phase I area. Canyons in this western portion of the site are generally not more than 20 to 40 feet deep with mildly sloping sides. The eastern portion of the site, roughly corresponding to the Phase 2 area, is generally flatter, more uniform, and without the shallow canyons of the western half.

The vicinity surrounding the project site is desert similar to the project site. To the east the desert ground slopes away, dropping below sea level, to the irrigated agricultural area of the Imperial Valley approximately 2.5 miles east of the Phase 2 site boundary. This agricultural area extends east to a point approximately 30 miles east of the project site. North, west, and south of the site are comprised of desert extending beyond the Mexican border 15 miles to the south, north to the Salton Sea roughly 25 miles from the site, and 15 miles west to the foothills of the Peninsular Mountain Range.

The Westside Main Canal is located at the edge of the agricultural area 2.5 miles east of the project site. This irrigation supply canal, operated by the Imperial Irrigation District, receives water from the All-American Canal and distributes it north to smaller irrigation canals within the Imperial Irrigation District (IID) system. Further east, approximately seven miles from the project site, is the New River, flowing north from Mexico to the Salton Sea. The Coyote Wash, a large, dry desert wash, runs southwest to northeast roughly parallel to and north of the site at a distance of approximately one mile.

Immediately adjacent to the northern boundary of the proposed project site is the USG Corporation Gypsum Wallboard Manufacturing Facility, known as Plaster City. The small communities of Edgar and Coyote Wells are located approximately five miles east and four miles west of the project site, respectively. A small water ski community known as Imperial Lakes is located about two miles northeast of the project site, and about 0.7 miles north of the project laydown

area. The California State Centinela Prison is located approximately 1.5 miles north of Imperial Lakes.

Two private parcels of land, one owned by a recreational vehicle club and one by a private landowner, are surrounded by the proposed project and are not a part of the project. These parcels are separate from the 360 acres of private land described above which will be incorporated into the project by purchase or lease. The 360 acres of private land to be incorporated into the project are located to the southwest of Plaster City, are currently vacant and in a natural condition, and designated as open space by Imperial County. The northern boundary of the proposed project site is adjacent to Imperial County Route S80 and Plaster City, and the southern boundary is adjacent to Interstate Highway 8.

(Ex. 302, pp. C.7-6 to C.7-7.)

Climate

The climate of the site vicinity is hot during summer, with temperatures commonly above 100 degrees, and moderate during winter with temperatures in the 40 to 70 degree range. Based on information from the Western Regional Climate Center (WRCC) for El Centro, approximately 18 miles east of the project site (period of record 1932 to 2009), the warmest month of the year is July with an average maximum temperature of 108 degrees Fahrenheit. Average maximum temperatures exceed 100 degrees for June, July, August, and September. The coldest month of the year is December with an average minimum temperature of 40 degrees.

Precipitation is very sparse. Annual average precipitation at El Centro (WRCC data) is 2.65 Inches. Rainfall primarily occurs December to March in the form of widespread winter storms. Approximately 53 percent of total yearly rainfall occurs during those months. Summer monsoon storms generally occur from August to October, when approximately 34 percent of total yearly rainfall occurs. There is very little precipitation during the months of April to July (about 6 percent of the yearly total). The wettest month of the year is December with an average rainfall of 0.42 Inches.

(Ex. 302, pp. C.7-8 to C.7-9.)

Hydrology

The project site lies within the Imperial Sub-region of the Colorado River RWQCB. There are no perennial or intermittent drainages on the project site. The closest perennial drainage to the project site is the New River, created in the

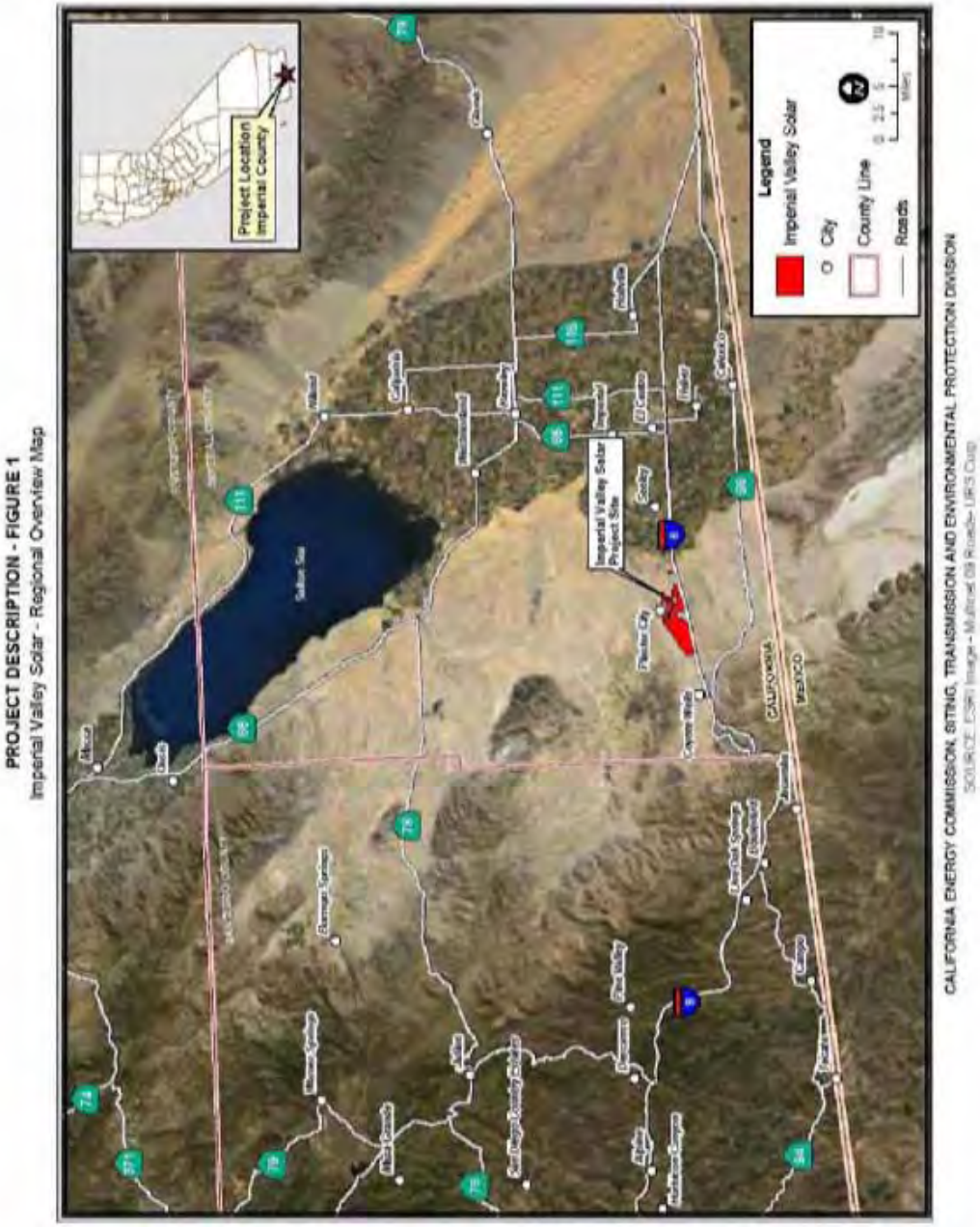
early 1900's when the Colorado River overflowed a dike, and with the Alamo River further east, flowed through the Imperial Valley to form the Salton Sea. Currently, the highly polluted New River obtains its flow primarily from agricultural irrigation return, industrial discharge, and SWWTF discharge.

Numerous ephemeral drainages traverse the Imperial Valley Solar project site from the south to north in the western portion of the site and toward the northeast in the eastern half of the site. Headwaters for these drainages are gently sloping upland areas located to the south and west. Culverts under the I-8 Freeway allow flows from south of the freeway to flow across and into the site.

The ephemeral site drainages are normally dry. They contain water only infrequently following precipitation events large enough to produce runoff. Rainfall is scant in this area so long periods of time may occur between runoff events. When it does occur, runoff is generally activated by intense summer monsoon rains that produce short-duration flash flooding that can have high flow peaks. Winter storms, although producing more rain on average than the summer monsoons, are widespread and low-intensity, producing little runoff except on watersheds much larger than those affecting the project site. By illustration, stream gage records for San Felipe Creek approximately 20 miles north of the site show that August and September flows are nearly 5 times higher than the winter (December-February) flows. Although the majority of the rainfall occurs during winter, the majority (65 percent) of annual runoff occurs during the summer months of July to September. This pattern could be expected to be more pronounced on the project site due to smaller watershed size.

(Ex. 302, pp. C.7-9 to C.7-10.)

Figure 1 from the LEDPA analysis (Ex. 129, p. 6) shows the location, watershed areas, and estimated 100-year peak discharges of 12 drainageways entering the project site from the south as mapped by the project Applicant. Stream flow estimates have been made for these watersheds using a rainfall/runoff model. This model uses rainfall estimates (2.62 inches over a 6-hour period for a 100-year event), soil type, and area and topographic information to estimate peak runoff. Watershed areas for the drainage-ways shown in Soil and Water Figure 1 range from 58 to 1,574 acres, averaging 548 acres. The estimated 100-year discharges range from 57 cubic feet per second (cfs) to 777 cfs.




PROJECT DESCRIPTION

The 100-year discharge represents the discharge from a flood event with an annual probability of occurrence of 1 percent. Commonly called the 100-year flood, a flood of this magnitude is expected to occur, on average, once every 100 years. Since there is a 1% chance this flood occurs every year, it is possible for more, or fewer, than one flood of this magnitude to occur in a 100-year period. The 100-year flood has been designated by the Federal Emergency Management Agency (FEMA) as the national regulatory flood for flood insurance and floodplain management purposes.

As the ephemeral watercourses pass through the project site, some combine and new watersheds form. Soil and Water Figure 1 shows the location, watershed areas, and 100-year peak discharges for 9 watercourses exiting the site toward the north and east. Watersheds for these drainage ways range from 147 to 18,856 acres in area, averaging 3,246 acres (median 1,274 acres). The 100-year discharge for these watersheds ranges from 126 cfs to 4,223 cfs.

Discharges for more frequent floods have been determined. The 25-year peak discharges, with 4 percent chance of occurrence in any given year, are roughly 50 percent of the 100-year peaks given in Soil and Water Figure 1. The 10-year discharges, with 10 percent chance of occurrence per year, are roughly 30 percent of the 100-year peaks. The 5-year discharges, with 20 percent chance of occurrence per year, are roughly 15 percent to 20 percent of the 100-year peaks. The estimated discharges are: 100-year equals 777 cfs, 25-year equals 397 cfs, 10-year equals 217 cfs, and 5-year equals 119 cfs.

Flows exiting the site on the north in the Phase I area are returned to the site at a point east of Plaster City, where they join other on-site flow in the Phase II area. All Phase II flows eventually exit the site on the east, overtop Dunaway Road, and make their way to the Westside Main Canal This large drainage feature located south of Plaster City consolidates flows from much of the eastern portion of the property and is mapped as a Federal Emergency Management Agency floodplain (see Stormwater Section – Flooding, below). Flows of sufficient volume and discharge to cross the canal would be conveyed either north through the Westside Main Canal, north and east through local drainage and irrigation ditches, or overland east to the New River to be eventually deposited in the Salton Sea. It is likely that most flows would infiltrate the soil prior to reaching the New River or the Salton Sea.
(Ex. 302, pp. C.7-9 to C.7-10.)

Flooding

Flooding, for the purpose of this report, is considered to be that area of a channel or area adjacent to a channel that is subject to inundation by channel flows. Flooding can occur anywhere there is a natural drainage-way on the project site.

The Federal Emergency Management Agency prepares 100-year flood maps for flood insurance purposes and for floodplain management use by local agencies. FEMA map panels 06025C-1650C and 06025C-1675C cover the project site. Two watercourses, corresponding to E2 to Dunaway and C North on Soil and Water Figure 1 have been mapped by FEMA as Zone A, which means 100-year flood zone with no base flood levels determined. These are considered approximate flood zones. Soil and Water Figure 2 shows the location of the FEMA-mapped floodplain on the project site.

FEMA maps do not cover all floodplains. Rural areas, such as the project site, are commonly not mapped. The project Applicant has performed independent floodplain mapping based on the discharges given in Soil and Water Figure 1. This flood mapping is shown in Soil and Water Figure 3 and shows floodplains associated with 24 drainageways and one sink area (Basin D Lake) on the project site.

(Ex. 302, pp. C.7-10 to C.7-11.)

Groundwater

The project site lies primarily over the Ocotillo-Coyote Wells aquifer which USEPA has designated as a sole source aquifer (the Ocotillo-Coyote Wells Sole Source Aquifer). Herein, this basin is referred to as the Ocotillo/Coyote Wells Groundwater Basin. The 100-square-mile basin is bounded on the north by the Coyote Mountains and the Elsinore fault zone, on the west and southwest by the Jacumba Mountains, by the United States-Mexico border on the southeast (note that the border is a jurisdictional boundary. The groundwater basin actually extends into Mexico), and by the Imperial Valley Groundwater Basin on the east.

The boundary between the Ocotillo/Coyote Wells Valley Groundwater Basin and the Imperial Valley Groundwater Basin begins near the intersection of Interstate 8 and the existing SDG&E Southwest Powerlink Transmission line at the southeastern portion of the project site, and extends north-northeast through the project site. The easternmost portion of project construction Phase II, the easternmost 7.5 miles of the proposed 750-MW transmission line, the

easternmost 3.2 miles of the proposed waterline, and the laydown area are over the Imperial Valley Groundwater Basin. The rest of the project site is over the Ocotillo/Coyote Wells Valley Groundwater Basin.

The Ocotillo/Coyote Wells Valley Groundwater Basin, with storage capacity of approximately 1.7 million acre feet, lies primarily within Holocene alluvium 100 to 300 feet below the ground surface, although unconsolidated alluvium extends to a depth of 650 feet (California Department of Water Resources, 2003). This basin receives recharge from the percolation from ephemeral runoff from the surrounding mountains. Groundwater levels have been declining due to pumping and underflow to the Imperial Valley Groundwater Basin and to Mexico. Groundwater quality is characterized by sodium bicarbonate-chloride with high fluoride levels in some areas. Groundwater uses include municipal, irrigation and domestic uses.

The 1,870-square-mile Imperial Valley Groundwater Basin covers all of the agricultural area of Imperial County south of the Salton Sea from the Sand Hills on the east to the Ocotillo/Coyote Wells Valley Groundwater Basin on the west. Total storage capacity is approximately 14 million acre feet. This basin has two major aquifers, with the upper averaging 200 feet in thickness and the lower 380 feet. Recharge is primarily from irrigation return, underflow from adjacent groundwater basins and seepage from unlined irrigation canals. Some recharge occurs from infiltration of natural stream flow on the West Mesa, on which the proposed project is located. Groundwater outflow and pumping exceeds recharge and inflow by approximately 17,000 acre feet per year. Groundwater quality is variable and generally the water is unsuitable for domestic and irrigation purposes without treatment. High fluoride levels occur in parts of the basin. Uses include municipal, domestic and irrigation.

Geotechnical drilling by the Applicant found groundwater at 45 feet below the ground surface along Dunaway Road, and at a depth of 50 feet near the U.S. Gypsum Property. A test well by the Applicant on the eastern part of the site in the Imperial Valley Groundwater Basin found groundwater at more than 90 feet depth. Total dissolved solids (TDS) were very high (20,000 milligrams per liter – mg/L) and groundwater production low.
(Ex. 302, pp. C.7-11 to C.7-12.)

Water Quality

There are no perennial or intermittent drainage-ways on the project site. Water quality of surface runoff flows would be dependent on materials picked up on the ground surface, which is currently natural desert. The downstream disposition of surface runoff from the site is the desert area west of the Westside Main Canal, possibly the Westside Main Canal itself, local drainage and irrigation ditches west of the Westside Main Canal, the New River, and eventually the Salton Sea.

The New River is highly polluted from agricultural runoff, sewage from Mexico, and discharges from manufacturing plants in Mexico, and is listed as impaired under Section 303(d) of the Clean Water Act (See Laws, Ordinances, Regulations and Standards) for a wide range of pollutants including, but not limited to, trimethylbenzene, chlordane, chloroform, chlorpyifos, copper, DDT, diazinon, dieldrin, mercury, meta-para xylenes, nutrients, organic enrichment, pesticides, and selenium. The Salton Sea is listed as impaired for nutrients, salinity, and selenium. Effluent discharge from the SWWTF contributes to flow in the New River.

The California Regional Water Quality Control Board identifies beneficial uses of waters of the State that may be protected against water quality degradation. These include such uses as domestic, municipal, agricultural, recreation, natural resources, and aesthetic enjoyment. Beneficial uses identified for washes in the west Colorado River basin include groundwater recharge (GWR), non-contact water recreation (RECII), and wildlife habitat (WILD).

Groundwater in the Ocotillo/Coyote Wells Valley Groundwater Basin is type sodium bicarbonate-chloride. Total dissolved solids content ranges from 750 to 1,240 milligrams per liter (mg/L) in shallow wells to 300 to 450 mg/L in deeper wells (DWR 1973). Fluoride levels in some wells are as high as 3.5 mg/L.

Imperial Valley Groundwater Basin quality varies extensively throughout the basin. TDS content ranges from 498 to 7,280 mg/L in the basin. Department of Health Services data from 5 public supply wells show an average TDS concentration of 712 mg/L and a range from 662 to 817 mg/L. In general, groundwater beneath the basin is unusable for domestic and irrigation purposes without treatment. TDS values typically exceeding 2,000 mg/L are reported from a limited number of test wells drilled in the western part of the basin. Groundwater in areas of the basin has higher than recommended levels of fluoride and boron. Approximately 7,000 acre feet per year of groundwater are estimated to recharge the basin from the New River which drains the Mexicali

Valley. This groundwater is related to surface flow from the highly polluted New River and negatively affects groundwater quality in the basin.

Groundwater beneficial uses in the project area include municipal and domestic supply (MUN) and industrial service supply (IND).
(Ex. 302, pp. C.7-12 to C.7-13.)

Water Supply and Use

Groundwater would be supplied temporarily by the Dan Boyer Water Company's well (State Well No. 16S/9E-36G4). Groundwater from the Dan Boyer Water Company well would be treated at an on-site facility adjacent to the on-site substation to produce demineralized water for mirror washing. The water treatment system would consist of a reverse-osmosis water treatment complex, a hydrogen complex, two 175,000-gallon raw water storage tanks, a 140,000 fire flow tank, two 17,500-gallon demineralized water tanks, a 5,500-gallon potable water tank (potable water would be trucked in), and two 1-acre concrete lined evaporation ponds for brine from the demineralization process. The hydrogen complex would produce hydrogen from demineralized water.

Potable water for construction workers and for operations, including water for hand washing and other uses requiring potable water would be supplied by a local water supplier that has yet to be selected but presumably could be the Dan Boyer Water Company well.

The Seeley Wastewater Treatment Facility in Seeley, California is required to construct upgrades to comply with water quality discharge standards. The upgrade project is currently undergoing an EIR process. (RT 5/25/10, 138:8 – 17.) After the upgrades are completed, Imperial Valley Solar proposes to utilize treated wastewater obtained from the SWWTF to provide water for mirror washing and operations. The existing SWWTF is located 13 miles east of the project site and provides secondary treatment of municipal wastewater from the town of Seeley and the surrounding unincorporated area within Imperial County. Imperial Valley Solar has agreed to finance upgrades to the existing SWWTF to enable the plant to produce up to 250,000 gpd treated wastewater that meets California Code of Regulations Title 22 water quality requirements. The agreement entitles Imperial Valley Solar to acquire at least 150,000 gallons and up to 200,000 gallons of recycled water per day for project uses. Imperial Valley Solar will construct a 12-mile-long pipeline from the SWWTF, along Evan Hewes Highway, to the Imperial Valley Solar facility. The pipeline would be buried within the road way right-of-way to a depth of 30 inches.
(Ex. 302, pp. C.7-15 to C.7-16.)

Construction Water

Water demands during construction of the Imperial Valley Solar project would be relatively light for an effort as large as that proposed. Water use during construction would be approximately 45,000 gpd on average, primarily for dust control. Peak water use during construction would be approximately 90,000 gpd, with approximately half used for dust control and half used for soil preparation on concrete pours. Fifteen peak days are expected during construction. Assuming a 39-month construction period, with 15 peak days, total construction water use would be approximately 54 million gallons (166 acre feet). Potable water demand is assumed to be two gallons per day per worker (approximately 203 gpd).

(Ex. 302, p. C.7-16.)

Operations Water

The project uses no water for cooling other than make-up water for the radiator on each SunCatcher. Operations water use after full construction would be approximately 33,550 gpd, with total annual use approximately 32.7 acre feet. The largest water use, approximately 14,980 gpd, would be for solar mirror washing. Each mirror would be washed using an average of 14 gallons of water once per month, with another wash of approximately 42 gallons every 3 months. Other operations water uses include: 184 gpd for production of hydrogen through electrolysis in the hydrogen generator (hydrogen gas is used in the Solar Stirling Engine); 7,920 gpd of brine resulting from the water demineralization process; 5,600 gpd for on-site staff for drinking and sanitary purposes; and 5,000 gpd for dust control. Soil and Water Table 1 provides a summary of water use in gallons per minute and annual use in acre feet. (*Id.*)

**Soil and Water Table 1**
**Water Usage Rates for Imperial Valley Solar Operations**

| Water Use | Daily Average, in gallons per minute | Daily Maximum, in gallons per minute | Annual Usage, in acre feet |
|---|---|---|---|
| Equipment Water Requirements | | | |
| Sun Catcher mirror washing | 10.4[1] | 17.4[2] | 14.2[3] |
| Hydrogen System | 0.13[11] | 0.13[11] | 0.0133 |
| Water Treatment System Discharge | | | |
| Brine from Demineralization Process | 5.5 | 10.2[4] | 7.5 |

| Water Use | Daily Average, in gallons per minute | Daily Maximum, in gallons per minute | Annual Usage, in acre feet |
|---|---|---|---|
| Potable Water Use | | | |
| For drinking and sanitary water requirements | 3.9[5] | 4.7[6] | 5.4[7] |
| Dust Control | | | |
| Raw water for dust control during operations | 3.5[8] | 6.9[9] | 5.6[10] |
| Totals | 23.3 | 39.2 | 32.7 |

Source: Ex. 302, p. C.7-17.

Notes:

1 - Based on 30,000 SunCatchers requiring a monthly wash with an average of 14 gallons of demineralized water per spray wash and a 5-day work week (21 work days per month).

2 - During a 3 month period, all SunCatcher mirrors are given a scrub wash requiring up to 3 times the normal wash of 14 gallons per SunCatcher. Therefore, the Daily Maximum usage rate is based on two-thirds of the SunCatchers receiving a normal wash and one-third receiving a scrub wash.

3 - Based on every SunCatcher having approximately 8 normal washes per year with one additional scrub wash.

4 - Based on the maximum amount of demineralized water required for mirror washing and assumes a decrease in raw water quality requiring an additional 20% of system discharge.

5 - Assumes 30 gallons per person per day for 188 people.

6 - Maximum amount assumes a 20% contingency over the Daily Average.

7 - Assumes a 6-day work week and average daily usage.

8 - Assumes 5,000 gallons per day.

9 - Assumes up to 10,000 gallons per day.

10 - Assumes daily average dust control operations.

11 - Hydrogen system would require approximately 184 gallons of water per day or about 0.0133 acre feet per year.

Construction Wastewater

Construction wastewater would consist primarily of storm water runoff from the site during construction, and sanitary wastes from portable toilets. Storm water runoff could be contaminated by excess sediment, trash, fuels, oils, grease, coolants, vehicle fluids, paints, solvents, and other construction-related pollutants. The Applicant has developed a Storm Water Pollution Prevention Plan (SWPPP) that addresses construction pollutants. Construction waste material including recyclable scrap wood, steel, glass, plastic and paper would be collected and taken to a recycling facility at regular intervals not to exceed 30 days. Hazardous construction waste including empty containers, solvents, oils, paint, cleaners and adhesives would be collected on site and returned to the

vendor or taken to a hazardous waste facility at regular intervals not to exceed 90 days. Waste oil and other fluids from construction vehicles would be collected on site and recycled or disposed of at a hazardous waste facility at regular intervals not to exceed 90 days. Lead acid, alkaline, gel cell, nickel, and cadmium batteries would be stored on site and taken to an authorized waste recycling facility at regular intervals not to exceed 90 days.

Non-hazardous residual solids (dirt and concrete particles) from the retention pond would be excavated at the end of construction and spread on-site. Non-hazardous trash including paper, wood, plastic and cardboard would be stored onsite and taken to approved recycling or waste disposal facilities at regular intervals not to exceed 90 days.

Sanitary wastewater from portable chemical toilets would be periodically pumped to a tanker truck by a licensed contractor and shipped to a sanitary water treatment plant. Construction storm water best management practices would include temporary soil stabilization techniques such as scheduling activities to minimize land disturbance during the rainy season, marking areas not to be disturbed, using geotextiles, mats, plastic covers, or erosion blankets to stabilize disturbed areas, soil binders, earth dikes, drainage swales, lined ditches, flow velocity protection measures, silt fences, straw bales, fiber rolls, dust palliatives, tracking control at site entry/exit points and stabilized construction roadways.
(Ex. 302, pp. C.7-17 to C.7-18.)

Operations Wastewater

Operations wastewater would consist of onsite runoff which may be contaminated with excess sediment, trash and fluids from vehicles, the Main Services Complex and the substation, wastewater (brine from the reverse osmosis process), and sanitary wastes.

A SWPPP has been developed which addresses operations best management practices for storm water pollution control. This SWPPP is in the process of being updated by the Applicant for operations conditions.

Brine from the reverse osmosis process, which would be high in total dissolved solids, would be discharged to one of two concrete-lined evaporation ponds. Ponds would be sized for one year of discharge, after the first pond is full, discharge would be transferred to the second pond while the first pond evaporates. The ponds would alternate on an annual basis. Solids from the evaporation process would be removed to a non-hazardous waste disposal facility.

Sanitary wastewater from the Main Services Complex would be discharged into a septic system with sanitary leach fields adjacent to the Main Services Complex. Two leach fields would be used, each designed for 100 percent of the waste water. These would be alternated in use every two years to allow recovery from bacterial loading. Sewer sludge would be pumped and disposed of by trucks to an approved off-site disposal facility.
(Ex. 302, p. C.7-18.)

2. Impacts and Mitigation

a. Construction

i. Erosion

The soils on the project site are highly susceptible to wind erosion under normal conditions. The paucity of vegetation on the site contributes to a natural propensity for wind erosion, although the potential for wind erosion is expected to be less in the watercourses than in the upland areas due to much higher density of vegetation in the riparian areas. The Applicant estimates that potential soil loss due to wind under existing conditions to be more than 100 tons per acre per year for the Imperial Valley Solar project site. This soil loss may more accurately be considered displacement, since soil lost by wind in one area of the Yuha Desert would likely settle in another, so under natural conditions, there is no overall net loss of soil in any given area. Disturbance by grading and vegetation removal in a specific area leaves soil particles in that area more vulnerable to detachment by wind, resulting in more net loss, or displacement. Wind-related soil loss is expected to occur on the site, and given the overall size of the disturbed area could be substantial during construction depending on wind conditions. This could result in the net loss or displacement of topsoil on the site, as well as air quality and dust nuisance problems. Since the prevailing wind in the area for 11 months of the year is toward the east, dust from the site could reach Seeley, El Centro and the neighboring agricultural area.

The Applicant proposes the following measures to reduce wind-related erosion:

***Soil-1***: Conduct grading operations consistent with the Imperial County Grading Ordinance.

***Soil-2***: Prepare and implement a detailed Erosion Control Plan before construction, which may be a component of the Storm Water Pollution Prevention Plan.

***Soil-3***: Limit soil erosion/dust generation by wetting active construction areas (including roads) with water or by applying dust palliatives (soil binders).

***Soil-4***: Stabilize disturbed areas that would not be covered with structures (e.g., buildings or collectors) or pavement after grading and/or cut-and-fill operations. Stabilization methods would include moisturizing and compacting and/or application of polymeric soil stabilizers. The disturbed areas of the water line route would be reseeded using a seed mixture native to the area.

***Soil-5***: Minimize disturbance of soils and vegetation by reducing access and construction areas to smallest practical dimensions.

***Soil-6***: Cut/mow vegetation when removal is necessary; clear vegetation only to the extent necessary during construction activities.

***Soil-7***: Segregate and stockpile removed topsoil for reuse if practicable.

***Soil-8***: Implement drainage control measures and grade the Project Site to direct surface water into the retention basins.

***Soil-9:*** Conduct post-construction monitoring of areas that were disturbed during the construction phase.

In addition to the soil mitigation measures identified above, the Applicant has proposed the following Best Management Practices (BMPs) for consideration:

- Temporary soil stabilization (SS) techniques, such as scheduling construction sequences to minimize land disturbance during the rainy and non-rainy seasons and employing BMPs appropriate for the season; preserving existing vegetation by marking areas of preservation with temporary orange propylene fencing; using geotextiles, mats, plastic covers, or erosion control blankets to stabilize disturbed areas and protect soils from erosion by wind or water; using earth dikes, drainage swales, or lined ditches to intercept, divert, and convey surface runoff to prevent erosion; using outlet protection devices and velocity dissipation devices at pipe outlets to prevent scour and erosion from storm water flows; and/or using slope drains to intercept and direct surface runoff or groundwater to a stabilized water course or retention area.
- Sediment Control (SC) techniques, such as using silt fences, straw bales, and/or fiber rolls to intercept and slow the flow of sediment-laden runoff such that sediment settles before runoff leaves the site.
- Wind Erosion (WE) control by applying water or dust palliatives, as required, to prevent or alleviate windblown dust.

- Tracking Control (TC) techniques to limit track-out of soil by vehicles, such as using stabilized points of entering and exiting the Project Site and stabilized construction roadways on the site.
- Other measures, as appropriate, to comply with the regulations.

The Applicant has prepared a draft DESCP/SWPPP Drainage, Erosion, and Sedimentation Control Plan DESCP/ Storm Water Pollution Prevention Plan (SWPPP) which describes a series of best management practices intended to reduce wind erosion during construction, including applying water or other dust palliatives as to prevent or alleviate dust nuisance generated by construction activities, covering small stockpiles or other areas subject to wind erosion, wet suppression (watering), chemical dust suppression, gravel asphalt surfacing, temporary gravel construction entrances, equipment wash-out areas, haul truck covers, installing vegetation, mulching, minimizing surface areas to be disturbed, limiting on-site vehicle traffic speed, controlling the number and activity of vehicles on the site, and application of soil binders.

We will require implementation of a final DESCP in pursuant to Condition of Certification **SOIL&WATER-1** to ensure adequate BMPs are in place to address and mitigate potential erosion and loss of soil from wind.

The potential for erosion by water during construction is expected to increase as a result of loss of vegetative cover, removal of surface crust and desert pavement, and increased local sediment transport through creation of localized gullies and rills on newly graded slopes. The Applicant proposed measures listed above are intended to mitigate erosion by storm water during construction. The DESCP by the Applicant includes best management practices for water erosion control which include such measures as silt fences, sediment barriers, grading restrictions, soil binders, temporary stabilized drains, brush barriers, sediment basins, strawbale barriers, fiber rolls, and sand bags.

(Ex. 302, pp. C.7-26 to C.7-28.)

b. <u>Seeley Wastewater Treatment Facility (SWWTF)</u>

A Mitigated Negative Declaration (MND) prepared by the Seeley County Water District for the proposed improvements to the SWWTF was not adopted by the Board of Directors for the Seeley County Water District. The MND was not adopted because the potential impact to a wetland and riparian habitats by diverting effluent flow from the SWWTF was not evaluated in the MND. Surface water in the wetland is supplied in part by effluent flow from the SWWTF and by

agricultural return flows and underdrain flow from a drinking water treatment plant. To evaluate this potential impact, a hydrologic study is being conducted to quantify how diverting SWWTF effluent would affect the wetland and riparian habitats and any listed species that may occupy the affected habitats, including the state and federally listed Endangered Yuma clapper rail, state listed Threatened and Fully Protected California black rail, state and federally listed Endangered southwestern willow flycatcher, and the state and federally listed Endangered least Bell's vireo.

The evidence in this proceeding convinces us that it is unlikely the SWWTF diversions will be found in the EIR proceeding to create a significant impact. The diversions would constitute an extremely small part (estimated at less than one percent) of current flow. (RT 5/25/10 139:24 – 140:2.) Change of flow into the Salton Sea would be 0.03 % or less. (*Id*.)

The MND concluded that impacts related to soil loss and the erosion of topsoil associated with the improvements to the SWWTF would be less than significant. The MND also concluded that an increase in erosion and sedimentation from soil disturbance at the project site would be temporary during construction, and that in accordance with National Pollutant Discharge Elimination System (NPDES) regulations, a SWPPP and use of BMPs would be implemented during construction

(Ex. 302, p. C.7-30.)

**Project Water**

The Applicant estimates that construction water for dust control and ground preparation for concrete pours would average 45,000 gallons and not exceed 90,000 gallons per day. Groundwater from a private well (Well No. 16S/9E-36G4 owned by Dan Boyer Water Company) located near Ocotillo will be used to supply water for project construction until water from the SWWTF becomes available. Condition of Certification **SOIL&WATER-2**, **-4**,and **-9** ensure that this water will come from a water purveyor licensed to provide potable water in the state of California, and that the supply provided to Imperial Valley Solar be within the licensed capabilities of the purveyor. The well registration, by its plain terms, permits export of water in this case. (Ex. 32, Appendix C, Specific Terms for Ground Water Well Registration; RT 7/ 26/10, 188:4 – 189:19.)

c. Storm Water

Storm water runoff from the site during construction could include excess sediment, trash, oils, solvents, paints, cleaners, asphaltic emulsions, mortar mix, spilled fuel, vehicle fluids and other construction-related contaminants from the construction activity. The Applicant proposes to collect and remove construction waste, including hazardous wastes, according to a regular schedule. The site construction would require a SWPPP which would specify BMPs that would prevent all construction pollutants including erosion products from contacting storm water, eliminate or reduce nonstorm water discharges to waters of the nation, and provide for inspection and monitoring of BMPs. Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-5** are intended to ensure adequate control of construction storm water pollutants.

d. Wastewater

Portable chemical toilets would be used for construction sanitary wastes. Sanitary wastewater from these toilets would be periodically pumped to a tanker truck by a licensed contractor and shipped to a sanitary water treatment plant. Condition of Certification **SOIL&WATER-5** will ensure proper handling of construction sanitary wastes.

(Ex. 302, p. C.7-32.)

3. Operation

a. Soil Erosion Potential by Water and Wind

Wind erosion could occur on cleared and graded areas during project operation due to the removal of vegetation, the removal of desert pavement, the disturbance of the surface crust, and the placement of SunCatcher foundation poles in the flow path. This could result in loss of topsoil, nuisance deposition of wind-blown soil on other areas, and air quality problems for the El Centro and adjacent agricultural areas to the east, which is in the direction of the prevailing wind flow.

Under project operations disturbed and cleared areas, primarily within the SunCatcher field, would be subject to increased erosion potential. The result of surface disturbances and the presence of SunCatchers in the flow path could be long-term erosional degradation of the soil surface within the SunCatcher array and in the intervening undisturbed areas, as well as increased sediment discharge offsite across Dunaway Road and toward the east where the Westside Main Canal and New River flow.

The DESCP prepared by the Applicant states that site soil stabilization would occur following construction and that several alternatives are being considered to determine which solution best achieves the desired effect to minimize wind erosion, prevent water erosion, and minimize weed and undesired vegetation growth, as well as providing a suitable work surface. Soil binders would be used in high traffic areas. Some areas may be covered or stabilized. The laydown areas would be returned to "as found" condition as practical by removing all material placed there for the construction effort and then by restoring the soil to a native condition.

Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-5** would ensure surface erosion protection and protection against wind erosion and increased runoff-borne sediment load from the watershed surface. With the proposed BMPs in place as described in the DESCP, soil surface erosion due to wind and surface runoff would be minimized.

Localized summer monsoon storms can produce high-intensity rainfall spawning variable and unpredictable flash flooding on the project area. Flooding from these types of storms can be locally severe, with deep flows and high flow velocities. The aridity of the region results in sparse vegetative cover. Soils are generally sandy and subject to erosion during flood events. Consequently, the potential for channel bank erosion and transport of sediment downstream is high.

Most of the medium to large size watercourses on the Imperial Valley Solar project site exhibit braiding or alluvial fan characteristics, or both. The site watercourses are typically unstable, with erodible banks, and are capable of rapidly shifting position where not constrained by high ground.

SunCatcher foundation poles in the flow path would create local areas of flow turbulence, resulting in local stream scour around the foundation poles. Scour such as this occurs on bridge piers, resulting in the need to bury bridge piers to a depth below the depth of scour to ensure stability. SunCatchers subject to scour could also become unstable if the scour is deep enough to undermine the structural foundation, resulting in collapse and potentially damaging and polluting the ground surface with mirror fragments and other SunCatcher debris.

(Ex. 302, pp. C.7-32 to C.7-34.)

In April, 2010 Applicant submitted a "Sediment Study for Three Washes" prepared by Howard Chang, P.E., who testified as an expert witness for the Applicant. The document, Exhibit 30 in this proceeding, addresses Staff's

concerns about the impact of SunCatcher foundation poles in flow paths at the site during rain events. We have summarized those concerns above.

The study modeled project impacts upon Washes C, G and K at the site in order to assess project impacts and develop mitigation measures. It used the FLUVIAL-12 computer model to simulate the hydraulics of flow, velocity, sediment transport, sediment delivery and potential stream channel changes along these washes. The modeling covered 10 and 100-year floods for both pre-project and post-project conditions. (Ex. 30.)

In addition, because the washes are considered Waters of the United States, the Army Corps of Engineers is required, pursuant to Section 404 of the Clean Water Act (Act), to prepare its own study, which is set forth in the Draft 404(b)(1) Alternatives Analysis, dated July 16, 2010. (Ex. 129.)

Section 404(b)(1) of the Act requires that the Corps identify the Least Environmentally Damaging Practicable Alternative (LEDPA) to the proposed project. An alternative is considered practicable under the Act if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purposes.

In fulfillment of this obligation, the Corps Preliminary LEDPA analysis identifies an alternative design to Applicant's proposed 750MW design, which would incorporate changes proposed by the Applicant as a means of avoiding and minimizing impacts to Waters of the U.S. to the maximum extent practicable. This alternative, adopted by the BLM in its Final Environmental Impact Statement (FEIS) as the Agency Preferred Alternative, reduces impacts to aquatic resources from 177 acres to 38.2 acres, with corresponding reduction in design capacity from 750MW to 709MW. This alternative is described by the Applicant's consultant, Ecosphere Environmental Consultants, as significantly reducing the impacts on aquatic resources. (Exs.119, 129.)

The preliminary LEDPA/Agency Preferred Alternative, hereinafter referred to as the 709MW alternative, would not place SunCatchers or associated maintenance roads anywhere in washes C, I, and K and the southern portions of washes E and G. Along the northern portion of washes E and G a 200 foot wide corridor was left through the center of the wash as a FTHL movement corridor.

The Corps analysis relies extensively on the work of Dr. Chang. Exhibit 120, Dr. Chang's report on computation of local scour on streambed induced by SunCatchers, dated May 28, 2010, and Exhibit 121, Dr. Chang's report

evaluating the engineering impacts of the LEDPA, dated May 19, 2010, both address impacts of SunCatchers under the LEDPA.

Applicant's witness Mike Fitzgerald submitted testimony describing his efforts working with the Corps on the LEDPA, and summarized Dr. Chang's findings. In his written testimony, Mr. Fitzgerald stated that that he had reviewed Dr. Chang's report, Exhibit 121, and that Dr. Chang found that there will be no impacts from downstream sediment transport and that there will be no changes in stream morphology as a result of developing the project pursuant to the LEDPA. (Written testimony of Mike Fitzgerald, dated July 13, 2010, submitted with Exhibits 119, 120 and 121.)

Dr. Chang's written testimony, Exhibit 141, and his oral testimony at the July 26, 2010 Evidentiary Hearing, confirmed Mr. Fitzgerald's testimony. (7/26/2010 RT 315:2-4.) Applicant also called Matt Moore, who testified that with proper selection and implementation of construction and post-construction best management practices, the site could be designed and operated with insignificant impacts to soil erosion from gully formation on the site.(RT 7/26/10,318:13-17.) Staff did not cross-examine these witnesses.

Staff, in the SSA, published July 7, 2010, states that sediment transport capacity in on-site drainage-ways would likely be increased by the project, with possible adverse effects. Staff concluded that, in the absence of a detailed, site-specific sediment transport analysis specifically addressing these issues, these stream morphology impacts are considered a significant adverse impact of the project. (Ex. 302, p. C.7-38.) Obviously, we cannot rely upon a conclusion such as this, based upon the absence of an analysis. Staff called Christopher Dennis and Philip Lowe to provide testimony on this topic at the Evidentiary Hearing. Mr. Lowe repeated the above conclusion (7/26/10 RT 338:13–18.) Since he had not reviewed the Sediment Study for Three Washes, which had been submitted by the Applicant 90 days earlier, on April 26, 2010 (Ex. 30) and which did provide the analysis Mr. Lowe needed, on cross-examination he was asked, hypothetically, whether his conclusion would change if modifications substantially reducing the presence of SunCatchers in the washes were implemented. He stated:

> "And if that study was done according to what we talked about and it shows the results that Dr. Chang says that it does today -- which I have scanned the report and so I was aware of what it said, I just hadn't looked at it in a technical standpoint -- then I might change my opinion." (RT7/26/10 346 15 – 22.)

Applicant called Dr. Chang in rebuttal. Dr. Chang reiterated that the Three Washes study was done specifically to provide the information Mr. Lowe wanted: effects of SunCatcher pedestals in the washes. (7/26/10 RT 353:2–354-22.)

CURE also called Chris Campbell and Christopher Bowles on the topic of sedimentation, but they also had not analyzed the conditions at the site. Their testimony, while critical of the methods employed by Dr. Chang, did not provide any information about what results would have been obtained had methods of which they approved had been used. Dr. Bowles testified that two-dimensional modeling would have been preferable to the method used by Dr. Chang, but on cross-examination admitted that he knew of no instance in which that method had been used in a case with non-natural obstructions (SunCatcher pedestals), such as this case, included in the modeling. (RT 7/26/10, 387:16 – 388:14.)

Staff identified two drainage avoidance alternatives (#1 and #2) that would mitigate potential impacts from SunCatcher construction in drainage ways. These drainage avoidance alternatives avoid or minimize impacts to Waters of the U.S.(WUS). Staff's two drainage avoidance alternatives reduce the number of SunCatchers, and therefore the plant's output, enough to make construction and operation of the project infeasible, and neither of them results in impacts to WUS so much below those of the 709MW alternative (32 and 38 acres, respectively, vs. 38.2 for the 709MW alternative) to justify their disadvantages. See the **Alternatives** section of this Decision for a complete discussion of these alternatives. As required by Section 404(b)(1), alternatives analysis requires that to the extent practicable impacts to waters of the U.S. are: a) avoided; b) minimized; and, c) unavoidable impacts are mitigated. We find that the 709 MW alternative, although not specifically included in the alternatives analysis in the SSA, Ex. 302, is within the range of alternatives analyzed and, more importantly, meets these criteria. The 709 MW alternative, now adopted by the Applicant, avoids or minimizes impacts to WUS to the greatest extent practicable consistent with feasibility. On the basis of the evidence of record, we find that, with implementation of the 709 MW alternative, the project's impacts on soil resources will be below the level of significance.

b. <u>Project Water Supply</u>

The project would use no water for cooling and 30 – 40 afy for other operational uses. This is very low water use when compared with other electrical generating facilities of similar output. The Applicant proposes to use recycled water from the Seeley Wastewater Treatment Facility (SWWTF.) The SWWTF, located at 1898

West Main Street in Seeley, California, approximately 13 miles east of the project site, would supply treated wastewater for mirror washing and other project uses except potable water. Imperial Valley Solar would construct an approximate 12-mile pipeline from the SWWTF to the Imperial Valley Solar water treatment plant. The project owner would finance an upgrade to the SWWTF to allow it to meet Title 22 regulations and to treat up to 250,000 gpd, with up to 200,000 gpd made available to the Imperial Valley Solar project. The SWWTF currently discharges about 150,000 gpd of reclaimed water into the New River. After construction of the Imperial Valley Solar project, an average of 33,550 gpd, and a maximum of 200,000 gpd would be routed to the Imperial Valley Solar project. The SWWTF expansion is currently undergoing environmental review; Applicant's Mark van Patten testified that he expects the review to be complete and construction of the upgrades to be completed and water delivery begin in 2011. (RT 7/26/10 94:19 – 96:3.)

Groundwater from a private well (Well No. 16S/9E-36G4 owned by Dan Boyer Water Company) located near Ocotillo will be used to supply water for the project until the SWWTF water is available.

The Dan Boyer Water Company has a "Specific Terms for Groundwater Well Registration" for their well that permits them to extract 40 acre-feet per year of water. Historical monthly sales records provided in the Project Applicant's Supplement to the AFC (Ex. 32, Appendix B) ranged from almost 3 acre-feet per year (1993) to 42.1 acre-feet per year (2004); the average water sales from the well was 16.8 acre-feet per year. The well is currently in compliance with all conditions of the Imperial County well registration. (Ex. 125.)

Staff reviewed reported monthly water sales data for the period May, 1990 through June 2004. Monthly water sales are variable, but in general sales increased over time and the highest sale volumes occurred after 2002. During the period of record, staff is not aware of a substantial influx of residential development in the Painted Gorge area. Hence, staff assumed the temporal variability in water sales reflects primarily variability in commercial water use. The smallest sale volumes typically occurred in February, and were fairly constant until 2000; after 2000 annual water sales from the well almost tripled. Prior to 2000, February water sales were fairly constant and averaged 0.15 acre-feet per month. Staff assumed that construction and dust suppression water use are minimal during the winter, but provided no rationale for this assumption, which strikes us as probably incorrect given that construction is *more* likely to take place throughout the winter months when the temperatures are lower. Thus, we find Staff's conclusion that the February water sales likely represent hard or fixed

indoor residential demand for water, to be lacking in factual support. Staff stated that total water sales in 1993 were 2.9 acre-feet, and concluded that this may indicate commercial water use was minimal that year and annual residential demand was approximately 3 acre-feet per year—another conclusion we find lacks factual support.

(Ex. 302, p. C.7-40.)

The owner and operator of Dan Boyer Water Company, Dan Boyer, stated in a sworn declaration that he has estimated the residential water use by his customers at less than half an acre-foot per year. (Ex. 126.) Dan Boyer testified at the Evidentiary Hearing and elaborated on his estimate. Residential customers obtain water from the well by bringing their own containers, which they fill. Most of the containers are small, 50 to 500 gallons, but he knew of one customer with a 1000-gallon tank in the back of his truck. Customers take water on the honor system: they fill their containers and leave two cents per gallon for Mr. Boyer. He said he has about 12 customers, three of them steady; the others are seasonal. He made his estimate of water use by multiplying his income from these users, $150- to $300 per year, by two cents to arrive at 60,000 gallons. An acre-foot is roughly 325,000 gallons, so Mr. Boyer's residential customers actually use just over one quarter of an acre foot per year. The well registration allows Boyer to pump 40afy.

Applicant estimated first-year construction water use at 42.3 afy based on a 6-day work week. (Ex. 149.) Applicant testified that it would store water on site during periods of lower usage to be available during periods of higher usage, such as concrete pours. Applicant also testified that it would limit or adjust work schedules so as to stay within its water allotment.

Staff has recommended that up to 34 afy be allowed to Applicant for construction and operations. They estimated that residential use could be as much as 3 afy, and then arbitrarily doubled that figure to be conservative. We cannot agree with Staff's recommendation here. The evidence shows that residential water use in the two years Mr. Boyer has owned the well is significantly less than 0.5 afy. Although Mr. Boyer's method of estimation is probably not completely accurate, we find it likely that it is not too far off based upon the method of water delivery. Customers pick up water in their personal vehicles, in 50 to 1000 gallon tanks. Half an acre-foot is over 150,000 gallons. With 12 customers, each would have to haul 12,500 gallons per year. If each customer had a 500-gallon tank, they would each have to make 24 trips per year to get water. Income from sales at this level would be $3000, far beyond Mr. Boyer's actual receipts. We doubt this

amount of water hauling is, in fact, occurring, but even if it were, Applicant's request for 39.5 afy would accommodate it. However, in an abundance of caution, we are reducing the amount of water allocated to Applicant to 39afy, as set forth in Condition of Certification **SOIL & WATER-2**. We find that this will more than adequately provide for continued water for Boyer's residential customers and comes close enough to Applicant's estimated water need that Applicant will be able to construct and operate the project.

(RT 7/26/10, 174:16 – 182:17.)

c. Basin Balance

As noted above, construction water use would average over 45,000 gallons per day (peak water use of approximately 90,000 gpd) and a total annual use of 42.4 acre-feet per year. Annual operational use would average 33,550 gallons per day with total annual use of 32.7 acre-feet per year. Total water use (1,474.1 acre-feet) averages 34.1 acre-feet per year when averaged over the entire construction and operation life of the project (43.25 years).

Groundwater storage in the basin is decreasing and the basin is considered to be in overdraft. As defined by the California Department of Water Resources, groundwater overdraft is the condition of a groundwater basin or sub-basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions. Overdraft can be characterized by groundwater levels that decline over a period of years and never fully recover. Groundwater budgets developed by multiple authors showed that the amount of groundwater withdrawn exceeds the amount of water that recharges the basin. Moreover, water level data collected by the USGS demonstrate that groundwater levels have been consistently declining since the mid-1970's.

(Ex. 302, p. C.7-41.)

The parties did not dispute that the basin is in overdraft; the dispute centered around whether or not the proposed use of groundwater from the Boyer well would have a significant impact on the basin. Staff's witness Christopher Dennis testified that the project's use of groundwater would exacerbate the overdraft, causing an unmitigable impact. (RT 7/26/10 196: 7-15.) On cross-examination Staff's witness John Fio elaborated that *any* use of groundwater, even one afy, would cause an impact, because it would result in the removal of water from the basin. (RT 7/26/10 211: 13-20.) Furthermore, the impact was unmitigable, because customers currently using the Boyer well would be displaced by the

Project use, and would likely go elsewhere within the basin to find water. This last conclusion was based upon Mr. Fio's having read "somewhere" that Boyer Water Company would sell 40afy even if the Project were not the purchaser. (RT 7/26/10, 213:24 – 214:2.) What he may have been referring to was Mr. Boyer's declaration, Exhibit 126, in which Mr. Boyer states that he is confident that he will be selling 40afy from the well for as long as he owns it.

It seems reasonable to us that Applicant's use of roughly 40afy would displace other potential Boyer customers who would then seek their 40afy from another well, presumably in the Basin. However, this does not lead inexorably to the conclusion that the impact is unmitigable. Staff's witness Christopher Dennis testified that CEC mitigation for over-drafted basins is typically to require that water be added to the basin or to reduce demand. The desired result is that the basin remain unchanged as a result of the project. (RT 7/26/10 204:18-205:1.)

Conservation is apparently not a viable option in this case. (Ex. 302, p. C.7-51.) Applicant has proposed that when it has switched over to SWWTF treated effluent, it would compensate for its use of Boyer water by continuing to pay for the Boyer water but leaving it in the ground. Staff argues against this approach, stating in its brief that the Boyer water used by Applicant would be "gone forever." (Staff's Opening Brief, p. 22; RT7/26/10214:4-12.) We agree with Staff, and find that Applicant's proposal to mitigate for its use of groundwater by not pumping it once it switches to SWWTF water will not replace the water Applicant used. It would simply continue to result in potential Boyer customers continuing to obtain their water elsewhere.

What remains for us, then, is to determine whether or not Applicant's proposed use of groundwater will have a significant impact on the basin. In this case, we cannot find that it does. The CEQA guidelines provide guidance by asking:

Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be net deficit in aquifer volume or a lowering of the local groundwater table (E.g. the production rate of nearby existing wells would drop to a level which would not support existing land uses or planned uses for which a permit has been granted)? (CEQA Guidelines, Appendix G, Question 8(b).

Applicant prepared a Groundwater Evaluation Report (Ex. 32, Appendix D.) The report measured the proposed use of 40afy from the Boyer well against the size of the aquifer and its recharge rate. The report concluded:

Continuous pumping of the well at the rate [40afy]specified in the CUP[conditional use permit] for a period of one, two or three years will have no significant impact on water levels in the area, as the ZOI [zone of influence]is considerably less than the distance to the closest well, which is approximately 500 feet away. • This analysis regarding the amount of supply and pumping indicates that the incremental amount of water demanded by the project is so small as to provide no reasonable scientific basis for concluding that it would cause or exacerbate any overdraft. The pumping required for the Project would continue for a relatively short duration that is generally accepted as not having any substantial effects on basin levels. This report was peer-reviewed by Dr. Eric LaBolle, who concluded: Based on my review of the report, at the pumping rates consistent with the Conditional Use Permit, I concur with URS' analysis of the well, and its conclusions regarding the well's limited "zone of influence", and its negligible effect on the overall water quantity of the basin. (Ex. 40.)

The evidence shows that the amount of water stored in the basin is 1.2 million acre feet. (Ex. 140.) If Applicant uses 40afy for three years, it would use 120 acre feet. Even if Applicant used groundwater for the 40-year life of the project, it would use 1600 acre feet. This would not "deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be net deficit in aquifer volume or a lowering of the local groundwater table," the CEQA standard set forth above. These amounts are *de minimis*, and, we are convinced, temporary. [44] (*Id*.)

This project uses minimal water, and no water for cooling. Its construction and operational usage is remarkably low for a project of this output. Accordingly, we find that the project's proposed use of groundwater from the Boyer well during the period of time water from the SWWTF is unavailable will not have a significant direct or cumulative impact on the Ocotillo/Coyote Basin.

d. <u>SWWTF Water</u>

Staff has also included an analysis of the use of water from the SWWTF. We find it far more likely than not that this treated effluent will become available in less than three years based on the evidence that we have previously discussed.

[44] Further support for our characterization of the project's proposed use of 40 afy of groundwater as *de minimis* is the amount of water taken from the Colorado River by the Imperial Irrigation District (IID) for agriculture in the Imperial Valley. According to the IID website, www.iid.com/water, today the IID delivers approximately 3.1 million acre-feet per year of water to nearly 500,000 irrigated acres. 97 percent of the water IID transports is used for agriculture.

SWWTF discharges to the New River are currently used only for habitat along the New River and in the Salton Sea. Discharge impacts to the New River for this purpose would be minimal. A discharge of 33,550 gpd is approximately 0.05 cfs. The maximum water allotment to the Imperial Valley Solar project of 200,000 gpd is approximately 0.31 cfs. USGS records (USGS, 2009) show New River average monthly discharges to be at least 198 cfs at the international boundary upstream of the SWWTF and 554 cubic feet per second at Westmorland downstream of the SWWTF. Although staff has not identified a significant impact with the reduction of 0.05 to 0.31 cfs to the New River discharge (0.03 percent to 0.16 percent of the total) or a material effect to the water quantity of the river, the determination from the lead agency on the SWWTF upgrades is still outstanding. Condition of Certification **SOIL&WATER-9** would ensure that impacts related to the diversion of flow would be mitigated to a level not significant. Water quality impacts to the New River would be addressed by a revised waste discharge permit from the Regional Water Quality Control Board for the SWWTF upgrades proposed by Imperial Valley Solar. (Ex. 302, p. C.7-50.)

e. Water Supply Reliability

With the current availability of the Boyer water, and the pending availability of SWWTF treated effluent, we find that the project has both a primary and a backup water supply. The Applicant has stated it would suspend mirror washing operations should the supply drop below their needs. Staff expects the Dan Boyer well to reliably supply water, and also expects the SWWTF to reliably supply water if it is permitted and constructed, and we so find. Condition of Certification **SOIL&WATER-9** would ensure viability of a water supply and that water use is within the amount analyzed herein.

Potable water for the operations workforce, including water for hand washing and other uses requiring potable water, would be supplied from the Dan Boyer Water Company. Condition of Certification **SOIL&WATER-4** would ensure that this water come from a water purveyor licensed to provide potable water in the state of California and that the supply provided to Imperial Valley Solar is within the licensed capabilities of the purveyor, ensuring less than significant water supply impact for potable water.
(Ex. 302, p. C.7-51.)

f. Groundwater Quality

Project pumping will increase the decline in water levels, which could affect groundwater quality. In the Ocotillo area, the primary water supply is low TDS groundwater from the upper Holocene alluvium aquifer. High TDS groundwater

reportedly resides in the underlying Pleistocene Palm Springs formation and the marine Imperial formation (Todd, 2007). Groundwater in the Holocene alluvium reportedly flows vertically downward to the Palm Springs and Imperial formations. Groundwater-level data show the average rate of water level decline in the Holocene alluvium of 0.21 foot per year in the alluvium and 0.14 foot per year in the lower Palm Springs and Imperial formation wells located near water supply well and site. (Ex. 302, p. C.7-54.)

Increased pumping in the Holocene alluvium can increase the potential for groundwater to flow upwards (upflux) into the Holocene alluvium from the underlying Palm Springs and Imperial formations. This can result in upward movement of relatively high TDS water into the Holocene alluvium which currently has lower TDS groundwater and is the primary water supply for the basin. The Ocotillo/Coyote Wells basin model indicates that increased pumping from the alluvial aquifer increases upflux from the Palm Springs and Imperial formations. Using the statistical relationship Todd (2007) developed to estimate changes in upflux in response to pumping increases, staff concluded that by the end of project construction upflux could increase by almost 5 acre-feet per year (a total upflux to the entire alluvial aquifer over the entire construction period of less than 15 acre-feet). For operational water use conditions, staff determined that by the end of the project upflux will have increased by about 3 acre-feet per year (total upflux to the entire alluvial aquifer over the operational life of the project of less than 130 acre-feet). Total upflux due to project construction and operation is therefore less than 145 acre-feet.

The relationship between simulated pumping and upflux is spatially variable. Todd's (2007) relationship is spatially variable and primarily associated with upgradient areas and beneath large production wells. Accordingly, the actual upflux that may occur from beneath the Dan Boyer Water Company well is probably less than 145 acre-feet.

The minimum area affected by this upflux is represented by the drawdown area produced by pumping the Dan Boyer Water Company well. The smallest drawdown area staff simulated was almost 1.5 miles in diameter, indicating an affected area of about 1,100 acres. Assuming an average well depth of 300 feet, depth to water of 125 feet below land surface (saturated interval adjacent to the well of 175 feet), and a total porosity of 0.20, the potentially affected volume of water is 38,500 acre-feet. The estimated upflux of less than 145 acre-feet is at most 0.4 percent of the minimum affected aquifer volume and therefore considered insignificant. Staff's witness confirmed that these findings show the

project's proposed use of groundwater would have an insignificant effect on groundwater quality. (RT7/26/10, 200:20 – 201:16.)

Existing groundwater below the project site is poor in quality and located 50 feet or more below the ground surface. Potential groundwater quality impacts could occur from surface contaminants such as oil, grease and other fluids in surface water infiltrating through channel beds to the groundwater, infiltration of sanitary wastes through the septic leach fields, infiltration of contaminated brines through the evaporation ponds for the water demineralization process, and through infiltration of surface contaminants at the retention basin in the Main Services Complex.

The septic system planned for the project will contribute nitrogen to the subsurface. The amount of the contribution depends on the nitrogen concentration in the sewage effluent, volume of effluent, and subsurface processes. Septic systems can represent a significant source of local recharge in arid basins like the Ocotillo/Coyote Wells Groundwater Basin, but since local groundwater is the only source of water this recharge is actually return flow to the basin.

Uncertainty in subsurface processes, concentrations and loading point to a potential need to monitoring groundwater quality changes related to septic system discharge. The leach fields would be designed according to the California Plumbing Code and County of Imperial regulations and as such would be more than 10 feet above groundwater. The leach fields may also be subject to a RWQCB waste discharge permit. Condition of Certification **SOIL&WATER-8** would ensure no significant adverse impact to groundwater quality from the sanitary leach field system. (Ex. 302, pp. C.7-54 to C.7-55.)

Surface contaminants in runoff would be minimized as described under surface water quality above and mitigated through Conditions of Certification **SOIL&WATER-1, SOIL&WATER-5,** and **SOIL&WATER-7**. Surface contaminants would be minimized through these conditions. Contaminants that do reach surface water would be filtered through at least 50 feet of soil before reaching groundwater. No significant adverse impact to groundwater quality is expected from surface contaminants in runoff.

The demineralized water evaporation ponds would be lined with concrete to prevent infiltration. Solids from the ponds would be removed and transported by truck to a disposal facility. Conditions of Certification **SOIL&WATER-3** and **SOIL&WATER-7** would ensure no adverse ground water quality impact from the

water treatment system. No significant adverse impact to groundwater quality is expected from the evaporation ponds.

The retention basin in the Main Services Complex would include an oil/water interceptor and be subject to RWQCB waste discharge requirements. Oil collected from the interceptor would be transported to a certified recycling facility. Conditions of Certification **SOIL&WATER-1** and **SOIL&WATER-5** would ensure minimization of operations-related runoff contaminants. No significant adverse impact to groundwater quality is expected from the retention basin. Upgrades to the SWWTP would have no impact on groundwater. (Ex. 302, p. C.7-56.)

4. Decommissioning

The removal of the Project from service, or decommissioning, may range from "mothballing" to the removal of equipment and appurtenant facilities, depending on conditions at the time. The Applicant proposes to prepare a decommissioning plan which will be submitted to the Energy Commission and BLM for approval before decommissioning. In general, the decommissioning plan will attempt to maximize the recycling of project components including selling unused chemicals back to the suppliers or other purchasers or users, draining and shutting down of equipment containing chemicals, and collection and proper disposal of hazardous and nonhazardous wastes.

Decommissioning activities will produce impacts similar to the construction impacts described above, but likely to a lesser extent. Long-term impacts after decommissioning could be substantial, particularly those related to erosion by water and wind, unless the site is restored to a condition similar to the existing condition, or a post-decommissioning maintenance plan is provided to prevent these impacts. Condition of Certification **SOIL&WATER-10** would ensure that decommissioning impacts would be minimized to a level not significant.
(Ex. 302, p. C.7-58.)

5. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. (14 Cal. Code Regs., § 15065[A] [3].) The discussion of cumulative impacts should be guided by standards of practicality and reasonableness. (14 Cal. Code Regs., 14, § 15130[b].)

Staff's analysis of the potential cumulative impacts of the proposed project is set forth in section C.7.9 of the SSA, Ex. 302. Staff performed a thorough and complete analysis which we find meets all legal requirements for analysis of cumulative impacts. Staff found that non-sediment water quality impacts will be mitigated through strict conditions of certification such that the relative size of the Imperial Valley Solar project will be less important than in the construction phase.

Peak discharges and the potential for offsite flooding will not be increased by the Imperial Valley Solar project. Imperial Valley Solar project features will be protected. We agree with Staff's conclusions in this regard.

We also agree with Staff's conclusion that it is unlikely that the construction or decommissioning of any of the cumulative projects would occur concurrently with the decommissioning of this project, because the decommissioning of the Imperial Valley Solar project is not expected to occur for approximately 40 years. As a result, the impacts of the decommissioning of the Imperial Valley Solar project would not be expected to contribute to cumulative impacts related to Soil and Water Resources.

(Ex. 302, pp. C.7-72 to C.7-75.)

Staff also found that the Project's contribution to impacts on erosion and sediment-related impacts and groundwater depletion will be cumulatively considerable when combined with known and reasonably foreseeable future projects. In light of our findings that use of the 709 MW alternative will reduce erosion and sediment-related operational cumulative impacts to below a level of significance, and that the project's use of groundwater for construction and operations (and not for cooling) will be *de minimis* and temporary, and therefore insignificant, we find that the project's contribution to cumulative impacts on soil and water resources will not be significant.

6. LORS Compliance

**<u>Energy Commission Policy</u>**

Sources for statements of Energy Commission policy relating to water use in California and applicable to power plants include the California Constitution, the Warren-Alquist Act, and the Commission's restatement of the state's water policy in the 2003 Integrated Energy Policy Report ("IEPR"). Each Stirling engine of the proposed project would use an air-cooled radiator for cooling. This method of cooling would be in compliance with Energy Commission policy.

The Energy Commission policy also encourages the use of ZLD systems that are designed to eliminate wastewater discharge and inherently conserve water. Although project proposes the use of evaporation ponds for wastewater disposal, in this case ZLD technology is economically infeasible for this project given the low rate of wastewater that would be produced. The project's operational water consumption will be less than 40afy.

A listing of LORS applicable to the project's potential impacts to soil and water resources is provided in the SSA. (Ex. 302, pp. C.7-18 to C.7-23.)

**Clean Water Act**

The U.S. Army Corps of Engineers has determined that 840 acres of the project site are jurisdictional waters of the U.S. under Clean Water Act (CWA) Section 404. Approximately 165 acres of these waters are proposed as permanent impacts, 5 acres as temporary impacts. The U.S. Environmental Protection Agency (USEPA) Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230 et seq.) are substantive environmental criteria used by the USACE to evaluate permit applications. Under these guidelines, an analysis of practicable alternatives is the primary tool used to determine whether a proposed discharge can be authorized. An alternative is considered practicable if it is available and capable of being implemented after considering cost, existing technology, and logistics in light of the overall project purpose (40 C.F.R. Part 230[a][2]). The guidelines suggest a sequential approach to project planning such that the Corps of Engineers must first consider avoidance and minimization of impacts to the extent practicable. Mitigation for unavoidable impacts to waters of the U.S. is addressed only after the analysis has determined the Least Environmentally Damaging Practicable Alternative (LEDPA). A formal 404(b)(1) analysis has not yet been completed; however, the Corps has preliminarily adopted the LEDPA, as has the BLM. There is nothing in the record that would lead us to believe it will not be adopted by the Corps as proposed. We therefore find that compliance with Section 404 of the Clean Water Act has been demonstrated.

**Safe Drinking Water Act**

Environmental Protection Agency (EPA) Sole Source Aquifer Protection Program, authorized by Section 14245(e) of the Safe Drinking Water Act. The communities in the Ocotillo/Coyote Wells Groundwater Basin, Coyote Wells, Nomirage, and Yuha Estates and US Gypsum and several other commercial/industrial and agricultural users, depend on the Ocotillo/Coyote Wells Groundwater Basin as their source of potable water. Surface water is not present in the Basin and there are no water imports into the Basin. Therefore, the

Ocotillo/Coyote Wells Groundwater Basin was designated as a "sole source aquifer" by the Environmental Protection Agency (EPA) in 1996. The sole source aquifer designation requires U.S. EPA review of proposed federally assisted "projects" to determine their potential for contaminating the aquifer. The project's water use will not noticeably affect the aquifer and thus we find that compliance with the Safe Drinking Water Act has been demonstrated.

**Title 22, Article 3, Sections 64400.80 through 64445**

This section requires monitoring for potable water wells, defined as non-transient, non-community water systems (serving 25 people or more for more than six months); the proposed project would employ approximately 63 fulltime and 10 seasonal employees during operations. Regulated wells must be sampled for bacteriological quality once a month and the results submitted to the California Department of Public Health (CDPH) for review and comment. The wells must also be monitored for inorganic chemicals once and organic chemicals quarterly during the year designated with the year designation based on historical monitoring frequency and laboratory capacity. Condition of Certification **SOIL&WATER-12** would ensure the applicant complies with this requirement.

**Porter-Cologne Water Quality Control Act/State Water Board Resolution No. 68-16**

Conditions of Certification **SOIL&WATER-1** to **SOIL&WATER-9**, inclusive, would satisfy the requirements of the Porter-Cologne Water Quality Control Act and State Water Board Resolution No. 68-16, and other relevant regulations as administered by the RWQCB.

**SWRCB Resolution 75-58 and Energy Commission's 2003 Integrated Energy Policy Report**

SWRCB Resolution 75-58, Energy Commission's 2003 Integrated Energy Policy Report, and The Warren-Alquist Act relate to the use of fresh inland water for power plant cooling. The Imperial Valley Solar project would not use water for power plant cooling, but is in compliance with the spirit of these regulations by using reclaimed water for mirror washing. No fresh inland water would be used except for potable water.

**Public Resources Code, Sections 25300 Through 25302**

Through compliance with Condition of Certification **SOIL&WATER-2**, information required by staff to conduct assessments and forecasts of potable and industrial water consumption by power plants is achieved.

**California Code of Regulations Titles 17, 22, 23, 24 and 27**

Staff has determined that the proposed project would satisfy the requirements of the California Code of Regulations Titles 17, 22, 23, 24 and 27 by upgrading the SWWTP to supply tertiary treated recycled water in accordance with Title 17 and 22 requirements as is proposed by the applicant and with the adoption of Conditions of Certification **SOIL&WATER-2**, **SOIL&WATER-3, SOIL&WATER-4, SOIL&WATER-7, SOIL&WATER-8,** and **SOIL&WATER-9**.

**Imperial County Land Use Ordinance, Title 9**

Staff has determined that the proposed project would satisfy most requirements of Imperial County Land Use Ordinance, Title 9 by adoption of the following Conditions of Certification **SOIL&WATER-1, SOIL&WATER-5, SOIL&WATER-6,** and **SOIL&WATER-8**. The adoption of the Agency Preferred Alternative/preliminary LEDPA by the Applicant will ensure compliance with the Land Use Ordinance.

Compliance with all conditions of the well permit has been verified by the County. The Dan Boyer Company Well is permitted for 40 acre-feet per year. Condition of Certification **SOIL&WATER-2** and **-9** require all permit requirements to be in place and limits water purchases by the project to 39 acre-feet per year.

**California Water Code Section 1211**

We find that the proposed project would satisfy requirements of California Water Code Section 1211 with the implementation of Condition of Certification **SOIL&WATER-9**.

## FINDINGS OF FACT

1. The project will be constructed and operated pursuant to the 709MW alternative, also referred to as the preliminary LEDPA and the Agency Preferred Alternative.
2. Project construction and operation has the potential to induce erosion and sedimentation, adversely affect water supplies, and degrade water quality.
3. Construction and operation of the 709MW alternative will not significantly increase or decrease erosion rates with implementation of applicable Conditions of Certification.
4. Potential on-site drainage impacts will be mitigated to insignificant levels with implementation of applicable Conditions of Certification.

5. The proposed use of groundwater will not significantly impact groundwater levels, the basin balance, or the quality of groundwater in the basin.

6. Treated effluent from the Seeley Wastewater Treatment Facility will become available for project construction and operations and will replace the use of groundwater. Use of that water will stop any impacts caused by the project related to its use of groundwater.

7. The project uses no water for cooling and its use of water for construction and operation is extremely low for a project of this size.

8. The Conditions of Certification, below, are adequate to ensure that construction and operation of the Imperial Valley Solar Project, 709MW alternative, will comply with LORS and will not create significant adverse impacts to the matters addressed in the technical discipline of Soils and Water Resources.

## CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification listed below, the Project will comply with all applicable LORS, and will not result in any unmitigated and significant direct, indirect or cumulative adverse impacts related to Soil or Water Resources.

2. With implementation of the identified Conditions of Certification or similar measures as appropriate, implementation of the planned Seeley Wastewater Treatment Facility upgrade project would be expected to comply with all applicable LORS, and would not be expected to result in any significant adverse direct, indirect, or cumulative impacts to soil and water resources.

## CONDITIONS OF CERTIFICATION

**SOIL&WATER-1** Prior to site mobilization, the project owner shall obtain Compliance Project Manager's (CPM) approval for a site specific DESCP that ensures protection of water quality and soil resources of the project site and all linear facilities for both the construction and operation phases of the project. This plan shall address appropriate methods and actions, both temporary and permanent, for the protection of water quality and soil resources, demonstrate no increase in off-site flooding or sedimentation potential, and identify all monitoring and maintenance activities.

The project owner shall complete all necessary engineering plans, reports, and documents necessary for the CPM to conduct a review of the proposed project and provide a written evaluation as to whether the proposed grading, drainage improvements, sediment control measures,

and flood management activities comply with all requirements presented herein. The plan shall contain the following elements:

**Vicinity Map**: A map shall be provided indicating the location of all project elements with depictions of all major geographic features to include watercourses, washes, irrigation and drainage canals, major utilities, and sensitive areas.

**Site Delineation**: The site and all project elements shall be delineated showing boundary lines of all construction areas and the location of all existing and proposed structures, underground utilities, roads, and drainage facilities. Adjacent property owners shall be identified on the plan maps. All maps shall be presented at a legible scale.

**Drainage**: The DESCP shall include the following elements:

a. Topography. Topography for offsite areas is required to define the existing upstream tributary areas to the site and downstream to provide enough definition to map the existing storm water flow and flood hazard. Spot elevations shall be required where relatively flat conditions exist.

b. Proposed Grade. Proposed grade contours shall be shown at a scale appropriate for delineation of onsite ephemeral washes, drainage ditches, and tie-ins to the existing topography.

c. Hydrology. Existing and proposed hydrologic calculations for onsite areas and offsite areas that drain to the site; include maps showing the drainage area boundaries and sizes in acres, topography and typical overland flow directions, and show all existing, interim, and proposed drainage infrastructure and their intended direction of flow.

d. Hydraulics. Provide hydraulic calculations to support the selection and sizing of the onsite drainage network, diversion facilities and BMPs.

**Watercourses and Critical Areas**: The DESCP shall show the location of all onsite and nearby watercourses including washes, irrigation and drainage canals, and drainage ditches, and shall indicate the proximity of those features to the construction site. Maps shall identify high hazard flood prone areas.

**Clearing and Grading**: The plan shall provide a delineation of all areas to be cleared of vegetation, areas to be preserved, and areas where vegetation would be cut to allow clear movement of the SunCatchers. The plan shall provide elevations, slopes, locations, and extent of all proposed grading as shown by contours, cross-sections, cut/fill depths

or other means. The locations of any disposal areas, fills, or other special features shall also be shown. Existing and proposed topography tying in proposed contours with existing topography shall be illustrated. The DESCP shall include a statement of the quantities of material excavated at the site, whether such excavations or fill is temporary or permanent, and the amount of such material to be imported or exported or a statement explaining that there would be no clearing and/or grading conducted for each element of the project. Areas of no disturbance shall be properly identified and delineated on the plan maps.

**Soil Wind and Water Erosion Control**: The plan shall address exposed soil treatments to be used during construction and operation of the proposed project for both road and non-road surfaces including specifically identifying all chemical based dust palliatives, soil bonding, and weighting agents appropriate for use at the proposed project site that would not cause adverse effects to vegetation; BMPs shall include measures designed to prevent wind and water erosion including application of chemical dust palliatives after rough grading to limit water use. All dust palliatives, soil binders, and weighting agents shall be approved by the CPM prior to use.

**Project Schedule**: The DESCP shall identify on the topographic site map the location of the site-specific BMPs to be employed during each phase of construction (initial grading, project element construction, and final grading/ stabilization). Separate BMP implementation schedules shall be provided for each project element for each phase of construction.

**Best Management Practices**: The DESCP shall show the location, timing, and maintenance schedule of all erosion- and sediment-control BMPs to be used prior to initial grading, during project element excavation and construction, during final grading/stabilization, and after construction (during project operation). BMPs shall include measures designed to control dust and stabilize construction access roads and entrances. The maintenance schedule shall include post-construction maintenance of treatment-control BMPs applied to disturbed areas following construction.

**Erosion Control Drawings**: The erosion-control drawings and narrative shall be designed, stamped and sealed by a professional engineer or erosion control specialist.

**Agency Comments**: The DESCP shall include copies of recommendations, conditions, and provisions from the County of Imperial, California Department of Fish and Game (CDFG), and Colorado River Regional Water Quality Control Board (RWQCB).

**Monitoring Plan**: Monitoring activities shall include routine measurement of the volume of accumulated sediment in the onsite drainage ditches, and storm water diversions.

**Verification:** No later than ninety (90) days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to the County of Imperial, the RWQCB, the AO, and CPM for review and comment. The CPM shall consider comments received from Imperial County and RWQCB.

During construction, the project owner shall provide an analysis in the monthly compliance report on the effectiveness of the drainage-erosion- and sediment-control measures and the results of monitoring and maintenance activities. Once operational, the project owner shall provide in the annual compliance report information on the results of storm water BMP monitoring and maintenance activities. The property owner shall provide the CPM with two (2) copies each of all reports, including monitoring reports.

**MONITORING AND VERIFICATION OF WATER USE**

**SOIL&WATER-2** The Imperial Valley Solar Project plans to utilize groundwater purchased from the Dan Boyer Water Company, during the period recycled water is not available from the Seeley County Water District. This condition limits water purchases from the Dan Boyer Water Company to 39 acre-feet per year, and specifies that water purchases and use restrictions have been met and documented by both Imperial Valley Solar and Dan Boyer Water Company. This condition also limits use of groundwater to a period of thirty-six (36) months from the date of first construction-related ground disturbance. Use of ground water for a period exceeding thirty-six (36) months is prohibited unless the project owner seeks a Project Amendment extending the permissible period of groundwater use.

No later than thirty (30) days before any use of water from the Dan Boyer well, the project owner shall document that all required metering devices are in place and maintained as required by the well owner's permit. An annual summary of daily water sales by the water purveyor differentiating between Imperial Valley Solar power purchases and other water customers (which need to be identified and which may be collectively accounted for) shall be submitted to the CPM in the annual compliance report. This report shall include copies of all the Dan Boyer Water Company invoices to Imperial Valley Solar as back-up for the reported sales and deliveries.

**Verification:** At least thirty (30) days prior to use of water from the Dan Boyer Water Company for Imperial Valley Solar project, the project owner shall submit to the CPM evidence that metering devices have been installed and are operational on the Dan Boyer Water Company well. In the annual compliance

report, the project owner shall provide a report on the servicing, testing, and calibration of the metering devices.

The project owner shall submit a water use summary report to the CPM in the annual compliance report for the entire time that Imperial Valley Solar is using water from this well. As part of this report, the project owner shall include the monthly sales invoices of all sales to Imperial Valley Solar by the Dan Boyer Water Company. The monthly sales invoices shall differentiate between water sold to Imperial Valley Solar and water sold to other customers (which need to be identified and which may be collectively accounted for). The annual water use summary report shall be based on the volume of water used by Imperial Valley Solar and shall distinguish recorded daily use of potable and operation water. The report shall include the project's daily maximum, monthly range, and monthly average in gallons per day, and the annual use in acre-feet. After the first year and for subsequent years, this information shall also include the yearly range and yearly average potable and operation water used by the project.

**INDUSTRIAL FACILITY SWPPP**

**SOIL&WATER-3** The project owner shall comply with the requirements of the General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity, including development of an Industrial Facility SWPPP. If the Regional or State Board finds the project does not require a General NPDES Permit for Discharges of Storm Water Associated with Industrial Activity, written confirmation from either board confirming this permit is not required would satisfy this condition.

**Verification:** The project owner shall submit a copy of the Industrial Facility SWPPP for operation of the project to the CPM at least 60 days prior to the start of commercial operation and shall retain a copy of the approved SWPPP on site throughout the life of the project. The project owner shall submit copies of all correspondence between the project owner and the Colorado River RWQCB regarding the general NPDES permit for discharge of storm water associated with industrial activity to the CPM within 10 days of its receipt or submittal. Copies of correspondence shall include the Notice of Intent sent by the project owner to the SWRCB, the confirmation letter indicating receipt and acceptance of the Notice of Intent, and any permit modifications or changes.

**POTABLE WATER REQUIREMENTS**

**SOIL&WATER-4** Potable water shall be provided by a potable water purveyor licensed to provide potable water in the state of California. Potable water delivered by the purveyor to the Imperial Valley Solar project shall be within the licensed capacity of the water purveyor. The Imperial Valley Solar project shall not operate without an executed agreement for potable water on file with the CPM.

**Verification:** No later than 30 days prior to the initiation of construction the project owner shall submit two copies of the executed agreement with a licensed water purveyor for the potable water supply. The agreement shall specify that the potable water purveyor can deliver potable water sufficient for the needs of the Imperial Valley Solar Project construction and operation, specify the amount of water that shall be delivered on a monthly basis, document that the amount of water delivered is within the licensed capabilities of the water purveyor, and specify the contract time limit. The project owner shall ensure that this or an equivalent potable water agreement is in place and valid at all times the Imperial Valley Solar project is in operation. New or revised agreements shall be delivered to the CPM 30 days prior to the expiration of any agreement.

**NPDES GENERAL PERMIT FOR CONSTRUCTION ACTIVITY**

**SOIL&WATER-5** The project owner shall comply with the requirements of the general National Pollutant Discharge Elimination System (NPDES) permit for discharge of storm water associated with construction activity. The project owner shall submit copies of all correspondence between the project owner and the State Water Resources Control Board (SWRCB) or the Colorado River RWQCB regarding this permit to the CPM. The project owner shall also develop and implement a construction SWPPP for construction on the Imperial Valley Solar project main site, laydown areas, pipeline, and transmission line.

**Verification:** The project owner shall submit a copy of the construction SWPPP to the CPM at least 10 days prior to site mobilization for review and approval, and retain a copy of the approved SWPPP on site throughout construction. The project owner shall submit copies of all correspondence between the project owner and the SWRCB or the Colorado River RWQCB regarding the NPDES permit for the discharge of storm water associated with construction activity to the CPM within 10 days of its receipt or submittal. Copies of correspondence shall include the Notice of Intent sent to the SWRCB, the confirmation letter indicating receipt and acceptance of the Notice of Intent, any permit modifications or changes, and completion/permit Notice of Termination.

**WASTE DISCHARGE REQUIREMENTS**

**SOIL&WATER-6** The project owner shall comply with the Waste Discharge Requirements (WDRs) established in Soil and Water Resources Appendices B, C, and D for the construction and operation of the surface impoundments (evaporation ponds) and storm water management system. These requirements relate to discharges, or potential discharges, of waste that could affect the quality of waters of the state, and were developed in consultation with staff of the State Water Resources Control Board and/or the applicable California Regional Water Quality Control Board (hereafter "Water Boards"). It is the Commission's intent that these requirements be enforceable by both the Commission and the Water Boards. In furtherance of that

objective, the Commission hereby delegates the enforcement of these requirements, and associated monitoring, inspection and annual fee collection authority, to the Water Boards. Accordingly, the Commission and the Water Board shall confer with each other and coordinate, as needed, in the enforcement of the requirements. The project owner shall pay the annual waste discharge permit fee associated with this facility to the Water Boards. In addition, the Water Boards may "prescribe" these requirements as waste discharge requirements pursuant to Water Code Section 13263 solely for the purposes of enforcement, monitoring, inspection, and the assessment of annual fees, consistent with Public Resources Code Section 25531, subdivision (c).

**Verification:** No later than sixty (60) days prior to any wastewater or storm water discharge, the project owner shall provide documentation to the CPM, with copies to the Colorado River Basin RWQCB, demonstrating compliance with the WDRs established in Appendices B, C, and D. Any changes to the design, construction, or operation of the ponds or storm water system shall be requested in writing to the CPM, with copies to the Colorado River Basin RWQCB, and approved by the CPM, in consultation with the Colorado River Basin RWQCB, prior to initiation of any changes. The project owner shall provide to the CPM, with copies to the Colorado River Basin RWQCB, all monitoring reports required by the WDRs, and fully explain any violations, exceedances, enforcement actions, or corrective actions related to construction or operation of the ponds or storm water system

**STORM WATER DAMAGE MONITORING AND RESPONSE PLAN**

**SOIL&WATER-7** The project owner shall prepare detailed drainage maps for existing conditions showing the location of all watercourses on the site, including those not mapped in **Soil and Water Figure 3** of this report, recognizing that site areas with visible evidence of past flows are subject to future flows. Maps prepared for the California Department of Fish and Game and U.S. Army Corps of Engineers may be submitted at the discretion of the CPM provided these maps are demonstrated to show all drainageways that may produce scour that could destabilize a SunCatcher foundation. The drainage map may be based on a geomorphic evaluation based on aerial photographs, topographic maps, site visits, and other relevant factors, and may be supplemented by a two-dimensional flow analysis at the discretion of the project owner.

The project owner shall ensure and demonstrate through engineering calculations that all SunCatchers within flow areas as identified in the above-referenced drainage map are designed to withstand 100-year storm water scour.

The project owner shall also develop a Storm Water Damage Monitoring and Response Plan to evaluate potential impacts from storm

water, including SunCatchers that fail due to storm water flow or otherwise break and scatter mirror debris on to the ground surface. The Storm Water Damage Monitoring and Response Plan shall include the following elements:

- Detailed maps showing the installed location of all SunCatchers.
- Each SunCatcher shall be identified by a unique ID number marked to show initial ground surface at its base and the depth of the pylon below ground.
- Minimum Depth Stability Threshold to be maintained of pylons to meet long-term stability for applicable wind, water, and debris loading effects.
- Above and below ground construction details of a typical installed SunCatcher.
- BMPs to be employed to minimize the potential impact of broken mirrors to soil resources.
- Methods and response time of mirror cleanup and measures that may be used to mitigate further impact to soil resources from broken mirror fragments.
- Monitoring, documenting, and restoring the soil surface when impacted by sedimentation or broken mirror shards.

Monitor and Inspect Periodically, Before First Seasonal and After Every Storm Event:

- SunCatchers within Drainages or subject to drainage overflow: Inspect for tilting, mirror damage, depth of scour compared to pylon depth below ground and the Minimum Depth Stability Threshold, collapse, and downstream transport.
- Drainage Channels: Inspect for substantial migration or changes in depth, and transport of broken glass.
- Constructed Diversion Channels: Inspect for scour and structural integrity issues caused by erosion, and for sediment and debris buildup.
- Ground Surface: Inspect for changes in the surface texture and quality from sediment buildup, erosion, or broken glass.

Short-Term Incident-Based Response:

- SunCatchers: Remove broken glass, damaged structure, and wiring from the ground, and for foundations no longer meeting the Minimum Depth Stability Threshold, either replace/reinforce or remove the mirrors to avoid exposure for broken glass.

- Drainage Channels: no short-term response necessary unless changes indicate risk to facility structures.

Long-Term Design-Based Response:

- Propose operation/BMP modifications to address ongoing issues. Include proposed changes to monitoring and response procedures, frequency, or standards.

- Replace/reinforce foundations no longer meeting the Minimum Depth Stability Threshold or remove the mirrors to avoid exposure for broken glass.

- Propose design modifications to address ongoing issues.

Inspection, short-term incident response, and long-term design-based response may include activities both inside and outside of the approved right of-way. For activities outside of the approved right-of-way, the project owner shall notify BLM and acquire environmental review and approval before field activities begin.

**Verification:** At least thirty (30) days prior to the start of site mobilization, the project owner shall submit the final drainage map, scour calculations, and the Storm Water Damage Monitoring and Response Plan, with supporting analysis, to the CPM for review and approval. The project owner shall retain a copy of these documents onsite at the power plant at all times. The project owner shall prepare an annual summary of the number of SunCatchers failed, cause of the failure, and cleanup and mitigation performed for each failed SunCatcher.

## SEPTIC SYSTEM AND LEACH FIELD REQUIREMENTS

**SOIL&WATER-8** The project owner shall comply with the requirements of the County of Imperial Land Use Ordinance Title 9 and the California Plumbing Code (California Code of Regulations Title 24, Part 5) regarding sanitary waste disposal facilities such as septic systems and leach fields. The septic system and leach fields shall be designed, operated, and maintained in a manner that ensures no deleterious impact to groundwater or surface water. Compliance shall include an engineering report on the septic system and leach field design,

operation, maintenance, loading impact to groundwater and groundwater monitoring.

**Verification:** The project owner shall submit all necessary information and the appropriate fee to the County of Imperial and the RWQCB to ensure that the project has complied with county and state sanitary waste disposal facilities requirements. Written assessments prepared by the County of Imperial and the RWQCB regarding the project's compliance with these requirements must be submitted to the CPM for review and approval 30-days prior to the start of power plant operation.

## ASSURED WATER SUPPLY

**SOIL&WATER-9** If water is to be used from the Dan Boyer Water Company, the project owner shall provide the CPM two copies of the following: (1) Dan Boyer Water Company's well registration; (2) documentation and proof necessary to verify that all of Imperial County's specific terms for the well permit have been met; and (3) an executed Water Purchase Agreement (agreement) or option between Imperial Valley Solar and the Dan Boyer Water Company for the long term supply of groundwater for the project. The agreement shall specify the agreed upon delivery rate to meet the Imperial Valley Solar project's maximum construction and operation requirements (maximum supply of 39 acre-feet per year).

No later than 30 days prior to use of If recycled water from the Seeley Waste Water Treatment Facility (WWTF) becomes an alternative water supply, the project owner shall provide the CPM two copies of the executed Recycled Water Purchase Agreement (agreement) with the recycled waste water purveyor for the long-term supply (40 years) of disinfected tertiary recycled water to the Imperial Valley Solar project. The project shall not use recycled connection to a recycled water pipeline for project use. The agreement shall specify a delivery rate to meet Imperial Valley Solar project's maximum operation requirements and all terms and costs for the delivery and use of recycled water at the Imperial Valley Solar project. The Imperial Valley Solar project shall not use recycled water without the final agreement in place and submitted to the CPM. The project owner shall comply with the requirements of Title 22 and Title 17 of the California Code of Regulations and section 13523 of the California Water Code insofar as it applies to use of water by the Imperial Valley Solar project.

The project owner shall work with the Seeley Waste Water Treatment Facility (SWWTF) to obtain approval from the RWQCB Division of Water Rights for the diversion of flows from the New River to the Imperial Valley Solar project.

Before recycled water from the SWWTF is used available as the project's water supply, the project owner shall do the following:

1. Submit to the CPM evidence that the SWWTF has obtained approval from the RWQCB Division of Water Rights for any diversion of flows from the New River to the Imperial Valley Solar project;

2. Submit to the CPM evidence that a final agreement has been made between the project owner and the SWWTF that specifies the delivery rate to meet Imperial Valley Solar project's maximum operation requirements and all terms and costs for the delivery and use of recycled water by the Imperial Valley Solar project

3. Submit to the CPM evidence that metering devices are operational on the water supply and distribution systems.

4. Maintain metering devices as part of the water supply and distribution systems to monitor and record, in gallons per day, the total volume(s) of water supplied to Imperial Valley Solar project from the SWWTP. Those metering devices shall be operational for the life of the project.

5. For the first year of operation, the project owner shall prepare an annual Water Use Summary, which will include the monthly average of daily water usage in gallons per day, and total water used by the project on a monthly and annual basis in acre-feet. For subsequent years, the annual Water Use Summary shall also include the annual water used by the project in prior years. The annual Water Use Summary shall be submitted to the CPM as part of the annual compliance report.

**Verification:** No later than thirty (30) days prior to use of water from the Dan Boyer Water Company well, the project owner shall submit two copies of the well registration, including the necessary documentation and proof that the specific terms of the registration have been met, and the executed agreement or option for the supply of groundwater for the project. The agreement or option shall specify that the water purveyor can provide water at a maximum rate up to 250,000 gpd and a maximum of 39 acre feet per year to the Imperial Valley Solar project.

No later than 30 days prior to use of water from the SWWTF, the project owner shall submit the items referenced in paragraphs 1 through 3 above. During the life of the project, while water from the SWWTF is being used, the project owner shall comply with items referenced in paragraphs 4 and 5 above.

**DECOMMISSIONING PLAN**

**SOIL&WATER-10** The project owner shall identify likely decommissioning scenarios and develop specific decommissioning plans for each scenario that will identify actions to be taken to avoid or mitigate long-

term impacts related to water and wind erosion after decommissioning. Actions may include such measures as a decommissioning SWPPP, revegetation and restoration of disturbed areas, post-decommissioning maintenance, collection and disposal of project materials and chemicals, and access restrictions.

**Verification:** At least 90 days prior to the start of site mobilization, the project owner shall submit decommissioning plans to the CPM for review and approval prior to site mobilization. The project owner shall amend these documents as necessary, with approval from the CPM, should the decommissioning scenario change in the future.

**NON-TRANSIENT, NON-COMMUNITY WATER SYSTEM**

**SOIL&WATER-11** If the project uses groundwater as a drinking water supply that is not from an established potable water provider, the project is subject to the requirement of Title 22, Article 3, Sections 64400.80 through 64445 for a non-transient, non-community water system (serving 25 people or more for more than six months) and the project owner shall obtain a permit from the County of Imperial to operate a non-transient, non-community water system.

**Verification:** If the project proposes to use groundwater that is not from an established potable water provider to meet project potable demands, the project owner shall ensure that the groundwater well owner has a permit to operate a non-transient, non-community water system from the County of Imperial at least thirty (30) days prior to commencement of construction at the site. The project owner shall supply updates annually for all monitoring requirements and submittals to County of Imperial related to the permit, and proof of annual renewal of the operating permit.

## C. CULTURAL RESOURCES

This section addresses anticipated impacts to cultural resources due to construction, operation and decommissioning of the Imperial Valley Solar Project (IVS or Project). Cultural resources, such as artifacts, structures, places, or land modifications, reflect the history of human development. This analysis considers the structural and cultural evidence of human development present in the project vicinity to determine appropriate mitigation measures should cultural resources be disturbed by project excavation, construction, operation and decommissioning.

### 1. Legal Requirements for Review of Impacts to Archaeological and Historical Resources.

Cultural resources are categorized as buildings, sites, structures, objects, and districts under both federal law [for the purposes of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), § 106] and under California state law [for the purposes of the California Environmental Quality Act (CEQA)]. Three kinds of cultural resources, classified by their origins, are considered in this assessment: prehistoric, ethnographic, and historic.

When a cultural resource is determined to be significant by the State Historical Resources Commission, it is eligible for inclusion in the California Register of Historic Resources (CRHR) as an historic resource. (Pub. Res. Code, § 5024.1, subd. (b); Cal. Code Regs., tit. 14, § 4850 et seq.) An archaeological resource that does not qualify as an historic resource may be considered a "unique" archaeological resource under the California Environmental Quality Act (CEQA) (*see* Pub. Res. Code, § 21083.2.) In addition, structures older than 50 years (or less if the resource is deemed exceptional) can be considered for listing as significant historic structures. The Office of Historic Preservation's Instructions for Recording Historical Resources (1995) endorses recording and evaluating resources over 45 years of age to accommodate a five-year lag in the planning process.

The CEQA Guidelines provide a definition of a historical resource as:

- a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR," or
- "a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code," or

- "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record." [Cal. Code Regs., tit. 14, § 15064.5(a).]

Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the National Register of Historic Places (NRHP) and California Registered Historical Landmarks from No. 770 onward. [Pub. Res. Code, § 5024.1(d).]

Under the CEQA Guidelines, a resource is generally considered to be historically significant if it meets the criteria for listing in the CRHR. These criteria are essentially the same as the eligibility criteria for the NRHP. In addition to being at least 50 years old, a resource must meet at least one of the following four criteria:

> **Criterion 1**: it is associated with events that have made a significant contribution to the broad patterns of our history; or,
> Criterion 2: it is associated with the lives of persons significant in our past ; or,
> **Criterion 3**: that the resource embodies the distinctive characteristics of a type, period, or method of construction, or that it represents the work of a master, or possesses high artistic values ; or,
> **Criterion 4:** that it has yielded, or may be likely to yield, information important to history or prehistory .
> (Pub. Res. Code § 5024.1.)

In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (Cal. Code Regs., tit. 14, § 4852(c); Pub. Res. Code §§ 5020.1, subd. (j), 5024.1). Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA allows the lead agency to make a determination as to whether the resource is a historical resource.

Our goal in preparing this cultural resources analysis is to accommodate both the need of the Energy Commission to demonstrate, under CEQA, a consideration of the potential for the project to affect cultural resources and the need of the BLM to conduct similar analyses under NEPA and Section 106 of the National Historic Preservation Act. Our analysis is intended to fulfill the largely parallel goals of the

three regulatory programs by considering the project and its impacts in five phases:

1. Determine the appropriate geographic extent of the analysis for the proposed action and for each alternative action under consideration.

2. Prepare an inventory of the cultural resources in each such geographic area.

3. Determine whether particular cultural resources in an inventory are historically significant, or can be avoided by construction.
4. Assess the character and the severity of the impacts of the proposed or alternative actions on the historically significant cultural resources that cannot be avoided in each respective inventory.

5. Propose measures that would mitigate significant impacts.

Given the American Recovery and Reinvestment Act (ARRA) deadlines, Energy Commission and Bureau of Land Management (BLM) staff have not had time to provide a detailed evaluation of each resource potentially eligible for historic register nomination. Resources instead will be evaluated according to protocols established by the Conditions of Certification and Cultural Resources Programmatic Agreement. There likely are undiscovered resources on the site and they will be permanently changed and/or destroyed during construction. Therefore, we have concluded that IVS will result in potentially significant impacts to cultural resources. The mitigation measures we adopt herein will reduce the direct and indirect impacts to less than significant. Cumulative impacts will remain because multiple projects proposed in the region will affect significant cultural landscapes.

We have determined that overriding considerations warrant acceptance of these impacts. We have included a Statement of Overriding Considerations elsewhere in this Decision in support of that determination.

## SUMMARY AND DISCUSSION OF THE EVIDENCE

2. Project Area of Analysis (project area)/Area of Potential Effects (APE)

A useful precursor to a cultural resources analysis under CEQA and NEPA and a requisite part of the Section 106 process (36 CFR Part 800) is to define the appropriate geographic limits for an analysis. The area that Energy Commission staff typically considers when identifying and assessing impacts to cultural

resources under CEQA is referred to here as the "project area of analysis." Energy Commission staff defines the project area of analysis as the area within and surrounding a project site and associated linear facility corridors. The area reflects the minimum standards set out in the Energy Commission Power Plant Site Certification Regulations (Cal. Code Regs., tit. 20, § 1701 et seq., appen. B, subd. (g)(2)) and is sufficiently large and comprehensive in geographic area to facilitate and encompass considerations of archaeological, ethnographic, and built-environment resources. The project area of analysis is a composite, though not necessarily contiguous geographic area that accommodates the analysis of each of these resource types:

- For archaeological resources, the project area of analysis is minimally defined as the project site footprint, plus a buffer of 200 feet, and the project linear facilities routes, plus a buffer of 50 feet to either side of the rights-of way for these routes.
- For ethnographic resources, the project area of analysis is expanded to take into account traditional use areas and traditional cultural properties which may be far-ranging, including views that contribute to the significance of the property. These resources are often identified in consultation with Native Americans and other ethnic groups, and issues that are raised by these groups may define the area of analysis.
- For built-environment resources, the project area of analysis is confined to one parcel deep from the project site footprint in urban areas, but in rural areas is expanded to include a half-mile buffer from the project site and above-ground linear facilities to encompass resources whose setting could be adversely affected by industrial development.
- For a historic district or a cultural landscape, staff defines the project area of analysis based on the particulars of each siting case (i.e., specific to that project).

The BLM concludes here that the project area of analysis concept provides an appropriate areal scope for the consideration of cultural resources under NEPA and is consistent with the definition of the area of potential impacts (APE) in the Section 106 process (36 CFR § 800.16(d)). The project area of analysis will, therefore, be equivalent to the APE for the purpose of the present discussion and analysis. (Ex. 307, p. C.3-3.)

3. Setting and Geo-Historical Background

The IVS project is located in Imperial County, California, on approximately 6,140 acres of public land managed by the BLM and approximately 360 acres of privately-owned land. The project site is about 100 miles east of San Diego, 14

miles west of El Centro, and 4 miles east of Ocotillo. The Applicant is expected to receive a right-of-way grant from BLM.

The proposed project is a nominal 750 MW Solar Stirling Engine project. The primary equipment for the generating facility consists of Stirling Energy Systems SunCatcher proprietary technology, which consists of solar concentrating dishes coupled with Solar Stirling Engine power conversion units.

The IVS project would be developed in two phases. The schedule would be approximately 58 months in duration. Construction would require approximately 40 months.

The ground surface at the site slopes northeast. The western portion of the site west of the existing SDG&E Southwest Powerlink transmission line is characterized by rolling terrain with well-defined washes. East of the SDG&E transmission line, the site terrain has uniform and gentle slopes.

Site preparation would be based on avoiding major washes and minimizing surface-disturbing activities. Also, areas of sensitive habitat and cultural resources would be avoided wherever possible.

The majority of each SunCatcher would be supported by a single metal fin-pipe foundation that is hydraulically driven into the ground. These foundations are expected to be approximately 20 feet deep and 24 inches in diameter, with 12-inch-wide fins extending from each side of the pipe pile. Shallow drilled pier concrete foundations of approximately 36 inches in diameter and an embedment depth with a minimum socketed depth into rock of 6 feet would be used for hard and rock-like ground conditions.

Deep foundations would be required for heavy items, such as the power transformers at the electrical substation.

Two construction staging and laydown areas would be used for the project. A 100-acre construction laydown area that includes a 25-acre construction staging area would be provided east of Dunaway Road. An 11-acre construction laydown area would be provided adjacent to the Main Services Complex.

The 100-acre laydown area east of Dunaway Road is nearly level and thus requires little grading. The 11-acre laydown area adjacent to the Main Services Complex is on a gently sloping, rocky area that would require minimum grading

and fill operations to create a level area. Pads would be prepared for setting the trailers housing the temporary construction facilities.
(Ex. 307, pp. C.13-19 to C.13-21.)

### *Regional Setting*

The project area and the project area of analysis are contributors to the Ancient Lake Cahuilla Interaction Sphere (ALCIS). The ALCIS reaches from the central feature of the ancient lake to the Pacific coast on the west, the San Jacinto Valley to the north, the Colorado River to the east, and into an as yet undefined terminus in Mexico to the south. While the primary emphasis is on the interaction sphere as an archaeological concept and focuses on cultural features of the landscape, the ALCIS also incorporates the natural history of the landscape and historical dimensions of the interaction sphere. With the lake as a focal point, the spatial proximity of the different elements of a highly diverse topography form numerous life zones and climates. The project area lands are currently administered by the Bureau of Land Management (BLM) on behalf of the public and are used for off-road vehicle and other outdoor activities.

The IVS project area is within the western portion of the Salton Trough, a topographic and structural depression within the Colorado Desert physiographic province. Technically, the Colorado Desert is a biotic designation, a sub-region of the Sonoran Desert. It is bounded by the Coachella Valley to the north, the Gulf of California to the south, and mountain ranges to the east and west. The Salton Trough is filled with marine and poorly clastic fluvial sediments up to 15,000 feet thick and overlaying the basement rock. The Salton Trough has filled with eroded sediments from the surrounding mountains and with Colorado River deposits. During the Pleistocene glacial age, the Salton Trough was occasionally inundated by floodwaters of the Colorado River as it meandered across the desert toward the Gulf of California. This would occur as the river would alter its channel, causing it to disperse the water across the local topography. The large lakes that were created as a result were random and intermittent in nature. There is evidence that there were several separate lake episodes during this period.

During the Early and Middle Holocene, the area was arid, with little to no evidence of lake episodes until the most recent natural lake episode occurred circa (ca.) AD 1200–1600, when the Colorado River again began emptying into the Salton Trough, and created a massive lake as much as 95 meters (m) deep called Lake Cahuilla. The project area is near the western shoreline of the former Lake Cahuilla within the Yuha Desert. The lowest portion of the Salton Trough is

currently occupied by the Salton Sea, a human-made inland lake with no natural outlet.

The ground surface in the project area slopes gradually to the northeast, ranging from about sea level (elevation 0 feet) near the southwestern corner to an elevation of 345 feet near the northeastern corner. (Ex. 307, pp. C.3-16 to C.3-17.)

### *Hydrology*

The project area is crossed by a series of intermittent alluvial washes that begin in the project area or just south in the dissected hills along the boundary of the Yuha Basin. Extensive gullies and channels are present across the project area and throughout the greater Yuha Basin area. Surface water flows across the project area are likely to occur during seasonal periods of intense rainfall. None of the drainages passing through the project area is formally named. The numerous small arroyos, ephemeral drainages, and seasonal washes within the project area all drain into 5 larger intermittent drainages. The smaller tributary drainages descend from the higher, flat ridge tops channeling rainfall off the ridges into the larger main drainages. Higher areas of the drainages are often cobble- or bedrock-bottomed. The larger drainages are deeply incised, dissecting the ridges in the western and southern portions of the project area, and exhibit sand and other alluvial sedimentation along their bottoms.

Drainages in the western portion of the project area feed two larger drainages; both flow toward Coyote Wash, located north of the project area. The drainages do not directly connect to Coyote Wash. Instead, water flow from these identified channels spreads quickly into dispersed fans as it encounters the more sandy deposits found in the northern portions of the project area and along the broad floodplain of Coyote Wash.

The eastern half of the project area is drained by 3 deeply incised, intermittent, main drainages that flow generally north and east. These main drainages converge approximately 3 miles east of Plaster City. Topographic maps show this combined drainage ending less than a mile east of this convergence. The natural path of this drainage has been altered and stopped by the agricultural development of the area and the construction of the Foxglove Canal.

Analysis of aerial photographs east of the project area show evidence of the original water channels continuing east and eventually north toward the New River. However, the path of these drainages has been diverted and blocked by

numerous canal systems including the Foxglove, Westside Main, Dixie, Fern, and Fig Canals. Historically, these drainages would have flowed directly into larger tributaries, including Coyote Wash, all feeding into the New River. The New River travels through the center of the Imperial Valley and drains into the Salton Sea, approximately 35 miles north of the project area.

The northern and western portions of the project area are dominated by alluvial and aeolian sand deposits. These sandy deposits correspond with the paleo-shoreline of the prehistoric Lake Cahuilla. The Salton Sea is the modern remnant of this once large freshwater lake, which inundated much the southern Imperial Valley through the Pleistocene and into the middle Holocene epochs (Schaefer and Laylander 2007). The modern hydrology of the project area, e.g., deeply incised drainages, extensive arroyo cutting, and dispersed alluvial fans, is evidence of the drastically decreasing lake level during the recession of Lake Cahuilla.

(Ex. 307, pp. C.3-16 to C.3-18.)

The project area ranges from inside the high water mark (approximately 40 feet above mean sea level (AMSL) of Ancient Lake Cahuilla on the east to the sandy desert on the west. For millennia, the alternating episodes of the filling and emptying of the lake have interacted with human settlement in the region. For thousands of years, the ancestors of the modern Native American inhabitants of the Colorado Desert and the Colorado River were drawn to the lake and its rich resources as it filled, and then driven from it to the surrounding area when it again emptied and became barren. Lake Cahuilla was created when the lower Colorado River shifted its course within its delta and instead of flowing directly south to the head of the Gulf of California, the river's waters were diverted northwest into the Salton Basin, the base of which lay about 260 feet below mean sea level (BMSL). With climatic conditions similar to those of today, two decades of uninterrupted river flow would have been required to fill the basin to 36 feet amsl. When the river once again shifted its course to the south, the isolated basin would have taken more than 5 decades to completely dry out. The former presence of a large lake in the Salton Basin was remembered in the oral traditions of the region's historic-period native inhabitants, the Cahuilla and the Kumeyaay. Research has established that there were not one but several different high stands of the lake, both prior to AD 1000 and after AD 1500, including a stand as late as the 17$^{th}$ century, when Spanish explorers had already reached the lower Colorado River although not entering the Salton Basin.

Human settlement appears to have been the densest in the northwest part of the former lake in the area that is now the Coachella Valley. Relatively little is known of the southern part of the lake, both the “toe” that is across the border in Mexico and in the project area. Whereas V-shaped fish-traps and tabular sandstone oval/round storage structures have been observed and documented outside the project in landscape regions associated with Lake Cahuilla, none has been observed thus far within the project area of analysis.

Archaeological research in the project area has recorded the presence of ancient trails that extend almost from the eastern project boundary to the western boundary. Overall, these trails appear to connect local settlements with local resource areas and there is little evidence of interconnections with larger regional trail systems. However, Instrumental Neutron Activation Analysis (INAA) studies of southern California prehistoric ceramics obtained from sites along an east-west transect between the Colorado River and the Pacific Coast that passes through the southern part of the Lake Cahuilla basin and includes samples from the Dunaway Road Site, which is within the project area, shows the transport of Salton Brown ceramics from the Salton Trough to the mountains of the Peninsular Range.

The technical studies required by the BLM have resulted in the recording of more than 300 locations of prehistoric use and settlement. The locations that are still visible range from the sites of the short-term manufacture of stone tools to larger sites that were occupied for longer periods of time while seasonal natural resources were harvested. In general, the largest sites are those closest to the former lakeshore. Possible cremated human remains recorded in a number of locations are another indication of longer-term settlement in the project. Overall, the archaeological data from the project indicate that the prehistoric inhabitants were focused on exploiting local food resources and producing their tools from locally available materials. As stated before, the large V-shaped fish-traps for which the area is known do not occur in the IVS project area, although a small portion of the ancient lakeshore is within the project area. (Ex. 307, pp. C.3-33 to C.3-34.)

4. Introduction to Prehistory of the Colorado Desert

The project area is situated within the Colorado Desert in a region that had few archaeological investigations until the 1980s. As more extensive archaeological excavations are completed, a clearer picture of the cultural history of the Colorado Desert is beginning to emerge. The course of prehistory in the area was influenced throughout the Holocene by the Colorado River as it periodically

inundated the Salton Trough and created Lake Cahuilla. These events increased freshwater resources and created areas with a more fertile environment able to sustain larger populations. The most recent research indicates the existence of no fewer than 3 cycles of inundation and desiccation between AD 1200 and 1600.

Prehistoric site types common to the project area include (from most to least complex): open camps, with a variety of artifact classes (chipped stone, ground stone, and ceramics) and sometimes features; lithic scatters, with varying frequencies of cores, core tools, flakes, flake tools, and hammer stones; and trails, linear features with or without associated artifacts. To this basic site typology can be added isolated artifacts, which are most valuable in the aggregate. In the absence of chronometric age estimates and/or temporally diagnostic artifacts (e.g., projectile points and ceramics), assigning an age range to each of these loci of human activity is difficult and, oftentimes, impossible.
(Ex. 307, pp. C.3-34 to C.3-36.)

#### a. Paleo-Indian Period (12,000 to 7,000 Years Before Present (YBP)

The evidence for human presence in the Colorado Desert in the Late Pleistocene and Early Holocene is scarce. This lack of evidence is in marked contrast to well documented occupations in the surrounding regions of the Mojave Desert and coastal southern California (Schaefer and Laylander 2007). Circumstances such as the ephemeral nature of settlement during the period, the instability of landforms, or sampling bias of research locations may explain this lack of evidence rather than an actual gap in occupation.

In an effort to define and delimit extensive scatters of undated lithic artifacts in the Yuha Desert, situated immediately south of the project area, the BLM El Centro Resource Area nominated in 1981 the Yuha Basin Discontiguous District (District) for listing in the National Register of Historic Places (NRHP). BLM described the district as four separate, but archaeologically related areas that share common features and create a unified whole. Most of the sites are classified as surface lithic scatters on a stable desert pavement surface. Many of the artifacts are heavily patinated, which some archaeologists believe reflects long exposure to weathering, but that interpretation is by no means universally accepted. Associated features include cairns, cleared circles, rock alignments, and trails. These sites are predominantly located on terrace remnants and residual ridges, overlooking drainages and the former basin of Lake Cahuilla. It has been interpreted that San Dieguito people followed a generalized hunting

and gathering pattern of settlement and subsistence, with an emphasis upon hunting.

Thus, unambiguous evidence of Paleo-Indian occupations in the project area has not yet been found. It will take more data, particularly from chronometrically dated contexts or in association with diagnostic artifacts, to resolve the uncertainty.

(Ex. 307, pp. C.3-36 to C.3-37.)

#### b. Archaic Period (7,000 to 3,000 YBP)

Evidence for Archaic Period sites is nearly as scant as that for Paleo-Indian in the project area. Again, in the absence of chronometrically datable materials, temporally diagnostic artifacts distinguish the occupational period. Some sites in the project area contain *Olivella spp.* shell beads, but are probably related to more recent occupation of the project area. If Middle and Late Archaic sites are located in the project area, they are most likely buried and located within the Fan Apron landforms in the central portion of the project area and the Beach Zone.

With an increase in temperature and the evaporation of the pluvial lakes during the early Holocene, it is believed that the population of the Colorado Desert likely dropped. The number of archaeological sites that have been found to date from this period continues to be limited, and dating for these sites is questionable.
(Ex. 307, pp. C.3-37 to C.3-38.)

#### c. Late Prehistoric Period (3,000 YBP to European Contact–AD 1769)

Evidence from recent archaeological investigations at late prehistoric sites along the Lake Cahuilla shoreline indicate 3 cycles of inundation and evaporation over the next 400 years. Prehistoric fish traps of linear cobble arrangements, and shallow excavated pits, measuring approximately 9 feet wide by 3 feet deep are visible in some locations arranged in linear fashion, and marking the retreating shoreline of Lake Cahuilla.

The insertion, expansion, and retreat of this large body of water in the midst of a very arid region had profound consequences for the prehistoric occupation of the region. Recent research shows that around AD 1200, the Colorado River shifted course and refilled Lake Cahuilla. This refilled lake provided a stable year-round water supply in the Colorado Desert. People began to repopulate the Colorado

Desert, some following the river on its route from the Colorado River Valley and some attracted from the Mojave Desert or the mountain ranges to the west.

People began to occupy permanent settlements and exploit different food sources at different times of the year because enough resources were present to provide year-round sustenance. Evidence for these settlements can be seen in the remains of plant and animal foods available during different seasons. Trade networks between coastal peoples and the occupants of the desert interior began to develop around AD 1000. This development is apparent in the archaeological record by the exponential increase in shell beads within Colorado Desert sites.

Around AD 1400, the course of the Colorado River shifted eastward, and as Lake Cahuilla gradually dried up, native peoples were confined to a decreasing fertile area. People persevered in this desert environment, as evidenced in a series of stone-lined fish traps marking the progress of the receding waterline (Moratto 1984). As subsistence resources disappeared along with the lake, people also attempted to rely on limited agriculture. As the aridity increased, the local inhabitants expanded their utilization of the resource base to include several hundred plants for food manufacture and medicine. Evidence of water control techniques, such as the use of wells and springs for irrigation and the construction of reservoirs and ditches, is apparent.

The receding shoreline of Lake Cahuilla exposed an ideal obsidian source, Obsidian Butte, which is located between 131 feet AMSL and 230 feet BMSL at the southern end of the Salton Sea. This lithic source was exposed intermittently during the Late Prehistoric period and subsequently exploited for use in flaked stone tool manufacture. (Ex. 307, pp. C.3-39 to C.3-40.)

### d. Ethnographic Background

Across the local landscape, prehistoric settlement and subsistence patterns are evident in the archaeological record. Potential ethnographic resources have been identified north, northeast, and south of the proposed project area. The project area is surrounded to the west by Fish Creek and the Coyote Mountains, to the northeast by the Superstition Mountain Range, to the east by the Chocolate Mountains and Indian Pass, and to the south by Mount Signal. All these landforms are associated with archaeological deposits and were dominant geographic elements of the prehistoric landscape. Several significant geoglyphs related to Yuman origin stories have been recorded south of the project area. The project area has the potential for a unique archaeological signature and a signature related to the established archaeological district.

The Ipai and Tipai tribes ranged from the Colorado Desert to the coast. The Tipai were thought to have lived along the coast and in the mountains for millennia before migrating east into the Mojave Desert and south along the Colorado River around AD 1000; eventually Tipai people moved farther into the Colorado Desert, including around Lake Cahuilla. As Lake Cahuilla receded, some Tipai migrated back to the mountains and others relocated to the banks of the New River and the Alamo River.

The Kamia band occupied a small area of the Ipai/Tipai area and was found primarily in Imperial Valley. The Southern Diegueño (an older ethnographic designation for groups that today are variously called Ipai, Tipai and Kumeyaay) occupied the peninsular ranges to the west of the Colorado Desert, and the Kamia kept in close contact with this group.

As another manifestation of the continuity of the Ancient Lake Cahuilla Interaction Sphere ALCIS into the historic period, the Kamia apparently also had strong relationships with the Quechan tribe to the east, who occupied the Colorado River Valley. The two tribes shared many traits, including the practice of agriculture, and frequently were allied in battle.

Although European contact with the Tipai occurred with the arrival of the Spanish in 1540, the inland band of Kamia may not have encountered colonists until 1769. It was at this time that the Spanish took an interest in inland routes and Gaspar de Portolá, governor of the Spanish territory Las Californias, led an expedition through Mexico and across the Colorado Desert region to San Diego. Still, even before this time, the impacts of the contact on the coast rippled through native settlements, resulting in population drops even among the interior tribes due to the introduction of new European pathogens.

New studies of the ceramics produced in the project area of analysis have brought a new perspective, solidly based on chemical analyses of the clays used to produce the ceramics and the ceramics themselves, to the protohistoric and historic production and distribution of the ceramics found at sites in the project area.

The Cahuilla oral traditions include numerous accounts of the existence of a lake in the Salton Sea basin. William P. Blake was the first European to document these traditions in the mid-19$^{th}$ century. Modern research conducted along the receding Lake Cahuilla shoreline has exposed extensive cultural deposits.

The Quechan lived in a series of settlements called *Rancherias,* which were scattered along the banks of the Colorado River. These settlements were moved

seasonally, as the Colorado River would typically flood during the spring and then recede during the winter. The Quechan were primarily agriculturists, growing crops of maize, squash, and beans. After the European invasion, they also grew a variety of melons, wheat, and black-eyed peas. They supplemented their diet by gathering wild plants. Fish from both the Colorado and Gila Rivers was also a staple of the Quechan diet, but hunting was relatively unsuccessful due to the harsh desert climate. The Quechan used a variety of nets and fish traps, along with cactus spine hooks and the bow and arrow, to fish during the spring and fall months when the fish were most plentiful.

The lower Colorado River tribes were organized militarily and warfare played a significant role in Quechan life. The Quechan most likely acted as “middlemen” who extracted a portion of trade goods in exchange for safe passage through pre-contact trade routes at the Colorado River crossing. After European contact, this role may have increased conflict with other tribes and the Spanish and, as trade with the Spanish became an economic factor.

The Quechan made ceramics found to have been transported as far west as the Peninsular Range, almost certainly passing through the project area, around the southern shore of the lake.

The Cocopah, also part of the Yuman language family, were semi-nomadic, hunter-gatherers who also used the delta region of the lower Colorado River to farm crops including beans, squash, and maize.

They supplemented their crops with wild plants such as mesquite, screw bean pods, cattail reed pollen, and tule roots. Game was plentiful and the Cocopah hunted deer, wild boar, rabbits, wood rats, and beavers. They fished in the rivers using nets made from plant fibers, basketry traps, spears, and, at times, the bow and arrow.

Warfare was part of Cocopah life. As previously noted, the Quechan were one of their enemies. However, unlike the Quechan, the Cocopah had a vast array of weapons, which included hardwood daggers, wooden war clubs, spears, and bows and arrows. Cocopah bows were typically 5 feet or more in length, painted, and the bowstring was made of 3-ply plant fibers or sinew. Arrows were made from cane or arrow weed and at times were gall-tipped for poison.

The Cocopah became very skilled at creating ceramics. They created a variety of vessels used for storage and cooking. Firing was done in a shallow pit or open area using mesquite chips, dung, or arrow wood for fuel. The Cocopah also used

stone and clamshell knives, stone metates and manos, awls made from wood and bone, and canteens made from gourd or clay for travel.

The ethnographic literature establishes that all Native American tribes associated with the project area cremated their dead. All of the tribes used trails for transportation and exploited the environment similarly. Although each group had a specific approach to creating ceramics, these items were traded, along with shells and localized meats and vegetables. Prehistoric trade networks and trails in the project area may have ultimately brought much of the surface deposits to the project area. Other evidence shows the ritual and ceremonial use of the project area. Trails represent both economic (trade routes) and transportation, and are associated with ritual activities. Open camp sites containing hearth features, ground stone, ceramics, and lithic tools represent domestic use, subsistence procurement and processing activities, and settlement patterns are present in the project area.

Although it is unlikely that surface evidence would directly relate the project area to a particular tribe, it appears that the project area was exploited primarily by the Kamia and Kumeyaay. Evidence of that occupation is reflected in artifacts, features, and sites recorded in the project area. Survey crews recorded cremation sites in context with what appears to be Kamia-made ceramics. Evidence of migration and/or trade is reflected in the artifacts recorded in the project area, such as a large stone pestle used for high elevation plant processing. Although fish traps are absent, survey crews recorded possible elements of Kamia culture such as ceramics and cremations, in association with fish bones, at Temporary Site Number EBR-019. Colorado Buffware ceramics observed on this site generally date from 1500 to post AD 1800.

The frequency and complexity of sites recorded in the project area increase relative to the proximity of the prehistoric Lake Cahuilla shoreline. This pattern may signify the increasing complexities of societies in direct relation to the presence of Lake Cahuilla. It is not possible, based on the surface deposits alone, to determine cultural distinctions or interpret specific subsistence and settlement patterns related to the environment created when Ancient Lake Cahuilla was at the maximum high water mark.
(Ex. 307, pp. C.3-40 to C.3-45.)

#### e Spanish Period (1540 to 1821)

The Spanish Period describes nearly three centuries of Spanish exploration and settlement in the northern Sonoran Desert, beginning with the 1542 expedition of Juan Rodriguez Cabrillo and ending with the Treaty of Córdoba that established

Mexican independence in 1821. The period is dominated by Spanish attempts to link their territories in Mexico and New Mexico with their outposts in California and protect their possessions from encroachment by other world powers. Several expeditions were sent out, especially toward the end of the 18th century, to develop a trail system connecting Sonora to California. One of these expeditions, led by Captain Juan Bautista de Anza, set out in 1774 from the mission in Tubac, south of present-day Tucson, Arizona, to find an appropriate overland route to coastal California.

The corridor that makes up what is now known as the Anza Trail is a 2.5-mile wide alignment that runs roughly south to north through the project area. In 1996, the NPS published the "Comprehensive Management and Use Plan, Final Environmental Impact Statement, Juan Bautista de Anza National Historic Trail, Arizona California" (Anza Trail Management and Use Plan). This plan lists four key stops and camping sites the expedition used, none of which fall within the project area. However, within the project area, it is known that the expedition camped in or near Arroyo Seco in the vicinity of the present-day Plaster City Off-Highway Vehicle area:

(http://www.solideas.com/DeAnza/TrailGuide/Imperial/index.html).

No archaeological evidence of the Anza expedition has been found in the project area to date. The transitory nature of the expedition, along with the harsh environment that the group passed through, ensured that few physical traces remain.

(Ex. 307, pp. C.3-40 to C.3-45.)

### f. Mexican Period (1821 to 1848)

The Mexican Period opens with the observation that Spain's influence in the world and its role as a colonial power waned at the beginning of the 19th century following the Napoleonic Wars. As a result, Spain began to relinquish some of its colonies in the New World. Against the backdrop of these larger events, developments in the Sonoran Desert passed relatively unnoticed by the Mexican government. In 1826, Sub-Lieutenant Romualdo Pacheco, the aide-de-camp to the governor of Mexican California, and his troops built a small fort approximately 6 miles west of present-day Imperial. After a band of Kumeyaay attacked the post in April 1826 and killed three soldiers, Pacheco abandoned the post and led his remaining troops to San Diego. Imperial County served as the route for the American expedition that ended Mexican rule of California. In 1846, Brigadier-

general Stephen Kearney led the Army of the West from Fort Leavenworth, Kansas, that first captured Santa Fe, New Mexico. From there, the Army marched across New Mexico and helped seize Tucson, Arizona. The force then continued west across the Sonoran Desert to San Diego, arriving in January 1847.

Few, if any, development activities were conducted in the northern territories of Mexico during this period. The Sonoran Desert was nearly forgotten and only referenced as Indian (Yuman) horse thieves were chased through the desert. In 1826 and 1827, Romualdo Pacheco, who would become the first California-born governor of the State of California and was Sub-Lieutenant, Engineer officer, and aide-de-camp to the governor of Mexican California, made several exploratory expeditions through the region (Stott 1950). In 1831, a group of Anglo-American traders departed St. Louis, headed for Santa Fe, traveled through the Sonoran Desert, and ended in San Diego.

(Ex. 307, pp. C.3-48 to C.3-49.)

### g. American Period (1848 to Present)

Oliver M. Wozencraft on his way to gold fields near San Bernardino from New Orleans in 1849, traveled through the Imperial Valley and noted the soil fertility and potential for arability. He was likely the first Euroamerican to recognize the valley's potential for agriculture, and he noted that because the Colorado River was much higher than the valley, it would be feasible to irrigate using a gravity canal from the Colorado River. Wozencraft's opinion of the fertile valley was reaffirmed in 1853 when Jefferson Davis, Secretary of the U.S. War Department, ordered a scientific expedition along the Colorado River for the placement of fortifications. In this expedition, which was led by Lieutenant R.S. Williamson and William Phipps Blake, a professor at Yale College, the particular fertility of the alluvial soil at the southern end of the Salton Trough was noted.

Between 1893 and 1894, the Colorado Irrigation Company, under the direction of Chief Engineer Charles R. Rockwood, followed up on Wozencraft's earlier attempts to irrigate the Imperial Valley. Originally known as the "Valley of the Dead," an understandable appellation considering that it receives less than 3 inches of rainfall per year, Charles Rockwood renamed it "Imperial Valley" as part of his grand vision of channelizing the Colorado through thousands of miles of canal lines, with the net effect of irrigating hundreds of thousands of acres of land in the Sonoran Desert. By 1901, the Imperial Valley was irrigated and attracted many new settlers and farmers from the Midwest. In 1907, Imperial County was

established from the western portions of San Diego County. The establishment of Imperial County helped boost the population of the valley. In 1902, the towns of Imperial and Calexico were founded, followed in 1905 by El Centro. The 1910 Census reported that 13,591 people lived in the newly formed county. By 1990, that number had grown to 109,303 and there were dozens of cities, towns, and unincorporated communities.
(Ex. 307, pp. C.3-49 to C.3-51.)

### *The Coming of the Railroad*

The railroad had reached the Imperial Valley several years before the county was organized. The Southern Pacific soon had spurs or lines running to Calexico and El Centro. The railroads quickly developed iced freight cars that could transport fruit and vegetables grown in the valley, a use that continues today.

### *Flood Control*

George Chaffey replaced Charles Rockwood at the Colorado Irrigation Company because of his experience in working on canal projects and deep financial interests in seeing the development of the southwest. Under his direction, an extensive canal system was developed in both the Imperial Valley and across the border in Mexico. Diversions were built that took water from the Colorado and channeled it into the Alamo River. Almost immediately it was found that silt deposits, carried by the river, were fouling the diversions, head gates, and canals. In 1905, the water levels coming down the river were lower than usual, and the high levels of silt impeded the flow of water through the gravity-fed system. It was decided that a cut would be made in the side of the river, up-stream from the silted-in portions, to allow a fuller flow. A temporary, wooden structure referred to as the “Chaffey Gate” was constructed with the assumption that the cut would be closed and the gate removed before the spring runoff. Before this could happen, several floods poured down the river, and the fifth one completely destroyed the remaining gates and dams along the canal network system. The Colorado River, which had flowed toward the Gulf of California, had changed its course and started flooding the Alamo River to the Salton Trough in Imperial Valley. The Salton Sink began to fill, eventually becoming known as the Salton Sea. Frantic efforts were made to close the cut, but the river swept away each one.

Many businesses that were situated along the Salton Trough were threatened by the floodwaters. The Southern Pacific Railroad saw its interests threatened, and it took on the task of the flood control. Ultimately, the Southern Pacific spent $3

million and closed the breach in 1907. It took the construction of the Hoover Dam, which was completed in 1935, to achieve full control over the Colorado River for irrigation purposes.

### *Introduction of Electric Power and Modern Irrigation to the Region*

The Imperial Irrigation District (IID) was organized in 1911 to acquire the land rights of the defunct CDC, and its Mexican subsidiary Sociedad de Irrigación y Terrenos de la Baja California, from Southern Pacific. By the mid-1920s, IID was delivering water to over 500,000 acres of arable land. The Boulder Canyon Act, passed in 1928, authorized the Bureau of Reclamation to construct Boulder (Hoover) Dam, completed in 1935, along the Colorado River. The Imperial Valley and IID benefited greatly, as the Act and the dam provided immediate hydroelectric power to the valley. This and other water systems helped develop hundreds of thousands of acres of farmland that produced all types of crops, livestock, and dairy products. In 1910, 87,141 acres of crops (barley, cotton, alfalfa, etc.) were planted, and by 1980, 703,453 acres were being cultivated. The same trend is reflected in cattle production. In 1910, 63,180 head of cattle were being raised in the valley, and that number had risen to 1,046,805 by 1990. According to the IID website, www.iid.com/water, today the IID delivers approximately 3.1 million acre-feet per year of water to nearly 500,000 irrigated acres. Ninety-seven percent of the water IID transports is used for agriculture.

### *Mining Developments*

Farther west on U.S. 80 is Plaster City, a large drywall production facility that stretches for almost a mile along both sides of the highway. In 1920, Samuel Dunaway formed the Imperial Gypsum and Oil Company to extract the estimated 25 million-ton gypsum deposit that lay on the western edge of the valley. An ore processing plant was built at a spot along U.S. 80 and the San Diego and Arizona rail line, and a narrow gage rail spur brought the ore down from the mines. In 1922, the first load of processed gypsum was shipped from the valley. The company soon ran into financial troubles and was acquired by the Portland Cement Company in 1924, which expanded the processing facility. In 1946, the U.S. Gypsum Company (today known as USG) purchased the plant and greatly expanded it. In 2001–2004, USG spent almost $300 million modernizing and rebuilding the plant yet again.

Several historic sand and gravel pits are located inside the project area. The Wixon Gravel Pit, which consists of three distinct areas of sand or gravel open-pit mining, is located on the eastern edge of Section 5 of Township 16 South, Range 11 East. This open-pit mine is distinguished by linear and round cuts that are

serviced by a packed dirt road leading to it from a dirt road east of Dunaway Road. The exact opening date of the gravel mine is unknown, but it is shown as a "gravel pit" on a 1940 U.S. Geological Survey (USGS) map, and the unimproved dirt access road is also shown (USGS 1940).

Located north of the Wixon Gravel Pit is another open sand or gravel pit. This open-pit mine is located in the southwest quarter of Section 10 of Township 16 South, Range 11 East. The mine consists of a large open-pit bowl and a dirt access road leading to it from a dirt road located east of Dunaway Road. A 1943 U.S. Army Corps of Engineers map shows the open-pit mine and an access road in the same place as the 1940 map (U.S. Army Corps of Engineers 1944).

A large complex of open gravel pits is located in Sections 7, 18, and 19 of Township 16 South, Range 11 East. Two gravel pits are also located north of U.S. 80 in Sections 1 and 12 of Township 16 South, Range 10 East. These open-pit mines consist of linear and round cuts associated with loose surface, graded dirt roads leading south from U.S. 80. A 1943 U.S. Army Corps of Engineers map shows the open-pit mine and an access road. The BLM General Land Office (GLO) plat map for this township indicates that most of the land in Section 18 was used as to store road maintenance materials, with a date of action on August 5, 1940 and a closing date of October 6, 1995 (BLM GLO 2004).

(Ex. 307, pp. C.3-49 to C.3-53.)

### *The Desert Training Center Presence*

The dry climate and large expanses of land brought the U.S. military to the valley during World War II. In early 1942, Major General George S. Patton was ordered to find a site suitable for large army units (divisions, corps, and armies) to train. A California native, Patton had participated in training exercises in the Mojave Desert. The army began acquiring land for the Desert Training Center (DTC), also known as the California/Arizona Maneuver Area, which eventually covered 18,000 square miles, making it the largest military base in the world. The area stretched from the outskirts of Pomona, California, east toward Phoenix, Arizona, south toward Yuma, Arizona, and north to the tip of Nevada. Much of the land that lay to the east of the Salton Sea and El Centro was consolidated into the DTC, and it is possible that training may have taken place in the open desert north and south of Plaster City as well. Artifacts including 0.50-caliber and 20-millimeter shells, military benchmarks, and ammunition belts were recorded during survey and appear to date to this period.

The U.S. Army acquired 17,500 acres of land, located approximately 10 to 12 miles northwest and southwest of El Centro, California, in August, 1941. The land was to become the Camp's vehicle proving ground and ordnance training centers. Early vehicle testing in the first few months of 1942, while under the supervision of the Quartermaster Corps, enabled the development of low-pressure tires that enabled large vehicles to cross sandy areas with greater ease. (Ex. 307, pp. C.3-53 to C.3-55.)

### *Energy Infrastructure Development*

The volcanic history of the Salton Sea basin has made it an ideal location for the development of geothermal energy. Active extraction of geothermal energy is already underway in the area around Obsidian Butte at the southern end of the Salton Sea and additional plants have been proposed. Proposed solar energy projects covering hundreds and thousands of acres are under study and development near Borrego Springs and Ocotillo Wells, in the Salton Sea and the Yuha Desert. In summary, much of the desert area of the ALCIS has been proposed for solar development (and multiple locations in the mountainous area of the ALCIS have been proposed for wind energy development). There are extensive and potentially significant cultural resources throughout the ALCIS, many of which may be determined to be eligible for nomination to the NRHP. The careful assessment of cumulative impacts will be essential to the protection of the cultural heritage of the project area of analysis.

It is also clear that the shoreline of Ancient Lake Cahuilla, the area of project analysis and the extent of the ALCIS extend across the international border into northern Mexico. The initiatives that are underway for cooperative alternate energy development between Imperial County and northern Mexico also need to be considered in assessments of cumulative effect and assessments of impact on cultural resources. (Ex. 307, pp. C.3-56 to C.3-57.)

## 5. Cultural Resources

The background research for the our analysis started with information that the applicant and the BLM gathered from literature and records searches and information that the BLM and Energy Commission staff gathered as a result of consultation with local Native American communities and with other potential public interest groups. The purpose of the background information is to help formulate the initial cultural resources inventory for the present analysis, to identify information gaps, and to contribute to the design and the interpretation of the field research that will serve to complete the inventory.

a. Literature and Records Searches

The literature and records search portion of the background research attempts to gather and interpret documentary evidence of the known cultural resources in the project area of analysis. The sources for the present search include the South Coast Information Center (SCIC) at San Diego State University and the Southeast Information Center (SIC) at the Imperial Valley Desert College Museum, both of the California Historical Resources Information System (CHRIS). (Note: subsequently, the SIC has been closed and all records are now on file at the SCIC.)

***CHRIS Records Search Methods***

Records searches were conducted for all of the project area and a 1-mile radius around it. On January 16, 2007, Matthew Armstrong, a URS Archaeologist, requested a records search from the SIC. A second records search was conducted by Elizabeth Roberts, URS Archaeologist, on February 26 and 27, 2008 at the SIC to cover the area of the proposed transmission line, which had not been identified at the time of the initial records search.

In addition to these efforts, site-specific and general primary and secondary research was conducted at the Imperial Valley Pioneer Society; Imperial County Free Library – El Centro Branch; San Diego State University Library; University of California, San Diego Geisel Library and Mandeville Special Collections; San Diego Public Library; and numerous online resources (e.g., Calisphere – A World of Digital Resources, California Historic Topographic Map Collection). The research was conducted between April 3 and 7, 2008. Overall, the research provided insight into the historic contexts and themes of the area and specific information concerning the properties within the project area (e.g., date of construction, architect/builder, and historic landownership).

(Ex. 307, pp. C.3-60 to C.3-61.)

***Results***

Previous Investigations

The records search investigations identified 31 records related to cultural resources investigations conducted within 1 mile of the project area. Several of these records were for projects conducted within the IVS Project area. The following is a list of projects conducted within the IVS Project area boundary: point surveys 0853–0873; area surveys 09113, 0737, 0251, 0330, 0325, 0262,

0251, 0172, 01073, 0972, 0962, and 0960; and portions of linear surveys 0233, 0297, 0310, 0311, 0314, 0315, 0316, 0319, and 0946. The 31 reports are listed in Staff's Cultural Resources Table 2, which we reproduce below.

**Cultural Resources Table 2**
**Previous Surveys in the Records Search Area**

| NADB No. | Project Name | Prepared By | Prepared For | Date Submitted |
|---|---|---|---|---|
| 1100108 | Archaeological Survey of the Yuha Basin, Imperial County | Jay von Werlhof and Sherilee von Werlhof | U.S. Department of the Interior, Bureau of Land Management, Riverside, CA | June 20, 1977 |
| 1100207 | Class II Cultural Resource Inventory of the East Mesa and West Mesa Regions, Imperial Valley, California | WESTEC Services, Inc. | USDI, BLM, Riverside, CA, Contract No. YA-512-CT9-75 | July 1980 |
| 1100233 | Cultural Resources Study of a Proposed Electric Transmission Line From Jade to the Sand Hills, Imperial Valley, California | Carol J. Walker, Charles S. Bull, Jay von Werlhof | San Diego Gas & Electric | February 13, 1981 |
| 1100251 | Volume II Appendix Phase II, Archaeo-logical Survey of the La Rosita 230 kV Interconnection Project | Cultural Systems Research, Inc. | San Diego Gas & Electric | November 1981 |
| 1100262 | Archaeological Field Investigation of the Cultural Resources Associated with the Proposed Imperial Valley Substation (7A) Access Road | Cultural Systems Research, Inc. | San Diego Gas & Electric | March 1982 |
| 1100279 | Volume I Phase III Archaeological Survey of the Mountain Springs (Jade) to Sand Hills Portion of the APE/SDG&E Interconnection Project 500 kV Transmission Line | Cultural Systems Research, Inc. | San Diego Gas & Electric | 1982 |
| 1100286 | South Brawley Prospect Geothermal Overlay Zone Draft Program Environmental Impact Report Volume I | County of Imperial | Unknown | January 28, 1983 |

| NADB No. | Project Name | Prepared By | Prepared For | Date Submitted |
|---|---|---|---|---|
| 1100289 | Cultural Resource Inventory of the La Rosita to Imperial Valley Interconnection Project 230 kV Transmission Line, Imperial Valley, California | Greenwood and Associates | Unknown | March 18, 1983 |
| 1100297 | Archaeological Examinations of Petty Ray Geophysical Transects on West Mesa | Jay von Werlhof, Imperial Valley College | BLM, El Centro Area Office | June 15, 1983 |
| 1100301 | Appendix B Cultural Resources Inventory for Thirty Proposed Asset Management Parcels in Imperial Valley, California | Patrick Welch | Unknown | July 1983 |
| 1100310 | Southwest Powerlink Cultural Resources Management Plan Volume III-B | Jan Townsend, WIRTH Environmental Services | San Diego Gas & Electric | March 1984 |
| 1100311 | Southwest Powerlink Cultural Resources Management Plan Volume II | Jan Townsend, WIRTH Environmental Services | San Diego Gas & Electric | March 1984 |
| 1100314 | Volume III Data Recovery on the Mountain Springs (Jade) to the Sand Hills Segment- Southwest Powerlink Project | M. Steven Shackley, WIRTH Environmental Services | San Diego Gas & Electric | September 1983 |
| 1100315 | Volume IV Data Recovery on the Mountain Springs (Jade) to the Sand Hills Segment-Southwest Powerlink Project | M. Steven Shackley, WIRTH Environmental Services | San Diego Gas & Electric | April 1984 |
| 1100316 | Volume II –Appendixes Data Recovery on the Mountain Spring (Jade) to Sand Hills Segment, Southwest Powerlink Project | M. Steven Shackley, WIRTH Environmental Services | San Diego Gas & Electric | April 1984 |
| 1100319 | Volume I Archaeological Investigations in the Western Colorado Desert: A Socio-ecological Approach | M. Steven Shackley, WIRTH Environmental Services | San Diego Gas & Electric | April 1984 |

| NADB No. | Project Name | Prepared By | Prepared For | Date Submitted |
|---|---|---|---|---|
| 1100325 | West Mesa Resource Survey and Site Evaluation, Imperial Valley, California | WESTEC Services, Inc. | USDI, BLM, El Centro Area Office | 1984 |
| 1100330 | Camps and Quarries After the Lake: A Survey of 547 Acres Below the Relic Lake Cahuilla Shoreline in the Vicinity of Interstate 8 and Dunaway Road | Mooney-Lettieri and Associates | USDI, BLM | January 1985 |
| 1100446 | Yuha Rehab and Mechanical Restoration | Unknown | USDI, BLM, El Centro Area Office | April 29, 2003 |
| 1100737 | Desert Material Sites: West Imperial County Bear, Coyote, Plaster City, Underpass, Yuha | Unknown | Unknown | May 1989 |
| 1100804 | AT&T Wireless Services Facility No. IM004, Imperial Valley, California | Curt Duke, LSA Associates, Inc. | GeoTrans, Inc. | March 29, 2002 |
| 1100820 | Cultural Resources Survey and Assess-ment of a Cellular Phone Tower Emplacement and Associated Access Road Along Old Highway 80 Near Dixieland, Imperial Valley, California | Professional Archaeological Services | Phase One, Inc. | May 2000 |
| 1100853 | NEPA 2000-55, CA-42103 Hunter's Alien Waters | Unknown | USDI, BLM, El Centro Field Office | March 7, 2001 |
| 1100873 | NEPA 2001-51, CA Hunter's Alien Waters FY2001 | Unknown | USDI, BLM, El Centro Field Office | October 18, 2001 |
| 1100892 | NEPA 2001-39, CA-42904 NTCHCA, inc. DBA Rio-Tel Communication site | Unknown | USDI, BLM, El Centro Field Office | July 17, 2001 |
| 1100916 | Section 106 Consultation Request for American Tower Corporation Cell Site CA7 – New Site #58 | Phase One Inc. SM | Unknown | May 2000 |

| NADB No. | Project Name | Prepared By | Prepared For | Date Submitted |
|---|---|---|---|---|
| 1100984 | Proposed Cellular Phone Communications Tower & Facility, Evan Hughes Highway, Plaster City, California | Unknown | Unknown | April 18, 2005 |
| 1101057 | Cultural Resources Study of the Mount Signal and Dixie Ranch, Imperial County Prison Alternatives, Imperial County, California | ERC Environmental and Energy Services Company, Inc. | California Department of Corrections Planning and Construction Division | January 1990 |
| 1101073 | Cultural Resource Survey of a 230 kV Transmission Corridor from the Imperial Valley Substation to the International Border with Mexico | Judy A. Berryman, Ph.D. | SEMPRA Energy | September 11, 2001 |
| 1100757 | Review of Alamosa PCS Site #82502-020, Imperial County, CA | Environmental Biologist, Inc. Ohio 43209 | Unknown | Unknown |
| CA-670-2007-93/ CA 47740-01 | Proposed Geotechnical Investigations for The Stirling Energy Systems Solar Two Site Imperial County, CA | URS Corporation Denver, CO | El Centro Field Office BLM 1661 South Fourth Street El Centro, CA 92243 | |
| | San Diego Gas & Electric Company's Sunrise Powerlink Project | SDG&E, San Diego, CA | El Centro Field Office BLM 1661 South Fourth Street El Centro, CA 92243 | July 2008 |

(Ex. 307, pp. C.3-62 to C.3-65.)

Notes:

APE = Area of Potential Impacts
BLM = Bureau of Land Management
CA = California
DBA = doing business as
FY = fiscal year
Inc. = Incorporated
kV = kilovolt
NADB = National Archaeological Database
NEPA = National Environmental Policy Act of 1969
No. = number
SDG&E = San Diego Gas & Electric
USDI = United States Department of the Interior

a. Previously Recorded Sites

The records search investigations identified 432 previously recorded cultural resource sites within the project area. Two of these resources were re-located during recent surface surveys. Staff's Cultural Resources Table 3, reproduced below, summarizes these findings.

**Cultural Resources Table 3**
**Previously Recorded Cultural Resource Sites in the Project Area**

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-0112 | Cremation Site | 15 to 20 m × 15 to 20 m × 1 ft |
| IMP-0114 | Lithic Scatter | 20 m × 30 m |
| IMP-0269 | Probable Seasonal Area | 480 m × 890 m |
| IMP-0321 | Yuman Site | Not on form |
| IMP-0364 | Probable Seasonal Campsite | 120 m × 130 m |
| IMP-0383 | Temporary Campsite | 11 m × 11 m |
| IMP-0453 | Pottery Shards | Not on form |
| IMP-0456 | Temporary Campsite | 0.5 acre |
| IMP-0721 | Ceramic Scatter - Small Campsite | 3 m × 3 m |
| IMP-0722 | Ceramic Scatter | 1 m × 1 m |
| IMP-0723 | Lithic Workshop | 3 m × 3 m |
| IMP-0730 | Cairn on Low Terrace - 65 Stones | 2 m × 1 m |
| IMP-0731 | Lithic Scatter | 10 m × 10 m |
| IMP-0732 | Lithic Workshop | 2 m × 2 m |
| IMP-0733 | Lithic Workshop | 2 m × 2 m |
| IMP-0734 | Lithic Workshop | 1 m × 2 m |
| IMP-0735 | Cairn of Porphyry Rock | 90 cm × 90 cm × 7 cm |
| IMP-0737 | Cairn | 112 cm × 180 cm × 24 cm |
| IMP-0738 | Lithic Workshop and 3 Tools | 7 m × 3 m |
| IMP-0739-I | Ridge-Backed Scraper | 103 mm × 83 mm × 27 mm |
| IMP-0740-I | (Isolate); Fist Axe | 158 mm × 70 mm × 70 mm |
| IMP-0741 | Cairn | 1 m × 1 m × 20 cm |
| IMP-0743 | Ceramic Scatter | 20 m × 5 m |
| IMP-0744 | Trail Marker | 1 m × 1 m |
| IMP-0745 | Trail | 25 m × 25 m |
| IMP-0746 | Ceramic Scatter - Campsite | 50 m × 30 m |
| IMP-0747-I | Scraper | 1 m × 1 m |
| IMP-0748 | Cairn | 2 m × 1 m |
| IMP-0749 | Trail Marker | 2 m × 2 m |
| IMP-0750 | Ceramic Scatter | 2 m × 3 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-0753 | Ceramic Scatter | 15 m × 4 m |
| IMP-0754 | Ceramic Scatter | 9 m × 8 m |
| IMP-0755 | Ceramic Scatter | 11 m × 8 m |
| IMP-0756 | Hearth and Ceramic Scatter | 24 m × 8 m |
| IMP-0758 | Mound of Pebbles on a Sand Base | 1 m × 1 m 35 cm × 7 cm |
| IMP-0759 | Trail | 80 m × 35 cm |
| IMP-0760 | Lithic Workshop | 30 m × 40 m × 20 cm |
| IMP-0764 | Trail | 804 m × 3 m |
| IMP-0776 | Cleared Sandy Area with Ring of Pebbles | 1 m × 1 m |
| IMP-0777 | Trail | 1,609 m × 1 m |
| IMP-0778 | Fire Pit | 1 m × 1 m × 14.5 cm |
| IMP-0780 | Fire Site | Not on form |
| IMP-0808 | Trail | 402 m × 1 m |
| IMP-0928 | Temporary Camp | 3 m × 3 m |
| IMP-0929 | Temporary Camp | 3 m × 3 m |
| IMP-0930 | Temporary Camp | 2 m × 2 m |
| IMP-0932 | Small Lithic Workshop | 2 m × 2 m |
| IMP-0934 | Lithic Workshop | 2 m × 2 m |
| IMP-0935 | Lithic Workshop, Malpais or SD I | 1 m × 1 m |
| IMP-0936 | Small Lithic Workshop, Malpais | 1 m × 1 m |
| IMP-0937 | Assemblage of Porphyry Tools and Debitage; Lithic Workshop, Malpais | 2 m × 2 m |
| IMP-0938 | Lithic Workshop, Malpais | 2 m × 2 m |
| IMP-0939 | Lithic Workshop, Malpais | 1 m × 1 m |
| IMP-0940 | Lithic Workshop, Malpais | 1 m × 1 m |
| IMP-0941 | Lithic Workshop, Malpais | 2 m × 1 m |
| IMP-0942 | Lithic Workshop, Malpais | 3 m × 3 m |
| IMP-0943 | Lithic Workshop, Malpais | 5 m × 6 m |
| IMP-0944 | Lithic Workshop, Malpais | 10 m (area) |
| IMP-0945 | Small Lithic Workshop, Malpais | 2 m × 2 m |
| IMP-0946 | Lithic Workshop, Malpais | 2 m × 2 m |
| IMP-0947 | Sleeping Circle | 400 cm × 280 cm |
| IMP-0948 | Sleeping Circle | 350 cm × 340 cm |
| IMP-0949 | Sleeping Circle | 470 cm × 400 cm |
| IMP-0950 | Sleeping Circle | 400 cm × 360 cm |
| IMP-0951 | Sleeping Circle | 350 cm × 370 cm |
| IMP-0952 | Sleeping Circle | 600 cm × 400 cm |
| IMP-0953 | Sleeping Circle | 400 cm × 300 cm |
| IMP-0954 | Sleeping Circle | 450 cm × 450 cm |
| IMP-0956 | Trail | 1,207 m × 1 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-0958 | Cairn | 1 m × 2 m |
| IMP-0959 | Cairn | 1 m × 1 m |
| IMP-0960 | Lithic Workshop | 2 m × 3 m |
| IMP-0961 | Tools Along Trail | 500 m × 1 m |
| IMP-0962 | 3 Scrapers, Possible Lithic Site | 6 m × 6 m |
| IMP-0963 | Trail | 805 m × 6 m |
| IMP-0964 | Cairn, Lithic Scatter | Not on form |
| IMP-0966 | Agave Pit | Not on form |
| IMP-0972 | Lithic Workshop | 60.9 cm × 70.9 cm |
| IMP-0973 | Lithic Workshop, Malpais | 2 m × 2 m |
| IMP-0974 | Temporary Campsite, Malpais | 5 m × 6 m |
| IMP-0989 | Trail, Probable Yuman | 402 m × 1 m |
| IMP-0990 | Cairn (or Monument), Probable Yuman | 1 m × 1 m |
| IMP-0991 | Temporary Campsite, Yuman | 30 m × 30 m |
| IMP-0992 | Temporary Campsite, Yuman | 150 m × 50 m |
| IMP-0993 | Cremation Site, Yuman | 3 m × 3 m |
| IMP-0994 | Temporary Campsite, Yuman | 3 m × 3 m |
| IMP-0995 | Temporary Campsite, Yuman | 30 m × 30 m |
| IMP-0996 | Temporary Campsite, Yuman | 30 m × 30 m |
| IMP-0997 | Cremation Site, Yuman | 3 m × 3 m |
| IMP-0998 | Temporary Campsite, Yuman | 3 m × 3 m |
| IMP-0999 | Scattered Lithic Workshop, Yuman | 15 m × 15 m |
| IMP-1000 | Trail | 50 m (length) |
| IMP-1001 | Temporary Campsite, San Dieguito | 5 m × 5 m |
| IMP-1002 | Temporary Campsite, San Dieguito | 8 m × 8 m |
| IMP-1003 | Lithic Workshop, San Dieguito | 1 m × 1 m |
| IMP-1006 | Temporary Campsite, Yuman | 10 m × 10 m |
| IMP-1007 | Lithic Workshop, Yuman | 10 m × 10 m |
| IMP-1009 | 05e: Lithic Scatter | 600 m × 400 m |
| IMP-1010 | Sleeping Circle | 225 cm × 5 cm × 5 cm |
| IMP-1011 | Sleeping Circles | 320 cm × 5 cm × 5 cm |
| IMP-1012 | Temporary Campsite, Yuman | 15 m × 15 m |
| IMP-1013 | Lithic Workshop, San Dieguito I | 15 m × 15 m |
| IMP-1014 | Trail | 35 m × 1 m |
| IMP-1015 | Temporary Campsite and Lithic Workshop | 30 m × 15 m |
| IMP-1033 | Ceramic and Lithic Scatter With Cairns | 20 m × 36 m |
| IMP-1034 | Cairn | 2 m × 2 m |
| IMP-1035 | Cairn | 2 m × 2 m |
| IMP-1036 | Cairn | 2 m × 2 m |
| IMP-1037 | Cairn | 2 m × 2 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-1042 | Temporary Camp with Loci | 23 m × 25 m |
| IMP-1066 | Small Lithic Workshop | 1.5 m × 1 m |
| IMP-1067 | Trail | 208 m × 1 m |
| IMP-1069 | Lithic Workshop, Malpais | Not on form |
| IMP-1070 | Lithic Workshops | 2 m × 4 m |
| IMP-1071 | Campsite | 100 m × 100 m |
| IMP-1072 | Lithic Workshop and Cairn, Malpais | 30 m × 50 m |
| IMP-1075 | Lithic Workshop | 100 m × 50 m |
| IMP-1078 | Lithic Workshop, Mound of 19 Cobbles on Sand Base | 33 m × 50 m |
| IMP-1122 | Lithic Workshop, Cairns | 15 m × 15 m |
| IMP-1408 | Lithic Scatter, Ceramic Scatter | 65 m × 40 m |
| IMP-1411 | Felsitic Flake (Isolate) | 1 m × 1 m |
| IMP-1412 | Pot Sherd (Isolate) | 1 m × 1 m |
| IMP-1413 | Pottery and Lithic Scatters | 1,700 m × 250 m |
| IMP-1417 | 6 Sherds | 8 m × 4 m |
| IMP-1418 | 3 Pot Sherds | 10 m × 10 m |
| IMP-1419 | Lithic Scatter, Pottery Locus | 40 m × 40 m |
| IMP-1420 | Pottery Scatter and Felsitic Flake Scatter | 20 m × 30 m |
| IMP-1426 | Village | 10 m × 100 m |
| IMP-1597 | Sleeping Circle | 68 m × 3 m |
| IMP-1661 | Pottery Scatter and Tools | Not on form |
| IMP-1662 | Temporary Campsite | 75.5 m × 38.4 m |
| IMP-1663 | Campsite | 3 m × 7.5 m |
| IMP-1724 | Indian Trail Northeast | Not on form |
| IMP-1744 | Crossed Express and Indian Trail | Not on form |
| IMP-1745 | Crossed Express and Indian Trail | Not on form |
| IMP-1746 | Crossed Express and Indian Trail | Not on form |
| IMP-1996 | Lithic Workshop | 3 m × 4 m |
| IMP-1997 | Lithic Workshop with Chips | 2 m × 3 m |
| IMP-1999 | Scraper, Mano, and Destroyed Evidence | 1 m × 0.5 m |
| IMP-2000 | Lithic Workshop with Tools, Cores, and Debitage | 8 m × 8 m |
| IMP-2001 | Random Artifact in Extended Lithic Workshop | 8 m × 5 m |
| IMP-2002 | Single Artifact Along Extended Lithic Workshop | 12 m × 12 m |
| IMP-2003 | Miscellaneous Artifacts in Extended Lithic Area | 1 m × 1 m |
| IMP-2004 | Miscellaneous Tools in Extended Lithic Site | 1 m × 1 m |
| IMP-2005 | Single Artifact in Extended Lithic Area | 1 m × 1 m |
| IMP-2006 | Lithic Workshop with Tools, Cores, and Debitage | 1 m × 1 m |
| IMP-2009 | Lithic Workshop with Cores, Debitage, and Tools | 10 m × 10 m |
| IMP-2010 | Lithic Workshop | Not on form |
| IMP-2011 | Lithic Workshops | 50 m × 50 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-2013 | Single Artifact Amid Misc. Worked Material | 10 m × 10 m |
| IMP-2024 | Miscellaneous Artifacts | 1 m × 1 m |
| IMP-2025 | Lithic Workshop | 4 m × 4 m |
| IMP-2026 | Lithic Workshops | 3 m × 3 m |
| IMP-2027 | Lithic Workshop with Combination Tools | 5 m × 5 m |
| IMP-2028 | Lithic Workshop | Not on form |
| IMP-2029 | Chopper, Lithic Workshop | Not on form |
| IMP-2030 | Single Artifact (Isolate) | 1 m × 1 m |
| IMP-2032 | Lithic Reduction Station | 3 m × 3 m |
| IMP-2033 | Chipping Station | 10 m × 2 m |
| IMP-2034 | Lithic Workshop | 7.6 m × 7.6 m |
| IMP-2035 | Single Artifact (Isolate) | 1 m × 1 m |
| IMP-2036 | Punctate And Debitage | 1 m × 1 m |
| IMP-2038 | Porphyry Core with Debitage | Not on form |
| IMP-2041 | Lithic Workshop | 7 m × 7 m |
| IMP-2043 | Lithic Workshop | 1.5 m × 1.5 m |
| IMP-2044 | Lithic Workshop | 2 m × 2 m |
| IMP-2046 | Lithic Workshop | 2 m × 2 m |
| IMP-2071 | Lithic Workshop | 6 m × 6 m |
| IMP-2073 | Chipping Station, Scrapers, Knives, Spokes Have | 1 m × 2 m |
| IMP-2074 | Lithic Scatter; Probably San Dieguito Site | 1,001 m × 5 m |
| IMP-2075 | Core, Gray Porphyry, 2 Choppers | 3 m × 3 m |
| IMP-2076 | Core and 3 Choppers | 5 m × 5 m |
| IMP-2077 | Core, Chopper, Debitage, and Scraper | 30.4 m × 9.1 m |
| IMP-2078 | Choppers and Core | 30.4 m × 21.3 m |
| IMP-2081 | 3 Tools, Choppers, and Scraper | 1 m × 30 m |
| IMP-2082 | Chopper and 2 Cores | 3 m × 18 m |
| IMP-2084 | Chopper, 2 Cores, and Knife | 5 m × 5 m |
| IMP-2085 | Tools | 5 m × 5 m |
| IMP-2086 | Lithic | 15 m × 30 m |
| IMP-2087 | Chipping Station | 10 m × 10 m |
| IMP-2088 | Lithic Site | 15 m × 15 m |
| IMP-2089 | Lithic Tools | 5 m × 5 m |
| IMP-2092 | Lithic Tools | 30 m × 10 m |
| IMP-2093 | Chipping Station | 30 m × 5 m |
| IMP-2094 | Lithic Tools | 30 m × 30 m |
| IMP-2095 | Chipping Station | 5 m × 5 m |
| IMP-2096 | Lithic Site | 15 m × 5 m |
| IMP-2097 | Lithic | 30 m × 5 m |
| IMP-2098 | Possible Agave Pit with Tools | 2.5 m × 7.3 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-2099 | Lithic | 1 m × 1 m |
| IMP-2100 | Random Tools | 10 m × 10 m |
| IMP-2105 | Lithic Station | 5 m × 5 m |
| IMP-2106 | Lithic Workshop With Tool | 10 m × 10 m |
| IMP-2107 | Sleeping Circle | 2 m × 2 m |
| IMP-2112 | Lithic Workshop | 53.3 m × 45.7 m |
| IMP-2122 | Lithic Scatter with Tools | 5 m × 5 m |
| IMP-2137 | Lithic Workshop | 3 m × 3 m |
| IMP-2139 | Lithic Scatter | 2 m × 2 m |
| IMP-2141 | Lithic, Fist Axe, Core and Debitage | 2 m × 2 m |
| IMP-2144 | Lithic, Core and Small Knife | 1 m × 1 m |
| IMP-2145 | Random Tools at Pottery Scatter Site | 1 m × 1 m |
| IMP-2147 | Lithic Chips and Hammerstone | 2 m × 2 m |
| IMP-2149 | Lithic Flakes | 1 m × 1 m |
| IMP-2154 | Lithic, Core, and Flakes | 1 m × 1 m |
| IMP-2156 | Lithic Flakes | 1 m × 1 m |
| IMP-2157 | Lithic Tools | 2 m × 2 m |
| IMP-2158 | Lithic Flakes and Hammerstone | 1 m × 1 m |
| IMP-2176 | Lithic Tools | 1 m × 1 m |
| IMP-2177 | Lithic Workshop and Sleeping Circles | 30 m × 10 m |
| IMP-2178 | Lithic Workshop, Chopper Core, Domed Scraper Plane | 50 m × 10 m |
| IMP-2179 | Lithic Workshop, Fist Chopper | 11 m × 1 m |
| IMP-2180 | Trail | 15 m × 1 m |
| IMP-2181 | Lithic Tool, Ovoid Scraper (Isolate) | 1 m × 1 m |
| IMP-2182 | Lithic Tools and Trail | 1 m × 1 m |
| IMP-2183 | Lithic Assemblage | 1 m × 1 m |
| IMP-2185 | Lithic Tool and Trail | 1 m × 1 m |
| IMP-2189 | Lithic Workshop and Cairn | 30 m × 30 m |
| IMP-2190 | Lithic Workshop | 3 m × 3 m |
| IMP-2193 | Flaking Station | 2 m × 2 m |
| IMP-2194 | Flaking Station | 2 m × 2 m |
| IMP-2195 | Flaking Station | 2 m × 2 m |
| IMP-2196 | Lithic Station and Worked Tools | 30 m × 30 m |
| IMP-2197 | Lithic Station | 2 m × 2 m |
| IMP-2198 | Lithic Station | 2 m × 2 m |
| IMP-2200 | Lithic Station | 1 m × 1 m |
| IMP-2202 | Lithic Workshop (3 Choppers) | 20 m × 5 m |
| IMP-2203 | Lithic Workshop (3 Choppers) | 5 m × 3 m |
| IMP-2204 | Lithic Workshop (Core and Debitage) | 1 m × 1 m |
| IMP-2205 | Sleeping Circle, 3 Flaking Stations | 10 m × 10 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-2207 | Lithic, Fist Axe and Hammerstone | 2 m × 1 m |
| IMP-2211 | Lithic Workshop (Core and 3 Choppers) | 3 m × 3 m |
| IMP-2212 | Lithic, Fist Axe, Knife | 2 m × 1 m |
| IMP-2213 | Lithic Workshop | 60 m × 20 m |
| IMP-2214 | Lithic Workshop and Tools | 12 m × 3 m |
| IMP-2216 | Lithic, Knife | 1 m × 1 m |
| IMP-2217 | Lithic, Knife | 1 m × 1 m |
| IMP-2218 | Lithic, Chopper | 1 m × 1 m |
| IMP-2219 | Lithic Workshop | 2 m × 3 m |
| IMP-2223 | Lithic | 4 m × 2 m |
| IMP-2224 | Lithic, Hammerstone and Knife | 2 m × 1 m |
| IMP-2225 | Lithic Workshop | 3 m × 2 m |
| IMP-2226 | Lithic (3 Cores) | 3 m × 1 m |
| IMP-2231 | Lithic Workshop | 2 m × 2 m |
| IMP-2232 | Lithic Workshop (Spokeshave and Flakes) | 1 m × 2 m |
| IMP-2234 | Lithic Workshop | 1 m × 1 m |
| IMP-2235 | Lithic Workshop (Core and Debitage) | 2 m × 2 m |
| IMP-2236 | Lithic Workshop | 25 m × 10 m |
| IMP-2239 | Lithic, 2 Choppers and 1 Scraper | 1 m × 3 m |
| IMP-2241 | Lithic | 5 m × 2 m |
| IMP-2247 | Lithic, Knife Scraper Core | 3 m × 1 m |
| IMP-2251 | Lithic Workshop | 1 m × 1 m |
| IMP-2302 | Lithic Workshop | 30 m × 30 m |
| IMP-2303 | Lithic Workshop | 50 m × 50 m |
| IMP-2304 | Lithic Workshop | 30 m × 100 m |
| IMP-2305 | Lithic Workshop | 100 m × 30 m |
| IMP-2306 | Single Artifact | Multiple dimensions given |
| IMP-2315 | Lithic Workshop | 6 m × 3 m |
| IMP-2322 | Lithic Workshop (Green Porphyry and Quartz) | 60 m × 48 m |
| IMP-2332 | Lithic Workshop with Core | 3 m × 1.5 m |
| IMP-2333 | Lithic Workshop | 2.4 m × 2.4 m |
| IMP-2334 | Lithic Workshop, 5 Tools | 6 m × 4.5 m |
| IMP-2341 | Circle With Artifacts in Center | 1 m × 1 m |
| IMP-2351 | 3 Artifacts | Not on form |
| IMP-2353 | Single Artifact | 1 m × 1 m |
| IMP-2359 | Lithic Workshop | 1 m × 1 m |
| IMP-2360 | Cairn | 1 m × 1 m |
| IMP-2361 | Lithic Workshop | 9.12 m2 |
| IMP-2362 | Single Artifact | 1 m × 1 m |
| IMP-2363 | Lithic Workshop | 30 m × 30 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-2364 | Lithic Workshop | Multiple dimensions given |
| IMP-2371 | Lithic Workshop | 30 m × 30 m |
| IMP-2372 | Lithic Workshop | 15 m × 15 m |
| IMP-2373 | Intersection of 2 Trails | 300 m × 1 m |
| IMP-2438 | Lithic Scatter | 10 m × 10 m |
| IMP-2439 | 2 Cores and A Few Flakes | 10 m × 10 m |
| IMP-2440 | 2 Cores and 20 Bone Fragments | 5 m × 5 m |
| IMP-2441 | 2 Cores and Flakes | 5 m × 5 m |
| IMP-2442 | 5 Fired Red Sandstone Deposits | 100 m × 60 m |
| IMP-2443 | Lithic Workshop, Green Porphyry | 130 m × 10 m |
| IMP-2478 | Possible Trail | 100 m × 1 m |
| IMP-2479 | Scraper, 2 Cores, and Flakes | 1 m × 1 m |
| IMP-2764 | Lithic Scatter with Tools | 40 m × 15 m |
| IMP-3052 | Ceramic Scatter | 3 m × 3 m |
| IMP-3191-H | Ruins of the Dixieland School | Not on form |
| IMP-3192-H | Dixieland Cafe and Grocery Store | Not on form |
| IMP-3276-H | San Felipe Creek | 8 ft × 6 in |
| IMP-3396-H | Crossed Express Trail | Not on form |
| IMP-3399-H | Crossed Wagon Road | Not on form |
| IMP-3400-H | Wagon Road (unable to relocate 1978) | Not on form |
| IMP-3401-H | Cross Wagon Road | Not on form |
| IMP-3402-H | Wagon Road (unable to relocate 1978) | Not on form |
| IMP-3505-H | Military Occupation (Heavy) Mounts, Cairns, Trail | 402.3 m (length) |
| IMP-3745 | Lithic Scatter | 5 m × 5 m |
| IMP-3747 | Single Potsherd (Isolate) | Not on form |
| IMP-3748 | Isolate (Hammerstone) | 10 cm × 8 cm × 6 cm |
| IMP-3750 | Chipping Station | 3 m × 3 m |
| IMP-3751 | Lithic Scatter | 1 m × 1 m |
| IMP-3752 | Lithic Scatter with 4 Loci | 25 m × 30 m |
| IMP-3753 | Isolate (Bifacial Scraper) | NA |
| IMP-3754 | Lithic Scatter with 2 Loci | 5 m × 10 m |
| IMP-3755 | Lithic Scatter | 3 m × 3 m |
| IMP-3756 | Lithic Scatter | 1 m × 1 m |
| IMP-3757 | Lithic Scatter with Tools | 11 m × 3 m |
| IMP-3758 | Lithic Scatter with Tools | 130 m × 60 m |
| IMP-3759 | Lithic Scatter with Tools | 50 m × 50 m |
| IMP-3760 | Lithic Scatter with 4 Loci | 60 m × 60 m |
| IMP-3761-H | Historic Trash Dump with 2 Loci | 15 m × 20 m |
| IMP-3763 | Lithic Scatter with Tools | 30 m × 20 m |
| IMP-3764 | Lithic Scatter with Tools | 40 m × 15 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-3765 | Lithic Scatter | 20 m × 10 m |
| IMP-3766 | Pottery Scatter with Lithics | 10 m × 0.8 m |
| IMP-3767 | Single Flake (Isolate) | NA |
| IMP-3768 | Lithic Scatter with 2 Loci | 25 m × 45 m |
| IMP-3769 | Lithic Scatter with Tools | 0.5 m × 0.5 m |
| IMP-3770 | Single Flake (Isolate) | NA |
| IMP-3771 | Lithic Scatter with Tools | 60 m × 60 m |
| IMP-3772 | Lithic Scatter with Tools | 15 m × 15 m |
| IMP-3773 | Lithic Scatter with Tools | 20 m × 15 m |
| IMP-3774 | Lithics, 2 Cores | 1 m × 1 m |
| IMP-3775 | Lithics, Flake and Scraper | 1 m × 1 m |
| IMP-3776 | Discoid Scraper (Isolate) | Not on form |
| IMP-3777 | Core (Isolate) | Not on form |
| IMP-3778 | Chopper (Isolate) | 13 cm × 10 cm × 4.5 cm |
| IMP-3779 | Lithics, Core and Flake | 0.2 m × 0.2 m |
| IMP-3782 | Ceramic Scatter and Trail Segment | Not on form |
| IMP-3783 | Ceramic Scatter | 3 m × 3 m |
| IMP-3784 | Chopper (Isolate) | Not on form |
| IMP-3785 | Lithic Scatter | 2 m × 2 m |
| IMP-3786 | Flake (Isolate) | 0.5 m × 0.5 m |
| IMP-3788 | Lithic Scatter | 20 m × 60 m |
| IMP-3789 | Lithic Scatter | 3 m × 3 m |
| IMP-3790 | Lithic Scatter | 7 m × 2 m |
| IMP-3791 | Lithic Scatter, Ceramic Scatter | 1 m × 1 m |
| IMP-4121 | Lithic Scatter | 1350 m × 350 m |
| IMP-4189 | Temporary Campsite | 100 m × 50 m |
| IMP-4190 | Lithic Scatter | 6 m × 8 m |
| IMP-4191 | Lithic Scatter | 0 to 10 sq m |
| IMP-4192 | Lithic (Isolate) | 0.5 m × 0.5 m |
| IMP-4193-H | Historic Trash Dump | 2 m × 2 m |
| IMP-4237 | Temporary Campsite | 800 m × 800 m |
| IMP-4244 | Lithic Scatter | 100 m × 35 m |
| IMP-4245-H | Historic Trash Dump | 10 m × 10 m |
| IMP-4246 | Ceramic and Lithic Isolates | 5 m × 15 m |
| IMP-4247 | Lithic Workshop | 200 m × 80 m |
| IMP-4248 | Ceramic Scatter, Lithic Scatter | 20 m × 5 m |
| IMP-4337 | Lithic (Isolate) | 0.5 m × 0.5 m |
| IMP-4338 | Chipping Station | 2 m × 1 m |
| IMP-4339 | Isolated Locale | 1 m × 1 m |
| IMP-4340 | Lithic (Isolate) | 0.5 m × 0.5 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-4341 | Chipping Circle | 1 m × 1 m |
| IMP-4342 | Lithic (Isolate) | 1 m × 1 m |
| IMP-4343 | Temporary Campsite | 80 m × 50 m |
| IMP-4344 | Lithic Scatter; Possible Temporary Campsite | 160 m × 340 m |
| IMP-4346 | Temporary Campsite | 30 m × 30 m |
| IMP-4347 | Lithic Scatter | 10 m × 55 m |
| IMP-4348 | Temporary Campsite/Village | Multiple dimensions given |
| IMP-4349 | Lithic Scatter, Ceramic Scatter, Temporary Campsite | 500 m × 85 m |
| IMP-4350 | Lithic Scatter, Ceramic Scatter | 85 m × 135 m |
| IMP-4351 | Lithic Scatter, Ceramic Scatter | 25 m × 105 m |
| IMP-4352 | Lithic Scatter, Temporary Campsite | 40 m × 60 m |
| IMP-4354 | Lithic Scatter | 30 m × 30 m |
| IMP-4380 | Trail and Lithic Workshop | 91 m × 91 m |
| IMP-4381 | Geoglyph and Hearths | 30 m × 30 m |
| IMP-4390-H | Historic Trash Dump | 5 m × 5 m |
| IMP-4469 | Temporary Campsite, 2 Pot Drops, Lithic Scatter | 20 m × 15 m |
| IMP-4470 | Pot Drop | 20 m × 10 m |
| IMP-4471 | Pottery Scatter | Not on form |
| IMP-4515 | Ceramic Scatter | 10 m × 10 m |
| IMP-4517 | 16, Isolate: Chalcedony Flake | Not on form |
| IMP-4540 | Temporary Campsite, Lithic Scatter | 100 m × 400 m |
| IMP-4541 | Lithic Scatter, Chipping Circle | 0.5 m × 1 m |
| IMP-4544 | 3 Felsitic Flakes | 1 m × 1 m |
| IMP-4546 | 3 Felsitic Flakes | 5 m × 5 m |
| IMP-4548 | Lithic Scatter, Flakes | 70 m × 100 m |
| IMP-4573 | Lithic Scatter | 50 m × 30 m |
| IMP-4575 | Lithic Scatter | 5 m × 5 m |
| IMP-4577 | Lithic Scatter | 60 m × 40 m |
| IMP-4578 | Chipping Circle | 2 m × 2 m |
| IMP-4581 | Lithic Workshop | 5 m × 5 m |
| IMP-4582 | Lithic Scatter | 80 m × 80 m |
| IMP-4583 | Lithic Workshop | 5 m × 5 m |
| IMP-4584 | Chipping Circle | 5 m × 5 m |
| IMP-4585 | Temporary Campsite | 30 m × 30 m |
| IMP-4602 | Pottery Scatter | 25 m × 25 m |
| IMP-4673 | Isolate: Flake | Not on form |
| IMP-4677 | Lithic and Pottery Scatter | 2 acres (area) |
| IMP-4750 | Lithic Scatter | 1 m × 1 m |
| IMP-4752 | Hearths, Lithic Scatter | 120 m × 60 m |
| IMP-4838 | Floor of Lake Cahuilla | Not on form |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-4875 | Chipping Circle | 0.5 m × 0.5 m |
| IMP-4954 | Lithic Site with Cairn | 220 m × 120 m |
| IMP-5042 | Temporary Campsite | 75 m × 75 m |
| IMP-5043 | Ceramic Scatter, Lithic Scatter | 24 m × 30 m |
| IMP-5044 | Ceramic Scatter, Lithic Scatter | 7 m × 5 m |
| IMP-5058 | Ceramic Scatter | 5 m × 2 m |
| IMP-5189 | Lithic Scatter, Possible Shell Midden, Ceramics, and Trails | 60 m × 80 m |
| IMP-5190 | Trail, Porphyry Side Scraper, Porphyry Punctate | 100 m × 6 m |
| IMP-5197 | Scatter of Andesite Flakes, Sherds, and Burnt Bone | 50 m × 25 m |
| IMP-5198 | Low-Density Lithic Scatter | 50 m × 25 m |
| IMP-5199 | Chipping Circle | 15 m × 25 m |
| IMP-5200 | Chipping Circle | 22 m × 2 m |
| IMP-5201 | Pumice Cache and Low-Density Lithic Scatter | 15 m × 15 m |
| IMP-5202 | Temporary Campsite | 29 m × 20 m |
| IMP-5203 | Temporary Campsite | 15 m × 10 m |
| IMP-5204 | Temporary Campsite | 170 m × 30 m |
| IMP-5205 | Temporary Camp - Lithic Scatter | 100 m × 100 m |
| IMP-5225 | Geoglyph | 5 m × 10 m |
| IMP-5277 | Metate Fragment | Not on form |
| IMP-5700 | Lithic Workshop | Not on form |
| IMP-5701 | 3 Primary Flakes, 1 Secondary Flake, 1 Hammerstone | Not on form |
| IMP-5704 | Lithic Scatter | Not on form |
| IMP-5705 | Lithic Scatter | Not on form |
| IMP-5707 | Lithic Scatter | Not on form |
| IMP-5715 | Ceramic Scatter | Not on form |
| IMP-5719 | Lithic Scatter | Not on form |
| IMP-6680 | Green Porphery Scraping Tool | Not on form |
| IMP-6681 | Green Porphery Flake | Not on form |
| IMP-6687 | Lithic Workshop | 1 m × 1 m |
| IMP-7816-H | Historic Railroad Stop | 100 m × 40 m |
| IMP-7868-H | Historic Trash Scatter on Open Desert | 8 m × 12 m |
| IMP-8509 | Irrigation Canal, Concrete Culvers | 0.31 mi length × 15.1 ft width |
| IMP-8654 | Ceramic Scatter, Lithic Scatter | 17 m × 17 m |
| IMP-8656 | Lithic Scatter | 58 m × 83 m |
| IMP-8667 | Lithic Scatter | 5 m × 5 m |
| IMP-8668 | Lithic Scatter | 11 m × 80 m |
| IMP-8669 | Ceramic Scatter, Lithic Scatter | 50 m × 60 m |
| IMP-8698 | Ceramic Scatter, Lithic Scatter | 15 m × 25 m |
| IMP-8720 | Lithic Scatter | 37 m × 140 m |
| IMP-8721 | Lithic Scatter | 35 m × 100 m |

| Trinomial | Site Type | Dimensions |
|---|---|---|
| IMP-8738 | Lithic Scatter | 5 m × 5 m |
| IMP-8740 | Lithic Scatter | 5 m × 5 m |
| IMP-8743 | Lithic Scatter | 5 m × 20 m |
| IMP-8745 | Lithic Scatter | 6 m × 6 m |
| IMP-8749 | Cairns, Lithic Scatter | 16 m × 49 m |

(Ex. 307, pp. C.3-65 to C.3-76.)
Notes:
cm = centimeter
ft = feet
IMP = Imperial County
in = inches
m = meter
mi = mile
mm = millimeter
NA = not applicable
sq = square

Most of these sites were recorded before the invention of Global Positioning Station (GPS) technology. The ability to adequately place the locations of small sites on a 1:24,000-scale USGS topographic map in an environment such as the project area was quite difficult without GPS equipment. With the state of technology at the time, land surveying equipment would most likely have been required to achieve comparable results. The URS review of the original DPR forms reveals that most of the sites were shown only as a point on the 1:24,000 scale map, and intensive efforts to pinpoint locations do not appear to have been made. All of the forms show Universal Transverse Mercator (UTM) locations for these sites, and these UTM coordinates were used by the present survey to map previous site locations. However, the UTM coordinates appear to have been added later to the forms, based on the original points on the maps. These factors suggest that the location information for these sites is inaccurate. The site descriptions on these older forms are also usually quite general, which adds to the difficulty of relocating the sites. Finally, in many cases, no sketch maps were made of the sites, another complicating factor in site relocations.

The applicant's consultant is confident that many of the previously recorded sites were re-located, but could not be matched on an individual basis to previously recorded Department of Parks and Recreation (DPR) forms. Only two of these previously recorded cultural resources (CA-IMP-2083 [current temporary number JM-9, Locus B] and CA-IMP-3762 [current temporary number EBR-001]) were definitively re-located during the course of the field investigations carried out by the consultant. While the differences in reliability between the older techniques

and the modern techniques are clearly understood, the inability to more closely correlate the results of the current cultural resources inventory with the previous inventories makes it impossible to arrive at a final determination of the number and density of the cultural resources in the project area.

Previously recorded sites that were re-located:

- CA-IMP-2083: chipping station with core, chopper, and debitage; 5 m × 5 m; and

- CA-IMP-3762: lithic scatter and trail segment; 30 m × 0.3 m.

These issues also plagued efforts to re-locate previously recorded sites associated with the Yuha District. A portion of the Yuha Basin Discontiguous District is located within the records search boundary. The majority of the district is located south of the project area.

The SCIC searched all relevant previously recorded cultural resources site records and previous investigations completed within the project area and a one mile search radius around it. Information reviewed included location maps for all previously recorded prehistoric and historical archaeological sites and isolates; DPR forms and updates for all cultural resources previously identified; previous investigation boundaries; and National Archaeological Database citations for associated reports, historic maps, and historical addresses.
(Ex. 307, pp. C.3-76 to C.3-77.)

b. Native American Heritage Commission Sacred Lands File Search Results

A Sacred Lands File search request was submitted to the Native American Heritage Commission (NAHC) on January 4, 2008. The response letter dated January 7, 2008, established that the Sacred Lands File (SLF) search for the project area failed to indicate the presence of Native American cultural resources in the immediate project area. A second letter from the NAHC dated January 23, 2008, indicated that the original request and response had been misplaced. This letter established that the SLF search did indicate the presence of Native American cultural resources in the project area. The letter indicated consultation as the best way to avoid unanticipated discoveries. A list of contacts for adjacent tribes was enclosed. Specifically, the letter recommended contacting Carmen Lucas for insight regarding specific information about the cultural resource location in the project area.

With the filing of the IVS Project application for a ROW, the BLM, as the lead federal agency, initiated tribal consultation pursuant to the Executive Memorandum of April 29, 1994, as well as other relevant laws and regulations, including Section 106 of the NHPA. Part of the consultation process was to begin efforts to develop a Programmatic Agreement (PA).A detailed description of the PA development process is set forth in the SSA, Ex. 307 pp. C.3-59 to C.3-60. To date, 12 tribes and 15 additional tribal contacts have been identified and invited to consult on this project (*see* Appendix I to the PA, Ex. 307, Cultural Resources Appendix B, for a complete summary and documentation of Native American consultation). The BLM initiated formal government-to-government consultation by letter in January 2008 and has followed up with 3 additional letters since that time. With each letter, the BLM endeavored to provide updates on the status of the environmental review process including cultural resource inventories, invite the tribes into government-to-government consultation, and request their help in identifying any issues or concerns. The BLM also requested their assistance in identifying any sacred sites and places of traditional religious and cultural significance which might be affected by the proposed project.

Since January 2008, the BLM has responded to requests for both formal and informal meetings with tribal governments, tribal staff or tribal members. Additionally, several written comments from tribal contacts have been received to date. As the environmental review and Section 106 consultation processes move forward for this project, the BLM will continue to consult with tribes and interested tribal members on issues or concerns related to cultural resources and the PA or other resources and issues of concern. Information gathering through field visits to the project area and interviews with various tribal members began in early 2009. Tribal members including those from the Cocopah Indian Tribe, the Quechan Tribe, and the Kwaaymii have visited the project area and viewed cultural resources. Further field visits and tours are expected in the upcoming months as the cultural resources inventory report is finalized and Section 106 consultation continues.

Regarding the presence of human remains within the project area of analysis (APE), various tribal elders have spoken of the intense spiritual value that cremations have to Native Americans in the region at a December 4, 2009, meeting in El Centro the purpose of which was to initiate the development of the proposed PA. Similar comment was received at the Evidentiary Hearing on August 16, 2010. (RT 8/16/10, pp. 192 – 203.)

The ACHP, the SHPO, the National Trust for Historic Preservation, the Anza Society, the U.S. Army Corps of Engineers, NPS, and Tessera Solar, are

organizations or agencies that have been invited into consultation on the development of the Programmatic Agreement. Those consulations are ongoing. (Ex. 307, pp. C.3-77 to C.3-78.)

d.Geoarchaeology Study

The IVS Project area represents a microcosm of the geomorphic conditions that exist in the Yuha Desert. Pliocene and Pleistocene non-marine sedimentary rock outcrops are located along the southern boundary of the project area. Two primary, non-chronometric methods are used for determining the age of desert alluvial landforms: soil development and desert pavement development. Both of these methods are heavily dependent on environmental factors such as temperature, precipitation, and parent material. As such, they are most effective within a confined relatively homogeneous area, such as the project area. Unfortunately, comparison of pavement surfaces within the project area should provide a reliable estimate of relative age. Unfortunately, due to heavy Off Highway Vehicle (OHV) use within the project area, some older pavement surfaces have been severely disturbed and may appear younger than the landform actually is.

Perhaps a more reliable estimate of landform age within the project area is soil horizon development. In this study of the IVS Project area, the degree of desert pavement formation and calcic horizon formation were used in conjunction as indicators of landform age during field studies. In addition, more typical soil classifications were made on exposed profiles in order to assess pedogenic processes at play in the project area. Major landforms within the project area were initially identified using 1×1 m resolution black-and-white aerial photography. Given these designations, certain broad assumptions could be made about the age and depositional history of each portion of the project area. This mapping and related assumptions were verified and modified in the field, through on-the-ground examination of the landscape and key indicators such as relative slope, desert pavement development, and subsoil formation. The latter was largely examined in soil profiles exposed in active or recent stream channels, smaller erosional side slopes on the fan piedmont, and at least two older unfilled backhoe trenches that were discovered during the course of field investigations.

Based on a combination of aerial imagery, GIS-aided analyses, existing data and literature, and intensive field verification, the project area has been divided into a series of geomorphic landforms. These landforms and their various

subcomponents have been assessed for geoarchaeological sensitivity, the results of which are summarized in Tables 4a and 4b.

No evidence of buried cultural material was seen in any of the profiles examined during the field study. The most likely location for preservation of older buried archaeological sites within the project area appears to be within remnant nearshore beach deposits of Lake Cahuilla or under more recent Holocene alluvial deposits at the distal (eastern) end of the fan apron zone. Buried sites within this area are most likely to be younger than Middle Archaic.

Some evidence for preserved buried land surfaces was seen in profiles throughout the fan apron area, between the older erosional fan piedmont and the shoreline. Within these overlapping fan aprons, preservation will most likely be sporadic and areally confined, dependent on minimal erosion and surface scouring through time and low-energy deposition of overlying sediments. Given these factors and the sparse nature of most surface sites identified in the region—dominated by sparse lithic assemblages—identification of buried sites would likely be very difficult. Perhaps the most effective means of identifying potentially buried archaeological components within the fan apron area is through archaeological sites which appear to be isolated on older remnant surfaces and surrounded by younger alluvium. If the sites do not extend onto the younger surfaces, it is possible that they are old enough that they may have been partially buried by the more recent depositional event.

Given the age of land surfaces within the fan piedmont, and no indication of buried soils of appropriate age, the geoarchaeological sensitivity of the approximately western two-thirds of the IVS Project area is considered very low. For both the fan piedmont area and the fan apron area, any potentially buried archaeological deposits are not likely to be significantly different than those exposed on the surface of remnant landforms.
(Ex. 307, pp. C.3-78 to C.3-85.)

e. Pedestrian Archaeological Surveys

The initial 100 percent Class III survey of the proposed project area, identified 337 total cultural resources, of which 232 are prehistoric, 38 are historic, 17 are multi-component, 36 are isolated finds, and 14 are objects. Five built environment sites were also found and assessed.

f. Re-Evaluation of 20 Percent of the Previously Recorded Sites

LSA Associates, Inc. (LSA) was tasked by the BLM El Centro Field Office to conduct ground-truth visits at 60 randomly selected site locations (approximately

20 percent of the 337 sites recorded by the consultant for the applicant). Utilizing printed DPR forms and Trimble GPS units with Geographic Information Systems (GIS) digital data with each site's boundaries and internal features, LSA conducted the task of verifying the DPR forms, recorded boundaries, feature locations, and artifact classes.

g. Re-Survey of 25 percent of the Previously Recorded Sites

Based on the results of the original 20 percent site revisit, the BLM and Energy Commission staff tasked the applicant's consultant to implement a further 25 percent stratified random sample for site re-recordation. As requested by BLM-El Centro and Commission staff, archaeological sites were stratified according to resource character and landform context. The results of the re-recordation effort form the basis of the analysis below of the archaeological resource base.
(Ex. 307, pp. C.3-85 to C.3-86.)

We reproduce below Staff's Cultural Resources Table 6, which summarizes the results of the pedestrian surveys.

**CULTURAL RESOURCES TABLE 6**
**Initial Cultural Resources Inventory for the Project Area of Analysis**
**(100 percent of archaeological resources)**

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| DRK-001 | Open Camp | Prehistoric | Medium to high | 450-MW Area Phase II |
| DRK-009 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-012 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-013 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-015 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-016 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-017 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-019 | Ceramic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-021 | Object-Historic Survey Marker | Historic | Low | 300-MW Area Phase I |
| DRK-022 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-024 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-025 | Lithic Scatter | Prehistoric | Low | 450-MW Area Phase II |
| DRK-026 | Cairn | Prehistoric | Low | 450-MW Area Phase II |
| DRK-028 | Lithic Scatter | Prehistoric | Low | 450-MW Area Phase II |
| DRK-030 | Historic Refuse Deposits | Historic | Low | 450-MW Area Phase II |
| DRK-031 | Lithic Scatter | Prehistoric | Low | 450-MW Area Phase II |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| DRK-033 | Historic survey marker | Historic | Low | 450-MW Area Phase II |
| DRK-034 | Lithic Scatter | Prehistoric | Low | 750-MW Substation |
| DRK-035 | Lithic Scatter | Prehistoric | Low | 750-MW Substation |
| DRK-036 | Historic survey marker | Historic | Low | Access Road 100 ft Corridor |
| DRK-037 | Lithic Scatter | Prehistoric | Low | 450-MW Area Phase II |
| DRK-039-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| DRK-041 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-042 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-043 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-044 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-045 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-046 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-048 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-049 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-050 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-051 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-052 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| DRK-143 | Lithic and ceramic scatter with groundstone | Prehistoric | Medium to high | Laydown Staging Area |
| DRK-144 | Lithic Scatter | Prehistoric | Medium to high | Laydown Staging Area |
| DRK-147 | Multi component | Historic and Prehistoric | Medium to high | Laydown Staging Area |
| DRK-148 | Multi component, historic refuse deposit and open camp | Historic and Prehistoric | Medium to high | Laydown Area |
| DRK-149 | Historic refuse deposit | Historic | Medium to high | Laydown Area |
| DRK-150 | Multi component, Historic refuse deposit and Prehistoric open camp | Historic and Prehistoric | Medium to high | Laydown Area |
| DRK-188 | Lithic scatter with single ceramic sherd | Prehistoric | Medium to high | Laydown Area |
| EBR-001 | Lithic Scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| EBR-002 | Lithic Scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| EBR-003 | Lithic Scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| EBR-004-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-005 | Cairn | Unknown | Low | 450-MW Area Phase II |
| EBR-006-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-009-I | Isolate | Prehistoric | Low | 300-MW Area Phase I |
| EBR-011-I | Isolate | Prehistoric | Low | 300-MW Area Phase I |
| EBR-015 | Historic Refuse Deposit | Historic | Medium to high | Access Road 100 ft Corridor |
| EBR-016 | Historic Refuse Deposit | Historic | Medium to high | Access Road 100 ft Corridor |
| EBR-019 | Open Camp with 13 cremations | Prehistoric | Medium to high | Water Supply Line 100 ft Corridor |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| EBR-021 | Lithic scatter – quartz smash | Prehistoric | Low | 300-MW Area Phase I |
| EBR-022 | Lithic scatter and cairns | Prehistoric | Low | 300-MW Area Phase I |
| EBR-025 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| EBR-026 | Lithic and ceramic scatter | Prehistoric | Low | 300-MW Area Phase I |
| EBR-061 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| EBR-062 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| EBR-063-I | Isolate | Prehistoric | Medium to high | 300-MW Area Phase I |
| EBR-064 | Lithic Scatter | Prehistoric | Low | 300-MW Area Phase I |
| EBR-066 | Lithic Scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-067-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-068 | Lithic Scatter | Prehistoric | Low | |
| EBR-069 | Historic refuse deposit | Historic | Low | 450-MW Area Phase II |
| EBR-071-I | Isolate | Prehistoric | Low | Transmission Line 300 ft Corridor |
| EBR-073 | Lithic Scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-077 | Lithic and ceramic scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-078-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-081 | Lithic Scatter | Prehistoric | Low | Access Road 100 ft Corridor |
| EBR-082-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-084 | Lithic scatter | Prehistoric | Low | Transmission Line 300 ft Corridor |
| EBR-085 | Ceramics scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-086 | Historic refuse deposit | Historic | Low | 450-MW Area Phase II |
| EBR-087 | Historic refuse deposit with one prehistoric artifact | Historic | Low | Transmission Line 300 ft Corridor |
| EBR-090-I | Isolate Historic glass insulator | Historic | Low | Transmission Line 300 ft Corridor |
| EBR-093 | Lithic and ceramic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-097 | Lithic and ceramic scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-098 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-099 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| EBR-101 | Lithic scatter | Prehistoric | Medium | Waterline 100 ft Corridor |
| EBR-103 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-104 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-105-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-107 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-108 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-109 | Multi component site, prehistoric lithic scatter with historic refuse deposit | Historic and Prehistoric | Low to Medium | Transmission Line 300 ft Corridor |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| EBR-201-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-202 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-203-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| EBR-204 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-205 | Lithic scatter with sleeping circle | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-207 | Historic refuse deposit | Historic | Medium to high | Access Road 100 ft Corridor |
| EBR-213 | Lithic and ceramic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| EBR-219 | Ceramic scatter | Prehistoric | Medium | Access Road 100 ft Corridor |
| EBR-220 | Lithic scatter | Prehistoric | Medium to high | Access Road 100 ft Corridor |
| EBR-223 | Historic refuse deposit | Historic | Medium | 450-MW Area Phase II |
| EBR-300 | Lithic and ceramic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| EBR-303 | Lithic and ceramic scatter | Prehistoric | Medium to high | Waterline 150 ft Corridor |
| EBR-304 | Lithic and ceramic scatter | Prehistoric | Medium to high | Water Supply Line 100 ft Corridor |
| EBR-305 | Ceramics scatter with a hearth | Prehistoric | Medium to high | Water Supply Line 100 ft Corridor |
| EBR-C | Open camp with 2 cremations | Prehistoric | Medium to high | Project Boundary 200 ft Buffer |
| HR-02 | Historic Road | Historic | Low | ½ in 450 MW Area Phase II, ½ Outside of project area |
| HR-03 | Historic Road | Historic | Low | 450-MW Area Phase II |
| HR-04 | Historic Road | Historic | Low | ½ in 450 MW Area Phase II, ½ Outside of project area |
| HR-05 | Historic Road | Historic | Low | ¼ in 450 MW Area Phase II, ¾ Outside of project area |
| JF-001 | Lithic scatter | Prehistoric | Low | Access Road 100 ft Corridor |
| JF-001-I | Isolate | Prehistoric | Low | 300-MW Area Phase I |
| JF-002 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JF-003 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JF-003A | Cairn | Prehistoric | Low | 300-MW Area Phase I |
| JF-004 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JF-007 | Historic refuse deposit | Historic | Low | 300-MW Area Phase I |
| JF-008 | Historic refuse deposit | Historic | Low | Access Road 100 ft Corridor |
| JF-015 | Historic survey marker | Historic | Low | Waterline 150 ft Corridor |
| JF-017-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| JF-018 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JF-019 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JF-026 | Open Camp | Prehistoric | Medium | Water Supply Line 100 ft Corridor |
| JF-031 | Historic refuse deposit | Historic | Medium to high | Laydown Staging Area |
| JF-042 | Prayer circle | Prehistoric | Low | 450-MW Area Phase II |
| JF-043 | Historic refuse deposit | Historic | Medium | 450-MW Area Phase II |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| JFB-002 | Geoglyph | Prehistoric | Low | 300-MW Area Phase I |
| JFB-006 | Geoglyph | Prehistoric | Low | 300-MW Area Phase I |
| JFB-009 | Geoglyph | Prehistoric | Low | 300-MW Area Phase I |
| JFB-009A | Historic survey marker | Historic | Low | 300-MW Area Phase I |
| JFB-011 | Historic refuse deposit | Historic | Low | Project Boundary 200 ft Buffer |
| JFB-012 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-002 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-003 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-004 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-006 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-007 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-011 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-012 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-016 | Lithic scatter | Prehistoric | Low | Water Supply Line 100 ft Corridor |
| JM-017 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-021 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-023 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-024 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-027 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-028 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-032 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-033 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-035 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-036 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-037 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JM-038 | Lithic scatter | Prehistoric | Low | Access Road 100 ft Corridor |
| JM-039 | Lithic scatter | Prehistoric | Low | Access Road 100 ft Corridor |
| JM-041 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JM-043 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JMK-010 | Lithic and ceramic scatter | Prehistoric | Medium to high | Water Supply Line 100 ft Corridor |
| JMR-005 | Multi-component | Prehistoric/ Historic | Low | 450-MW Area Phase II |
| JMR-006 | Historic cairn and refuse deposit | Prehistoric | Low | 450-MW Area Phase II |
| JMR-007-I | Isolate | Prehistoric | Low | 450-MW Area Phase II |
| JMR-009 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JMR-010-I | | Prehistoric | Low | 450-MW Area Phase II |
| JMR-011 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JMR-013 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JMR-014 | Lithic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| JMR-015-I | | Prehistoric | Low | Access Road 100 ft Corridor |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| JMR-016 | Aerial photo marker | Historic | Low | 450-MW Area Phase II |
| JMR-018 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| JMR-021 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| JMR-023-I | | Prehistoric | Low | Waterline 150 ft Corridor |
| JMR-025 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| KRM-001 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| LL-002A | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| LL-003A | Hearth | Prehistoric | Medium | 450-MW Area Phase II |
| LL-020 | Lithic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| LL-022 | Lithic and ceramic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| LL-022A | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| LL-023-I | | Prehistoric | | 450-MW Area Phase II |
| LL-024 | Lithic scatter with hearth | Prehistoric | Medium to high | 450-MW Area Phase II |
| LL-026 | Lithic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| LL-029-I | Mano | Prehistoric | Low | Project Boundary 200 ft Buffer |
| RAN-001 | Historic survey marker | Historic | Low | 300-MW Area Phase I |
| RAN-002 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| RAN-003-I | | Prehistoric | Low | 450-MW Area Phase II |
| RAN-004 | Multi-component | Historic and Prehistoric | Low | 300-MW Area Phase I |
| RAN-007 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-009 | Historic refuse deposit | Historic | Low | 450-MW Area Phase II |
| RAN-010 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-011 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-013 | Historic refuse deposit | Historic | Low | 450-MW Area Phase II |
| RAN-014 | Historic refuse deposit | Historic | Low | Access Road 100 ft Corridor |
| RAN-016 | Historic survey marker | Historic | Medium to high | Waterline 150 ft Corridor |
| RAN-017 | Multi component | Historic and Prehistoric | Medium to high | 450-MW Area Phase II |
| RAN-019 | Historic refuse deposit | Historic | Low | 450-MW Area Phase II |
| RAN-020 | Historic refuse deposit | Historic | Low | Access Road 100 ft Corridor |
| RAN-021 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| RAN-023 | Historic refuse deposit | Historic | Low | 300-MW Area Phase I |
| RAN-024 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| RAN-026 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| RAN-027 | Historic refuse deposit | Historic | Low | 300-MW Area Phase I |
| RAN-028 | Lithic scatter | Prehistoric | Medium to high | Project Boundary 200 ft Buffer |
| RAN-029 | Lithic scatter | Prehistoric | Low | Project Boundary 200 ft Buffer |
| RAN-030 | Lithic scatter | Prehistoric | Low | 750-MW Substation |
| RAN-035 | Historic refuse deposit | Historic | Low | 450-MW Area Phase II |
| RAN-036 | Multi-component | Historic and Prehistoric | Low | 300-MW Area Phase I |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| RAN-045-I | | Prehistoric | Low | Transmission Line 300 ft Corridor |
| RAN-046 | Historic refuse deposit | Historic | Medium to high | Waterline 150 ft Corridor |
| RAN-047-I | | Prehistoric | Low | Waterline 150 ft Corridor |
| RAN-048 | Lithic scatter | Prehistoric | Medium to high | Water Supply Line 100 ft Corridor |
| RAN-049 | Historic refuse deposit | Historic | Medium to high | Waterline 150 ft Corridor |
| RAN-050 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| RAN-051 | Lithic scatter | Prehistoric | Medium | Project Boundary 200 ft Buffer |
| RAN-052 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| RAN-053 | Lithic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| RAN-054 | Lithic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| RAN-055 | Lithic scatter | Prehistoric | Medium to high | 450-MW Area Phase II |
| RAN-058 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| RAN-060-I | | | Low | 450-MW Area Phase II |
| RAN-062-I | | | Low | 450-MW Area Phase II |
| RAN-063 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-064 | Cairn | | Low | 450-MW Area Phase II |
| RAN-065 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-066 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-067 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-068 | Lithic scatter, quartz smash | Prehistoric | Low | 450-MW Area Phase II |
| RAN-069 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-071-I | | | Low | 450-MW Area Phase II |
| RAN-072 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-073 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-074 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-075-I | | | Low | 450-MW Area Phase II |
| RAN-078-I | | | Low | 450-MW Area Phase II |
| RAN-080 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-084 | Lithic scatter | Prehistoric | Medium | Project Boundary 200 ft Buffer |
| RAN-089-I | | | Low | Project Boundary 200 ft Buffer |
| RAN-092 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| RAN-093-I | | | Low | 450-MW Area Phase II |
| RAN-095 | Lithic scatter | Prehistoric | Medium | 450-MW Area Phase II |
| RAN-409-I | | | Low | Transmission Line 300 ft Corridor |
| RAN-410-I | | | Low | Transmission Line 300 ft Corridor |
| RAN-411-I | | | Low | Transmission Line 300 ft Corridor |
| RAN-413 | Lithic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-416 | Lithic scatter | Prehistoric | Low | Transmission Line 300 ft Corridor |
| RAN-417 | Lithic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-418 | Lithic and ceramic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |

| Temporary Site No. | Site Type | Cultural Context | Potential for Buried Deposits Based on Geomorphologic Information | Project Area Location |
|---|---|---|---|---|
| RAN-419 | Lithic and ceramic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-420 | Lithic and ceramic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-425-I | | | Low | Transmission Line 300 ft Corridor |
| RAN-428 | Lithic and ceramic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-430 | Lithic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-431 | Lithic scatter | Prehistoric | Medium to high | Transmission Line 300 ft Corridor |
| RAN-433 | Multi-component | Historic and Prehistoric | Low | Transmission Line 300 ft Corridor |
| RAN-434 | Lithic scatter | Prehistoric | Low | Transmission Line 300 ft Corridor |
| RANA-004 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| SM-001 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| SM-002 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| SM-004 | Lithic scatter | Prehistoric | Low | 300-MW Area Phase I |
| SM-005 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| SM-006 | Lithic scatter | Prehistoric | Low | 450-MW Area Phase II |
| T-06 | Prehistoric Trail | Prehistoric | Low | Linear Resource |
| T-18 | Prehistoric Trail | Prehistoric | Low | 300-MW Area Phase I |
| T-21 | Prehistoric Trail | Prehistoric | Low | 300-MW Area Phase I |
| T-43 | Prehistoric Trail | Prehistoric | Low | 300-MW Area Phase I |

(Ex. 307, pp. C.3-86 to C.3-95.)

***Discussion of Results of Archaeological Surveys***

The environment and soils in the western section of the project area differ from those in the eastern section. The two sections are approximately delineated by the existing transmission line. In the western portion, the ground surface is covered by developing and well developed desert pavement. This area has been affected by aeolian erosion forces and appears to have a low potential for buried deposits. The eastern portion contains unconsolidated sedimentary clay and silt with colluvial inclusions. This area appears to have a potential for subsurface cultural deposits, which is typical of an area of actively shifting soils.

Coincident with the environmental variations across the project area, a change in site types was also observed. In the western portion of the project area, site types consist of lithic reduction sites composed of local materials exhibiting basic flake and cobble technology. Unless otherwise noted, the lithic scatters did not include temporally diagnostic artifacts or features. These sites lacked features and diagnostic artifacts and ceramics were sparse. The western portion of the

project area contained prehistoric trails and circular areas that had been cleared of the desert pavement.

(Ex. 307, pp. C.3-95 to C.3-96.)

While the field survey for cultural resources continues, the results from the record search and earlier stages of the field survey that are summarized here clearly demonstrate the quantity, quality, and density of the cultural resources in the project area. It is certain that some of these cultural resources will be determined to be significant and to be eligible for nomination to the NRHP. These findings are set forth in Staff's Cultural Resources Table 7, which we reproduce below.

**Cultural Resources Table 7**
**Cultural Resources Inventory for the Project Area of Analysis**
**(25 percent sample of archaeological resources, and 100 percent of built-environment resources and known ethnographic resources)**

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| Archaeological Resources<br>*Prehistoric Archaeological Resources* | | | | |
| Proposed Southwest Lake Cahuilla Shoreline Archaeological District | Prehistoric archaeological district | | Phase II 450 MW Solar Field | Lake Basin, Beach Zone, Fan Aprons, Fan Piedmont |
| Yuha Basin Discontiguous District | Prehistoric archaeological district | | Outside project area (E of Phase I 300 MW Solar Field, S of Phase II 450 MW Solar Field) | Fan Piedmont, Active/Recent Wash |
| DRK-002 | Sparse chipped stone deposit | 15 flakes,[3] 2 cores, hammerstone | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-005 | Sparse chipped stone deposit | 93 flakes, 4 cores | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-011 | Sparse chipped stone deposit | 176 flakes, 6 hammerstones, 5 cores, tested cobble | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-047 | Sparse chipped and ground stone deposit | 40 flakes, 2 tested cobbles, core, mano | Phase I 300 MW Solar Field | Fan Piedmont |
| EBR-010A | Ceramic deposit | 10 ceramic sherds | Phase I 300 MW Solar Field | Fan Piedmont |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| EBR-020 | Chipped stone deposit | 34 flakes, 2 fragmentary tested cobbles, hammerstone | Phase I 300 MW Solar Field | Fan Piedmont |
| EBR-023 | Sparse chipped stone deposit | 18 flakes, core | Phase I 300 MW Solar Field | Fan Piedmont |
| EBR-065 | Sparse chipped and ground stone deposit | 53 flakes, 3 hammerstones, 2 cores, edge-modified flake, mano | Phase I 300 MW Solar Field | Fan Piedmont |
| RAN-025 | Sparse chipped stone deposit | 3 tested cobbles, 3 hammerstones, flake | Phase I 300 MW Solar Field | Fan Piedmont |
| SM-003 | Sparse chipped stone deposit | 150 flakes, 4 cores, 4 hammerstones, tested cobble | Phase I 300 MW Solar Field | Fan Piedmont |
| T-17 | Trail segment | 159 m long, 50-60 cm wide, < 5 cm deep, cobble free | Phase I 300 MW Solar Field | Fan Piedmont |
| T-42 | Trail segment | 839 m long, 3 subsegments, 40-50 cm wide, cobble free | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-027 | Sparse chipped and ground stone deposit | 290 flakes, 8 cores, 8 hammerstones, tested cobble, edge-modified flake, biface, mano | Phase II 450 MW Solar Field | Fan Piedmont |
| DRK-029 | Sparse chipped stone deposit | 7 flakes, hammerstone, core, tested cobble | Phase II 450 MW Solar Field | Fan Piedmont |
| DRK-032 | Chipped stone deposit | 106 flakes, 2 cores, hammerstone, tested cobble | Phase II 450 MW Solar Field | Fan Piedmont |
| EBR-019 [Element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | FAR4 concentrations, human cremations, sparse ceramic and chipped and ground stone deposit | 8,676 ceramic sherds, 4,969 flakes, 994 FARs, 378 cores, 304 chipped stone tools, 231 calcined human bone fragments, 42 unidentified bone fragments, 27 ground stone tools, 15 projectile points, 9 *Olivella* spp. shell beads | Phase II 450 MW Solar Field | Fan Aprons |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| EBR-070 | Sparse chipped stone deposit | 72 flakes, 3 hammerstones, 2 cores, bifacial core tool, unifacial core tool | Phase II 450 MW Solar Field | Fan Piedmont |
| EBR-072 | Sparse chipped stone deposit | 5 flakes | Phase II 450 MW Solar Field | Fan Piedmont |
| EBR-079 | Sparse chipped stone and angular quartz deposit | 53 flakes, 30 pieces of angular quartz shatter, 2 cores, 2 hammerstones, bifacial core tool | Phase II 450 MW Solar Field | Fan Piedmont |
| EBR-080 | Sparse chipped stone deposit | 2 flakes, core | Phase II 450 MW Solar Field | Fan Piedmont |
| EBR-095 | Sparse chipped stone deposit | 44 flakes, 3 cores, 3 tested cobbles, edge-modified flake | Phase II 450 MW Solar Field | Fan Aprons |
| EBR-096 | Chipped stone deposit | 35 flakes | Phase II 450 MW Solar Field | Fan Aprons |
| EBR-100 | Chipped stone deposit | 29 flakes, hammerstone, core | Phase II 450 MW Solar Field | Fan Aprons |
| EBR-102 | Sparse chipped stone deposit | 85 flakes, 7 cores, 3 tested cobbles, edge-modified flake | Phase II 450 MW Solar Field | Fan Aprons |
| EBR-106 | Chipped stone deposit | 8 flakes | Phase II 450 MW Solar Field | Fan Aprons |
| EBR-222 [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | FAR concentration, sparse chipped stone and ceramic deposit | 50 FARs, 4 ceramic sherds, flake, tested cobble | Phase II 450 MW Solar Field | Fan Aprons |
| JF-005 | Sparse chipped stone deposit | 71 flakes, 2 hammerstones, core | Phase II 450 MW Solar Field | Fan Piedmont |
| CA-IMP-3752, -3753, -8731 (JM-001) [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District above] | Sparse chipped stone and ceramic deposit | 20 flakes, 2 ceramic sherds, hammerstone, core | Phase II 450 MW Solar Field | Fan Aprons |
| JM-005 | Sparse chipped and ground stone deposit | 8 flakes, 2 cores, mano | Phase II 450 MW Solar Field | Fan Aprons |
| JM-008 | Sparse chipped stone deposit | 9 flakes | Phase II 450 MW Solar Field | Fan Aprons |
| CA-IMP-2083 (JM-009) | Sparse chipped stone deposit | 49 flakes, core, tested cobble | Phase II 450 MW Solar Field | Fan Aprons |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| JM-020 | Sparse chipped stone deposit | 93 flakes, 2 cores, hammerstone, tested cobble | Phase II 450 MW Solar Field | Fan Aprons |
| JM-029 | Sparse chipped stone deposit | 22 flakes, 3 cores, 3 hammerstones | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| JM-030 | Chipped stone deposit | 26 flakes, core | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| JM-042 | Sparse chipped stone deposit | 192 flakes, 5 hammerstones, 2 cores, tested cobble | Phase II 450 MW Solar Field | Fan Piedmont |
| JMR-004 | FAR concentration, isolate chipped stone artifact | 40 FARs, core | Phase II 450 MW Solar Field | Fan Piedmont |
| JMR-008 | Sparse chipped stone deposit | 14 flakes, 2 cores | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| JMR-012 | Sparse chipped stone deposit | 41 flakes, unifacial edge-modified flake | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| LL-018 | Sparse chipped stone deposit | 23 flakes, 2 cores, "scraper" | Phase II 450 MW Solar Field | Fan Aprons, Active/Recent Wash |
| LL-019 [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | "Angular rock" concentrations, sparse chipped stone deposit | 182 flakes, 100 "angular rocks," 14 cores, 3 tested cobbles, hammerstone | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| RAN-057 [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | Sparse chipped stone and ceramic deposit | 20 ceramic sherds, 3 flakes, core | Phase II 450 MW Solar Field | Fan Aprons |
| RAN-061 | Sparse chipped stone deposit | 314 flakes, 15 cores, 5 hammerstones, stone anvil | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| RAN-081 | Sparse chipped stone deposit | 605 flakes, 29 cores, 11 tested cobbles, 3 hammerstones | Phase II 450 MW Solar Field | Fan Piedmont Remnant |
| T-03 | Trail segment | 438 m long, 3 subsegments, 40 cm wide, cobble free | Phase II 450 MW Solar Field | Fan Aprons |
| T-52 | Trail segment | 660 m long, 0.4-1.0 m wide, < 5 cm deep, cobble free | Phase II 450 MW Solar Field | Fan Aprons |
| DRK-139 | Sparse chipped stone deposit | 92 flakes, 13 cores, 13 tested cobbles, 8 hammerstones | Laydown Area | Lake Basin |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| DRK-140 | Sparse chipped stone deposit | 19 flakes, combination core and hammerstone, edge-modified flake | Laydown Area | Lake Basin |
| DRK-141 | FAR concentration, sparse chipped stone deposit | 40 FARs, 19 flakes, 2 cores, edge-modified flake | Laydown Area | Lake Basin |
| EBR-218 [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | Sparse chipped and ground stone and ceramic deposit, isolate historic artifact | 31 flakes, 24 ceramic sherds, 2 hammerstones, biface, "core tool," metate fragment, core, historic lard bucket | 200-Foot Buffer | Fan Aprons, (Fan Piedmont) |
| RAN-024 | Sparse chipped stone deposit | 12 flakes, 3 hammerstones, core, tested cobble | 200-Foot Buffer | Fan Piedmont |
| RAN-412C [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | Ceramic and chipped stone deposit | 301 ceramic sherds, 94 flakes, 10 cores, 6 tested cobbles, 5 utilized flakes, 1 FAR | Transmission Line | Lake Basin |
| CA-IMP-8745 (RAN-412F) [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | Sparse chipped and ground stone and ceramic deposit | 63 ceramic sherds (41 = 1 vessel), 51 flakes, 6 tested cobbles, 3 cores, 3 bifacial core tools, 2 hammerstones, edge-modified flake, "unifacial and bifacial core tool," metate, mano | Transmission Line | Lake Basin |
| CA-IMP-4345 (RAN-419) | FAR concentration, sparse chipped stone deposit | 37 flakes, 10 FARs, 7 cores, 2 hammerstones, 2 tested cobbles, "bi-directional core tool," "quartzite cobble" | Transmission Line | Lake Basin |
| CA-IMP-4348 (RAN-424) [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District, above] | FAR concentrations, sparse chipped and ground stone and ceramic deposit, and sandstone source | 1,596 flakes, 333 FARs, 269 ceramic sherds, 57 cores, 24, tested cobbles, 23 "core tools," 22 hammerstones, 13 edge-modified flakes, 3 metates, 2 manos, 2 bifaces, pestle | Transmission Line | (Fan Piedmont), Fan Aprons, (Beach Zone) |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| RAN-426 | Sparse chipped stone deposit | 28 flakes, 3 cores, edge-modified flake, tested cobble | Transmission Line | Lake Basin |
| *Historical Archaeological Resources* | | | | |
| Proposed Early Twentieth Century Gravel Mining Landscape | Gravel mining area | Remnants of work camps and work areas, excavation pits, areas of scarified land surfaces | Phase I 300 MW Solar Field, | Fan Piedmont |
| Juan Bautista de Anza National Historic Trail | Spanish colonial era trail corridor | | | |
| DRK-020 | Land surveying monument | Bronze survey monument cap, ammunition cartridge | Phase I 300 MW Solar Field | Fan Piedmont |
| JF-006 | Rock concentrations, historic refuse | 3 rock concentrations, 2 church-key opened beverage cans, metal socket wrench | Phase I 300 MW Solar Field | Fan Piedmont |
| RANA-003 | Ordinance crater | Ordinance crater, 30 shrapnel fragments | Phase I 300 MW Solar Field | Fan Piedmont |
| EBR-092 | Historic refuse deposit (ca. 1890–1920), rock cairns | Aqua and purple bottle glass, 4 whole and partial pre-sanitary can forms, large cut nail, bolt | Phase II 450 MW Solar Field | Fan Piedmont |
| RAN-005 | Land surveying monument | Brass survey monument cap on metal pipe, bailing wire, wooden lathe fragments, tobacco tin | Phase II 450 MW Solar Field | Fan Piedmont |
| RAN-006 | Historic refuse deposit (ca. mid-1950s) | 113 historic artifacts | Phase II 450 MW Solar Field | Fan Piedmont |
| RAN-008 | Land surveying monument | Brass survey monument cap on metal pipe | Phase II 450 MW Solar Field | Fan Piedmont |
| RAN-015 | Historic refuse deposit (ca. 1940s–1950s) | 170 historic artifacts | Phase II 450 MW Solar Field | Fan Piedmont |
| RAN-018 | Aerial land surveying monument | Fragmentary wooden lathes, wire nails, white plastic material | Phase II 450 MW Solar Field | Fan Aprons |
| DRK-146 | Historic refuse deposit (ca. late 1930s–1950s) | 600 historic artifacts | Laydown Area | Lake Basin |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| JF-030 | Historic refuse deposit (ca. 1940s–1960s), prehistoric isolate artifact | 311 historic to modern artifacts, flake | Laydown Area | Lake Basin |
| EBR-083 | Pebble and cobble concentration | 18 pebbles and cobbles | 200-Foot Buffer | Fan Piedmont |
| JFB-004 | Land surveying monument | Brass survey monument cap, bailing wire fragments, wooden lathe fragments, small (3–4 rocks) rock cairns | 200-Foot Buffer | Fan Piedmont |
| *Multiple Component Archaeological Resources* | | | | |
| RAN-022 [Element of proposed Early Twentieth Century Gravel Mining Landscape, above] | Historic structural ruins, historic FAR concentrations, historic refuse deposit (ca. 1900-1920), Sparse prehistoric chipped stone deposit | 2,390 historic artifacts, 1,300 flakes[5], 9 cores, edge-modified flake, edge-modified dark olive green glass bottle sherd | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-004 | Sparse prehistoric chipped stone deposit, land surveying monument | 30 flakes, 3 hammerstones, core, tested cobble, brass survey monument cap and rock cairn | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-010 | Sparse prehistoric chipped stone deposit, land surveying monument, rock cairns | 176 flakes, 12 cores, 5 tested cobbles, 6 hammerstones, brass survey monument cap, 4 rock cairns, 2 tobacco tins, 3 bailing wire fragments | Phase I 300 MW Solar Field | Fan Piedmont |
| JFB-010 | Sparse prehistoric chipped stone deposit, land surveying monument | 6 flakes, hammerstone, brass survey monument cap | Phase I 300 MW Solar Field | Fan Piedmont |
| DRK-023 | Sparse prehistoric chipped stone deposit, rock cairns | 58 flakes, 3 cores, 2 rock cairns | Phase II 450 MW Solar Field | Fan Piedmont |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| JM-026 [Potential element of Proposed Southwest Lake Cahuilla Shoreline Archaeological District above] | FAR and cobble concentrations, sparse chipped stone deposit, historic refuse deposits | 2 FAR concentrations, cobble concentration, 1,201 flakes, 51 tested cobbles, 38 cores, 10 hammerstones, 7 bifaces, 6 edge-modified flakes, 3 "choppers," 3 "core tools," wonderstone, 3 historic refuse concentrations (ca. late 1950s to early 1960s) | Phase II 450 MW Solar Field | Fan Aprons |
| RAN-012 [Historic component potential element of Proposed Early Twentieth Century Gravel Mining Landscape, below] | Sparse chipped stone and ceramic deposit, pebble and cobble concentrations, historic to modern refuse | 194 flakes, 21 cores, 9 tested cobbles, 5 ceramic sherds, 7 historic to modern artifacts | Phase II 450 MW Solar Field | Fan Piedmont |
| RAN-034 [Potential Depression-era work camp adjacent to apparent gravel mining pits] [Historic component potential element of proposed Early Twentieth Century Gravel Mining Landscape, above] | FAR concentration, sparse chipped stone deposit, historic refuse deposits (ca. mid- to late 1930s) | 387 historic artifacts, 7 historic marine shells, 4 FARs, 2 flakes | Phase II 450 MW Solar Field | Fan Piedmont |
| T-05 | Trail segment | 380 m long, 3 subsegments, 40 cm wide, cobble free | Access Road | Lake Basin |
| Ethnographic Resources | | | | |
| Schneider Dance Circle (CA-IMP-2491) | Geoglyph or dance circle | | One mile S of project area | |
| Coyote Mountains | Natural landform | | Roughly 10 miles WNW of project area | |
| Mount Signal | Natural landform | | roughly 15 miles SE of project area | |
| Built-Environment Resources | | | | |
| Plaster City Historic District | Gypsum mining, processing, and manufacturing facility | Gypsum mine, narrow gauge railroad, and gypsum processing and manufacturing plant | Outside of project area (N of Phase II 450 MW Solar Field) | Fan Aprons, Modern Disturbance |
| Westside Main Canal (CA-IMP-7834H) | Irrigation canal | | Seeley WWTP[6] waterline corridor | Lake Basin |

| Cultural Resource Classification and Designation(s) | Resource Type | Description[1] | Project Area Location | Landform Context[2] |
|---|---|---|---|---|
| San Diego and Arizona Railroad (37-025680) | Standard gauge railroad | | Outside of project area (N of Phase II 450 MW Solar Field) | Multiple |
| US Route 80 (CA-IMP-7886H) | Remnant highway segments | | Outside of project area (N of Phase II 450 MW Solar Field) | Multiple |
| US Gypsum Rail-line (Imperial Gypsum Company Railroad, ca. 1922) (CA-IMP-7739H) [Element of Plaster City Historic District, above] | Narrow gauge railroad | | Outside of project area (N of Phase II 450 MW Solar Field) | Fan Aprons, Modern Disturbance |
| Plaster City Plant (P-13-009303) [Element of Plaster City Historic District, above] | Gypsum processing and manufacturing plant | | Outside of project area (N of Phase II 450 MW Solar Field) | Modern Disturbance |
| Fig Canal | Irrigation canal | | Seeley WWTP waterline corridor | Multiple |
| Forget-Me-Not Canal | Irrigation canal | | Seeley WWTP waterline corridor | Multiple |
| Fern Canal | Irrigation canal | | Seeley WWTP waterline corridor | Multiple |
| Foxglove Canal | Irrigation canal | | Seeley WWTP waterline corridor | Multiple |
| Dixie Drain 3 | Irrigation canal facility | | Seeley WWTP waterline corridor | |
| Salt Creek Drain 2 | Irrigation canal facility | | Seeley WWTP waterline corridor | Multiple |
| Wixon Gravel Mine | Remnants of gravel mining operation | | Phase I Emergency Access Road | Multiple |
| County Gravel Mine | Remnants of gravel mining operation | | Phase I 300 MW Solar Field, Phase II 450 MW Solar Field | Multiple |

1 - See appendix A for complete archaeological site descriptions.
2 - Landform contexts are those developed in response to Data Requests 111 and 112 .
3 - Flake counts include whole and partial flakes and shatter.
4 - "FAR" stands for "fire-affected rock."
5 - Flake count includes flakes that may be the result of historic commercial gravel processing.
6 - "WWTP" stands for "wastewater treatment plant."

(Ex. 307, pp. C.3-96 to C.3-106.)

### *Historical Significance of the Cultural Resources Inventory*

State and Federal regulatory programs require the BLM and the Energy Commission to consider the potential impacts of the proposed action on historically significant cultural resources. Under the subject programs (CEQA, NEPA, and Section 106), formal evaluations of historical significance conclude the process of identifying which cultural resources in the inventory for the proposed action must be given further consideration. Cultural resources that can be avoided by construction may remain unevaluated. Unevaluated cultural resources that cannot be avoided are treated as eligible when determining impacts. The early phases of the typical planning process often result in the development of a preliminary cultural resources inventory that includes more resources than a proposed action would ultimately affect, because the preliminary inventory cannot take into account the final design of the facility. Whereas efforts are on-going to design construction to avoid cultural resources, for the purpose of the present analysis, staff assumes that the construction, operation, maintenance, and decommissioning of the proposed action may wholly or partially destroy all archaeological sites on the surface of the project area. As a result, all known cultural resources in the project area of analysis will be subject to formal evaluations of historical significance.

The time required for formal evaluations of historical significance for the complete cultural resources inventory exceeds the statutory one-year licensing process. Although the Energy Commission has been able to complete evaluations of the historic built environment resources, the formal evaluations of some ethnographic resources and all archaeological resources in the project area of analysis will occur subsequent to BLM and Energy Commission decisions on the proposed action pursuant to terms of a Programmatic Agreement. This subsection provides basic descriptions of the known ethnographic resources and the 25 percent inventory sample of archaeological resources, preliminary identifications of the archaeological landscapes and districts to which the archaeological resources may contribute, preliminary identifications of the archaeological site types that may be useful in evaluating the historical significance of whole groups of archaeological sites, and basic descriptions of the individual archaeological sites that do not appear to be elements of any archaeological landscape or district or do not conform to any identified site type. Each archaeological resource discussion will conclude, where appropriate, with a preliminary statement on the potential historical significance of each potential landscape, district, type, or particular resource. Discussions of probable impacts to the full range of significant cultural resources will be made in the “Assessment of Impacts and Discussion of Mitigation” subsection below. As noted above, staff is participating

in the development of a Programmatic Agreement. One of the purposes of the Programmatic Agreement (PA) is to identify the analytical processes that will be used to determine the significance of cultural resources and ensure appropriate mitigation for any impacts to those resources.

(Ex. 307, pp. C.3-106 to C.3-107.)

**Southwest Lake Cahuilla Shoreline Archaeological District.** The proposed district reflects a unique portion of the prehistory of the diverse Native American use of a dynamic ancient body of water which strongly influenced the history of and the interaction among diverse aboriginal cultures in the Colorado Desert. A formal evaluation of the district under the proposed PA would most likely conclude that it is historically significant, both for its information value and for its associative value.

The potential associative value of the district derives primarily from the Native American cremations that are particularly important components of the district. The archaeological sites of the district have human cremations as infrequent components. The cremations are Native American in origin and are presumed to largely date to later prehistory. The cremations appear to occur in a zone along and roughly straddling the 40-foot topographic contour, which trends approximately northwest-southeast along the distal reaches of the Fan Aprons landform just above its contact with the Beach Zone landform. The cremations embody both information value and associate value. The information value of the cremations derives mostly from the discrete material culture assemblages and the radiometric residues that are associated with many of them. Of perhaps greater importance to the Native American community, the cremations reflect intellectual, emotional, and spiritual connections of Native Americans to their respective familial and cultural heritages. We find that the Southwest Lake Cahuilla Shoreline Archaeological District is likely to be historically significant.

(Ex. 307, pp. C.3-110 to C.3-111.)

**Yuha Basin Discontiguous District.** The Yuha Basin Discontiguous District is a prehistoric archaeological district listed in the NRHP on May 24, 1982. The four discontiguous portions of the district are adjacent to and south of the project area. Staff does not believe that these indices are a reliable basis to establish the association of archaeological deposits with the San Dieguito culture particularly or the Paleoindian period in general. We therefore find that it would not be meaningful to ascribe any of the chipped stone deposits in the project area to this

district. The evidence does not support recognizing the district as being in the project area. (Ex. 307, pp. C.3-111 to C.3-112.)

### *Site Types and Site Type Groups*

**Chipped Stone Deposits.** The chipped stone deposit site type group includes chipped stone deposits, sparse chipped stone deposits, sparse chipped stone and angular quartz deposits, and "angular rock" concentrations in association with sparse chipped stone deposits. The absolute majority of the archaeological deposits in this site type group are found on the Fan Piedmont and Fan Piedmont Remnant landforms where they make up the relative majority of site types on those landforms, 70 percent and 100 percent respectively. The site type group largely appears to represent the procurement of stone suitable for the production of chipped stone artifacts and the early stages of production of expedient flake tools through hard hammer percussion techniques. Mitigation measures provided in the proposed PA would provide the opportunity to consider whether and how the relative ages of the archaeological deposits of this site type group may be determined, and whether and how behavioral associations may be made among these deposits and other prehistoric archaeological deposits in the project area. Determinations on the historical significance of the deposits in the site type group would rely on the outcomes of these considerations.

**Chipped and Ground Stone Deposits.** Only one site type is present in the 25 percent sample of the cultural resources inventory of the project area that would represent a chipped and ground stone deposit site type group. That site type is sparse chipped and ground stone deposits. Refinements to the behavioral interpretation of the site type, and determinations on the historical significance of the deposits of the type would be made under provisions in the proposed PA and would rely on the outcomes of those refinements.

**Ceramic Deposits.** The ceramic deposit site type group includes ceramic deposits, ceramic and chipped stone deposits, sparse ceramic and chipped stone deposits, sparse chipped stone and ceramic deposits, and sparse chipped and ground stone and ceramic deposits.

Refinements to the behavioral interpretation of the site types in this subgroup and those of the subgroup above, and determinations on the historical significance of the deposits of both subgroups would be made under provisions in the proposed PA and would rely on the outcomes of those refinements.

**Archaeological Deposits that Include Fire-Affected Rock (FAR) Concentrations.** The majority of the different site types in the FAR concentration site type group are contributing elements to the proposed Southwest Lake Cahuilla Shoreline Archaeological District. The absolute majority of the archaeological deposits in this site type group are found on the Fan Aprons and Beach Zone landforms, 20 percent and 29 percent respectively. A number of the archaeological sites in this type group are materially diverse and spatially complex deposits that represent a relatively wide range of Native American activity. The behavioral interpretation of the site types in this group, and determinations on the historical significance of the deposits would be made under provisions in the proposed PA and would rely on the interpretations ultimately derived for them.

**Trail Segments.** The 25 percent sample of the cultural resources inventory for the proposed project includes what are thought to be 4 prehistoric trail segments. The segments are parts of what appears to have been a relatively complex prehistoric trail system that facilitated pedestrian travel east and west across the project area between ancient Lake Cahuilla and the Coyote Mountains, and north and south along the former shorelines of the lake. Study to reconstruct the broader trail system and individual trails, interpretations of the purpose and use of the trails, and determinations on the historical significance of the preserved trail segments would be made under provisions in the proposed PA.

The Anza Trail Management and Use Plan shows portions of the project area to fall in a High Potential Route Segment between 2 historic expedition campsites. The trail corridor therefore has the potential to contain material evidence of the establishment and subsequent use of the trial in the mid-1770s, evidence which would potentially be eligible for inclusion in the NRHP, should such evidence be present. No such evidence has been found in the project area to date and it is not known, in fact, whether any archaeological sites directly related to the Anza expedition have ever been found anywhere along the course of the trail through Mexico, Arizona, or California. Further research on the presence or absence of material remains of the use of the Anza Trail in the project area, further inventory of the character and extent of known or potential contributing elements of the Anza Trail in the project area of analysis, and appropriate determinations on the historical significance of any remains and elements found would be made under provisions in the proposed PA. (Ex. 307 p. C.3-106 to C.3-115.)

**Early Twentieth Century Gravel Mining Landscape.** Gravel mining appears to have been a relatively widespread form of land use in the project area from approximately 1900 through the early 1960s. We agree with Staff's

recommendation that this be classified as a historical archaeological landscape, an industrial landscape that represents the apparent early twentieth century gravel mining operation in the south-central portion of the project area. The landscape, on the basis of the results of the 25 percent sample of the cultural resources inventory for the proposed action, presently includes the area that exhibits the distinctive pattern of scarification that was the result of this operation and the historical archaeological component of RAN-022, an apparent early twentieth century work camp. The further inventory of potential contributing elements to the proposed landscape, refinements to the recordation of those elements, and determinations on the historical significance of the landscape as a whole and of the individual contributing elements, both as contributing elements and as stand-alone archaeological resources would be made under provisions in the proposed PA.

**Surveying Monuments.** The archaeological deposits in this site type group are, with one exception, found on a single landform in the project area, the Fan Piedmont landform, where they make up 47 percent of the historical archaeological site types there. The one exception is the one aerial land surveying monument in the project area that was found on the Fan Aprons landform. That monument represents 50 percent of the historical archaeological deposits found on that landform. The site type group largely appears to represent the subdivision of the Fan Piedmont landform by the General Land Office (GLO) in the early twentieth century. Although the proposed PA would provide for refinements to present draft determinations on the historical significance of the monuments in the site type group, we find it unlikely that the PA would ultimately recommend the resources as significant.

**Historic Refuse Deposits.** The historic refuse deposit site type group includes historic refuse deposits, and historic refuse deposits that include rock cairns. The archaeological deposits in this site type group are found on the Fan Piedmont, Fan Aprons, and Beach Zone landforms where they make up 27 percent, 50 percent and 100 percent of the historical archaeological site types, respectively. The behavioral interpretation of the site types in this group, and determinations on the historical significance of the deposits would be made under provisions in the proposed PA and would rely on the interpretations ultimately derived for them.

**Pebble and Cobble Concentrations.** The pebble and cobble concentration site type includes pebble and cobble concentrations in association with isolate historic artifacts. The archaeological deposits of this site type are found exclusively on the Fan Piedmont landform where they make up 13 percent of the

historical archaeological site types there. The behavioral interpretation of the site type, and determinations on the historical significance of the deposits would be made under provisions in the proposed PA and would rely on the interpretations ultimately derived for them.
(Ex. 307, pp. C.3-112 to C.3-116.)

**Ethnographic Resources**

Staff's analysis presently takes into consideration one ethnographic resource, the Schneider Dance Circle (CA-IMP-2491). We observe, however, that it is not the only apparent ethnographic resource in the vicinity of the project area. The Coyote Mountains to the west-northwest of the project area and Mount Signal to the southeast of it figure prominently in Kwaaymii legend. Sparsely documented ethnographic resources along BLM Route 264 from the town of Ocotillo east to BLM Route 274 and along BLM Route 274 itself may also be in sight of the project area. Extant assessments of the potential for visual impacts to these resources will have to be further refined under the proposed PA for the proposed action. Ethnographic resources noted by the applicant along BLM Route 264 include an apparent prehistoric trail, a number of cobble piles that once appear to have been a spoked-wheel geoglyph, 2 cleared circles referred to by informants to the applicant as the "heavenly snake" (may be CA-IMP-4381, which has been described as a ground figure-snake and gravel berm, and 2 fire rings, one of which appears to have been recently used), and 6 sleeping circles. Further ethnographic resources along BLM Route 274, in addition to the Schneider Dance Circle, include the Yuha Geoglyph (CA-IMP-322), the Power Geoglyph (CA-IMP-4876), the Yuha Burial, another apparent prehistoric trail, a resource that the informants to the applicant referred to as a "spirit break," and a large quartz smash. (Ex. 307, pp. C.3-116 to C.3-117.)

**Built-Environment Resources**

The proposed action appears to have the potential to affect each of the 14 built-environment resources in the project area of analysis (see Cultural Resources Table 7, above), none of which staff recommends as eligible for either the NRHP or the CRHR. The built-environment resources inventory includes 7 cultural resources that represent the theme of irrigation agriculture (Westside Main Canal, Fig Canal, Forget-Me-Not Canal, Fern Canal, Foxglove Canal, Dixie Drain 3, and Salt Creek Drain 2), 3 resources that represent the mining, processing, and manufacturing of gypsum-derived products (Plaster City Plant, US Gypsum Rail-line, and Plaster City Historic District), 2 resources that represent the theme of transportation (San Diego and Arizona Railroad, and US Route 80), and 2 resources that represent gravel mining (Wixon Gravel Mine, and County Gravel Mine).

The SSA, Exhibit 307, pp. C.3-118 to C.3-127, sets forth the reasoning behind Staff's determinations of non-eligibility for these resources. We find Staff's reasoning apt, and adopt it herein.

6. Cultural Resources Impacts and Mitigation

Direct impacts to cultural resources are those associated with project development, construction, and co-existence. Construction usually entails surface and subsurface disturbance of the ground, and direct impacts to archaeological resources may result from the immediate disturbance of the deposits, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, excavation, or demolition of overlying structures. Construction can have direct impacts on historic resources when those structures must be removed to make way for new structures or when the vibrations of construction impair the stability of historic structures nearby. New structures can have direct impacts on historic structures when the new structures are stylistically incompatible with their neighbors and the setting, and when the new structures produce something harmful to the materials or structural integrity of the historic structures, such as emissions or vibrations.

Generally speaking, indirect impacts to archaeological resources are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource components due to improved accessibility. Similarly, historic structures can suffer indirect impacts when project construction creates improved accessibility and vandalism or greater weather exposure becomes possible.

**a. Construction Impacts**

The construction of the proposed solar thermal power facility may wholly or partially destroy the majority of the surface archaeological resources in the proposed project area and may wholly or partially destroy other buried archaeological deposits that may be components of project area landforms. The total cultural resources inventory includes approximately 330 individual archaeological sites on the surface of the project area. Avoidance of impacts to archaeological resources is the goal of the PA and the Conditions of Certification we adopt herein. The surface sites include both stand-alone resources, groups of resources that fall into the archaeological site types described in the "Historical Significance and the Cultural Resources Inventory" subsection above, and resources that are contributing elements to the archaeological landscapes and districts that are also described in that subsection. Although staff, quite

understandably, is presently unable to identify precisely which of the different archaeological resources are historically significant and is therefore presently unable to articulate the exact character of the impacts that the construction of the proposed facility would have on such resources, it is clear to us, that the construction of the proposed facility would, under both NEPA and CEQA, have a significant effect on the environment and would, under Section 106, have an adverse effect on archaeological resources that are historic properties. The proposed PA would set out procedures whereby staff, the State Historic Preservation Officer, the Advisory Council on Historic Preservation, the applicant, Native American groups, and other interested parties would identify programs and protocols that ensure that significant impacts to the information values of significant archaeological resources would be mitigated. Although the specific programs and protocols do not presently exist, it is possible to describe the performance standards that would be used to ensure that the resolution of significant impacts to historically significant archaeological resources is adequate, as well as the types of measures that can be used to resolve such impacts.

As noted above, the analytical process for cultural resources involves five steps: 1) determination of the geographic extent of the project area of analysis; 2) creation of an inventory of the known cultural resources within that area; 3) assessing the historical significance of those known resources; 4) assessing the impacts of the project on significant resources; and 5) resolving significant impacts on significant cultural resources, and endeavoring to ensure that all significant impacts are mitigated. Energy Commission licensing decisions and BLM right-of-way grant decisions also typically identify the likelihood of encountering previously unknown resources and contain provisions that require specific procedures that ensure that any impacts to these resources can be resolved. Due to the fact that the high number of cultural resources for this project renders the evaluation of all known resources infeasible, we are requiring that such provisions be extended to those resources that it is infeasible to evaluate prior to agency decisions.

The PA provides a valuable vehicle for this approach. As noted above, the first step of the analytical process is complete. To complete the second step and acquire the data necessary to complete the third step, the PA would require that the project owner conduct fieldwork to collect the balance of the requisite primary data on the cultural resources in the project area of analysis with which to evaluate their historical significance. This fieldwork would consist of, as appropriate, the collection of further surface and subsurface data on each resource sufficient to develop formal recommendations of historical significance.

The fieldwork would consist of a sequence of surface and subsurface phases of investigation. Criteria set out in the Historic Properties Treatment Plans (HPTP) for which the PA provides would guide decisions on the number and extent of the phases needed to investigate the archaeological resource types as set out in subpart II of appendix A to the PA. The application of the thresholds of resource significance and integrity found in subsection C.3.3.3 above would conclude the third step as it relates to archaeological resources. Similarly, the fourth step would involve the assessment of any of the types of impacts to significant historical resources identified in subsection C.3.3.4 above. The fifth and final step, implementing mitigation measures that meet standards for the resolution of significant impacts on significant historical resources and historic properties under CEQA, NEPA, and Section 106, would occur through the joint efforts among the consulting parties to the PA. Common mitigation measures for significant impacts on significant archaeological resources may include, among others, resource avoidance, monitoring by cultural resource professionals and Native American monitors, information recovery, curation of material remains and resource documentation, and public outreach.

The methods that the PA would employ to resolve potentially significant impacts to the full complement of significant cultural resources would vary relative to the values for which the resources are found to be significant. For example, cultural resources that are found to be significant on the basis of their information value, principally archaeological deposits, would be subject to suites of treatments the purposes of which would variably be to actively avoid all or part of subject deposits, to record and preserve representative samples of the unique spatial or associative information that is intrinsic to the depositional history of each deposit, to collect and curate representative samples of material culture assemblages, to provide for the preparation and dissemination of professional technical publications and public interpretative materials, and to develop and implement plans to foster the long-term historic preservation of subject deposits. Archaeological resources in the project area of analysis that may be subject to unique treatment plans, to custom HPTPs may include archaeological landscapes and districts, and archaeological site types, in addition to individual archaeological sites.

The resolution of potentially significant impacts on cultural resources that derive historical significance from values other than information potential is not as straightforward (see “Identification and Assessment of Direct Impacts on Ethnographic Resources and Recommended Mitigation” subsection below). Mitigation options for cultural resources that are significant for different associative values such as association with important events or patterns in

prehistory or history, with important persons, or with distinctive construction and design techniques range widely. Specific mitigation measures for such resources would be developed in consultation among agency and public stakeholders in accordance with the processes set out in the PA.

If the proposed action were to potentially affect significant archaeological resources in an adverse manner, one or several HPTPs would be developed in consultation with the consulting parties to the PA. The number and scope of the HPTPs would be dependent on the geographic scope of each proposed subaction and the archaeological character of the resource types in each subject portion of the project area. Any HPTP would stipulate specific mitigation measures that would be implemented during final project design, prior to and during construction, and during the operation of the project. Mitigation measures for adverse impacts to the information values of archaeological resources may include, but are not limited to, the following:

- Physical avoidance of archaeological resources, wherever feasible, through, individually or in combination, project redesign, fencing or other methods of conspicuous demarcation, and monitoring;
- When physical avoidance is infeasible, the recovery of a representative sample of the information for which subject archaeological resources have been found to be significant;
- Professional and public dissemination of the results of data recovery investigations through, among other methods, the presentation of papers at professional conferences, the preparation of literature or film for public release, the development of education modules for public school use, and the development of museum exhibits and attendant catalogs;
- Preparation of applications and formal nomination of significant archaeological resources to the CRHR and the NRHP; and
- Recovery and repatriation of human remains per the Native American Graves Protection and Repatriation Act (NAGPRA) Plan of Action (POA), as set forth in appendix L to the PA.

The performance standard that any such mitigation measure in an HPTP must meet would be that the results of the mitigation effort would be able to evidence the recovery and curation of a representative sample of the information for which each adversely affected archaeological deposit was significant, and to demonstrate efforts to disseminate that information in the public interest.

There are a number of other archaeological resources in the project area of analysis that are and may be significant for their associative values, in addition to their information values. Adverse impacts to these associative values would be

addressed as one part of the consultations that would occur under the proposed PA.

The Anza Trail is a resource of national significance for its association with important events in our history and its associations with important persons in our early history, as well as for its information potential. We believe that the associative values of the resource require Federal and State agencies to more broadly consider the degree of integrity that the resource, as a whole, must have in order to convey its significance. This means that, in addition to considering how the proposed action would affect the physical integrity of the spatial relationships among any material remains of the use of the trail, the agencies would need to consider whether and how the action would visually degrade the integrity of the setting, feeling, and association of the resource, formal aspects of integrity under both the NRHP and CRHR programs, should further fieldwork ever reveal any such material remains. The National Park Service (NPS), the administrators of the Anza Trail, share this perspective. In a recent letter, NPS expressed the belief that the installation of project SunCatchers and ancillary facilities would significantly alter the visual landscape around the project area, particularly the views from the Anza Trail corridor and from the nearby accompanying recreational trail. NPS concludes that the proposed action therefore has the potential to degrade the integrity of the historic character of the trail and its related resources in the vicinity of the proposed action. As a consequence, the proposed action has the potential to diminish the ability of the public to experience and understand the historic expedition and the cultural landscape of that period.

Consultation under the proposed PA would potentially provide for a number of measures to investigate the presence or absence of any material remains of the trail, and to address potential degradation to any such remains found and to the visual integrity of the resource. As the proposed action may affect presently unfound or unrecognized material remnants of the use of the trail corridor, identification measures negotiated under subpart I of appendix A and under appendix B to the PA would provide for investigations, such as further close-quarter pedestrian survey, the use of infrared satellite imagery, or the use of light detection and ranging (LIDAR) technology, to evidence a reasonable effort to ensure that no material remains of the use of the trail are in the project area. Similarly, the PA may also provide for the analysis of the project area isolate data to see whether any potential Spanish Colonial era materials may have been found during recent pedestrian surveys but have gone unrecognized to date. While there would not appear to be any way to completely negate the potential loss of integrity to the historic viewshed of the trail, the HPTP developed under

the PA for the resource would potentially propose a number of different off-site measures that would help to resolve potential impacts and may mitigate that loss to a less than significant level. The consulting parties to the PA would derive the off-site measures in consultation with one another and refer to the Anza Trail Management and Use Plan for guidance. Should no material evidence of the Anza Trail or activity related to the trail's use be found, the designated trail corridor and the driving routes designated for the trail's interpretation, BLM Roads 274 and 243, would most likely not qualify for further consideration under either the NRHP or CRHR programs, because there would be no physical cultural resource present. Under such circumstances, the Anza Trail would not qualify for further consideration as, respectively, a historic property or a historical resource for the purpose of compliance with NEPA, Section 106, or CEQA. At that point, the further consideration of the potential impacts of the proposed action on the Anza Trail and on the interpretative driving routes, and the development of any requisite mitigation would occur exclusively in the context of the visual resource and land use analyses.

Other archaeological resources that are found to be significant on the basis of values beyond or in addition to their information value would be subject to treatment measures that more appropriately reflect the unique character of those other values. One resource type in the project area of analysis that falls into this category is Native American cremations. The cremations are likely to be found eligible for the NRHP for both their information and associative values. Additionally, discovery and treatment of Native American remains is subject to compliance with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA). Although only one cremation is presently known to occur in the project area and would potentially be subject to direct physical disturbance, the balance of the known cremations just to the east of the present project area boundary would be subject to the direct visual intrusion of project SunCatchers. The visual intrusion of the project on the actual cremations and on the lands among them, which the Quechan appear to conceive of together as the cultural resource type, would critically degrade the ability of that resource type to convey its significance. This visual intrusion may, therefore, be a significant effect that requires resolution. Stakeholders in the PA process would discuss a requirement that the known cremation zone be re-surveyed to more firmly establish a zone boundary, to reach stakeholder consensus on the width of a visual buffer for the zone, and to set aside the area that encompasses the zone and the buffer as a no-build zone, perhaps as a part of a formal BLM special designation area that would continue to the north and south of the project area along the lateral contact between the Fan Aprons and Beach Zone landforms. The actual resolution of impacts to resources in this category would be

determined in consultation with all the consulting parties and incorporated into the Programmatic Agreement (see "Identification and Assessment of Direct Impacts on Ethnographic Resources and Recommended Mitigation" subsection below for further discussion).

It cannot be determined at this time whether the PA will be executed prior to the decision on this application. Even without a final PA, we are confident that conditions of certification such as those we have adopted, requiring the types of mitigation measures and the performance standards identified throughout this subsection, would ensure that all significant impacts to the information values of archaeological resources can be mitigated to a level that is less than significant, and that all other significant impacts to the associative values of archaeological and ethnographic resources can be meaningfully reduced, although significant impacts will remain.

(Ex. 307, pp. C.3-128 to C.3-135.)

In the FEIS, the BLM has adopted Conditions of Certification **CUP-1** through **CUP-11**. At the Evidentiary Hearing on August 16, 2010, Staff's witness Michael McGuirt testified that in his opinion inclusion of Conditions of Certification in addition to Staff-recommended **CUL-1**, which simply requires compliance with the PA, would create a risk of conflict between the PA and the additional Conditions. However, he also stated that he saw nothing in the BLM Conditions that concerned him. Furthermore, when shown the preamble language to the BLM Conditions which made all of them "subject to" the provisions of the PA, he expressed the opinion that the "subject to" language was a large "loophole" and rendered the additional conditions, in his opinion, meaningless. (RT 8/16/10, 91:14 – 99:1.)

We are bound by law to include with our Decision appropriate mitigation. As of this writing, the PA is still in draft form. While we have no doubt that its provisions, once finalized, will provide effective of mitigation for impacts to cultural resources, we must include in this Decision Conditions of Certification which are presently capable of being implemented. Accordingly, we hereby adopt BLM Conditions of Certification **CUP-1** through **CUP-11**, and incorporate them into this Decision as Condtions of Certification **CUL-1** though **CUL-11**. We also adopt **CUL-12**, which requires adherence to the PA.

### Identification and Assessment of Direct Impacts on Ethnographic Resources and Recommended Mitigation

No NRHP- or CRHR-eligible ethnographic resources are presently ascribed to the project area of analysis. Further refinements under the PA to determinations of the historical significance and to extant assessments of the potential for visual impacts to occur to other ethnographic resources known to be in the vicinity of the project area are ongoing.

Historic Properties Treatment Plans (HPTP) the PA provides are to contain the exact measures that are to mitigate the adverse impacts of the proposed action on any ethnographic resources in the project area of analysis that are found to be significant and determined to be historical resources. The PA provides explicit mitigation measures for three types of ethnographic resources in the project area of analysis and includes performance standards for each measure. The three resource types are cremations or burial sites, trails, and physiographic landforms and other geographic or constructed places to which Native American groups ascribe religious or cultural significance.

(Ex. 307, p. C.3-135.)

### Cremations and Burial Sites

The preferred mitigation measure for a cremation or burial site is avoidance, whether the purpose of the measure is to mitigate impacts to such a resource's information value as an archaeological resource or its associative value as an ethnographic resource. Avoidance of this resource type as an ethnographic resource must entail considerations of both the physical and visual impacts that the proposed action would potentially have on such resources. Specific measures to avoid physical impacts to cremation or burial sites may include, individually or in combination, project redesign, fencing or other methods of conspicuous demarcation, and monitoring. The performance standard that any such mitigation measure in an HPTP must meet would be that one would be able to reasonably anticipate that its implementation would in fact avoid physical impacts to cremations and burial sites during project construction. Where physical avoidance of cremations or burial sites is infeasible, the mitigation measure for any such adverse effect, whether to the information or associative values of a cremation or burial site, would be the implementation of the of the NAGPRA POA that is appendix L to the proposed PA. The performance standards that the POA must meet would be close adherence to the Native American consultation protocols set out in the POA. The derivation of and the

adherence to the measures that would satisfy these standards is not, however, straightforward.

Any mitigation measure that one would derive to ameliorate either the physical or the visual impacts of the proposed action on the associative values that pertain to cremations and burial sites would have to address, at a minimum, how one bounds such resources relative to their associative values, and what the width of the buffer zones would need to be to effectively mitigate the adverse visual impacts. These are questions that, by their nature, must be resolved in the context of consultation with the people to whom the cremations and burial sites are important, in a stricter regulatory sense, the people for whom the resources have associative value. Obviously, the people in question here are Native Americans who attribute the human remains on and near the project area to their ancestors.

The question of how one is to bound cremations and burial sites is one example of the necessity for Native American consultation on the treatment of these resources. A Euroamerican cultural resources professional who understands the potential significance of a cremation or burial site to be primarily in its potential information value would most probably demarcate the physical boundary of such a resource on the basis of the physical extent of the human remains, the physical evidence of the place and manner of the original disposition of the remains, and the physical extent of evident associated material culture and anthropogenic sediments. A Native American descendant of a person whose remains compose, in part, a cremation or burial site may demarcate the boundary of the resource to include the subject cremation or burial site and a swath of land around it which had become sacred, in conjunction with the cremation or burial ceremony, for the association of that land with the deceased. The associative value of the resource for that hypothetical Native American descendant would therefore extend beyond the physical extent of the subject cremation or burial to adjacent ground. That Native Americans involved to date in consultations on the proposed action have such a perspective on cremations and burial sites is unmistakable. Preston Arroweed, a Quechan elder, spoke at the December 4, 2009 kick-off meeting for the PA, and at the August 16, 2010 Evidentiary Hearing, and related that the Quechan and other Native American people in the region still practice cremation. He told the participants that the present practice is often to burn the deceased and some of their possessions, and then shallowly bury the remains so that the wind can carry their ashes away. Thereafter, that cremation ground is held as sacred for all time.

(Ex. 307, pp. C.3-135 to C.3-137.)

Native American consultation would also be necessary to try and establish the extent of visual buffers around cremations and burial sites sufficient to mitigate probable degradations to the integrity of each such resource, particularly resource setting, feeling, and association. The consultation issue here would be how far away from a cremation or burial site a group of SunCatchers™ would have to be to reduce the visual impact of that equipment, under CEQA, to less than significant, or, under Section 106, to resolve any potential adverse effect. The resolution of this issue and the subsequent derivation of mitigation measures for it may prove a challenge to achieve.

Specific measures to avoid visual impacts to the associative values of cremations or burial sites may include, individually or in combination, project redesign, the demarcation and enforcement of no-build zones, or visual screening. The performance standard that any such mitigation measure in an HPTP must meet would be that one would be able to reasonably argue, on the basis of extensive consultation with potential Native American descendents of the cremated or buried people, that the implementation of the proposed action would not cause, under CEQA, a substantial adverse change in the significance of an historical resource, or, under Section 106, would not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. We find that this performance standard is a test that no mitigation measure negotiated under the PA is likely to meet. The adoption and implementation of **CUL-1** through **CUL-12** may lessen the visual effect of the project on significant cremations and burial sites in and near the project area, but the effect would probably remain significant. This particular effect may therefore be unmitigable.

### Trails or Trail Segments

The trails, or more accurately, trail segments in the project area of analysis, are typically discontiguous sections of what were presumably coherent prehistoric trail networks that ran through what is now the proposed project site. The segments are found on the ground both with and without associated material culture remains. The preferred mitigation measure for the trail segments is avoidance, whether the purpose of the measure is to mitigate impacts to such a resource’s information value as an archaeological resource or its associative value as an ethnographic resource. Avoidance of this resource type as an ethnographic resource must entail considerations of both the physical and visual impacts that the proposed action would potentially have on it. Specific measures to avoid physical impacts to significant trail segments may include, individually or

in combination, project redesign, fencing or other methods of conspicuous demarcation, and monitoring. The performance standard that any such mitigation measure in an HPTP must meet would be that one would be able to reasonably anticipate that its implementation would in fact avoid physical impacts to the trail segments during project construction. Where physical avoidance of trail segments is infeasible, specific mitigation measures developed for an HPTP may include the execution of a trail network study the purpose of which would be to determine the nature and former extent of trails beyond the APE. Such measures may also include the consideration of the extant trail segments within the context of the preparation of a formal Historic American Landscape Survey (HALS). The performance standards that any such mitigation measure in an HPTP must meet would be that the implementation of the measure led to the recovery of the information for which subject trail segments were significant and thereby also mitigate for the loss of the ability of a resource to convey its associative values. For each trail segment, that information would include the description and interpretation of the individual segment, and an analysis of the broader potential trail network context for that segment.

Beyond the physical avoidance of significant trail segments, consideration may also need to be given to potential adverse visual impacts that the proposed action may have on the associative values that Native American groups may ascribe to such segments. Native American consultation would also be necessary here to try and establish the extent of visual buffers around trail segments sufficient to mitigate probable degradations to the integrity of each such resource, particularly resource setting, feeling, and association. The consultation issue here would be how far away from a significant trail segment a group of SunCatchers would have to be to reduce the visual impact of that equipment, under CEQA, to less than significant, or, under Section 106, to resolve any potential adverse effect. The resolution of this issue and the subsequent derivation of mitigation measures for it may prove a challenge to achieve here as well.

Specific measures to avoid visual impacts to the associative values of trail segments may include, individually or in combination, project redesign, the demarcation and enforcement of no-build zones, or visual screening. The performance standard that any such mitigation measure in an HPTP must meet would be that one would be able to reasonably argue, on the basis of extensive consultation with Native American groups, that the implementation of the proposed action would not cause, under CEQA, a substantial adverse change in the significance of an historical resource, or, under Section 106, would not alter, directly or indirectly, any of the characteristics of a historic property that qualify

the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Staff concludes that this performance standard is a test that no mitigation measure negotiated under the PA is likely to meet. The adoption and implementation of **CUL-1 through CUL-12** may lessen the visual effect of the proposed action on significant trail segments in and near the project area, but the effect would probably remain significant. This particular effect may therefore also be unmitigable. We have addressed the project's visual impacts in the **Visual Resources** section of this Decision.

(Ex. 307, pp. C.3-137 to C.3-138.)

**Physiographic Landforms and other Geographic or Constructed Places**

The third type of ethnographic resource for which the PA provides explicit mitigation measures (Appendix B) encompasses a broader group of resources. This type includes physiographic landforms and other geographic or constructed places. "Physiographic landforms" refers to natural landscape features that Native American groups imbue with religious or cultural significance. The landforms would typically be those, such as prominent mountains or valleys, which readily lend themselves to cross-cultural recognition. Geographic places can be more nuanced features of the landscape the delineation of which may not necessarily be apparent to outside observers. Constructed places would include man-made features such as geoglyphs and cleared desert pavement circles that are most often typed as archaeological resources, but to which many Native American groups ascribe associative value. The preferred mitigation measure for these resources is avoidance and the maintenance of existing access to these resources. Avoidance of the resources of this type must entail considerations of both the physical and visual impacts that the proposed action would potentially have on them. Specific measures to avoid physical impacts to significant resources of this type may include, individually or in combination, project redesign, fencing or other methods of conspicuous demarcation, and monitoring. The performance standard that any such mitigation measure in an HPTP must meet would be that one would be able to reasonably anticipate that its implementation would in fact avoid physical impacts to any such resources during project construction. Where physical avoidance of them is infeasible, specific mitigation measures developed for an HPTP to ameliorate significant physical impacts to the associative values of the resources may include the preparation and dissemination of ethnographic investigations that would augment the extant documentation of the cultural contexts that impart meaning to the degraded resources, and the collection of high quality images of the resources

prior to their degradation. The performance standards that any such mitigation measure in an HPTP must meet would be that the implementation of the measure led to the production of information that may mitigate for the loss of the ability of a resource to convey its associative values. For each physiographic landform, or geographic or constructed place, that information would include the description and interpretation of the resource itself, and an analysis of the broader cultural context relative to which that resource had meaning.

Beyond the physical avoidance of physiographic landforms, or geographic or constructed places, consideration also needs to be given to potential adverse visual impacts that the proposed action may have on the associative values that Native American groups may ascribe to such resources. Native American consultation would also be necessary here to try and establish the extent of visual buffers around each resource sufficient to mitigate probable degradations to the integrity of each, particularly resource setting, feeling, and association. The consultation issue here would be how far away from a significant physiographic landform, or geographic or constructed place a group of SunCatchers would have to be to reduce the visual impact of that equipment, under CEQA, to less than significant, or, under Section 106, to resolve any potential adverse effect. The resolution of this issue and the subsequent derivation of mitigation measures for it may prove a challenge to achieve here again as well.

Specific measures to avoid visual impacts to the associative values of physiographic landforms, or geographic or constructed places may include, individually or in combination, project redesign, the demarcation and enforcement of no-build zones, or visual screening. Given, however, that several of the ethnographic resources of this type are far beyond the project area, the design of potential visual screening could include consideration of the efficacy of orienting SunCatchers to minimize glare, or erecting screens to reduce or eliminate glare. The performance standard that any such mitigation measure in an HPTP must meet would be that one would be able to reasonably argue, on the basis of extensive consultation with Native American groups, that the implementation of the proposed action would not cause, under CEQA, a substantial adverse change in the significance of an historical resource, or, under Section 106, would not alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Staff concludes, and we agree, that this performance standard is a test that no mitigation measure negotiated under the PA is likely to meet. The adoption and implementation of **CUL-1** through **CUL-12** may lessen the visual effect of the proposed action on physiographic landforms, or

geographic or constructed places in and near the project area (i.e. ethnographic resources), but the effect would probably remain significant. This particular impact may therefore also be unmitigable.

(Ex. 307, pp. C.3-138 to C.3-140.)

**Identification and Assessment of Direct Impacts on Built-environment Resources and Recommended Mitigation**

Determinations regarding NRHP- or CRHR-eligibility of built-environment resources within the project area of analysis have not been completed;,therefore identification and assessment of impacts cannot be assessed at this time. Given the relatively complete investigation of that area and the dearth of historically significant built-environment resources found, it appears to be unlikely that the construction-related ground disturbance of the project area would directly impact built-environment resources that would qualify as historical resources under CEQA.

**Identification and Assessment of Indirect Impacts and Recommended Mitigation**

There is potential for indirect impacts to sites in the exclusion area especially due to increased traffic during construction and due to visual impacts as described above for cremation and burial sites. It is also plausible that project area grading could increase the amount of sheet wash and erosion during heavy rainfall and indirectly cause damage to sites outside the project area. The specific mitigation measure for these potential indirect impacts would be the completion and implementation of the Monitoring and Discovery Plan that, in draft form, is appendix J to the PA. The performance standards that the Monitoring and Discovery Plan must meet would be that the implementation of the plan would ensure the ready identification and neutralization of any indirect impacts that the construction of the proposed project may cause. (Ex. 307, p. C.3-140.)

### b. Operation Impacts

Many of the potential impacts described above as part of construction would also apply to the operation of the proposed facility, once built. During the operation of the proposed power plant, repair of a buried utility or other buried infrastructure could require the excavation of a large hole. So such repairs have the potential to impact previously unknown subsurface archaeological resources in areas unaffected by any original trench excavation. The specific mitigation measure for the potential impacts of the operation of the proposed facility on significant cultural resources would be the completion and implementation of the Historic Properties Management Plan (HPMP) that, in conceptual form, is appendix C to

the PA. The performance standards that the HPMP must meet would be that the implementation of the plan would ensure the timely consideration and resolution of any significant impacts to significant cultural resources that may arise as a result of the operation of the proposed facility. Implementation of Conditions of Certification CUL-1 through CUL-12 would ensure that operational impacts are reduced below a level of significance. (Ex. 307, pp. C.3-140 to C.3-141.)

7. Project Closure and Decommissioning

Removal of SunCatchers and other ancillary facility infrastructure has the potential to significantly affect cultural resources. The specific mitigation measure for the potential impacts of facility decommissioning and closure would be the completion and implementation of the Historic Properties Management Plan (HPMP) that would beappendix C to the PA. The performance standards that the HPMP must meet would be that the implementation of the plan would ensure the substantive consideration and resolution of any significant impacts to significant cultural resources that would arise during the decommissioning and closure of the proposed facility.

8. Alternatives

We have analyzed several alternatives to the proposed project, including alternative sites and site configurations, the no-project alternative, and generation alternatives. We found that none of the alternatives would both reduce the project's impacts below a level of significance and accomplish the project objectives. Elsewhere in this Decision, we have adopted the alternative currently referred to as the preliminary LEDPA, the Agency-Preferred Alternative, and the 709MW alternative. This alternative would be constructed on the same site as the proposed project, but would avoid certain washes and other features to reduce project impacts to soil resources and waters of the United States. The evidence shows that this alternative would not materially change the project's impacts on cultural resources. A thorough discussion of Project Alternatives is provided in the **Alternatives** section of this Decision.

9. Cumulative Impacts and Mitigation

In this section we evaluate the potential for IVS, and other solar and development projects within the vicinity of IVS, to have cumulative impacts to cultural resources. Individually minor but collectively significant actions (usually in the form of ground disturbance) may have a cumulatively considerable impact on cultural resources. These impacts may result in a substantially adverse change in

the significance of a resource, potentially jeopardizing its eligibility for listing on the NRHP and CRHR.

The cumulative projects are defined within a geographic area that has been identified by the Energy Commission and BLM as covering an area large enough to provide a reasonable basis for evaluating cumulative impacts for all resource elements or environmental parameters. Most of these projects have, are, or will be required to undergo their own independent environmental review under CEQA and/or NEPA.

#### a. Impacts of Past and Present Projects

For this analysis, the following projects or developments are considered most relevant to impacts on cultural resources:

United States Naval Air Facility El Centro – West Mesa

Recreation Activities – BLM West Mesa FTHL Management Area

Recreation Activities – BLM Yuha Basin ACEC

U.S. Gypsum Mining – Plaster City

California State Prison, Centinela – 2302 Brown Road, Imperial, CA

Recreation Activities – BLM, Superstition Mountain and Plaster City Open Area

Cultural resources in the geographic area have been impacted by past and currently approved projects as follows:

1. Because cultural resources are non-renewable, the removal or destruction of any resource results in a net loss of resources

2. Existing development in the Plaster City area and the surrounding areas has resulted in the removal or destruction of cultural resources, which has resulted in a net loss of resources in these areas.

(Ex. 307, pp. C.3-149 to C.3-150.)

#### b. Impacts of Reasonably Foreseeable Future Projects

Cultural resources are also expected to be affected by the following reasonably foreseeable future projects as follows:

| |
|---|
| Mount Signal Solar Power Station |
| Green Path |
| Wind Zero – Training Facility |
| Atlas Storage Facility |
| Mixed-use Development |
| Mixed-use Development |
| Mixed-use Development |
| Update General Plan |
| Update Park Master Plant |
| Mixed-use Development |
| Mixed-use Development |
| Mixed-use Development |
| Mixed-use Development |
| Sunrise Powerlink Project |
| Ocotillo Express Wind Facility |
| Pedestrian Fence 225 and Pedestrian Fence 70 |
| Mixed Use -Recreation |
| West-wide Energy Corridor |
| Seeley Waste Water Treatment Facility Upgrade |

### c. Contribution of the Imperial Valley Solar Project to Cumulative Impacts

**Construction**. The construction of the IVS Project is expected to result in permanent adverse impacts related to the removal and/or destruction of cultural resources on the project site during ground disturbance and other construction activities. It is also expected that the construction of some or all of the foreseeable cumulative projects which are not yet built may also result in the permanent adverse impacts as a result of the removal and/or destruction of cultural resources on the sites for those projects. As a result, the construction of the IVS Project and other foreseeable cumulative projects will contribute to permanent long-term adverse impacts as a result of the removal or destruction of resources on those sites and an overall net reduction in cultural resources in the area.

**Operation**. During operation of the IVS Project, cultural resources on and in the immediate vicinity of the project site may experience increased vandalism as a result of improved access to the project site, illegal collection of artifacts, or destruction of resources by vehicles traveling on the site. Similar impacts may also occur as a result of some or all of the cumulative projects, as more people come into this area associated with those new land uses. As a result, the IVS

Project and the other cumulative projects may contribute to a cumulative adverse impact on cultural resources as a result of increased access to the area and the potential for increased vandalism, illegal collection of artifacts, or destruction of resources during operation related activities.

**Decommissioning**. The decommissioning of the IVS Project may result in adverse impacts to cultural resources as a result of ground disturbance, increased vandalism, illegal collection of artifacts, or destruction of resources by vehicles traveling on the site during demolition and removal of the project facilities. Similar impacts are not anticipated as a result of most of the other cumulative projects as the removal of those land uses may not result in increased vandalism, illegal collection of artifacts, and/or destruction of resources by vehicles traveling on those sites during demolition and removal of those land uses. As a result, decommissioning the IVS Project is not anticipated to contribute to a cumulative adverse impact on cultural resources beyond the contribution of the project that would occur as a result of the construction and operation of the project.

(Ex. 307, pp. C.3-150 to C.3-151.)

To reduce as much as possible the region-wide, significant cumulative impact that staff has identified from its analysis, we adopt Conditions of Certification **CUL-1** through **CUL-12**.

Despite the correct implementation of the mitigation measures we have adopted, the project's incremental contribution to cumulative impacts to cultural resources would nonetheless be cumulatively considerable. To address these unmitigable cumulative impacts, we find that overriding considerations justify these impacts and make factual findings in support thereof in the **OVERRIDE** section of this Decision.

10. LORS Compliance

Projects licensed by the Energy Commission are reviewed to ensure compliance with all applicable laws. Although the Energy Commission has pre-emptive authority over local laws, it typically ensures compliance with local laws, ordinances, regulations, standards, plans, and policies. The BLM is responsible for compliance with NEPA and Section 106 of the NHPA.

LORS applicable to the IVS Project are set forth in Cultural Resources Table 1 below

**Cultural Resources Table 1**
**Laws, Ordinances, Regulations, and Standards**

| Applicable Law | Description |
|---|---|
| Federal | |
| National Historic Preservation Act of 1966, as amended, 16 USC 470(f) | Section 106 of the Act requires Federal agencies to take into account the effects of a proposed action on cultural resources (historic properties) and afford the Advisory Council on Historic Preservation the opportunity to comment. |
| 36 CFR Part 800 (as amended August 5, 2004), | Implementing regulations of Section 106 of the National Historic Preservation Act |
| National Environmental Policy Act (NEPA): Title 42, USC, section 4321-et seq. | This statute requires Federal agencies to consider potential environmental impacts of projects with Federal involvement and to consider appropriate mitigation measures. |
| Federal Land Policy and Management Act (FLPMA): Title 43, USC, section 1701 et seq. | This statute requires the Secretary of the Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archaeo-logical values [Section 1701(a)(8)]; the Secretary, with respect to the public lands, shall promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740]. |
| Federal Guidelines for Historic Preservation Projects, Federal Register 44739-44738, 190 (September 30, 1983) | The Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by Federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The California Office of Historic Preservation refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California. |
| Executive Order 11593 May 13, 1971 (36 Federal Register 8921) | This order mandates the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values. |
| American Indian Religious Freedom Act; Title 42, USC, Section 1996 | Protects Native American religious practices, ethnic heritage sites, and land uses. |
| Native American Graves Protection and Repatriation Act (1990); Title 25, USC Section 3001, et seq., | The stature defines "cultural items," "sacred objects," and "objects of cultural patrimony;" establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items. |

| Applicable Law | Description |
|---|---|
| U.S. Dept. of the Interior, Bureau of Land Management (BLM), the California Desert Conservation Area (CDCA) Plan 1980 as amended – Cultural Resources Element Goals | 1. Broaden the archaeological and historical knowledge of the CDCA through continuing efforts and the use of existing data. Continue the effort to identify the full array of the CDCA's cultural resources. |
| | 2. Preserve and protect representative sample of the full array of the CDCA's cultural resources. |
| | 3. Ensure that cultural resources are given full consideration in land use planning and management decisions, and ensure that BLM-authorized actions avoid inadvertent impacts. |
| | 4. Ensure proper data recovery of significant (National Register of Historic Places-quality) cultural resources where adverse impacts can be avoided. |
| State | |
| California Environmental Quality Act (CEQA), Sections 21000 et seq. of the Public Resources Code (PRC) with Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq. | CEQA requires that state and local public agencies to identify the environmental impacts of the proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment.<br><br>Historical resources are considered a part of the environment and a project that may cause a substantial adverse effect on the significance of a historical resource is a project that may have a significant effect on the environment. The definition of "historical resources" is contained in Section 15064.5 of the CEQA Guidelines. |
| AB 4239, 1976 | Established the Native American Heritage Commission (NAHC) as the primary government agency responsible for identifying and cataloging Native American cultural resources. The bill authorized the Commission to act in order to prevent damage to and insure Native American access to sacred sites and authorized the commission to prepare an inventory of Native American sacred sites located on public lands. |
| Public Resources Code 5097.97 | No public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the United States Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require. |

| Applicable Law | Description |
|---|---|
| Public Resources Code 5097.98 (b) and (e) | Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance. |
| California Health and Safety Code, Section 7050.5 | This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner. |
| Local | |
| Imperial County General Plan, Land Use Element, 2008, Protection of Environmental Resources, Goal 9, Objective 9.1, Page 42 | Goal: Identify and Preserve the significant natural, cultural, and community character resources and the County's air and water quality.<br><br>Objective: Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes. |
| Imperial County General Plan, Conservation and Open Space Element, Goals and Objectives, Preservation of Cultural Resources, Page 48 | Goal 3: Important prehistoric and historic resources shall be preserved to advance scientific knowledge and maintain the traditional historic element of the Imperial Valley landscape.<br><br>Objective 3.1: Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance. |

| Applicable Law | Description |
|---|---|
| Imperial County General Plan, Conservation and Open Space Element, Implementation Programs and Policies, Cultural Resources Conservation, Pages 57–58 | Programs:<br>The County will use the environmental impact report process to conserve cultural resources. Public awareness of cultural heritage will be stressed. All information and artifactual resources recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review.<br>Encourage the use of open space easements in the conservation of high value cultural resources.<br>Consider measures which would provide incentives to report archaeological discoveries immediately to the Imperial Valley College – Baker Museum.<br>Coordinate with appropriate federal, state, and local agencies to provide adequate maps identifying cultural resource locations for use during development review. Newly discovered archaeological resources shall be added to the "Sensitivity Map for Cultural Resources."<br>Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. The County shall study the feasibility of implementing policies and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622-1/2. |

Source: Ex. 307, pp. C.3-13 to C.3-16.

The evidence discussed above establishes that, if Conditions of Certification CUL-1through CUL-12 are properly implemented, the proposed IVS Project would result in a less than significant impact under CEQA and resolve impacts under Section 106 of the NHPA on the information values of known and newly found archaeological resources. The project would, in this regard, be in compliance with the applicable state laws, ordinances, regulations, and standards (LORS) listed in Cultural Resources Table 1.

The County of Imperial's General Plan has language promoting the county-wide preservation of cultural resources. As CUL-1 through CUL-12 require specific actions to effect historic preservation and mitigate significant impacts to the information values of archaeological resources, CEQA compliance related to these values would be anticipated.

The implementation of CUL-1 through CUL-12 would not ensure compliance with applicable LORS as they apply to ethnographic resources. Adherence to the consultation processes for which CUL-12 provides may help narrow apparent differences in cross-cultural perspectives on the character, the significance, and the ultimate treatment of these resources, but those consultations are not likely to

reduce the impacts of the proposed action on the associative values of the cremations or burial sites, trails, and physiographic landforms and other geographic or constructed places to which Native American groups ascribe religious or cultural significance, the more particular suite of ethnographic resources in the project area of analysis, to a less than significant level. One or several such impacts may, as a consequence, prove not to be entirely mitigable. Evidence of earnest and thoughtful consultation under CUL-12, though not necessarily reducing the impacts of the proposed action to less than significant, may, nonetheless, be found to be consistent with applicable LORS.
(Ex. 307, pp. C.3-151 to C.3-152.)

11. Response to Comments

The majority of the comments on the cultural resources section of the SA/DEIS related to NEPA and Section 106 issues. Those comments, and Staff's responses, are set forth in the SSA, Ex. 307, pp. C.3-153 to C.3-158. We have carefully considered the comments and responses, and that consideration is reflected in our discussion of this topic and our findings.

**FINDINGS OF FACT**

Based on the evidence, the Commission makes the following findings and reaches the following conclusions:

1. Without mitigation, the IVS project would have a significant direct impact on historically significant archaeological resources.
2. Without mitigation, the IVS project has the potential to have a significant indirect impact on contributors to a historically significant cultural landscape, including ethnographic resources.
3. There are resources within the proposed IVS site footprint and linear facilities corridor that are eligible or assumed eligible for listing in the NRHP and the CRHR.
4. None of the project alternatives would have a material effect on the project's impacts on cultural resources while meeting the project objectives.
5. Tribal governments have been contacted for a Section 106 consultation.
6. Data recovery mitigates scientific values but not ethnographic or associative values.
7. The Conditions of Certification set forth in the FEIS will be effective in reducing impacts to cultural resources to the extent feasible.

8. Conditions of Certification **CUL-1 through CUL-12** ensure that all direct and indirect impacts to cultural resources discovered during construction and operation are mitigated to the fullest extent feasible, but significant impacts to ethnographic and associative cultural resources caused by the project's presence and visibility on the landscape will be unmitigable.

9. Even with the implementation of Conditions of Certification **CUL-1** through **CUL-12**, the project's incremental contribution to cumulative impacts to cultural resources would be cumulatively considerable.

10. Overriding considerations warrant acceptance of the project's unavoidable direct and indirect impacts and its unavoidable cumulatively considerable contributions to cumulative impacts.

## CONCLUSIONS OF LAW

1. With implementation of the Conditions of Certification below, the Imperial Valley Solar Project will conform to all applicable laws, ordinances, regulations, and standards relating to cultural resources as set forth in the pertinent portion of **Appendix A** of this Decision.

**2.** Notwithstanding the implementation of the Conditions of Certification below, the project may still have significant direct and indirect unmitigated environmental impacts on cultural resources.

**3.** Notwithstanding the implementation of the Conditions of Certification, the project may permanently change and/or result in the destruction of cultural resources, both known and unknown, contributing to a cumulatively considerable impact which will be mitigated to the extent possible, but may not be fully mitigated.

## CONDITIONS OF CERTIFICATION

Implementation of Conditions of Certification **CUL-1** through **CUL-12**, subject to the consultation process for the development of the Programmatic Agreement, would reduce or resolve adverse effects due to project construction for the Agency Preferred Alternative, the IVS project, the 300 MW Alternative, the Drainage Avoidance #1 Alternative, and the Drainage Avoidance #2 Alternative.

These measures would reduce impacts through avoidance, evaluation, and treatment as presented in the mitigation measures below. It should be noted that archaeological testing for National Register of Historic Places (National Register)/California Register of Historical Resources (California Register) eligibility evaluation is destructive. Resource avoidance is always preferred where possible.

Specific treatments to resolve effects that are developed by the consulting parties to the PA would be stipulated in the HPTP that would tier from the PA. Because specific treatments are being developed and consultation with all interested parties is ongoing, there is no absolute commitment to specific treatment measures until they are finalized.

**Identify and evaluate cultural resources in final Area of Potential Effects**

**CUL-1** The Applicant shall provide sufficient technical data to enable the United States Bureau of Land Management (BLM) to properly evaluate the significance of all potentially affected cultural resources.

Cultural resources data collection shall be conducted by professionals meeting the Secretary's Standards and in accordance with those Standards, to provide recommendations with regard to their eligibility for the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), or local registers.

Preliminary determinations of National Register eligibility will be made by the BLM, in consultation with the California Energy Commission (CEC) and other appropriate consulting parties, Native American tribes, and the State Historic Preservation Officer (SHPO). *Imperial Valley Solar Project FEIS Chapter 4 – Environmental Consequences 4.5-24*

**Verification:** The Applicant shall notify the CPM of all data transmitted to the BLM and upon request shall submit copies of all materials to the CPM, including but not limited to the identification and necessary credentials of all persons charged with the task of cultural resource data collection for the project.

**Avoid and Protect Potentially Significant Resources.**

**CUL-2** Where feasible, potentially register-eligible resources and register-eligible resources shall be protected from direct project impacts by project redesign.

Complete avoidance of impacts to such resources shall be the preferred protection strategy.

Avoidance of direct physical effects is the preferred treatment measure for historic properties to which Native American tribes attach sacred or religious significance, or for properties that have cultural significance as a traditional cultural property.

The BLM would achieve this preferred treatment by conditioning the right-of-way (ROW) grant to exclude those historic properties, or lands from the project.

On the basis of preliminary National Register eligibility assessments or previous determinations of resource eligibility, the BLM and CEC, in consultation with the SHPO, may request the relocation of the project area where relocation would avoid or reduce damage to cultural resource values.

Where the BLM and CEC, in consultation with the Applicant, decide that potentially National Register-eligible and/or California Register-eligible cultural resources cannot be protected from direct impacts by project redesign, or that avoidance is not feasible, the Applicant shall undertake additional studies needed by the BLM to evaluate the resources' National Register and/or California Register eligibility and to recommend further mitigative treatment.

The nature and extent of this evaluation shall be determined by the BLM in consultation with the consulting parties and shall be based upon final project engineering specifications.

Evaluations will be based on surface remains, subsurface testing, archival and ethnographic resources, and in the framework of the historic context and important research questions of the project area.

Results of those evaluation studies and recommendations for mitigation of project effects shall be incorporated into a Historic Properties Treatment Plan (HPTP).

All potentially National Register-eligible and/or California Register-eligible resources that will not be affected by direct impacts, but are within 100 feet of direct impact areas, will be designated as Environmentally Sensitive Areas(ESAs) to ensure that construction activities do not encroach on-site peripheries.

Protective fencing, or other markers (after approval by CEC/BLM), shall be erected and maintained to protect ESAs from inadvertent trespass for the duration of construction in the vicinity.

ESAs shall not be identified specifically as cultural resources.

A monitoring program shall be developed as part of a HPTP and implemented by the Applicant to ensure the effectiveness of ESA protection.

**Verification:** The Applicant shall implement the protections and procedures as provide herein at the direction of the either BLM or CEC CPM or whenever a potentially register-eligible resource or register-eligible resource has been identified.

**Develop and implement HPTPs.**

**CUL-3** Upon approval of the inventory report and the National Register and California Register eligibility evaluations, the Applicant shall prepare and submit for approval an Historic Properties Treatment Plan (HPTP) for register-eligible cultural resources to avoid or mitigate identified potential impacts.

Treatment of cultural resources shall follow the procedures established by the Advisory Council on Historic Preservation for compliance with Section 106 of the National Historic Preservation Act and other appropriate State and local regulations, as explained in Stipulation IV of the Draft Programmatic Agreement.

Avoidance, recordation, and data recovery will be used as mitigation alternatives.

Avoidance and protection shall be the preferred strategy.

The HPTP shall be submitted to the BLM for review and approval.

As part of the HPTP, the Applicant shall prepare a research design and a scope of work for data recovery or additional treatment of National Register-eligible and/or California Register-eligible sites that cannot be avoided and to resolve effects.

The HPTP shall define and map all known National Register-eligible and/or California Eligible-eligible properties in or within 50 feet of all project APEs and shall identify the cultural values that contribute to their National Register and/or California Register eligibility.

The HPTP shall also detail how National Register eligible and/or California Register-eligible properties will be marked and protected as ESAs during construction.

The HPTP shall also define any additional areas that are considered to be of high-sensitivity for discovery of buried register eligible cultural resources, including burials, cremations, or sacred features.

This sensitivity evaluation shall be conducted by an archaeologist who meets the Secretary's Standards and who takes into account geomorphic setting and surrounding distributions of archaeological deposits.

The HPTP shall detail provisions for monitoring construction in these high-sensitivity areas.

It shall also detail procedures for halting construction, making appropriate notifications to agencies, officials, and Native Americans, and assessing register-eligibility in the event that unknown cultural resources are discovered during construction.

For all unanticipated cultural resource discoveries, the HPTP shall detail the methods, consultation procedures, and timelines for assessing register-eligibility, formulating a mitigation plan, and implementing treatment. Mitigation and treatment plans for unanticipated discoveries shall be approved by the BLM,CEC, and the SHPO prior to implementation.

The HPTP shall include provisions for analysis of data in a regional context, reporting of results within 1 year of completion of field studies, curation of artifacts (except from private land) and data (maps, field notes, archival materials, recordings, reports, photographs, and analysts' data) at a facility that is approved by BLM, and dissemination of reports to local and State repositories, the Applicant, and interested professionals.

The BLM will retain ownership of artifacts collected from BLM managed lands.

The Applicant shall attempt to gain permission for artifacts from privately held land to be curated with the other project collections.

The HPTP shall specify that archaeologists and other discipline specialists conducting the studies meet the Secretary's Standards (per36 Code of Federal Regulations [CFR] 61).

**Verification:** The Applicant shall notify the CPM of the submission of any HPTP to the BLM and upon request shall submit copies of the HPTP to the CPM.

**Conduct data recovery or other actions to resolve adverse effects.**

**CUL-4** If National Register-eligible and/or California Register-eligible resources, as determined by the BLM and SHPO, cannot be protected

from direct impacts of the proposed project, data-recovery investigations or other mitigation shall be conducted by the Applicant to reduce adverse effects to the characteristics of each property that contribute to its National Register and/or California Register eligibility.

For sites eligible under Criterion (d), significant data could be recovered through excavation and analysis.

For properties eligible under Criteria (a), (b), or(c), mitigation may include but is not limited to historical documentation, photography, collection of oral histories, architectural or engineering documentation, preparation of a scholarly work, or some form of public awareness or interpretation.

Data gathered during the evaluation phase studies and the research design element of the HPTP shall guide plans and data thresholds for data recovery; treatment will be based on the resource's research potential beyond that realized during resource recordation and evaluation studies.

If data recovery is necessary, sampling for data-recovery excavations will follow standard statistical sampling methods, but sampling will be confined, as much as possible, to the direct impact area.

Data-recovery methods, sample sizes, and procedures shall be detailed in the HPTP and implemented by the Applicant only after approval by the BLM.

Construction work within 100 feet of cultural resources that require data-recovery fieldwork shall not begin until authorized by the BLM to ensure that impacts to known significant archaeological deposits are adequately resolved.

A description of alternative treatments to resolve adverse effects that are not data recovery may include (but are not limited to):

(1) Placement of construction in parts of historic properties that do not contribute to the qualities that make the resource eligible for the National Register;
(2) Deeding cemetery areas into open space in perpetuity and providing the necessary long-term protection measures;
(3) Public interpretation including the preparation of a public version of the cultural resources studies and/or education materials for local schools;
(4) Access by Native American tribes to traditional areas on the project site after the project has been constructed;

(5) Support by applicant to cultural centers in the preparation of interpretive displays; and
(6) Consideration of other off-site mitigation.

**Verification:** The Applicant shall notify the CPM of the undertaking of any necessary data recovery investigation efforts as provided by this Condition and upon request shall make any results or such investigative activities available to the CPM.

**Monitor construction at known ESAs.**

**CUL-5** The Applicant shall implement full-time archaeological monitoring by a professional archaeologist during ground disturbing activities at all cultural resource ESAs.

These locations and their protection boundaries shall be defined and mapped in the HPTP.

Archaeological monitoring shall be conducted by a qualified archaeologist familiar with the types of historical and prehistoric resources that could be encountered within the project, and under direct supervision of a principal archaeologist.

The qualifications of the principal archaeologist and archaeological monitors shall be approved by the BLM.

A Native American monitor may be required at culturally sensitive locations specified by the BLM following government-to-government consultation with Native American tribes. T

he monitoring plan in the HPTP shall indicate the locations where Native American monitors will be required.

The Applicant shall retain and schedule any required Native American monitors.

Compliance with and effectiveness of any cultural resources monitoring required by an HPTP shall be documented by the Applicant in a monthly report to be submitted to the BLM for the duration of project construction.

In the event that cultural resources are not properly protected by ESAs, all project work in the immediate vicinity shall be diverted to a buffer distance determined by the archaeological monitor until authorization to resume work has been granted by the BLM and CEC.

The Applicant shall notify the BLM of any damage to cultural resource ESAs.

If such damage occurs, the Applicant shall consult with the BLM to mitigate damages and to increase effectiveness of ESAs.

At the discretion of the BLM and CEC, such mitigation may include, but not be limited to, modification of protective measures, refinement of monitoring protocols, data-recovery investigations or payment of compensatory damages in the form of non destructive cultural resources studies or protection within or outside the license area, at the discretion of the BLM.

**Verification:** The Applicant shall notify the CPM of all data transmitted to the BLM and upon request shall submit copies of all materials to the CPM, including but not limited to the identification and necessary credentials of all persons charged with the task of archaeological monitoring for the project.

**Train construction personnel.**

**CUL-6** All construction personnel shall be trained regarding the recognition of possible buried cultural remains and protection of all cultural resources, including prehistoric and historic resources during construction, prior to the initiation of construction or ground-disturbing activities.

The Applicant shall complete training for all construction personnel and retain documentation showing when training of personnel was completed.

Training shall inform all construction personnel of the procedures to be followed upon the discovery of archaeological materials, including Native American burials.

Training shall inform all construction personnel that ESAs must be avoided and that travel and construction activity must be confined to designated roads and areas.

All personnel shall be instructed that unauthorized collection or disturbance of artifacts or other cultural materials on or off the Right of Way (ROW) by the Applicant, his representatives, or employees will not be allowed.

Violators will be subject to prosecution under the appropriate State and federal laws and violations will be grounds for removal from the project.

Unauthorized resource collection or disturbance may constitute grounds for the issuance of a stop work order.

The following issues shall be addressed in training or in preparation for construction:

(1) All construction contracts shall require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits, their responsibility to avoid and protect all cultural resources, and the penalties for collection, vandalism, or inadvertent destruction of cultural resources.

(2) The Applicant shall provide training for supervisory construction personnel describing the potential for exposing cultural resources, the location of any potential ESA, and procedures and notifications required in the event of discoveries by project personnel or archaeological monitors.

Supervisors shall also be briefed on the consequences of intentional or inadvertent damage to cultural resources.

Supervisory personnel shall enforce restrictions on collection or disturbance of artifacts or other cultural resources.

**Verification:** The Applicant shall maintain on-site records of training level, date and instructor for all construction personnel and supervisors. Upon request, the Applicant shall make these records available to the CPM.

**Properly treat human remains.**

**CUL-7** All locations of known Native American human remains shall be avoided through project redesign and shall be protected by designation as ESAs.

The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains (see Stipulation VI of the Draft Programmatic Agreement).

The Applicant shall assist and support the BLM in all required Section 106, government to-government and Native American Graves Protection and Repatriation Act (NAGPRA)consultations with Native Americans, agencies and commissions, and consulting parties as requested by the BLM.

The Applicant shall comply with and implement all required actions and studies that result from such consultations.

If human remains are discovered during construction, all work shall be diverted from the area of the discovery and the BLM authorized officer shall be informed immediately.

Avoidance and protection of inadvertent discoveries which contain human remains shall be the preferred protection strategy with complete avoidance of impacts to such resources protected from direct project impacts by project redesign.

The Applicant shall follow all State and federal laws, statutes, and regulations that govern the treatment of human remains.

The Applicant shall comply with and implement all required actions and studies that result from such consultations, as directed by the BLM.

**Verification:** The Applicant shall notify the CPM of any known or discovered human remains on the project site or linear facilities that are reported to the BLM and upon request shall make all reports available to the CPM.

**Monitor construction in areas of high sensitivity for buried resources.**

**CUL-8** The Applicant shall implement archaeological monitoring by a professional archaeologist during subsurface construction disturbance at all locations identified in the HPTP as highly sensitive for buried prehistoric or historical archaeological sites or Native American human remains.

These locations and their protection boundaries shall be defined and mapped in the HPTP.

Intermittent monitoring may occur in areas of moderate archaeological sensitivity at the discretion of the BLM and CEC.

Upon discovery of potential buried cultural materials by archaeologists or construction personnel, or damage to an ESA, work in the immediate area of the find shall be diverted and the BLM Authorized Officer or his/her designee shall be notified immediately.

Once the find has been inspected and a preliminary assessment made, the Applicant's archaeologist will consult with the BLM, as appropriate, to make the necessary plans for evaluation and treatment of the find(s) or mitigation of adverse effects to ESAs, in accordance with the Secretary's Standards, and as specified in the HPTP.

**Verification:** The Applicant shall notify the CPM of all notifications to the BLM pursuant to this Condition and upon request shall make all reported materials

available to the CPM, including but not limited to the identification and necessary credentials of all persons charged with the task of archaeological monitoring for the project.

**Continue consultation with Native American and other traditional groups.**

**CUL-9** The Applicant shall provide assistance to the BLM, as requested by the BLM, to continue required government to-government consultation with interested Native American tribes and individuals (Executive Memorandum of April 29, 1994 and Section 106 of the National Historic Preservation Act) and other traditional groups to assess or mitigate the impact of the approved project on traditional cultural properties or other resources of Native American concern, such as sacred sites and landscapes, or areas of traditional plant gathering for food, medicine, basket weaving, or ceremonial uses.

As directed by the BLM, the Applicant shall undertake required treatments, studies, or other actions that result from such consultation.

Actions that are required during or after construction shall be defined, detailed, and scheduled in the HPTP and implemented by the Applicant.

**Verification:** The Applicant shall notify the CPM of all requests of assistance to the BLM pursuant to this Condition and upon request shall make all reported materials available to the CPM.

**Protect and monitor National Register-eligible and/or California Register-eligible properties.**

**CUL-10** The Applicant shall design and implement a long-term management plan to protect National Register-eligible and/or California Register eligible sites from direct impacts of project operation and maintenance and from indirect impacts (such as erosion and access) that could result from the presence of the project.

The plan shall be developed in consultation with the BLM and other consulting parties to design measures that will be effective against project maintenance impacts, such as vegetation clearing and road and tower maintenance, and project-related vehicular impacts.

The plan shall also include protective measures for National Register-eligible and/or California Register eligible properties within the transmission line corridor or main project area that may experience operational and access impacts as a result of the project.

Measures considered shall include restrictive fencing or gates, permanent access road closures, signage, stabilization of potential erosive areas, site capping, site patrols, and interpretive/educational programs, or other measures that will be effective for protecting National Register-eligible and/or California Register-eligible properties.

The plan shall be property specific and shall include provisions for monitoring and reporting its effectiveness and for addressing inadequacies or failures that result in damage to National Register-eligible and/or California Register-eligible properties.

Monitoring of sites selected during consultation with BLM shall be conducted annually by a professional archaeologist for a minimum period of 5 years.

Monitoring shall include inspection of all site loci and defined surface features, documented by photographs from fixed photo monitoring stations and written observations.

A monitoring report shall be submitted to the BLM within 1 month following the annual resource monitoring.

The report shall indicate any properties that have been affected by erosion or vehicle or maintenance impacts.

For properties that have been impacted, the Applicant shall provide recommendations for mitigating impacts and for improving protective measures.

After 5 years of resource monitoring, the BLM will evaluate the effectiveness of the protective measures and the monitoring program.

Based on that evaluation, the BLM or CEC may require that the Applicant revise or refine the protective measures, or alter the monitoring protocol or schedule.

If the BLM does not authorize alteration of the monitoring protocol or schedule, those shall remain in effect for the duration of project operation.

If the annual monitoring program identifies adverse effects to National Register-eligible and/or California Register-eligible properties from operation or long-term presence of the project, or if, at any time, the Applicant, BLM or CEC become aware of such adverse effects, the Applicant shall notify the BLM immediately and implement additional protective measures, as directed by the BLM. At the discretion of the

BLM such measures may include, but not be limited to, refinement of monitoring protocols, data-recovery investigations, or payment of compensatory damages in the form of nondestructive cultural resources studies or protection.

**Verification:** The Applicant shall notify the CPM of any long-term management plan submitted to the BLM pursuant to this Condition and upon request shall make all reported materials available to the CPM. The Applicant shall notify the CPM of the annual report submitted to the BLM pursuant to this Condition and upon request shall make all reported materials available to the CPM.

**Complete identification efforts for the Anza Trail and Coordinate Mitigation Efforts.**

**CUL-11** Mitigation measures developed for the Juan Bautista de Anza National Historic Trail (Anza Trail) and outlined in the Programmatic Agreement shall provide for additional investigations throughout the project site to try to define the location of the Anza Trail or whether any archaeological evidence remains.

These methods include but are not limited to the use of imaging technology to try to identify a primary path for the Anza Trail.

Where archaeological data recovery is used as a mitigation measure to resolve effects to historic properties, the investigations should provide special attention to identifying artifacts or faunal remains that may have been left behind by the Anza party.

Coordination is also required with other mitigation measures for effects to the recreation trail and view-shed, which may include installation of interpretive displays at the project site or other known trail sites outside the project area, the development of visitor overlooks, and the creation of audio/driving interpretive materials.

**Verification:** The Applicant shall notify the CPM of any reports submitted to the BLM pursuant to this Condition and upon request shall make all reported materials available to the CPM.

**Compliance With BLM Programmatic Agreement**

**CUL-12** The applicant shall be bound to abide, in total, by the terms of the programmatic agreement that the BLM is to execute under 36 CFR § 800.14(b)(3) for the proposed action. If for any reason, any party to the programmatic agreement were to terminate that document and it were to have no further force or effect for the purpose of compliance with Section 106 of the National Historic Preservation Act, the

applicant would continue to be bound by the terms of that original agreement for the purpose of compliance with CEQA until such time as a successor agreement had been negotiated and executed with the participation and approval of Energy Commission staff.

If provisions in the BLM Programmatic Agreement and associated implementation and monitoring programs conflict with or duplicate these Conditions of Certification, the BLM provisions shall take precedence. Provisions in these conditions that are additional to or exceed BLM provisions and represent requirements under the Energy Commission's CEQA responsibilities shall continue to apply to the project's activities, contingent on BLM's approval.

**Verification:** Under the terms of the programmatic agreement, the applicant shall submit all documentation required by the agreement to the Compliance Project Manager (CPM) for review and approval.

## D. GEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This section summarizes the record concerning the project's potential effects on geological and paleontological resources. The evidence evaluates whether project-related activities could result in exposure to geological hazards, as well as whether the facility can be designed and constructed to avoid any such hazard which could impair its proper functioning. These include volcanic eruptions, faulting and seismicity, liquefaction, dynamic compaction, hydrocompaction, subsidence, expansive soils, landslides, tsunamis, and seiches. Of these, dynamic compaction, hydrocompaction, subsidence, and expansive soils are geotechnical engineering issues which do not typically raise public safety concerns. (Ex. 300, p. C.4-2.) Next, the evidence of record assesses whether the project will impact any geologic or mineralogical resources. Finally, the analysis of record examines whether fossilized remains or trace remnants of prehistoric plants or animals are likely to be present at the site and, if so, whether the project's potential impacts to these resources are adequately mitigated. The parties did not dispute any matters in this discipline. (5/24/2010 (day 2) RT 276-78; Exs. 1; 6; 14; 27; 28; 32; 38; 104; 107; 300, § C.4; 302, §C.4.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Geologic Hazards

The project site is located in the south central portion of the Imperial Valley region of the Salton Trough, a topographic and structural depression within the Colorado Desert physiographic province in Southern California. This province is characterized by broad alluvium-filled valleys and plains. It is bounded to the west by the northwest trending granitic mountains of the Peninsular Range's physiographic province and on the east by the southern portion of the Mojave Desert physiographic province. (Ex. 300, p. C.4-6.)

Subsurface stratigraphy within the project area is generally characterized by Holocene alluvium and colluvium deposits which overlie Holocene lakebed deposits. These in turn overlie Late Pleistocene to Holocene older alluvium deposits which are underlain by Pleistocene to Pliocene Palm Springs Formation. The surficial alluvium and colluvium deposits are primarily composed of locally derived silty and clayey sands or poorly graded sand with silt or clay and are commonly 2 to 7 feet thick. These overlie sediments of ancient Lake Cahuilla which are similar in composition. Alluvium, colluvium, and lacustrine deposits are

thicker in the eastern, gently sloping portion of the project area and thinner in the western portion where tectonic forces have uplifted Palm Springs Formation deposits to the surface. (Ex. 300, p. C.4-7.)

Ground shaking from earthquakes is the main geologic hazard. (*Id.*) The evidence shows that Staff independently reviewed available geologic maps, reports, and related data pertaining to the project site. Seventeen type A and B faults and fault segments lie within 80 miles of the site.[1] Any of these faults could generate some level of ground shaking. (Ex. 300, pp. C.4-9 to C.4-10.) The evidence also specifically considers hazards posed by the Yuha Wells, Dixieland, and Laguna Salada faults. (Exs. 28, p. 58; 302, pp. C.4-10 to C.4-11, C.4-25 to C.4-26.)

The evidence establishes that, assuming compliance with the required design standards set forth in the **Facility Design** section, the potential is low that geologic hazards will impact the project during its practical design life or pose a risk to human safety. (Exs. 300, pp. C.4-1, C.4-8; 302, pp. C.4-25 to C.4-26.) The project owner will also conduct additional fault and geologic hazards as part of the final project design, as required by the California Building Code. (Exs.28, p. 58;. 300, p. C.4-8.)

More specifically, the evidence shows that:

- The deep groundwater table (over 50 feet down) alleviates the potential for liquefaction. Consequently, there is also no potential for lateral spreading at the site during seismic events. (Ex. 300, pp. C.4-10 to C.4-11.)

- Site specific geotechnical investigation indicates that the site's underlying subsurface alluvial deposits, are too dense to allow significant hydrocompaction or dynamic compaction. (Ex. 300, p. C.4-11.)

- The dense alluvial deposits, and the absence of petroleum, natural gas, or water withdrawals at the site minimize the possibility of subsidence. Moreover, proper geotechnical engineering design, as required by **FACILITY DESIGN** conditions **GEN-1** and **CIVIL-1**, will minimize localized foundation subsidence. (Ex. 300, pp. C.4-11 to 4.12; 302, p. C.4-12.)

[1] These are identified in Exhibit 300, Table 2, p. C.4-9. Type A faults have slip-rates of $\geq$5 millimeters per year (mm/year) and are capable of producing an earthquake of magnitude 7.0 or greater. Type B faults have slip-rates of 2 to 5 mm per year and are capable of producing an earthquake of magnitude 6.5 to 7.0.

- Landslides, tsunamis, and seiches similarly pose insignificant risks. (Ex. 300, p. C.4-12.) Dangers from flash flooding can be minimized through civil engineering practices. (*Id.*; see also, **Soil and Water Resources** section.)

- The alluvium, colluvium, and lakebed deposits which form most of the site subsurface are not considered to be expansive. However, claystone members within the Palm Springs Formation may be expansive if exposed to moisture. An inspector experienced in recognition of clay rich soils must be on-site during excavation of building foundations to implement mitigation measures in areas of clay rich soils, if they are encountered. Proper, routine geotechnical mitigation of any expansive clay soils will adequately mitigate any impact. (*Id*.)

The Imperial Project is located approximately 30 miles southwest of the Salton Buttes volcanic vent area. This is an area of active crustal spreading which makes it conducive to further eruptive activity in the future. Due to its distance from the project site, the impact of eruptive activity at the Salton Buttes would likely be limited to ashfall; this would have only a short-lived affect on the project.

The Cerro Prieto volcano is located approximately 40 miles southeast of the project site in northern Sonora, Mexico. This consists of a 733-foot tall dacitic dome with a 660-feet wide caldera. Like the Salton Buttes volcanic vent, the Cerro Prieto volcano is located in an area of active crustal spreading which makes it conducive to future eruptive activity. Due to its distance from the project site, the impact would also likely be limited to ashfall. In either instance, the generators would need to be protected from the ash and the mirrors would need to be cleaned.

Due to the distance of the site from known Holocene volcanic areas and the likely long recurrence intervals between eruptions, the potential for volcanic eruptions to cause long term or catastrophic damage to the project is very low. (Ex. 300, pp. C.4-12 to C.4-13.)

2. Mineralogic and Paleontologic Impacts

There are no known viable geological or mineralogical resources at the project site. (Ex. 300, pp. C.4-1, C.4-14, D.2-1.) Thus, development will not result in the loss of a known mineral resource valuable to the region or the State, nor will it interfere with active mining claims or operations. (Ex. 300, pp. C.4-2 to C.4-3.)

The evidence shows that Staff reviewed Applicant's paleontological resources assessment and confidential report as well as literature and records searches conducted by the San Diego Natural History Museum and the Natural History Museum of Los Angeles County. (Ex. 300, pp. C.4-3, C.4-8 to C.4-9.) These studies indicate the Holocene alluvium and colluviums within and near the proposed project site contain abundant fossils including wood and invertebrates. Staff considers the paleontological sensitivity of the Holocene alluvium and colluviums within the project boundaries as "moderate."[2] (Ex. 300, p. C.4-14.) Holocene lakebed deposits of ancient Lake Cahuilla have yielded fossil remains from numerous localities in the Imperial Valley. The paleontological sensitivity of these lakebed deposits within the project boundaries is characterized as "high". (Ex. 300, pp. C.4-13 to C.4-14.) There are also a number of geologic units with "moderate" or "high" paleontologic sensitivity within or near the project boundaries. (Ex. 300, p. C.4-14.)

Construction will include grading, foundation excavation, and utility trenching. Unauthorized, unmonitored ground disturbances in these areas could potentially damage paleontologic resources. (*Id*.) The evidence shows that Conditions of Certification **PAL-1** to **PAL-7**, below, provide adequate protection to any resources present as they` will mitigate construction impacts to less than significant levels. This mitigation will occur through a worker education program in conjunction with the monitoring of earthworks activities by a professional paleontologist. (Ex. 300, pp. C.4-14 to C.4-16.)

Next, the evidence addresses cumulative impacts. For present purposes, these correspond to the project's potential incremental effect, together with that of other closely related past, present, and reasonably foreseeable future projects, to compound or increase the adverse effects upon geologic, mineralogic, and paleontologic resources. Potential cumulative impacts are limited to those involving paleontological resources since no geological or mineralogical resources are apparently present within the project's boundaries. (Ex. 300, p. C.4-21.)

The geographic area considered is essentially the western half of the Colorado Desert geomorphic province of extreme south-central California, bordering Mexico. The area includes all of Imperial County west of Range 17 and a small portion of the extreme east end of San Diego County. These areas roughly

[2] The potential for discovery of significant paleontological resources or the impact of surface disturbing activities to such resources is assessed using the Potential Fossil Yield Classification (PFYC) system. The PFYC class ranges from Class 5 (very high) to Class 1 (very low). (Ex. 300, p. C.4-3.)

define the limits of the Lake Cahuilla formation and the older, underlying Palm Springs formation.

The evidence of record indicates that there are potentially nine solar energy and eight wind energy projects being considered for siting on BLM land. These projects would occupy a total of approximately 112,495 acres. Residential and public works projects are also being contemplated on State and private lands for the Mojave and Colorado Desert regions of Southern California. [3]

Because the Imperial Valley project area lies within geologic units with moderate to high paleontological sensitivity, ground disturbing activities during construction could potentially damage paleontological resources. The evidence establishes, however, that implementation and enforcement of a properly designed Paleontological Resource Monitoring and Mitigation Plan (PRMMP) at the Imperial site will result in a net gain to the science of paleontology by allowing fossils that would not otherwise have been found to be recovered, identified, studied, and preserved. Cumulative impacts from Imperial, in consideration with other nearby similar projects, should therefore be either neutral (no fossils encountered) or positive (fossils encountered, preserved, and identified). (Ex. 300, pp. C.4-22 to C.4-23.)

Finally, the evidence addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and various No Project Alternatives in regard to this topic area. None of these Alternatives would substantially alter or increase the level of geologic, mineralogic, or paleontologic impacts posed by the project, and each of the Alternatives could be constructed in accordance with applicable LORS. The evidence also shows that the Imperial Valley Solar Project, as mitigated with the Conditions of Certification below and in the **FACILITY DESIGN** section, does not create significant geological, mineralogical, or paleontological impacts. Therefore, it is unnecessary to consider any of the Alternatives as a means of reducing project impacts to below a level of significance. (Ex. 300, pp. C.4-16 to C.4-22.)

## FINDINGS OF FACT

Based on the evidence of record, we make the following findings:

1. The project is located in an active geologic area.

[3] Several of these projects are specified in the evidence. (Ex. 300, p. C.4-22.)

2. Ground shaking, expansive soils, and volcanic activity are the main geologic hazards which could affect the Imperial Valley Solar Project.
3. Potential geologic hazards to the project are effectively mitigated by standard engineering design measures as specified in Conditions **GEN-1, GEN-5,** and **CIVIL-1** of the **Facility Design** section of this Decision. Hazards from volcanic activity would be short-term and limited to ashfall.

4. Liquefaction, lateral spreading, dynamic compaction, hydrocompaction, ground subsidence, landslides, flooding, tsunamis, and seiches pose low or negligible project risks.

5. There is no evidence of existing or potential geological or mineralogical resources at the project site or along the linear alignments.

6. The evidence addresses the potential cumulative impacts of the project in conjunction with other identified projects over a broad area.

7. The record addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and various No Project Alternatives in regard to this topic area.

8. Implementation of any of the Alternatives mentioned above is not necessary or preferable as a means of reducing project related impacts to below a level of significance.

9. The project owner will implement several mitigation measures to avoid impacts to paleontological resources including worker education, preparing a Paleontological Monitoring and Mitigation Plan, and having a Paleontologic Resource Specialist on-site.

## CONCLUSIONS OF LAW

1. The Conditions listed below ensure that project activities will not cause significant adverse direct or cumulative impacts to geological, mineralogical, or paleontological resources.

2. Compliance with the Conditions of Certification specified below will ensure that the Imperial Valley Solar Project conforms to all applicable laws, ordinances, regulations, and standards related to geological, mineralogical, and paleontological resources as identified in **Appendix A** of this Decision.

## CONDITIONS OF CERTIFICATION

**PAL-1** The project owner shall provide BLM's Authorized Officer and the Compliance Project Manager (CPM) with the resume and qualifications of its PRS for review and approval. If the approved PRS is replaced prior to completion of project mitigation and submittal of the Paleontological Resources Report, the project owner shall obtain BLM's Authorized Officer and CPM approval of the replacement PRS. The project owner shall keep resumes on file for qualified Paleontological Resource Monitors (PRMs). If a PRM is replaced, the resume of the replacement PRM shall also be provided to BLM's Authorized Officer and the CPM.

The PRS resume shall include the names and phone numbers of references. The resume shall also demonstrate to the satisfaction of BLM's Authorized Officer and the CPM the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by BLM's Authorized Officer and the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontology (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. Institutional affiliations, appropriate credentials, and college degree;

2. Ability to recognize and collect fossils in the field;

3. Local geological and biostratigraphic expertise;

4. Proficiency in identifying vertebrate and invertebrate fossils; and

5. At least three years of paleontological resource mitigation and field experience in California and at least one year of experience leading paleontological resource mitigation and field activities.

The project owner shall ensure that the PRS obtains qualified paleontological resource monitors to monitor as he or she deems necessary on the project. Paleontological Resource Monitors (PRMs) shall have the equivalent of the following qualifications:

- BS or BA degree in geology or paleontology and one year of experience monitoring in California; or

- AS or AA in geology, paleontology, or biology and four years' experience monitoring in California; or

- Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

**Verification:**

(1) At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work.

(2) At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project, stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to BLM's Authorized Officer and the CPM. The letter shall be provided to BLM's Authorized Officer and the CPM no later than one week prior to the monitor's beginning on-site duties.

(3) Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to BLM's Authorized Officer and the CPM for review and approval.

**PAL-2** The project owner shall provide to the PRS, BLM's Authorized Officer and the CPM, for approval, maps and drawings showing the footprint of the power plants, construction lay down areas, and all related facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS, BLM's Authorized Officer and CPM. The site grading plan and plan and profile drawings for the utility lines would be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and be at a scale of 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the project or its linear facilities change, the project owner shall provide maps and drawings reflecting those changes to the PRS, BLM's Authorized Officer and CPM.

If construction of the ISEGS project proceeds in phases, maps and drawings may be submitted prior to the start of each power plant. A letter identifying the proposed schedule of each project power plant shall be provided to the PRS, BLM's Authorized Officer and CPM. Before work commences on affected power plants, the project owner shall notify the PRS, BLM's Authorized Officer and CPM of any construction phase scheduling changes.

At a minimum, the project owner shall ensure that the PRS or PRM consults weekly with the project superintendent or construction field

manager to confirm area(s) to be worked the following week, and until ground disturbance is completed.

**Verification:**

(1) At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings to the PRS, BLM's Authorized Officer and CPM.

(2) If there are changes to the footprint of the project, revised maps and drawings shall be provided to the PRS, BLM's Authorized Officer and CPM at least 15 days prior to the start of ground disturbance.

(3) If there are changes to the scheduling of the construction phases of each power plant, the project owner shall submit a letter to BLM's Authorized Officer and the CPM within 5 days of identifying the changes.

**PAL-3** If after review of the plans provided pursuant to PAL-2, the PRS determines that materials with moderate, high, or unknown paleontological sensitivity could be impacted, the project owner shall ensure that the PRS prepares, and the project owner submits to BLM's Authorized Officer and the CPM for review and approval, a paleontological resources monitoring and mitigation plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by BLM's Authorized Officer and the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting, and sampling activities, and may be modified with BLM's Authorized Officer and CPM approval. This document shall be used as the basis of discussion when on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, BLM's Authorized Officer and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of Vertebrate Paleontology (SVP 1995) and shall include, but not be limited, to the following:

1. Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking, construction monitoring, mapping and data recovery, fossil preparation and collection, identification and inventory, preparation of final reports, and transmittal of materials for curation will be performed according to PRMMP procedures;

2. Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and the conditions of certification;

3. A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;

4. An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained units;

5. A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed plan for monitoring and sampling;

6. A discussion of procedures to be followed in the event of a significant fossil discovery, halting construction, resuming construction, and how notifications will be performed;

7. A discussion of equipment and supplies necessary for collection of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

8. Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meet the Society of Vertebrate Paleontology's standards and requirements for the curation of paleontological resources;

9. Identification of the institution that has agreed to receive data and fossil materials collected, requirements or specifications for materials delivered for curation, and how they will be met, and the name and phone number of the contact person at the institution; and

10. A copy of the paleontological conditions of certification.

**Verification:** At least 30 days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to BLM's Authorized Officer and the CPM. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the PRMMP by the project owner evidenced by a signature.

**PAL-4** If after review of the plans provided pursuant to PAL-2, the PRS determines that materials with moderate, high, or unknown paleontological sensitivity could be impacted then, prior to ground

disturbance and for the duration of construction activities involving ground disturbance, the project owner and the PRS shall prepare and conduct weekly BLM Authorized Officer- and CPMapproved training for the following workers: project managers, construction supervisors, foremen and general workers involved with or who operate ground-disturbing equipment or tools. Workers shall not excavate in sensitive units prior to receiving BLM Authorized Officer- and CPM-approved worker training. Worker training shall consist of an initial in-person PRS training during the project kick-off, for those mentioned above. Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to BLM's Authorized Officer and CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM.

The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources.

The training shall include:

1. A discussion of applicable laws and penalties under the law;

2. Good quality photographs or physical examples of vertebrate fossils for project sites containing units of high paleontological sensitivity;

3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;

4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;

5. An informational brochure that identifies reporting procedures in the event of a discovery;

6. A WEAP certification of completion form signed by each worker indicating that he/she has received the training; and

7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

**Verification:**

(1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow.

(2) At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to BLM's Authorized Officer and the CPM for approval if the project owner is planning to use a video for interim training.

(3) If the owner requests an alternate paleontological trainer, the resume and qualifications of the trainer shall be submitted to BLM's Authorized Officer and the CPM for review and approval prior to installation of an alternate trainer. Alternate trainers shall not conduct training prior to BLM's Authorized Officer and CPM authorization.

(4) In the monthly compliance report (MCR, the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

**PAL-5** The project owner shall ensure that the PRS and PRM(s) monitor consistent with the PRMMP all construction-related grading, excavation, trenching, and augering in areas where potential fossil-bearing materials have been identified, both at the site and along any constructed linear facilities associated with the project. In the event that the PRS determines full-time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the project owner shall notify and seek the concurrence of BLM's Authorized Officer and the CPM.

The project owner shall ensure that the PRS and PRM(s) have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

1. Any change of monitoring from the accepted schedule in the PRMMP shall be proposed in a letter or email from the PRS and the project owner to BLM's Authorized Officer and the CPM prior to the change in monitoring and will be included in the monthly compliance report. The letter or email shall include the justification for the change in monitoring and be submitted to BLM's Authorized Officer and the CPM for review and approval.

2. The project owner shall ensure that the PRM(s) keep a daily monitoring log of paleontological resource activities. The PRS may

informally discuss paleontological resource monitoring and mitigation activities with BLM's Authorized Officer and the CPM at any time.

3. The project owner shall ensure that the PRS notifies BLM's Authorized Officer and the CPM within 24 hours of the occurrence of any incidents of non-compliance with any paleontological resources conditions of certification. The PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.

4. For any significant paleontological resources encountered, either the project owner or the PRS shall notify BLM's Authorized Officer and the CPM within 24 hours, or Monday morning in the case of a weekend event where construction has been halted because of a paleontological find.

The project owner shall ensure that the PRS prepares a summary of monitoring and other paleontological activities placed in the monthly compliance reports. The summary will include the name(s) of PRS or PRM(s) active during the month, general descriptions of training and monitored construction activities, and general locations of excavations, grading, and other activities. A section of the report shall include the geologic units or subunits encountered, descriptions of samplings within each unit, and a list of identified fossils. A final section of the report will address any issues or concerns about the project relating to paleontological resource monitoring, including any incidents of noncompliance or any changes to the monitoring plan that have been approved by BLM's Authorized Officer and the CPM. If no monitoring took place during the month, the report shall include an explanation in the summary as to why monitoring was not conducted.

**Verification:** The project owner shall ensure that the PRS submits the summary of monitoring and paleontological activities in the MCR. When feasible, BLM's Authorized Officer and the CPM shall be notified 10 days in advance of any proposed changes in monitoring different from the plan identified in the PRMMP. If there is any unforeseen change in monitoring, the notice shall be given as soon as possible prior to implementation of the change.

**PAL-6** The project owner, through the designated PRS, shall ensure that all components of the PRMMP are adequately performed including collection of fossil materials, preparation of fossil materials for analysis, analysis of fossils, identification and inventory of fossils, the preparation of fossils for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during project construction.

**Verification:** The project owner shall maintain in his/her compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after project completion and approval of BLM Authorized Officer- and CPM-approved paleontological resource report (see PAL-7). The project owner shall be responsible for paying any curation fees charged by the museum for fossils collected and curated as a result of paleontological mitigation. A copy of the letter of transmittal submitting the fossils to the curating institution shall be provided to BLM's Authorized Officer and the CPM.

**PAL-7** The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground-disturbing activities. The PRR shall include an analysis of the collected fossil materials and related information, and submit it to the CPM for review and approval.

The report shall include, but is not limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated below the level of significance.

**Verification:** Within 90 days after completion of ground-disturbing activities, including landscaping, the project owner shall submit the PRR under confidential cover to BLM's Authorized Officer and the CPM.

**Certification of Completion**
**Worker Environmental Awareness Program**
**Imperial Valley Solar Project (08-AFC-5)**

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on cultural, paleontological, and biological resources for all personnel (that is, construction supervisors, crews, and plant operators) working on site or at related facilities. By signing below, the participant indicates that he/she understands and shall abide by the guidelines set forth in the program materials. Include this completed form in the Monthly Compliance Report.

| No. | Employee Name | Title/Company | Signature |
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Cultural Trainer: _____ Signature:_____ Date: ___/___/___

PaleoTrainer:_____ Signature:_____ Date: ___/___/___

Biological Trainer: _____ Signature:_____ Date:___/___/___

# VII. LOCAL IMPACT ASSESSMENT

In the following sections of this Decision, we review whether Imperial Valley Solar will result in significant local impacts on nearby population centers, including an excessive burden on community services, unmitigated noise, increased traffic congestion, and/or adverse visual effects. These potential impacts are discussed under the technical topics of land use, socioeconomics, noise, traffic and transportation, and visual resources.

## A. LAND USE

The parties provided extensive evidence on land use, establishing that the project is inconsistent with local land use laws, ordinances, regulations, and standards (LORS). Applicant requested the Commission to override the LORS inconsistencies due to the public interest in siting solar projects on BLM-administered land in Imperial County.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The evidence incorporates both CEQA and NEPA Guidelines[1] to determine whether the project will result in significant land use impacts. The Guidelines are concerned with:

### Conversion of Farmland or Rangeland

- Convert to non-agricultural uses any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as designated on maps published by the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation (CDC).

- 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.

[1] Title 14, Cal. Code Regs., Section 15000 et seq., Appendix G, Sections II, IX, XVI; 40 CFR Part 1508.27 et seq.

**Wilderness 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).

**Land Use Compatibility and LORS Compliance**

- Physically disrupt or divide an established community.

- Conflict with any applicable habitat conservation plan or natural community conservation plan.

- Conflict with any applicable land use plan, policy, or regulation of an agency that has jurisdiction or would have jurisdiction but for the Energy Commission's authority over the project, such as a General Plan, community or specific plan, local coastal program, airport land use compatibility plan, or zoning ordinance.

**Cumulative Land Use Effects**

- Create 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.

State and local land use laws and policies applicable to the project include the *California Subdivision Map Act*, the *California Land Conservation Act* ("Williamson Act"), the *Imperial County General Plan*, the *Imperial County Land Use Ordinance (Title 9)*, and the *Ocotillo/Nomirage Community Area Plan*.

Federal land use laws applicable to the project include the *Federal Land Policy and Management Act*, the *Farmland Protection Policy Act*, the *Bureau of Land Management (BLM) – California Desert Conservation Area Plan*, the *Yuha*

*Desert Management Plan*, as well as statutes related to public rangelands and wild horses and burros. (Ex. 1, § 5.9.6, Table 5.9-8; Ex. 302, p. C.8-21 et seq., Land Use Table 3.)

1. The Site

The 6,500-acre project site consists of an estimated 6,140 acres of public land administered by the BLM, and about 360 acres of undeveloped private land subject to Imperial County jurisdiction.[2] The surrounding area is characterized by freeways, undeveloped desert, recreational sites, industrial uses, and several small, rural communities. (Ex. 302, p. C.8-4; Ex. 1, § 5.9.1.2.)

The project's northern boundary is adjacent to Imperial County Route S80 and the USG Corporation Gypsum Wallboard Manufacturing Facility ("Plaster City"). Plaster City includes an Off-Highway Vehicle (OHV) recreational and camping area. The project's southern boundary is adjacent to Interstate 8 (I-8) and the Yuha Area of Critical Environmental Concern (ACEC), which is under BLM jurisdiction.[3] The project's western boundary is within the Imperial County Ocotillo/Nomirage Planning Area. (Ex. 302, pp. C.8-4 to C.8-5.)

The nearest residential development is located in the Imperial Lakes Specific Plan area in the community of Edgar about 0.7 mile northeast of the project's boundary. The communities of Coyote Wells and Ocotillo are located about 1.3 and 4 miles west of the project's boundary. (Ex. 302, p. C.8-5.)

Two private parcels of land, one owned by a recreational vehicle club and one by an individual, are surrounded by the project but are not part of the project site. Access to these parcels will be provided via a new arterial roadway system built within the project site. (Ex. 302, p. C.8-5; Ex. 1, § 5.9.1.2.)

The project's 110-acre laydown area is located east of the project site on Dunaway Road and north of I-8. A smaller 11.04-acre laydown area is located within the project site boundaries. (Ex. 302, p. C.8-4.)

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[2] These private properties are identified as the Oatman properties comprised of a 79-acre parcel and a 160-acre parcel; the Double Eagles (aka Burke) property comprising 80 acres in 8 parcels; and the Martinez property, consisting of a 1 acre-parcel. (Ex. 24, p. 1, Attachment D.)

[3] The Yuha ACEC is discussed in the **Biological Resources** and **Visual Resources** sections of this Decision.

Associated facilities include:

- approximately 30,000, 38-foot solar dish Stirling systems (SunCatchers) and associated equipment and infrastructure within a fenced boundary[4];
- an underground off-site 12-mile, 6-inch water pipeline in the existing Evan Hewes Highway Right-of-Way (ROW), to provide reclaimed water from the Seeley Waste Water Treatment Facility (SWWTF) located 13 miles east of the project site;
- an onsite, 24.27-acre Main Services Complex in the center of the site for administration and maintenance activities, including buildings, parking, and access roads;
- an onsite, 6-acre 750 MW Substation located in the center of the site near the Main Services Complex;
- a 10.3-mile transmission line to SDG&E's existing Imperial Valley Substation southeast of the project site, parallel to the existing Southwest Powerlink transmission line ROW; and
- 27 miles of unpaved arterial roads, 14 miles of unpaved perimeter roads, and 234 miles of unpaved access roads. (Ex. 302, p. C.8-5.)

## 2. Potential Impacts

Applicant's **Figure 5.9-2**, replicated at the end of this section, shows existing land uses at the site and surrounding areas that could be affected by the project.

**Conversion of Farmland**. According to Applicant, the project site and areas within a one-mile radius of the site are not suitable for large-scale agricultural production. (Ex. 1, § 5.9.2.2.) Staff performed an analysis of the potential conversion of farmland since official surveys of farmlands in the area were inconsistent. (Ex. 302, pp. C.8-13 to C.8-15.)

The evidence shows that the U.S. Natural Resource Conservation Service (NRCS) has surveyed 1,931 acres within the eastern portion of the project site (about 30 percent of the site) and designated 74 percent of the surveyed area as Farmland of Statewide Importance and 25 percent as Prime Farmland, if irrigated. By contrast, the Farmland Mapping and Monitoring Program (FMMP)

[4] During the proceedings, concerns were raised concerning the proposed project's potential to cause impacts to certain washes and ephemeral drainage channels on the site. As a result, the applicant and the Army Corps of Engineers developed an alternative that removes 1,163 SunCatchers from the washes and reduce the permanent impacts to Waters of the U.S. from 177.4 acres to 38.2 acres. The plant's power output would be reduced to 709 MW. This is described in more detail in the Soil & Water Resources chapter of this decision.

of the California Department of Conservation (DOC) has mapped the same 30 percent of the site as "Other Land," which is not included in any category such as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The western portion of the site has not been surveyed by the NRCS or mapped by the FMMP. (Ex. 302, pp. C.8-13 to C.8-15.)

Staff used the California Department of Conservation (CDC) Agricultural Land Evaluation and Site Assessment (LESA) Model to assess the project's permanent effects on farmlands identified by the NRCS.[5] The modeling results indicate that the project's effects do not exceed the LESA significance threshold and do not result in adverse impacts because the soils are not suitable for agricultural uses and irrigation resources are limited. (Ex.1, § 5.9.2.2; Ex. 302, pp. C.8-14 to C.8-15, *Appendix LU-1* following p. C.8-58.)

The project's water pipeline and transmission line will be constructed in existing ROWs surrounded by lands that are designated Agriculture under the county's General Plan. The 10.3-mile transmission line ROW will deviate from the existing transmission corridor for about 0.75-mile across land designated Agriculture. (Exs. 14, § 2.9.1; 302, p. C.8-15.)

The evidence shows that construction impacts in the new ROW will be temporary and the amount of farmland permanently converted by the transmission line tower footings will be minimal. Construction of the transmission line will not preclude agricultural activities from occurring within the ROW or in immediate areas surrounding the ROW. Consequently, the project will not result in any farmland conversion impacts or inconsistencies within an agricultural zone or involve other changes to the existing environment that could potentially result in the conversion of farmland to non-agricultural uses. Further, no allotments of rangeland are within the project vicinity and no conversion of rangelands would occur. Therefore, no agricultural lands or rangelands will be adversely affected by construction of the project's linear components. (Ex. 302, p. C.8-15.)

The FMMP has mapped the area adjacent to the eastern boundary of the 110-acre construction laydown site as Farmland of Local Importance and 1.5 miles

[5] The LESA Model provides a quantitative means of determining agricultural land and farmland disturbance acreages and quantitative thresholds to determine the level of severity of those land disturbance impacts. The results of the LESA Model are used to determine the occurrence of significant impacts on farmland based on the significance thresholds delineated in Appendix G of the CEQA Guidelines. (Ex. 302, p. C.8-14.)

east of the laydown site as Prime Farmland and Farmland of Statewide Importance. However, since construction laydown is a temporary use and the laydown site will be restored to its original state, the project will not result in permanent impacts to potential agricultural lands adjacent to or near the laydown site. (Ex. 302, p. C.8-6.)

**Williamson Act**. The project does not conflict with the Williamson Act because neither the site nor the linear corridors are located in areas subject to Williamson Act contracts. (Ex. 302, p. C.8-14.)

**Wilderness and Recreation**. In Imperial County, the majority of undeveloped land subject to county jurisdiction is designated Open Space/Recreation and the majority of BLM management lands are designated Open or Limited Use. All forms of cross-country travel are permitted within the posted boundaries in Open areas while travel is limited to approved/signed routes in Limited Use areas. (Ex. 302, p. C.8-8, Table 1.)

Approximately half of the project site is within the Yuha Desert Recreation Lands area. Applicant submitted a Current Conditions Report, which indicates high levels of human activity throughout the site due to networks of BLM-authorized roads as well as unauthorized trails and roads. Geographic Information System (GIS) data found that 1,038 acres within the site have been disturbed by use of OHVs. According to Staff, the conversion of 6,500 acres of land for project use will directly disrupt OHV and other recreational activities at or adjacent to the site. (Ex. 302, pp. C.8-16, C.8-6 to C.8-8, Land Use Table 1; 7/226/10 RT 44-45.)

Applicant disputes Staff's analysis. According to Applicant, the project site is not a designated location for specific recreational uses but provides a limited amount of dispersed, undeveloped recreational opportunities. The federal lands within the project site are designated Multiple Use Class L (Limited), which allows for *low to moderate* intensity recreational activities. Although portions of the project area have been highly disturbed by OHV vehicles, the use of OHVs is not permitted or authorized outside of designated routes. Applicant notes that the BLM is in the process of physically removing closed routes and restoring the areas that were damaged by illegal off-route travel. Applicant also refers to the Yuha Desert Management Plan, which seeks to reverse the proliferation of casual OHV use and the resultant resource degradation. (Ex. 28, p. 71 et seq.; Ex. 113.)

Applicant maintains therefore that the project's impact on recreational uses will not be significant because public recreationalists will continue to have access to the surrounding areas north and south of the project site, as well as to other regional parks and recreational areas such as the Yuha ACEC and the Plaster City OHV area. In addition, one of the project's new access roads (going east from Dunaway Road) will provide access to an OHV route that was previously designated closed by the BLM. (Ex. 1 § 5.9.3.3; Ex. 28, p. 71 et seq.; Ex. 113; Ex. 302, p. C.8-8, **Land Use** Table 1.)

We agree with Applicant. The evidence shows that the single largest recreational use of the site has been OHV use, and further that much of that use has been unauthorized, off-trail use. According to Staff's **Land Use Table 1**, over one million acres of recreation lands are available within a 35-mile radius of the site, and approximately half of that is designated for OHV use. The evidence also shows that 1,038 acres of the site has been disturbed by OHV use, both authorized and unauthorized. (Ex. 302, p. C.8-7; 7/26/10 RT 44:13-25, 45). The loss of 1,038 acres of OHV opportunities at the site, which has been used only rarely for other recreational activities and is considered "highly disturbed" due to "years of heavy and ongoing OHV use," is not significant when compared to the availability of nearly 500,000 acres of authorized for OHV use within a 35-mile radius. (*Id*.)

There is no evidence of direct project impacts on wilderness areas because the project is not located on wilderness lands. However, the Yuha ACEC and Jacumba Mountains Wilderness near the project site attract visitors based on their scenic, biological, cultural, and recreational amenities. Thus, the project will indirectly impact the recreational and wilderness values of these areas by changing the natural and undisturbed landscape from open space to an intensive utility. The **Visual Resources** section of this Decision provides analysis of the project's visual impacts on surrounding lands. Since there is an abundance of wilderness and recreation sites throughout Imperial County, the project's indirect impacts are considered *de minimis*. (Ex. 302, pp. C.8-17 to C.8-18, C.8-6 to C.8-8, Land Use Table 1; Ex. 113.)

The Anza Trail, which consists of the National Historic Trail Corridor, the Auto Tour Route, and the Anza Recreation Trail, crosses the project site. Hiking, biking, and horseback riding through the National Historic Trail and the Anza Recreation Trail are allowed, but the location of the trail on the project site is not easily discernible due to heavy and ongoing OHV use. The National Park Service and the BLM disagree on whether to reroute the trail around the site. (Ex. 302, pp. C.8-17 to

C.8-18, C.8-6 to C.8-8; 7/26/10 RT 46.) See the **Visual Resources** and **Cultural Resources** sections of this Decision for more information about the trails.

**Horses and Burros**. The project will not contain or traverse any established BLM herd areas (HAs) or herd management areas (HMAs). Following construction, fencing around the site will prevent any horses or burros from entering the area. Thus, the project will not interfere with BLM's management of HMAs or HAs. (Ex. 301, p. C.8-9.)

**Division of Existing Community**. There is no evidence that the project will physically divide or disrupt an established community. Given its remote location on undeveloped lands, the project does not alter existing residential, commercial, institutional, or other industrial land use patterns in the area. (Ex. 301, p. C.8-18.)

**Conflict with Habitat or Conservation Plan.** The project site is located within the 25-million acre California Desert Conservation Area (CDCA), which was established by the federal government in 1976 and subject to BLM oversight. The BLM's CDCA Plan divides the public lands into multiple-use classifications describing the types of use permitted within the geographic areas. The project site's classification as Multiple-Use Class L (Limited Use) allows the construction of solar facilities but requires BLM approval of ROW access pursuant to the CDCA Plan Amendment process. The Applicant's request for a project-specific CDCA Plan Amendment for ROW access from the BLM is pending. (Ex. 1, § 5.9.3.2 et seq; Ex. 302, p. C.8-19, Table 3 at p. C.8-21.)

The project's conformity with the CDCA Plan's Energy Production and Utility Corridors Element Decision Criteria is shown below in **Applicant's Table 5.7-9**.

3. Consistency with Land Use LORS.

Under the Imperial County Land Use Ordinance (LUO), the current land use designation for the private lands within the project site and construction laydown area is S-2 (Open Space/Preservation). Solar generation is an allowable use in the S-2 zone if it is consistent with the "Similarity of Use" findings required for a Conditional Use Permit (CUP) under Title 9 of the LUO. In February 2009, the county granted a CUP for the 49.5 MW Telstar Solar PV project in the S-2 zone. (Ex. 301, p. C.8-26 et seq. in Table 3.)

**Table 5.7-9**

**Conformity with the California Desert Conservation Area Plan's Energy Production and Utility Corridors Element Decision Criteria**

| Decision Criteria | Compliance |
|---|---|
| Minimize the number of separate rights-of-way by utilizing existing rights-of-way as a basis for planning corridors | Linear facilities associated with the Solar Two Project would be co-located with existing rights-of-way, The 10.3-mile long 230 kV transmission line would parallel designated Utility Corridor "N." The 7.17-mile long 6-inch waterline would be located in an existing railroad right-of-way. |
| Encourage joint use of corridors for transmission lines | The 10.3-mile long 230 kV transmission line would parallel the existing Southwest Powerlink 500 kV transmission line and the proposed 500-kV Sunrise Powerlink Project transmission line within designated Utility Corridor "N." |
| Provide alternative corridors to be considered during processing of applications | Alternative site locations were considered during the planning process and are discussed in Section 4.0, Alternatives. |
| Avoids sensitive resources whenever possible | The Solar Two Project would avoid sensitive biological and cultural resources whenever possible, as discussed in Section 5.6, Biological Resources, and Section 5.7, Cultural Resources. |
| Conforms to local plans whenever possible | This section discusses the Project's conformance to BLM land use plans. The plan is in compliance with state and local land use plans (refer to Section 5.9.6, Laws, Ordinances, Regulations, and Standards Compliance, for additional information on conformance with local and state plans). |
| Considers wilderness values consistent with wilderness designations | The Solar Two Project would not conflict with wilderness designations or wilderness values. |
| Completes delivery systems network | Not applicable |
| Considers ongoing projects for which decisions have been made | The Solar Two Project will be co-located parallel to the proposed 500-kV Sunrise Powerlink Project transmission line. |
| Considers corridor networks which take into account power needs and alternative fuel resources | Solar Two Project would provide alternative fuel. |

Source: SES Solar Two, LLC, 2008.
BLM = Bureau of Land Management
kV = kilovolt

Staff reviewed the CUP findings that the county would have made but for the Energy Commission's exclusive jurisdiction and determined that the project would be inconsistent with the required LUO "Similarity of Use" finding and therefore ineligible for a CUP.[6] (Ex. 302, p. C.8-26 et seq. in Table 3.) According to Staff, the 6,500-acre, 750 MW Imperial Valley Solar project is not a "Similar Use" compared with the 49.5 MW Telstar PV project located on 540 acres because the scale and scope of Imperial Solar would result in unmitigated impacts on visual resources, biological and cultural resources, and cumulative land use. (*Id.*) Applicant and the county concurred with Staff's analysis. (7/26/10 RT 42:10-25, 43, 44:1-7; Applicant's Post-Hearing Brief, p.32.)

Applicant concedes that no solar project or any energy generation facility of this scale has ever been developed in any zone within Imperial County and agrees that the project is inconsistent with the "Similarity of Use" requirement. Although the project's impacts on properties within the S-2 zone may be equal to or less than the impacts resulting from the Telstar Project, the entirety of the project will involve impacts related to size and scale that are significant and unavoidable to visual resources, biological and cultural resources, and cumulative land use. Applicant believes, however, that overriding considerations in this case should be applied to the LORS inconsistencies. According to Applicant, the override of zoning use classifications will not harm the county and will not interfere with agricultural uses.[7] And finally, Applicant argues that the zoning ordinance was written prior to the state's interest in solar energy generation in the Imperial County desert. (Ex. 124, pp. 4-5.)

In addition, the project cannot comply with the set-back requirements in the S-2 zone because the non-contiguous private parcels on the site will all be used for the solar project rendering set-backs unnecessary. Staff recommended Condition **LAND-1,** which would require Applicant to purchase all the private parcels and merge them under the Subdivision Map Act to eliminate the need for set-backs and to establish site control. (7/26/10 RT 47-49.) However, Applicant's attempts to purchase all parcels were unsuccessful. Only the Martinez property was available for sale while the Oatman and Double Eagles (Burke) properties were only available for long-term lease agreements. These

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[6] The Commission's regulations direct Staff to give due deference to a local agency's recommendations regarding matters within that agency's jurisdiction. [Cal. Code Regs., tit. 20, §§ 1714.5(b) and 1744(e).]

[7] Applicant notes that the Ocotillo-Nomirage Community Area Plan, which is applicable to the site's S-2 zone, includes goals and objectives that eliminate agricultural zoning and prohibit agricultural uses. (Ex. 124, p. 5.)

agreements are included in the record. Condition of Cerification **LAND-1** is therefore deleted. (Ex. 124, pp. 5-9, Attachments A-D; Ex. 302, p. C.8-24, Table 3.)

Applicant notes that parcels under separate ownership cannot be merged. (Govt. Code, § 66451.11.) Even if the parcels could be purchased, Applicant asserts that they could not be merged because (1) they are not physically contiguous, and (2) they cannot merge with federally-owned BLM properties. Applicant argues that the set-back requirements serve no legitimate purpose at the project site because the entire site is dedicated to the solar plant and there is no need to provide boundaries for separate uses on each of the parcels.[8] Site control is assured by the agreements with the private property owners because the parcels cannot be separately conveyed in a way that would interfere with project operations or ownership. Moreover, opportunities to transfer one small parcel separate from the integrated solar project are unlikely to occur. Therefore, Applicant asserts that overriding considerations should be applied because enforcing the set-back requirements would not serve a "more prudent feasible means of achieving the public convenience and necessity." (Ex. 124, pp. 5-9.)

We agree with Applicant and find that overriding considerations warrant an override of the project's inconsistencies with local land use LORS; specifically, the "Similarity of Use" determination for a CUP in the S-2 zone and the set-back requirements in the S-2 zone. The evidence of Applicant's purchase and lease agreements with the private property owners at the site establishes site control. Staff's proposed Condition **LAND-1** does not resolve the project's inability to meet the county's set-back requirements and we do not adopt it. See the **Override** section of this Decision.

Staff's **Land Use Table 3**, replicated at the end of this section, summarizes Staff's analysis of project compliance with applicable Land Use LORS.

4 Land Use Compatibility

Zoning ordinances are designed to ensure the compatibility of adjacent zoning districts by limiting uses that would result in adverse impacts to surrounding properties. A project may be considered an incompatible use if it introduces a new source of pollution or hazard within close proximity to sensitive receptors, including residential areas, schools, day-care centers, hospitals, and nursing

[8] The project will comply with the county's S-2 zone set-back requirements along the site's external boundaries to protect adjacent properties. (Ex. 124, p. 7.)

homes. Proximity is defined as "within 1,000 feet" of a school (Health & Safety Code, § 42301.6 et seq.) or within 0.25 mile of a sensitive receptor under CEQA. Proximity is not necessarily a determining factor for a potentially significant impact, but it is the threshold generally used to require further evaluation. (Ex. 302, pp. C.8-18 to C.8-20; Ex. 1, § 5.9.2.1.)

Applicant concedes that the project will permanently change the nature of land use at the site from Limited Use and Recreation/Open Space. However, according to Applicant, the project will not adversely affect the enjoyment or use of proximate properties. (Ex. 1, §§ 5.9.2.1, 5.9.6.3; Ex. 113; Ex. 28, p. 71 et seq.)

The nearest residences are located 0.7 mile northeast of the site within the Imperial Lakes Specific Area Plan. The area is zoned Recreation/Open Space under the county's LUO but land use is residential under the Imperial Lakes Specific Area Plan. There is also a residence about 1.5 miles east of the project site. Conversion of the site to solar generation is not expected to alter either of these residential land uses or any other rural residential uses within one mile of the site. (Ex. 1, p. 5.9-12.) Finally, the Westside Elementary School, which is located 8 miles southeast of the site, will not be affected by the land use conversion to solar use. (*Id*.)

The project is compatible with the goals and policies of the county's General Plan Conservation and Open Space Element, which encourages energy conservation and demonstration of new energy technologies such as solar. (Ex. 1, §§ 5.9.2.1, 5.9.2.6; Ex. 302, p. C.8-25, Table 3.) The majority of the project's transmission line will utilize an existing utility ROW as required by the General Plan Geothermal/ Alternative Energy and Transmission Element. The 0.75-mile of transmission line that will create a new utility ROW in an agricultural area is compatible with this Element because it will not result in more than minimal impacts to agricultural or recreational activities. (Ex. 302, p. C.8-25, Table 3.) See Staff's **Land Use Table 3** at the end of this section.

There is no evidence that the project will result in any unmitigated public health or environmental impacts to rural residences within a one-mile radius of the site. See the **Air Quality, Hazardous Materials Management, Public Health,** and **Traffic and Transportation** sections of this Decision.

The noise impacts resulting from operation of the project's approximate 30,000 SunCatchers at the site are similar in character to, and compatible with, the

noises created by OHV use in the Recreation/Open Space zone. The evidence shows that project noise will be at or below ambient levels at the nearest residential receptors. See the **Noise** section of this Decision.

Applicant asserts that project-related impacts to visual resources will not diminish recreational activities in the area because individual views of tourist sites will not be affected. However, Applicant concedes that impacts to area visual resources arising from project development are a direct result of the size of the project features, the contrast of the industrial project with the surrounding landscape, and the scale of the overall development. (Ex. 113; Ex. 28, p. 71 et seq.) Based on this evidence, we have concluded that significant impacts to visual resources cannot be avoided due to the nature of the project. See the **Visual Resources** and **Override** sections of this Decision.

5. Cumulative Impacts

A project may result in a significant adverse cumulative impact where its effects are cumulatively considerable. (Cal. Code Regs., tit. 14, § 15130.)

The record indicates that approximately one million acres of land are proposed for solar and wind energy development in Southern California desert lands.[9] Cumulative impacts to one million acres of land would combine to result in adverse effects on agricultural lands and recreational resources. The cumulative conversion of these lands would preclude numerous existing land uses such as recreation, wilderness, rangeland, and open space, and therefore, result in a significant and unavoidable cumulative land use impacts. (Ex. 302, p. C.8-43 et seq.)

Imperial Valley Solar project in combination with other proposed development will contribute to a regional loss of open space and recreational lands. We find therefore that the project will result in unavoidable, significant cumulative impacts on open space and recreational resources. In accord with state and federal policies to encourage development of renewable energy resources, the Commission has determined to override the finding of unavoidable cumulative impacts in the interest of developing solar generation in the state.

[9] According to Staff, 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. (Ex. 301, pp. C.8-42 to C.8-43.)

## FINDINGS OF FACT

Based on the weight of the evidence, the Commission makes the following findings:

1. The 6,500-acre project site consists of approximately 6,140 acres of federal land administered by the BLM, and 360 acres of private land subject to Imperial County jurisdiction. The project site is surrounded by freeways, undeveloped desert, recreational sites, industrial uses, and several small, rural communities.

2. The BLM-administered land is managed under the California Desert Conservation Area (CDCA) Plan and classified as Multiple Use Class L (Limited Use), which allows solar facilities but requires a CDCA Plan Amendment for BLM approval of a new Right-of-Way (ROW).

3. The project owner's CDCA Plan Amendment request is pending.

4. Local ordinances and policies applicable to project site include the Imperial County General Plan 2010, the Imperial County Land Use Ordinance (LUO) Title 9, and the Ocotillo/Nomirage Community Area Plan.

5. There is no large-scale agricultural production on the project site or immediate vicinity because soils at the site and within a one-mile radius of the site are not suitable for irrigated crop production.

6. The project's conversion of 6,500 acres of land to non-agricultural use does not exceed the Agricultural Land Evaluation and Site Assessment (LESA) significance threshold.

7. The project will cause the *temporary* conversion of potential agricultural land for construction laydown but the laydown area will be restored to its pre-construction condition and will not result in the permanent conversion of potential farmland.

8. The project site and linear corridors are not subject to Williamson Act contracts.

9. There is no evidence that the project will physically divide or disrupt an established community.

10. There is no evidence of direct project impacts on wilderness areas or herd management areas because the project is not located on wilderness or herd management lands.

11. The project's impact on recreational uses will not be significant because public recreationalists will have access to the surrounding areas north and south of the project site, as well as to other regional parks and recreational areas such as the Yuha ACEC and the Plaster City OHV area.

12. The private lands within the project site are designated as S-2 (Recreation/Open Space) under the county's LUO.

13. A solar power plant is a conditionally permitted use in the S-2 zone.

14. The project is not eligible for a Conditional Use Permit in the S-2 zone as a "Similarity of Use" and is therefore inconsistent with applicable LORS.

15. The project cannot comply with the county's set-back requirements in the S-2 zone and is therefore inconsistent with applicable LORS.

16. The private parcels on the site cannot be merged under the Subdivision Map Act because they are not available for purchase and even if they were purchased by the project owner, they are non-contiguous and cannot be merged with each other or with BLM-administered property.

17. Applicant has established site control by submitting evidence of purchase and lease agreements with the private property owners at the site.

18. Site control is assured by the agreements with the private property owners because the parcels cannot be separately conveyed in a way that would interfere with project operations or ownership.

19. The project is not compatible with surrounding uses within the S-2 zoning district Overriding considerations warrant the acceptance of this inconsistency and a statement of overriding considerations is therefore necessary.

20. Imperial Valley Solar will not result in significant direct or indirect land use impacts.

21. Imperial Valley Solar will contribute to significant, unavoidable cumulative land use impacts in the Southern California desert.

## CONCLUSIONS OF LAW

1. With implementation of the mitigation measures specified in this Decision, we conclude that construction and operation of Imperial Valley Solar project will not result in significant adverse direct or indirect land use impacts.

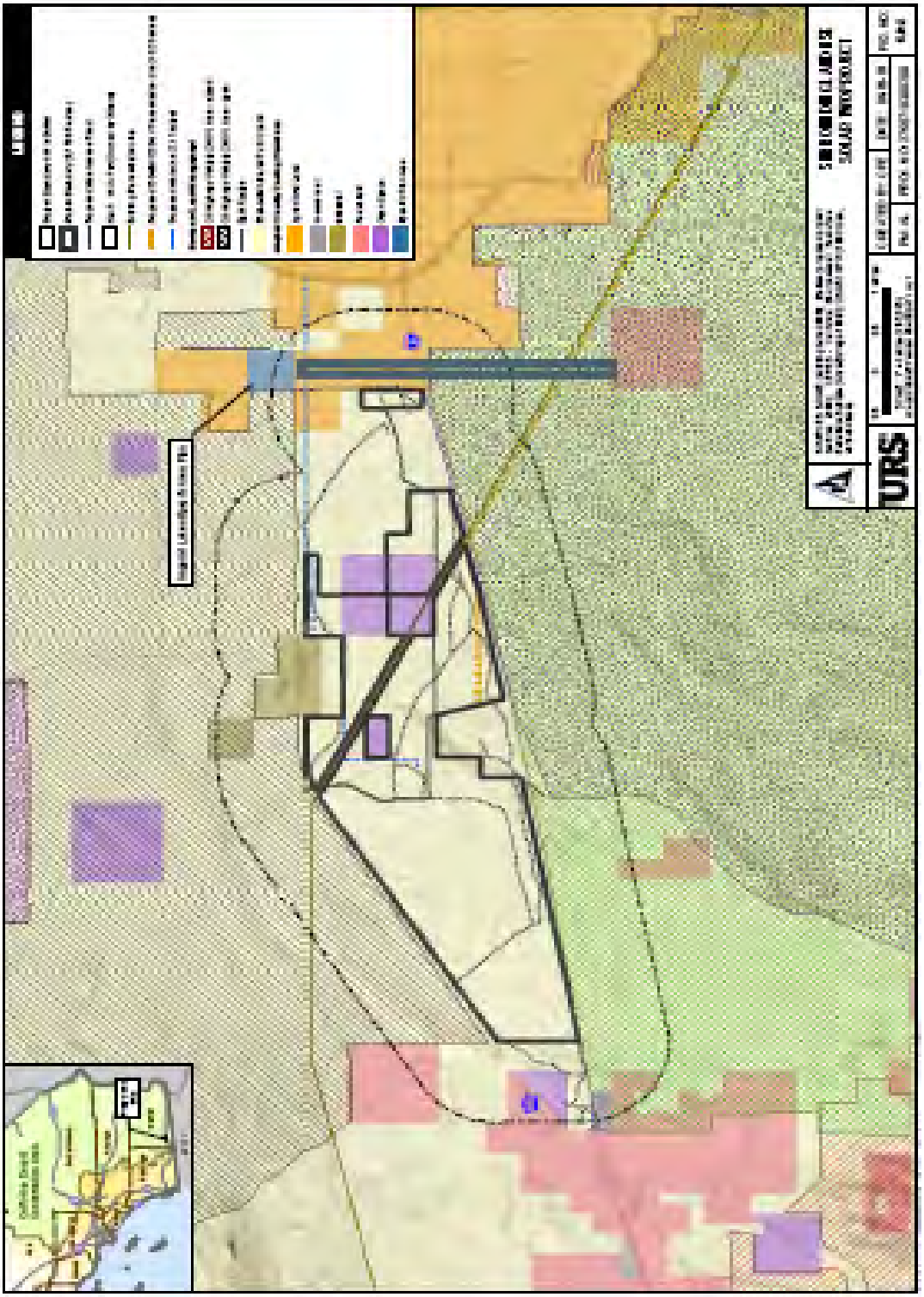
2. The project will contribute to unavoidable cumulative land use effects due to the removal of thousands of acres of desert lands from public use as a result of the anticipated development of solar and wind energy projects in Southern California.

3. The evidence of record contains an adequate analysis of the land use laws, ordinances, regulations, and standards that are relevant to the project and establishes that except for unavoidable significant visual impacts and cumulative effects on public desert lands subject to overriding considerations, the project will not result in significantly adverse land use effects as defined by the National Environmental Policy Act and the California Environmental Quality Act.

4. The Imperial Valley Solar project will conform with the applicable land use laws, ordinances, regulations, and standards identified in the evidentiary record and listed in the pertinent portion of **Appendix A** of this Decision except for the "Similarity of Use" Conditional Use Permit (CUP) findings and set-back requirements established in the Imperial County Land Use Ordinance for the S-2 zoning designation.

There are no Conditions of Certification for this topic.

## LAND USE FIGURE 5.9-2




Source: Ex. 1, § 5.9, Figure 5.9-2.

## Land Use Table 3
## Project Compliance with Adopted Land Use LORS

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
|---|---|---|---|
| FEDERAL | | | |
| **Federal Land Policy and Management Act, 1976 – 43 CFR 1600, Sec. 501. [43 U.S.C. 1761]** | (a) The Secretary, with respect to the public lands … are authorized to grant, issue, or renew rights-of-way over, upon, under, or through such lands for:<br>(4) systems for generation, transmission, and distribution of electric energy, except that the applicant shall also comply with all applicable requirements of the Federal Energy Regulatory Commission under the Federal Power Act, including part I thereof (41 Stat. 1063, 16 U.S.C. 791a-825r) [P.L. 102-486, 1992] | YES | The FLPMA authorizes the issuance of a right-of-way grant for electrical generation facilities and transmission lines. In addition, based on staff's review of the Federal Power Act, the requirements would not be applicable to the proposed project as they are not related to renewable resources, and are otherwise related to administrative procedures. Therefore, the proposed project would be in compliance with this policy. |
| **Farmland Protection Policy Act, Section 658.1** | As required by section 1541(b) of the [Farmland Protection Policy] Act, 7 U.S.C. 4202(b), Federal agencies are (a) to use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland, (b) to consider alternative actions, as appropriate, that could lessen adverse effects, and (c) to ensure that their programs, to the extent practicable, are compatible with State and units of local government and private programs and policies to protect farmland. | YES | As discussed above in detail in Section C.8.4.2 (under the subsection entitled "Agricultural Lands and Rangelands") and in **APPENDIX LU-1**, and based on the final score (30.95) of the LESA Model, the farmland conversion impacts of the proposed project would not be adverse. 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 would be consistent with the FPPA. |
| **Bureau of Land Management – California Desert Conservation Area (CDCA) Plan (BLM 1980)** | **Chapter 2 – Multiple-Use Classes**<br>**MULTIPLE-USE CLASS GUIDELINES**<br>MULTIPLE-USE CLASS L<br>Limited Use<br>6. Electrical Generation Facilities<br>–Nuclear and Fossil Fuel<br>–Wind/Solar<br>–Geothermal<br>Electric generation may be allowed.<br>7. Transmission Facilities New gas, electric, and water facilities and cables for interstate communication may be allowed only within designated corridors (see Energy Production and Utility Corridors Element). NEPA requirements will be met. [#5,85] | YES (with BLM's project-specific CDCA Plan Amendment) | Approximately 6,140 acres of the proposed project site is administered by the BLM and is managed under multiple use Class L (Limited Use) categories in conformance with the CDCA Plan (SES 2008a). The proposed project consists of an electrical generating facility, a transmission line, a waterline, and ancillary facilities. As such, development of the proposed project is an allowed use under the Multiple-Use Class Guidelines.<br>In addition, 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. Therefore, the BLM would undertake a project-specific CDCA Plan amendment along with the ROW grant for the proposed SES Solar Two Project. Upon BLM's amendment of the CDCA plan for the SES Solar Two Project, the proposed project would be fully compliant with the CDCA Plan.<br>This Environmental Impact Statement (EIS) acts as the mechanism for meeting NEPA requirements, and also provides the analysis required to support a Plan Amendment identifying the facility within the Plan. |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
|---|---|---|---|
| | **Chapter 3**<br>**Wild Horse and Burros Element**<br>Goal 2. Protect wild horses and burros on public lands by conducting surveillance to prevent unauthorized removal or undue harassment of animals. | YES | As noted in the "Setting and Existing Conditions" subsection above, the proposed project site is not in the vicinity of an HMA or HA; 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**<br>**Energy Production and Utility Element**<br>Goal 1. Fully implement the network of joint-use planning corridors to meet projected utility needs to the year 2000. Specific electrical and natural gas right-of-way or power plant site applications made under the provisions of this element should be consistent with adopted California Energy Commission forecasts, which are reviewed biennially.<br>Decision criteria are to:<br>(1) Minimize the number of separate rights-of-way by utilizing existing rights-of-way as a basis for planning corridors;<br>(2) Encourage joint use of corridors for transmission lines, canals, pipelines, and cables;<br>(3) Provide alternative corridors to be considered during processing of applications;<br>(4) Avoid sensitive resources wherever possible;<br>(5) Conform to local plans whenever possible;<br>(6) Consider wilderness values and be consistent with final wilderness recommendations;<br>(7) Complete the delivery-systems network;<br>(8) Consider ongoing projects for which decisions have been made, for example, the Intermountain Power Project; and<br>(9) Consider corridor networks which take into account power needs and alternative fuel resources. | YES | The proposed project's linear facilities would either use, or be adjacent to, existing and established utility ROWs. The proposed project site is bisected by the existing 500-kV Southwest Powerlink transmission line. The proposed 230-kv transmission line would traverse approximately 7 miles of the Yuha Basin ACEC within the designated utility corridor (SES 2008a), and the proposed waterline would be constructed within an existing highway ROW (SES 2009). Therefore, the proposed project would utilize existing ROWs, and would be consistent with this element of the CDCA Plan. |
| | **Addendum B: Interim Management Guidelines**<br>**Chapter III. Guidelines for Specific Activities**<br>**Lands Actions – Disposal, Rights-of-Way, Access and Withdrawals**<br>2. Rights-of-Way: Existing rights-of-way may be renewed if they are still being used for their authorized purpose. New rights-of-way may be approved only for temporary uses that satisfy the non-impairment criteria.<br>3. Right-of-Way Corridors: Right-of-way corridors may be designated on lands under wilderness review. | YES | The non-impairment standard, directs that "until Congress has determined otherwise" the lands under review be managed so as not to impair their suitability as wilderness (CRS 2004). As the proposed project would not traverse an established Wilderness Area, the project would be in compliance with this guideline of the CDCA Plan. |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
|---|---|---|---|
| **Federal Wilderness Act, 16 U.S.C. § 1131-1136** | **(a) Establishment; Congressional declaration of policy; wilderness areas; administration for public use and enjoyment, protection, preservation... provisions for designation as wilderness areas** In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. | YES | As the proposed project would not traverse an established Wilderness Area, the project would be consistent with this guideline. |
| **Yuha Desert Management Plan IV. Goals, Planned Actions, and Implementation** | **G. Energy Development**<br>**I. Utilities**<br>Goal: Reduce impacts from electrical transmission lines and access roads.<br>1. Action: Close most access roads to general public use (see Figures 11 and 14) and sign these closed. | YES | Approximately 7 miles of the proposed 10.3-mile transmission line would be constructed within the existing utility corridor of the South-west Powerlink transmission line through the Yuha ACEC (SES 2008a). The remaining transmission line would be constructed within the boundaries of the proposed project site. Therefore, collocating the proposed transmission lines within, or adjacent to, existing utility corridors, would help minimize impacts. In addition, according to the applicant, all access to the proposed project site would be closed to the general public through controlled gates (SES 2008a). Therefore, the proposed project would be consistent with the Yuha Desert Management Plan. |
| **Public Rangelands Improvement Act** | Establishes and reaffirms the national policy and commit-ment to inventory and identify current public rangeland conditions and trends; manage, maintain and improve the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; and continue the policy of protecting wild free-roaming horses and burros. | YES | As noted in the "Setting and Existing Conditions," no allotments of rangeland are within the vicinity of the proposed project site, and no conversion of rangelands would occur due to construction or operation of the proposed project. Therefore, the proposed project would be in compliance with this Act. |
| **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 HMA or rangeland allotment. As such, the proposed project would be consistent with this Act. |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
|---|---|---|---|
| **State** | | | |
| **Subdivision Map Act** (Public Resources Code Section 66410-66499.58) | Provides procedures and requirements regulating land division (subdivisions) and parcel legality. Regulation and control of the design and improvement of subdivisions have been vested in the legislative bodies of local agencies. Section 66412.1 of the Subdivision Map Act exempts a project from State subdivision requirements provided that the project demonstrates compliance with local ordinances regulating design and improvements. | YES (with Implementation of Condition of Certification **LAND-1**) | The SES Solar Two Project site is on public land that is administered by the BLM and private parcels under the jurisdiction of Imperial County. The amount of land to be fenced and developed within the BLM-administered public areas is estimated to be 6,140 acres. In addition to BLM-administered public lands, approximately 360 acres of private land would be permitted for the proposed project site (SES 2008a). The total fenced area to be developed would encompass approximately 6,140 acres of BLM-administered public lands, and private lands comprising portions of 52 contiguous parcels. In its AFC, the applicant states, "[t]he privately owned county administered lands within the Project Site are currently under option to purchase or leased by the Applicant prior to the start of construction. The Project Site would be owned and operated by Solar Two" (SES 2008a).<br>In response to staff's data request regarding the private parcels that would be part of the proposed project, the applicant has provided the parcel information related to the 360 acres of private parcels that are under the jurisdiction of Imperial County. Assessor's Parcel Numbers (APNs) are as follows: 034-360-054, 034-360-055, 034-360-058, 034-360-079, 034-360-080, 034-360-081, 034-360-082, 034-360-083, 034-360-084, 034-360-085, and 034-360-086. The applicant would finalize the purchase or lease of these private properties prior to the issuance of the final decisions on the proposed project. If the purchase option is exercised, the applicant may merge or combine these private properties into one legal parcel after final decisions by the CEC/BLM have been issued. However, if the lease option is carried out, these private parcels would have to remain under separate ownership. (SES 2008b).<br>In the event that property is purchased, the applicant would consider a number of factors including setback requirements and taxation in deciding whether to merge the parcels. In the event that the property owners elect to exercise the lease option, these private parcels would remain under separate ownerships and would not be merged into one parcel (SES 2008b).<br>In order to ensure compliance with the Subdivision Map Act and site control, staff recommends Condition of Certification **LAND-1**. |
| **Local** | | | |
| **Imperial County General Plan, Land Use Element** | Objective 1.2 Discourage the location of incompatible development adjacent to or within productive agricultural lands. | YES | As discussed in Section C.8.4.2 (under the subsection entitled "Agricultural Lands and Rangelands") and in **APPENDIX LU-1**, according to the LESA model, there would not be any significant impacts under CEQA to agricultural land as result of the proposed project. In addition, the affected lands are not currently used for agricultural production. Therefore, the proposed project would not interfere with productive or potentially productive agricultural land, and would comply with this objective. |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
|---|---|---|---|
| | Objective 3.6 Recognize and coordinate planning activities as applicable with the Bureau of Land Management (BLM), and the California Desert Conservation Plan. | YES | By preparing a joint document, this Staff Assessment (SA)/DEIS is intended to ensure that the proposed project is compatible with BLM and county regulations. As noted above, the proposed project is consistent with the CDCA Plan. Therefore, the proposed project is consistent with this county objective. |
| | E. Implementation of Policies and Programs<br>1. Agriculture<br>Policy<br>The County of Imperial finds that farmland is one of its most vital resources. Continued preservation of this resource is paramount. The County is committed to the Williamson Act and its ideals of preserving Farmland.<br>Program<br>• The developer, property owner, or agency (applicant) of a "Development project" located on land designated by the General Plan Land Use Map (Land Use Element-Figure 1) as "Agricultural" that will result in the direct and total loss of Prime Farmland in excess of 40 acres, shall provide not-less-than 100% for un-contracted and 150% for contracted land, replacement land. | YES | As discussed above in detail in Section C.8.4.2 (under the subsection entitled "Agricultural Lands and Rangelands") and in **APPENDIX LU-1**, and based on the final score (30.95) of the LESA Model, the farmland conversion impacts of the proposed project would not be significant under CEQA. In addition, the project would not involve other changes in the existing environment which could result in conversion of farmland, to non-agricultural uses.<br>The proposed project does not contain lands under Williamson Act contracts. However, as noted in the "Setting and Existing Conditions" subsection, the proposed project's linear components would traverse land designated for agriculture by the county's General Plan. Nonetheless, upon completion of its construction, the pipeline would be underground in the existing Evan Hewes Highway ROW. Therefore, construction of the pipeline would not result in the permanent loss of any agricultural land. The proposed project would be consistent with this policy and program. |
| **Imperial County General Plan, Conservation and Open Space Element** | Goal 6: The County shall seek to achieve maximum conservation practices and maximum development of renewable alternative sources of energy. | YES | The proposed project would be on county lands that are currently highly disturbed by human activity, and would coincide with the county's goal of developing alternative energy resources, as well as the State's Renewable Portfolio Standard (RPS) goals. Therefore, the proposed project would achieve this county goal. |
| | Objective 6.6 Encourage compatibility with National and State energy goals and city and community general plans. | YES | As a large-scale solar thermal power generation facility, the proposed project would coincide with the county's goal of developing alternative energy and is intended to comply with federal and state mandates, and local goals for renewable energy development. Therefore, the proposed project would be consistent with this county objective. |
| **Imperial County General Plan, Geothermal/ Alternative Energy and Transmission Element** | Objective 2.3 Utilize existing easements or rights-of-way and follow field boundaries for electric and liquid transmission lines. | YES | Approximately 7 miles of the proposed 10.3-mile transmission line would be constructed within an existing utility corridor through the Yuha Basin ACEC (SES 2008a). Approximately 2.55 miles of the transmission line would be constructed within the boundaries of the proposed site, and approximately 0.75 mile of transmission line would be constructed within in a new utility ROW in an area designated as Agricultural Land according to Imperial County. Therefore, the majority of the proposed transmission line would utilize an existing utility ROW and would be consistent with this objective. |
| | Objective 2.6 Encourage/require alternative resource production to be in energy zoned areas to minimize off-site impacts and lessen need for more transmission corridors. | YES | Although the proposed project would not be in an energy zoned area, the project site consists of undeveloped desert land, and the majority of the proposed linear facilities would be constructed in existing ROWs. |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
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| | Objective 5.1 Require all major transmission lines to be located in designated federal and IID corridors or other energy facility corridors such as those owned by investor owned utilities and merchant power companies. | YES | The Project would connect to the SDG&E Imperial Valley Substation via an approximate 10.3-mile, double-circuit, 230-kV transmission line. The 230-kV transmission line would parallel the Southwest Powerlink transmission line within the designated ROW. |
| | Objective 5.2 Design lines for minimum impacts on agriculture, wildlife, urban areas, and recreational activities. | YES | Approximately 7 miles of the proposed 10.3-mile transmission line would be constructed within an existing utility corridor through the Yuha Basin ACEC (SES 2008a). The remaining transmission line would be constructed within the boundaries of the proposed site, and approximately 0.75 mile of transmission line would be constructed within a new utility ROW in area designated as Agricultural Land according to Imperial County. As the majority of the proposed line would be within an existing utility corridor, and the portion that would traverse agricultural land would have minimal construction impacts and would not permanently preclude agricultural activities, the proposed project would be consistent with Objective 5.2. |
| | Objective 5.3 Construct transmission lines in accordance with this Element. | YES | The proposed project is consistent with this element's goals and objectives related to transmission line construction. |
| | Objective 5.4 Design transmission lines to be joint use with transportation and other infrastructure corridors within or external to the County. | YES | Approximately 7 miles of the proposed 10.3-mile transmission line would be constructed within the existing utility corridor of the Southwest Powerlink transmission line, approximately 2.55 miles would be constructed within the boundaries of the proposed project site, and approximately 0.75 mile of transmission line would be constructed within a new utility ROW and designated for agriculture by Imperial County. Locating the proposed transmission line within existing utility corridors would make the proposed project consistent with this county objective. |
| **Imperial County Land Use Ordinance, Title 9, Division 2:** | § 90203.10 SIMILARITY IN USE(S)<br>When an applicant proposes a use that is not specifically authorized or listed as a use or conditional use in the specific zone, he/she may apply for a determination of similar use to the Planning Commission through the following procedure. (The Planning Commission shall have final authority and no appeal to the Board on "similarity" shall be allowed).<br>A. FILING:<br>A request for a "similar use" determination shall be in writing to the Planning & Development Services Department and shall explain in detail the proposed use and its similarity to an existing approved use within that zone.<br>C.SIMILAR USE CRITERIA:<br>In order for the Planning Commission to allow a use to be a "similar use" it shall first make the following findings:<br>1. The proposed use resembles or is of the same basic | INCONSISTENT | The proposed Solar Two site is approximately 6,500 acres and consists of an estimated 6,140 acres of public land administered by the BLM and approximately 360 acres of private land under the jurisdiction of Imperial County. Approximately 5.5% of the project would impact Imperial County lands. These affected county lands show evidence of human disturbance and high activity due to recreational OHV use (PBS&J 2009).<br>According to the Land Use Ordinance (LUO) and county zoning maps, the 360-acre portion of the project site within Imperial County jurisdiction is designated as S-2 Open Space/Preservation. The LUO does not specifically allow energy generation in this S-2 zone.<br>As noted in this section of the LUO, when an applicant proposes a use that is not specifically authorized or listed as a use or conditional use in the specific zone, he/she may apply for a determination of similar use to the Planning Commission. A request for a "similar use" determination is possible in the case of a proposed use that is similar to an existing approved use within that zone.<br>According to the applicant, per its discussions with the staff of the |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
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| | nature as an identified use or a conditional use in that zone.<br>2. The proposed use includes activities, equipment, or materials typically employed in the identified use.<br>3. The proposed use has equal to or less impacts on traffic, noise, dust, odor, vibration and appearance than the identified listed use.<br>4. All impacts identified could and would be mitigated through conditions.<br>5. The "similar" use, if allowed in the proposed zone, will not affect the health, safety and welfare of the public or impact the property and residents in the vicinity. | | Planning and Building Division of Imperial County, and based on the requirements of this LUO section, the county would be able to issue a Conditional Use Permit to the SES Solar Two Project (but for the Energy Commission's authority) in compliance with the LUO (SES 2009).<br>In May 2009, staff contacted the county for further clarification on this issue and to obtain the county's interpretation of this section of the LUO as it would apply to the 360 acres of county lands affected by the proposed project. According to the county, the Planning Commission has ruled that proposed renewable energy projects would be allowed in the S-2 zone with a CUP, as they are in the S-1 zone, based on the "similarity of use" concept (CEC 2009). On February 25, 2009, Telstar Energy's 49.5 MW solar photovoltaic (PV) project was approved for the Similarity of Use designation in the S-2 zone (Imperial County 2009). According to the county this project approval is the action that the county is using as justification for application of the "similar use" concept to the proposed project (CEC 2010). On February 2, 2010, staff contacted the county to obtain the approval document for the solar PV project, and the associated conditions the county used to conditionally approve the project in an effort to use the same or similar conditions to apply to the proposed project. The county indicated to staff that the Planning Commission Meeting Minutes from February 25, 2009 are the official record for Telstar Energy's approval of the Similarity of Use designation for development of a 49.5 megawatt PV solar generation facility in the S-2 zone (CEC 2010). After review of the February 25, 2009 Imperial County Planning Commission Meeting Minutes, staff was not able to find any specific conditions for the Telstar solar PV project that could be applied to the proposed project (Imperial County 2009). Specifically, although the February 25, 2009 Meeting Minutes discuss and approve the Telstar "Similarity of Use Determination" in the S-2 zone, no conditions are listed and there is no information regarding the five findings required by the LOU Title 9, Division 2 provisions (listed to the left). As such, in lieu of specific conditions or specific findings related to the provisions of Title 9, Division 2 of the LUO, staff has made its own following findings recognizing that the county has expressed support for the proposed project and has indicated that they view the proposed project to be a "similar use:"<br>1. Because the county has not provided environmental documentation, conditions of approval, or specific findings related to t heir "Similarity of Use" determination associated with the Telstar solar PV Project or its applicability to the proposed project, staff cannot find that a 6,500-acre, 740-MW solar thermal power generating facility is a similar use to a 49.5 MW solar PV project located on approximately 540 acres of land..<br>2. Staff does not believe that the proposed use (i.e., the proposed project) includes activities, equipment, or materials typically employed |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
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| | | | in the identified use (i.e., development of solar PV), because the proposed project solar power generation technology is different (i.e., SunCatchers vs. low-profile solar PV panels). Please refer to the **Visual Resources** section for a discussion of visual and scenic impacts of the proposed project.<br>3. The proposed use (i.e., the proposed project) has greater environmental impacts on traffic, noise, dust, odor, vibration and appearance than the identified listed use (i.e., the solar PV project referred to as the similar use), because the proposed project would have greater construction related nuisance impacts (i.e., noise, traffic, air quality, etc.) and operation related visual and cumulative land use impacts than the "similar use." Please refer to the **Air Quality, Noise, Public Health,** and **Visual Resources** sections for a detailed discussion of these impacts.<br>4. All project impacts cannot be mitigated through Conditions of Certification. Please refer to the significant, unavoidable cumulative land use and recreation impacts of the proposed project discussed in detail below, and the **Visual Resources** section.<br>5. The "similar" use (i.e., the proposed project), in the proposed zone, will affect the public and impact lands in the vicinity given the significant/unavoidable impacts to recreation and significant/unavoidable cumulative land use impacts.<br>Based on the findings enumerated above, staff concludes that the proposed project would not be consistent with this section of the county's LUO. |
| **Imperial County Land Use Ordinance, Title 9, Division 5: Zoning Areas Established** | Chapter 18: S-2 (Open Space/Preservation)<br>§ 90519.00<br>PURPOSE & APPLICATION<br>The S-2 Zone is considered to be the Open Space Preservation Zone. The primary intent is to preserve the cultural, biological, and open space areas that are rich and natural as well as cultural resources. The S-2 Zone is dominated by native desert habitat and stark topographic features. While certain uses are allowed within the S-2 Zone, such uses must be compatible with the intent of the Open Space and Conservation Element of the General Plan.<br>§90519.03<br>PROHIBITED USES<br>All other uses not permitted by Section 90519.01 or 90519.02 shall be prohibited in the S-2 Zone. | INCONSISTENT | Please see the detailed discussion above (under LUO Title 9, Division 2, § 90203.10 SIMILARITY IN USE(S)) regarding the "similar use" finding by the county and staff. According to the county, the proposed project would qualify as a "similar use" and would be allowed in the county's S-2 zone.<br>Pursuant to Title 20, Section 1714.5 (California Energy Commission Siting Regulations), "...comments and recommendations submitted to the commission pursuant to this section regarding the project's conformance with applicable laws, ordinances, and standards under the agency's jurisdiction shall be given due deference by the commission staff." It should be noted that Imperial County did not specifically make findings related to the Similarity in Use concept provisions of the LUO, and did not provide staff with any specific conditions to be applied to the proposed project. Base on staff's independent evaluation (see discussion above), staff disagrees that the proposed project qualifies as a "similar use" that can be conditionally permitted in the S-2 zone. Therefore, although the county views the proposed project to be compatible with the S-2 zone, from a land use LORS consistency perspective, staff believes that given the amount and level of significance of cultural, visual, and biological |

| Applicable LORS | Description of Applicable LORS | Consistent? | Basis for Consistency |
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| | | | resources impacts, the intent of S-2 zone likely would not be met, and that the proposed project would be inconsistent with this section of the county's LUO.<br>For a detailed discussion of proposed project impacts with regard to these issues, please see the **Biological Resources, Cultural Resources,** and **Visual Resources** sections of this Staff Assessment. |
| | Chapter 8: A-2 (General Agriculture)<br>§ 90508.00<br>PURPOSE AND APPLICATION<br>The purpose of the A-2 (General Agriculture), [40 Acre minimum] Zone is to designate areas that are suitable and intended primarily for agricultural uses (limited) and agricultural related compatible uses.<br><br>Chapter 16: M-2 (Medium Industrial)<br>§ 90516.00<br>PURPOSE & APPLICATION<br>The purpose of the M-2 (Medium Industrial) zone is to designate areas for wholesale commercial, storage, trucking, assembly type manufacturing, general manufacturing, research and development, medium intensity fabrication and other similar medium intensity processing facilities. The processing or fabrication within any of these facilities is to be limited to activities conducted either entirely within a building or within securely fenced (obscured fencing) areas. Provided further that such facilities do not omit fumes, odor, dust, smoke or gas beyond the confines of the property line within which their activity occurs, or produces significant levels of noise or vibration beyond the perimeter of the site. | YES | The proposed Seeley Waste Water Treatment Facility would require a 12-mile water pipeline along Even Hewes Highway to meet the water needs of the proposed project. The pipeline would be installed along the existing highway ROW, which currently contains a natural gas pipeline.<br>Utility components and uses would be conditionally permitted in the A-2 and M-2 zones, But for the Energy Commission's exclusive licensing authority for power plants over 50 megawatts, and their associated components, the county would normally have jurisdiction to issue a CUP for the 12-mile pipeline. However, there's an existing pipeline in an existing highway ROW, and given the temporary nature of pipeline construction activities, any land use disturbances would be short-term, As such, staff assumes that the county would likely consider the proposed pipeline to be consistent with the use types allowed in the A-2 and M-2 zones, even though water pipelines are not expressly permitted in these zones, It should be noted that currently an EIR is being by the Seeley County Water District for the proposed project-related improvements needed for the Seeley Waste Water Treatment Facility. Also, please refer to the **Air Quality, Noise,** and **Traffic and Transportation** sections for a discussion of construction-related nuisance impacts resulting from the proposed pipeline. |
| **Ocotillo/Nomirage Community Area Plan** | IV. Implementation Program and Policies<br>B. Land Use Designations and Standards<br>9. Open Space<br>The Open Space designation will be applied to all land future and present that are under the administration of the U.S. Department of the Interior, Bureau of Land Management. Except for limited mining activities and utility corridors, most private enterprises or land uses are not allowed in this classification. | YES | A portion of the west end of the project site would be within the boundaries of this area plan. Although the proposed project would not be allowed under this area plan's open space classification, the land is under BLM jurisdiction, which supersedes Imperial County's area plans, and as noted above, the proposed project would be consistent with BLM's CDCA Plan, once the plan is amended. |

## B. TRAFFIC AND TRANSPORTATION

This section addresses the extent to which the proposed project will affect the local area's transportation network. The record includes an analysis of: (1) the roads and routings that are proposed to be used for construction and operation; (2) potential traffic-related problems associated with the use of those routes; (3) the anticipated encroachment upon public rights-of-way during the construction of the proposed project and associated facilities; (4) the frequency of trips and probable routes associated with the delivery of hazardous materials; and (5) the possible effect of project operations on railroads and airport flight traffic.

The evidence presented on this topic was undisputed. (Exs. 1, §§5.11, Appendix BB, 3, 7, 13, 14, 32, § 2.11, pp. 2.11- 2.11-2; 109, 116, 141, pp. 15, 20; 302, §§ B.3,, C.11.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

1. Project Site and Vicinity

The Imperial Valley project site is located on approximately 6,140 acres of federal land managed by the Bureau of Land Management and approximately 360 acres of privately owned land. The site is approximately 100 miles east of the City of San Diego, 14 miles west of the City of El Centro, and four miles east of the unincorporated community of Ocotillo Wells.

Plant construction and operation traffic will use existing area roadways. Regional access to the site is generally provided by Evan Hewes Highway, Dunaway Road, and Interstate 8 (I-8). A newly constructed private road from Evan Hewes Highway will provide direct site access.

There are no airports within 20,000 feet of the project site. (Exs. 1, pp. 5.11-11, 302, p. C.11-5.)

2. Roadway and Intersection Current Levels of Service

The study area roadways and intersections were analyzed to determine their operating conditions such as traffic volumes, turning movement counts, existing number of lanes at each intersection, volume/capacity ratios, and levels of service (LOS).

LOS is a qualitative measure that quantifies the congestion level on a particular roadway or intersection as experienced by motorists. For the Imperial Valley project study. The Imperial County General Plan Circulation and Scenic Highway Element define the LOS criteria for the local circulation system and have established LOS C as the lowest acceptable standard.

The evidence shows that under pre-construction conditions (i.e., conditions without the project), the study area roadway segments and intersections operate at LOS A. LOS A represents free-flowing traffic. (Exs. 1, § 5.11, pp. 5.11-6 – 5.11-6, 302, pp. C.11-8 - C.11-9, Table 3.)

The Imperial Valley project would result in a significant impact on traffic and transportation if it would cause operations to exceed the accepted LOS standards at intersections and on roadways.

3. Construction Impacts and Mitigation

Construction is expected to take 40 months and to result in short-term increased traffic. The Applicant's traffic analysis assumes that construction workers traveling from the east and west would primarily use I-8 to access the project site, with 65 percent traveling from the east and with 15 percent traveling from the west. The remaining trips are expected from Evan Hewes Highway, with 15 percent traveling from the east and 5 percent traveling from the west. (Exs. 1, p. 5.11-13, 302, p. C.11-7.)

The Applicant evaluated the worst-case project construction scenario by analyzing the peak months where combined trip totals between worker commute and material and equipment delivery trips are highest. Included in the analysis is the project's proposed temporary use of water from the Dan Boyer well in Ocotillo, California. Use of this water will add approximately 26 truck trips per day to the west of the project site along Evan Hewes Highway. (Ex. 302, p.C.11-7.)

Under the worst-case scenario, all but one of the study area roadways will continue to operate at the current LOS A standard. The roadway identified as Dunaway Road north of the I-8 westbound ramps will change from LOS A to LOS B. (Ex. 1, pp. 5.11-11, 5.11-14 - 5.11-16; 302, p. C.11-9, Table 3.) The evidence similarly shows that all but one of the area intersections will continue to operate at LOS A with the addition of Imperial Valley's peak construction traffic. The I-8

westbound ramp/Dunaway Road intersection will change from LOS A to LOS C during the morning peak hour. (Exs. 1, pp. 5.11-16 – 5.11-17; 302, p. C.11-9.) Thus, because the increased traffic due to Imperial Valley construction will not cause intersection or roadway operations to exceed the accepted LOS standards, Imperial Valley construction traffic will not result in a significant impact.

In addition to increased traffic during construction, construction activities will include the use of heavy equipment such as trenching and earthmoving equipment, forklifts, cranes, cement mixers and drilling equipment. To address potential impacts caused by the transport of oversized equipment, we have adopted Conditions of Certification **TRANS-1** and **TRANS-2.** **TRANS-1** addresses these impacts as well as the impacts associated with increased overall traffic during construction, by requiring the project owner to coordinate with Imperial County in preparing and implementing a traffic control plan to be submitted to the Compliance Project Manager before construction begins. Condition of Certification **TRANS-3** requires the project owner to document road conditions before and after construction and to directly repair any damage caused by the project or reimburse Imperial County for repairs.

The record shows that the Imperial Valley project will require delivery of hazardous materials to the site, including hydrogen gas. (Ex. 302, pp. C.11-14 - C.11-15.) Site delivery will require vehicles to cross a private crossing of a railroad line controlled by a subsidiary of the San Diego Metropolitan Transit Service (MTS). MTS has granted the project owner rights to use the railroad crossing once one is constructed. The freight line is currently not providing any service due to needed track repairs and upgrades, but when it becomes operational and the crossing is put to use, MTS or the project owner must ensure that proper warning equipment is installed. The project owner must construct the crossing improvements. To address potential impacts associated with the use of the private crossing, we have adopted Condition of Certification **TRANS-2**. This condition requires the project owner to obtain written authorization from MTS granting it rights to construct the crossing and MTS's approval of the railroad crossing improvements.

The hazardous materials are to be transported in accordance with federal and state laws. (Ex. 302, pp. C.11-15.)

4. Operation Impacts and Mitigation

Operation of the facility will require a labor force of up to 164 full-time employees. The estimated peak hour trips would be 100 cars and four vanpool vehicles. Additional non-employee trips are also to be expected, such as visitor trips, deliveries, and other related services.

The studies described in the record show that the additional trips added by the project during operations would not deteriorate the LOS of the study roadways or intersections. All study roadways and intersections will operate at LOS B or better even with the minimal increased traffic related to Imperial Valley.

More particularly, all study roadways will continue to operate at LOS A, with the exception of the I-8 east bound ramp/Dunaway Road intersection which already changes from LOS A to LOS B during the evening peak hour. During project operation, this intersection will continue at LOS B during the evening peak hour. All study intersections will remain at LOS A. (Exs. 1, pp. 5.11-5.11-21; 302, pp. C.11-10 - C.11-13.)

Thus, because the increased traffic due to Imperial Valley operations will not cause intersection or roadway operations to exceed the accepted LOS standards, Imperial Valley operations traffic will not result in a significant impact.

In addition to a minimal increase in traffic during operation, operation activities will require deliveries of hazardous materials. The potential impacts and mitigation measures associated with the transport of hazardous materials are discussed above in “Construction Impacts and Mitigation.”

5. Airports – Impacts and Mitigation

There are three airports in the vicinity but they are more than 20,000 feet from the project site. As a result, Federal Aviation Administration notification requirements do not apply to the project. (Exs. 1, p. 5.11-5; 302, pp. C.11-5.)

The record further shows the project has no concentrated heat rejection source to cause turbulence or related impacts to low flying aircraft. Nor are there cooling towers or boilers or visible vapor water plumes to cause visual impacts to aircraft (or to motorists.) (Ex. 302, p. C.11-14.)

Evidence presented by Staff shows, however, that the relationship between the SunCatcher mirror and changes in the face of the Stirling Engine when moving from stow position, could result in mirror control malfunctions causing potential glare or a temporary blindness hazard to off-site viewers including motorists or airplane pilots. To minimize the possibility of this potential hazard and to ensure that legitimate complaints of such malfunctions are recorded and corrected, we have adopted Condition of Certification **TRANS-4**, which requires the project owner to prepare and implement a mirror positioning plan. (Ex. 302, pp. C.11-13.)

6. Alternative Transportation – Impacts and Mitigation

No local bus stops are in the proximity of the Imperial Valley site. Nor are there existing or planned bicycle facilities in the vicinity of the Imperial Valley site. Therefore, no impacts will occur to alternative transportation facilities or their use during construction or operation of Imperial Valley. (Ex. 302, pp. C.11-4 - C.11-5.)

7. Cumulative Impacts

Under CEQA Guidelines, "a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." [14 Cal. Code Regs., § 15130(a)(1).] Cumulative impacts must be addressed if the incremental effect of a project, combined with the effects of other projects is "cumulatively considerable." (14 Cal Code Regs., § 15130(a).) Such incremental effects are to be viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. Together, these projects comprise the cumulative scenario which forms the basis of the cumulative impact analysis.

Both the Applicant and Staff evaluated possible cumulative impacts and presented evidence showing that the project's construction and operation traffic will not result in cumulative considerable effects. (Ex. 1, p. 5.11-22, Ex. 302, pp. B.3-4 – B.3-10, C.11-18 - C.11-19.)

Staff specifically prepared a cumulative impacts scenario that identified reasonably foreseeable projects in the immediate Plaster City area and other large renewable projects in Imperial County and the greater California Desert. The projects included solar and wind developments as well as commercial, mixed-use, and residential projects in the vicinity of the proposed Imperial Valley site. The record shows that the cumulative impacts from these related projects

were evaluated and compared to the impacts with the proposed Imperial Valley. Based on this evaluation, traffic volumes at the study intersections are not anticipated to be significantly affected by Imperial Valley operations. Staff's evaluation included analysis of the distances of many of the planned projects from the Imperial Valley site and resulting determination that the distances are too great for the Imperial Valley operations to result in significant cumulative impacts.

Thus, based on the analyses contained in the record, the Imperial Valley project will not cause significant cumulative traffic and transportation impacts.

## FINDINGS OF FACT

Based on the evidence, we find and conclude as follows:

1. The additional traffic associated with construction and operation of Imperial Valley will not significantly affect existing levels of service for roads in the project vicinity.
2. Development and implementation of a construction traffic control program will offset any temporary, short-term increases in congestion resulting from construction of the project.
3. Potential adverse impacts associated with the transportation of hazardous materials during construction and operation of the project will be mitigated to insignificant levels by compliance with applicable federal and state laws.
4. Implementation of the Conditions of Certification below ensures that both construction and operation of the project will comply with all applicable laws, ordinances, regulations, and standards regarding traffic and transportation as identified in the pertinent portion of **Appendix A** of this Decision.
5. Implementation of the Conditions of Certification below ensures that any project impacts on traffic, including plane flights, will be reduced to less than significant.

## CONCLUSION OF LAW

1. The Commission, therefore, concludes that construction and operation of the project, as mitigated herein, will not result in any significant, direct, indirect, or cumulative adverse impacts to the local or regional traffic and transportation system.

## CONDITIONS OF CERTIFICATION

**TRANS-1** The IVS Project owner shall, in coordination with Imperial County, develop and implement a construction traffic control plan prior to earth moving activities. The plan should include scheduled delivery of heavy equipment and building material deliveries, coordination with the County of Imperial to mitigate any potential adverse traffic impacts from other proposed construction projects that may occur during the construction phase of IVS Project, and adequate access for emergency vehicles to the IVS Project site.

Specifically, the overall traffic control plan shall include the following:

- Schedule delivery of heavy equipment and building material deliveries, as well as the movement of hazardous materials to the site, including the adjacent lay-down area;
- Coordinate with the Imperial County to mitigate any potential adverse traffic impacts from other proposed construction projects that may occur during the construction phase of the project; and
- Ensure there is adequate access for emergency vehicles at the project site.

The construction traffic control plan shall also include the following for activities of substantial stature:

- Signing, lighting, and traffic control device placement; and
- Temporary travel lane closures and potential need for flaggers.

**Verification:** At least thirty (30) days prior to start of site mobilization, the project owner shall provide to the County of Imperial for review and comment and the Compliance Project Manager (CPM) for review and approval a copy of the construction traffic control plan.

**TRANS-2** Prior to construction, the project owner shall receive the signed agreement from the San Diego Metropolitan Transit System (MTS) regarding the authority to construct the proposed railroad crossing. After the physical improvements are completed to the railroad crossing, the project owner shall receive written approval from the MTS as to the adequacy of the improvements.

**Verification:** At least thirty (30) days prior to the start of site mobilization, the project owner shall provide the CPM a copy of the executed agreement with MTS

regarding the proposed railroad crossing. No more than 3 months after completion of the railroad crossing improvements, the project owner shall provide the CPM with a copy of written approval from MTS regarding the adequacy of the grade crossing improvements.

**TRANS-3** Prior to construction, the project owner shall document the existing condition of the primary roadways that will be used by the construction workers and heavy vehicle deliveries (up to 3 miles of the site). Subsequent to construction, the project owner shall document the condition of these same roadways and either directly reconstruct or reimburse the County of Imperial for needed repairs.

**Verification:** At least 3 months prior to the start of site mobilization, the project owner shall submit a review of existing roadway pavement conditions to Imperial County for review and comment and the CPM for review and approval. This review will include photographs and the analysis of pavement and sub-surface conditions. The CPM will need to approve the summary of existing pavement conditions prior to the commencement of construction.

No later than 2 months after the end of construction activities, the applicant shall submit an analysis of the roadway pavement conditions to Imperial County for review and comment and the CPM for review and approval.

After the repairs are completed, the applicant shall submit a letter to Imperial County and the CPM indicating such repairs are finished and ready for inspection.

**TRANS-4** The project owner shall prepare and implement a SunCatcher Mirror Positioning Plan that would avoid the potential for human health and safety and significant visual distractions from solar radiation exposure.

**Verification:** At least thirty (30) days before the commercial operation of the IVS Project, the project owner shall submit the SunCatcher Mirror Positioning Plan (MPP) to the CPM for review and approval. The project owner shall also submit the plan to California Department of Transportation (Caltrans), California Highway Patrol (CHP), the Federal Aviation Administration (FAA), and Imperial County for review and comment and forward any comments received to BLM's Authorized Officer and the CPM. The Mirror Positioning Plan shall accomplish the following:

1. Identify the mirror movements and positions (including reasonably possible malfunctions) that could result in possible exposure of observers at various locations including those in aircraft, motorists, pedestrians, and hikers to reflected solar radiation from the mirrors.

2. Describe within the MPP how programmed SunCatcher operation would avoid the potential for human health and safety hazards attributable to solar

radiation at locations of observers where momentary solar radiation exposure might be greater than the Maximum Permissible Exposure of 10 kW/m^2 for a period of 0.25 second or less or where excessive brightness might be hazardous to motorists.

3. Prepare a monitoring plan that would a) obtain field measurements in response to legitimate complaints; b) verify that the Mirror Positioning Plan would avoid the potential for health and safety hazards, including temporary or permanent blindness, at locations of possible observers; c) provide requirements and procedures to document, investigate, and resolve legitimate complaints regarding glare or excessive brightness.

4. The monitoring plan shall be coordinated with the FAA, Caltrans, CHP, and Imperial County and be updated on an annual basis for the first five years and at 2-year intervals after that.

## C. SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

This topic reviews the demographic characteristics of population centers near the project site to evaluate the potential impacts of project-induced population increases and the fiscal and physical capacities of local communities to accommodate population increases. The project's economic benefits, including local project-related expenditures, property and sales tax revenues, as well as school impact fees, are also discussed. Additionally, an environmental justice screening analysis is included to determine whether the project will result in disproportionate impacts on minority and/or low-income populations and, if so, whether mitigation is required.

### SUMMARY AND DISCUSSION OF THE EVIDENCE

Under both NEPA and CEQA Guidelines, a project may have a significant effect on socioeconomics if it would:

- Induce substantial population growth in an area, either directly or indirectly;
- Displace substantial numbers of people and/or existing housing, necessitating the construction of replacement housing elsewhere;
- Cause a substantial change in revenue for local businesses or government agencies; or
- Adversely impact acceptable levels of service for law enforcement, schools, and hospitals. (Ex. 302, pp. C.10-2 to C.10-3; Ex. 1, § 5.10.2.)

Construction of Imperial Valley Solar will occur in two phases over a 40-month period. (Ex. 1, § 5.10.2.) The data for the two phases were combined to evaluate the worst-case impacts resulting from the potential in-migration of construction workers to the local area of concern ("study area"), which includes El Centro, Seeley, and Ocotillo as well as other communities within the Ocotillo/Nomirage Planning Area in Imperial County. The socioeconomic environment in the study area is dominated by small urban centers and military, agricultural, and recreational activities. (Exs. 302, p. C.10-4; 1, §§ 1.5.5, 5.10.2.)

1. Potential Impacts

Socioeconomic impacts are considered significant if a large influx of non-resident workers and dependents relocate to the study area, increasing demand for

community resources that are not readily available. (Exs. 1, § 5.10.2.1; 302, pp. C.10-6 to C.10-7.)

During the 40-month construction period for Imperial Valley Solar, an average of approximately 360 daily construction workers, with a daily peak of 731 workers, will be needed depending on the month and phase of development. The types of construction workers sought by the project will include laborers, craftspeople, technicians, supervisory, support, and management personnel. (Exs. 1, § 5.10.2.1; 302, p. C.10-7.)

The evidentiary record indicates that a large, local workforce residing in Imperial, San Diego, and Riverside Counties is sufficiently skilled and diverse to meet project construction needs. The project's peak requirement of 731 workers represents less than one percent of the total available construction workforce within the three-county area. (Exs. 1, § 5.10.2.1; 302, pp. C.10-6 to C.10-7.)

It is well-established that power plant construction workers will typically commute up to two hours from their homes to a project site rather than permanently relocating to the site. The Applicant expects that most of the workforce will be drawn from the labor pool in El Centro and other communities within a two-hour commute due to the high level of unemployment in the area. Assuming that a majority of workers will commute, there is no evidence that a significant population in-migration will occur. We therefore find that project construction will not result in significant impacts to existing population levels or to employment distribution within the study area. (Ex. 1, § 5.10.2.1; Ex. 302, pp. C.10-8 to C.10-9.)

During construction, some workers may stay in local motels or other rental properties during the workweek but return to their homes on weekends for the duration of their job assignments. The evidence shows that an adequate supply of motels and rental properties is available in El Centro and other local communities to accommodate weekly commuters and/or temporary residents. (Exs. 1, § 5.10.2.1; 302, pp. C.10-8 to C.10-9.)

Applicant expects to hire about 164 permanent, full-time employees from the local area for project operation. Operational workers will typically commute up to one hour rather than relocate. The one-hour commute range is within the study area and includes communities in Imperial, San Diego, and Riverside Counties. A minimal number of permanent employees from outside the one-hour commute may relocate with their families to El Centro or other population centers in the

study area closer to the site; however, there is an abundance of existing housing units available within commuting distance so that any resulting effects on housing or public services are considered *de minimis*. (Exs. 1, § 5.10.2.2; 302, p. C.10-8.)

Therefore, we find that impacts on housing and related services will be negligible in relation to the supply of available housing and services available. No replacement of existing residential housing will be necessary because project construction and operation will not increase demand for new housing. (Exs. 1, § 5.10.2.2: 302, p. C.10-8 to C.10-9.)

Since project-induced population changes will be minimal, construction and operation of the project will not result in significant adverse impacts on schools, parks and recreation, public utilities, law enforcement, hospitals, or emergency services in the local communities. (Ex. 1, §§ 5.10.2.3, 5.10.2.5, 5.10.2.6; Ex. 302, p. C.10-9 et seq.) See further discussion in the **Worker Safety and Fire Protection** section of this Decision.

Like all school districts in the state, the Imperial Unified School District is entitled to collect school impact fees for new construction within their district under the California Education Code Section 17620. These fees are based on the project's square feet of industrial space. Because the main services complex of the IVS Project (considered "industrial space") would be constructed entirely on BLM land, no private land would be affected and therefore, the provisions of Education Code Section 17620 would not apply to this project. (Ex. 302, p. C.10-10.)

2. Section 25523(h) Public Benefit Findings

Noteworthy public benefits include the direct, indirect, and induced impacts of a proposed power plant. For example, the dollars spent on or resulting from the construction and operation of the IVS Project would have a ripple effect on the local economy. This ripple effect is measured by an input-output economic model. The model relies on a series of multipliers to provide estimates of the number of times each dollar of input or direct spending cycles through the economy in terms of indirect and induced output, or additional spending, personal income, and employment. The typical input-output model used by economists and the one used for this analysis by the applicant is the IMPLAN model. IMPLAN multipliers indicate the ratio of direct impacts to indirect and induced impacts. Staff reviewed the results of the IMPLAN model and found them to be reasonable considering data provided by the Applicant as well as data

obtained by staff from governmental agencies, trade associations, and public interest research groups.

IVS Project owners would employ workers and purchase supplies and services for the life of the project. Employees would use salaries and wages to purchase goods and services from other businesses. Those businesses make their own purchases and hire employees, who also spend their salaries and wages throughout the local and regional economy. This effect of indirect (jobs, sales, and income generated) and induced (employees' spending for local goods and services) spending continues with subsequent rounds of additional spending, which is gradually diminished through savings, taxes, and expenditures made outside the area. For purposes of this analysis, direct impacts were said to exist if the project resulted in permanent jobs and wages; indirect impacts, if jobs, wages, and sales resulted from project construction; induced impacts, from the spending of wages and salaries on food, housing, and other consumer goods. The economic benefits of the proposed project, as required by the Energy Commission regulations and resulting from the IMPLAN model are shown in Staff's **Socioeconomics Table 3**, replicated below.

**Staff's Socioeconomics Table 3**
**Data and Information[1]**

| | |
|---|---|
| Estimated Project Costs | $1.14 billion |
| Estimate of Locally Purchased Materials:<br>Construction<br>Operation (Operation and Maintenance) | <br>$2.41 million<br>$7.4 million annually |
| Estimated Annual Property Taxes | None – The IVS Project is expected to be allowed a 100% property tax exemption as part of Section 73 of the California Revenue and Tax Code for solar systems. Also, it is primarily on federal land managed by the BLM which is exempt from local property taxes. Because of AB 1451, if the California property tax exemption for solar systems is not renewed when it expires during the 2015-2016 fiscal year, then the project's property tax on private land would be $840,750 annually. |
| Estimated School Impact Fees | None – the "industrial square footage" of the project would be constructed on federal land managed by the BLM. |

[1] Table 3 uses 2008 dollars for total project costs. Construction would be for 40 months and the project's life is planned for 40 years. Unemployment information is for Imperial County. Population is for a 6-mile radius from the power plant.

| | |
|---|---|
| Estimated Direct Employment:<br>Construction (average)<br>Operation | <br>360 workers (average per month)<br>164 workers |
| **Secondary Impacts (Indirect and Induced)** | |
| Construction | <br>314 workers<br>$13,021,074<br>$39,815,155 |
| Operation (Phase 2):<br>Employment<br>Income<br>Output | <br>77 workers<br>$3,410,893<br>$9,984,482 |
| Estimated Payroll (three-county area of Imperial, San Diego, and Riverside Counties):<br>Construction<br>Operation | <br><br>$42.1 million total<br>$8,924,810 annually |
| Estimated Sales Taxes:<br>Construction<br>Operation | <br>$623,100<br>$387,500 annually |
| Existing Unemployment Rate | 25.1% in March 2009 for Imperial County (not seasonally adjusted) and 11.5% in March 2009 for California (not seasonally adjusted) |
| Percent Minority Population (6-mile radius) | 81.27% |
| Percent Poverty Population (6-mile radius) | 11% |

Source: Ex. 302, p. C.10-12.)

Estimated gross public benefits from the IVS Project include increases in sales, employment, and income in Imperial County and the surrounding region during construction and operation. There would be an estimated average of 360 direct project-related construction jobs for the 40 months of construction. The IVS Project would have an estimated total project cost of $1.14 billion and a construction payroll of $42.1 million annually, with a local operation payroll of $8,924,810 annually. Total sales and use taxes during construction are estimated to be approximately $623,100; during operation the local sales tax is estimated to be $387,500 annually. An estimated $2.41 million would be spent locally for materials and equipment during construction, and an additional $7.4 million would be spent annually for the project's local operations and maintenance budget. (Ex. 302, pp. C.10-20 to C.10-21.)

3. Environmental Justice Screening Analysis

California law defines environmental justice as "the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." (Govt. Code § 65040.12(e); Pub. Res. Code, § 71116(j).)

Federal Executive Order 12898 (1994), "*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*," requires state and federal agencies to incorporate environmental justice concerns in their environmental analyses. The USEPA's *Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits* (USEPA, Aug. 2000) calls for a two-step analysis: (1) does the potentially affected community include minority and/or low-income populations and, if it does, (2) are the environmental impacts likely to fall disproportionately on minority and/or low-income members of the community. (Ex. 300, p. C.10-5.) See also, *Title VI Public Involvement Guidance for EPA Assistance Recipients Administering Environmental Permitting Programs*, 71 Fed. Reg. 14207 et seq. (USEPA, Mar. 21, 2006).

According to the USEPA's *Guidance*, an environmental justice population exists if the minority and/or low-income populations of the affected area constitute 50 percent or more of the general population or if the minority population percentage in the area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. (Ex. 300, p. C.10-5.)

Applicant used a 6-mile radius of the project site to determine the presence of environmental justice populations. The same 6-mile radius was used to assess air quality and public health effects. Census 2000 data (revised in 2006) indicate that the total population within the six-mile radius is 4,583 persons, and the total minority population is 3,725 persons or 81.27 percent of the total population.

It is undisputed that a large immigrant population resides in the study area due to its proximity to Mexico. Further, the residents of Imperial County are predominantly Hispanic, representing more than 75 percent of the total population. Thus, according to Applicant, no disproportional numbers of minorities occur in the project area compared to the greater county population as a whole and therefore, no environmental justice screening analysis is required. (Exs. 1, §§ 5.10.1.1, 5.10.2.8; Ex.28 p. 81; Ex. 302, p. C.10-6.)

We do not necessarily accept the premise that an environmental justice population cannot be disproportionally affected when it represents the majority of residents in a given location. Applicant's analysis does not account for the consequences of land use classifications where environmental justice populations have historically been relegated to less desirable locations due to lower housing costs and/or other discriminatory practices. However, in this case, there is no evidence that the mitigated project will result in adverse impacts to any one population and therefore, there is no evidence of disproportionate impacts to environmental justice populations. Socioeconomic impacts of the IVS project would not combine with impacts of any past, present, or reasonably foreseeable local projects to result in cumulatively considerable local impacts. Hence, there are no socioeconomic environmental justice issues related to this project. The IVS Project, as proposed, is consistent with applicable Socioeconomic LORS. (Ex. 1, § 5.10.2.8; Ex. 302, pp. C.10-5 to C.10-6, C.10-20.)

4. Cumulative Impacts

Cumulative socioeconomic impacts may occur when overlapping construction schedules for several projects in the same vicinity create a demand for workers that cannot be met by the local labor force, resulting in an influx of non-local workers and their dependents. (Ex. 302, pp. C.10-17 to C.10-20.)

There are prospective plans for substantial solar and wind energy development throughout the Southern California desert region. However, despite the potential for construction schedule overlaps, there is no evidence that the project's demand for workers will result in adverse cumulative socioeconomic effects because a large, skilled workforce in the study area is available within commuting distance. Since the Imperial Valley Solar Project will not result in any project-specific adverse socioeconomic impacts, it will not cumulatively contribute or combine with any potential impacts related to the future solar and wind development projects in the region. Further, the economic benefits derived from construction and operation of Imperial Valley Solar will provide cumulative benefits when project-induced revenues are combined with the revenues from future development projects. We therefore conclude that Imperial Valley Solar will not contribute to adverse cumulative impacts to the area's population, employment, housing, police, emergency services, schools, parks, or hospitals. (Ex. 300, pp. C.10-17 to C.10-20.)

5. Smaller Alternatives and No Project

Under the No Project/No Action alternative, the existing socioeconomic effects of the project site would not change. Under the smaller, proposed alternative projects described in the record, there would be fewer socioeconomic benefits compared with the built-out Imperial Valley Solar project but no significant adverse impacts would result. (Ex. 300, pp. C.10-13 to C.10-16.)

## FINDINGS OF FACT

Based on the uncontroverted evidence of record, we make the following findings:

1. A large, skilled labor pool in Imperial, San Diego, and Riverside Counties is available for construction and operation of the project.

2. Over the 40-month construction period, an average of approximately 360 daily construction workers, with a peak daily workforce of about 731, will be needed depending on the month and phase of development.

3. The project will hire approximately 164 permanent, full-time employees mostly from the local area for project operations.

4. The project will not cause an influx of a significant number of construction or operation workers to permanently relocate to the local area because most of the workers would reside within commuting distance of the site.

5. There is an adequate supply of motels and rental properties within the project vicinity to accommodate workers who stay in the area temporarily during their work assignments and return to their homes on hiatus.

6. The project will not result in significant adverse effects on local employment, housing, schools, public utilities, parks and recreation, law enforcement, or emergency services.

7. The total capital cost of Imperial Valley Solar is estimated at over $1 billion.

8. The total construction payroll for both phases of Imperial Valley Solar is estimated at over $140,000,000.

9. The anticipated construction payrolls, the local purchases of materials and supplies, and the sales tax revenues generated by the expenditures will have a temporary beneficial impact on the economies of Imperial, San Diego, and Riverside Counties.

10. When both phases of Imperial Valley Solar are completed, the project will provide an annual operations payroll of approximately $9,000,000 and an annual operations and maintenance budget estimated at over $7.4 million.

11. The project will provide direct, indirect, and induced economic benefits to communities within Imperial, San Diego and Riverside Counties.

12. A smaller alternative for the proposed Imperial Valley Solar project would reduce the number of employees and the potential economic benefits proportionately; however, since there are no project-related socioeconomic impacts, a smaller footprint would not change that finding.

13. The minority population within a six-mile radius of the project site exceeds the 50 percent threshold for a screening level environmental justice analysis but the low-income population is below the 50 percent threshold.

14. The project will not create disproportionate impacts on minority and/or low-income populations because the mitigated project does not result in any significant health or environmental impacts to any population in the project vicinity.

15. Construction and operation of the project will not result in any direct, indirect, or cumulative significant adverse socioeconomic impacts.

## CONCLUSIONS OF LAW

1. We therefore conclude that implementation of all Conditions of Certification in this Decision, including the Condition of Certification below, ensures that the project will comply with all applicable laws, ordinances, regulations, and standards relating to socioeconomic factors as identified in the pertinent portions of **Appendix A**.

2. The evidence of record contains an adequate analysis of socioeconomic effects related to the project and establishes that the project will not create any significant adverse socioeconomic effects as defined under the National Environmental Policy Act or the California Environmental Quality Act.

3. The evidence of record contains an adequate analysis of potential socioeconomic effects in accordance with federal and state guidelines on environmental justice and establishes that the project will not create any disproportionate adverse effects on minority or low-income populations.

## CONDITION OF CERTIFICATION

No Conditions of Certification are proposed or adopted for this topic.

## D. NOISE AND VIBRATION

The construction and operation of any power plant will create noise. The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the project to sensitive receptors combine to determine whether project noise will cause significant adverse impacts. In some cases, vibration may be produced as a result of construction activities such as blasting or pile driving; these activities have the potential to cause structural damage and annoyance. The evidence of record is summarized below and evaluates whether noise and vibration produced during project construction and operation will be mitigated sufficiently to comply with applicable law and avoid the creation of significant adverse impacts.[1] (5/24/2010 RT 231-245; Exs. 1; 12; 14; 27; 28; 32; 38, pp. 30-31; 47; 105; 122, pp. 13-15; 300, § C.9; 302, § C.9.)

### SUMMARY AND DISCUSSION OF THE EVIDENCE

The Imperial Valley Solar Project will be constructed on 6,500 acre site in Imperial County; most of the site is on undisturbed federal land managed by BLM. Ambient noise in the vicinity consists primarily of aircraft over-flights, highway traffic, wind, and wildlife. The nearest sensitive receptor is a small group of residences approximately 0.6 miles west of the project's northwest border; others are located southwest and northeast of the project's boundaries at greater distances. The site is about 4 miles east of the town of Ocotillo. (Ex. 300, p. C.9-7.)

Federal and State Laws regulate worker noise exposure. (Ex. 300, p. C.9-3.) The Noise Element of Imperial County's General Plan and the County's Noise Ordinance set property line sound level limits for sensitive receptors. (Ex. 300, pp. C.9-4 to C.9-6.) These are shown in Table 1, below.

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[1] This section deals with noise effects only upon human receptors; those effects upon wildlife are analyzed in the **BIOLOGICAL RESOURCES** portion of this Decision.

**Noise Table 1**
**Imperial County Property Line Noise Limits**

| Zone | Time | 1-hour Average Sound Level, dB |
|---|---|---|
| Residential | 7 a.m. to 10 p.m. | 50 |
| | 10 p.m. to 7 a.m. | 45 |
| Multi-Residential | 7 a.m. to 10 p.m. | 55 |
| | 10 p.m. to 7 a.m. | 50 |
| Commercial | 7 a.m. to 10 p.m. | 60 |
| | 10 p.m. to 7 a.m. | 55 |
| Light Industrial and Industrial Park | Anytime | 70 |
| General Industrial | Anytime | 75 |

Source: FSA, Ex. 300, p. C.9-5

The Noise Element further states that construction noise shall not exceed 75 dB $L_{eq}$ at the nearest sensitive receptor, and that construction equipment operation shall be limited to the following hours:

- Monday through Friday 7 a.m. to 7 p.m.
- Saturday 9 a.m. to 5 p.m.
- Sunday and Holidays Not allowed

CEQA Guidelines set forth characteristics of noise impacts that may indicate potentially significant effects from project-related noise, such as "a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project." (Cal. Code Regs., tit. 14, § 15000 et seq., Appen. G, Section XI.) In accordance with this standard, the Commission uses the significance threshold of 5 dBA when project-related noise emissions exceed existing ambient noise levels at the nearest sensitive receptor. We believe that an increase in background noise levels of up to 5 dBA in a residential setting is insignificant and that an increase of more than 10 dBA is clearly significant. An increase of between 5 dBA and 10 dBA may be considered adverse, but could be either significant or insignificant depending upon the particular circumstances of a given case. (Ex. 300, pp. C.9-1 to C.9-2, C.9-6 to C.9-7.)

Factors considered in determining the significance of an adverse impact as characterized above include: (1) the resulting noise level; (2) the duration and frequency of the noise; (3) the number of people affected; and (4) the land use designation of the affected receptor sites. Noise due to construction activities is usually considered insignificant in terms of CEQA compliance if the construction activity is temporary, the use of heavy equipment and noisy activities is limited to

day-time hours, and industry-standard abatement measures are employed. (Ex. 300, p. C.9-2.)

The evidence consists, in part, of an ambient noise survey conducted by Applicant on January 29, 30, and 31, 2008. This survey monitored existing noise levels at the following locations:

1. Measuring Location 1: Near a residence located approximately 5,300 feet southwest of the project site, at 426 Evan Hewes Highway. This is the sensitive receptor most likely to be impacted by project noise. Long-term (25-hour) monitoring showed ambient noise levels typical of a desert environment.
2. Measuring Location 2: Near the project site's western border, approximately 4300 feet from the nearest sensitive residential receptors located at 1516 Painted Gorge Road (Painted Gorge receptors).
3. Measuring Location 5: Near a residential community located approximately 10,500 feet to the northeast of the project site.

Ambient noise measurements were not taken at the nearest sensitive receptors, a group of five mobile residences located approximately 3,300 feet from the project's western border, at 1516 Painted Gorge Road. The evidence shows that ambient noise at these nearest receptors can be assumed similar to that of ML1.[2] (Ex. 300, p. C.9-7.)

The existing measured ambient noise levels are shown in Table 2, below.

**Noise Table 2**
**Summary of Measured Ambient Noise Levels**

| Measurement Location | Measured Noise Levels, dBA | | |
|---|---|---|---|
| | $L_{eq}$ – Daytime[1] | $L_{eq}$ – Nighttime[2] | $L_{90}$ – Nighttime[3] |
| ML1: Southwest Residence | 49 | 42 | 38 |
| ML2: West Project Boundary | 66 | 72 | 72 |
| Painted Gorge Residences | 49 | 42 | 38 |
| ML5: Northeast Residence | 56 | 52 | 48 |

Source: Ex. 300, p. C.9-8.

[2] Because of the similarities of the noise environment at these residences and at ML1, and the higher long-term measurements at ML2 (66 dBA leq versus 49 dBA leq, respectively), the more conservative measurements from ML1 were used.

The evidence further shows the effects the project's short-term construction activities and its long-term operation will have upon ambient levels.

1. Construction

Construction noise is a temporary event, in this case expected to occur in two phases over a period of about 40 months. The Imperial Project will be constructed in modular units, with each module taking about four months to build. This basically means that maximum construction noise will affect a sensitive receptor nearest the module for a period of only four months; noise will decrease as activity moves to the next module. (Ex. 300, pp. C.9-9 to C.9-10.) Construction of related linear facilities, such as the water supply and transmission lines, also proceeds rapidly, thus subjecting nearby receptors to increased noise levels for relatively short periods of time. (Ex. 300, p. C.9-10.) Aggregate construction noise levels and predicted increases are shown on Table 3, below.

**Noise Table 3**
**Predicted Power Plant Construction Noise Impacts**

| Receptor | Highest Construction Noise Level (dBA $L_{eq}$) | Measured Existing Ambient (dBA $L_{eq}$) | Cumulative (dBA $L_{eq}$) | Change (dBA) |
|---|---|---|---|---|
| ML1 – Southwest Residence | 63 | 49 daytime | 63 daytime | +14 daytime |
| Painted Gorge Residences | 67 | 49 daytime | 67 daytime | +18 daytime |
| ML5 – Northeast Residence | 59 | 56 daytime | 61 daytime | +5 daytime |

Source: Ex. 300, p. C.9-9.

These levels are within the 75 dBA $L_{eq}$ level set by Imperial County for construction noise.

Pile driving, if used, would result in a 19 dBA increase (68 dBA total) at the nearest residential receptors (Painted Gorge). This level would, however, be temporary. (Ex. 300, p. C.9-10.) The evidence characterizes this potential impact as "noticeable," but "tolerable" to residents.[3] (*Id.*)

[3] An individual's reaction to noise is, of course, inherently subjective. (5/24/2010 (day 1) RT 235, 237.)

To ensure construction noise levels will not be disruptive at the nearest receptors, we have adopted Conditions of Certification **NOISE-1, NOISE-2,** and **NOISE-6**. The first two Conditions establish a notification and complaint process to resolve issues arising from any excessive construction noise; Condition **NOISE-6** generally limits weekday construction to the hours between 7:00 a.m. and 7:00 p.m., and that on Saturdays to between 9:00 a.m. and 5:00 p.m. (Ex. 300, p. C.9-10.)

We note that Applicant desired additional flexibility in scheduling construction activities, if needed, and proposed revisions to Condition **NOISE-6**. (5/24/2010 (day 1) RT 232-33; Exs. 38, pp. 30 -31; 105; 122, pp. 14-15.) There is no evidence in the record that project construction will create significant noise impacts. Moreover, we recognize the potential benefit of providing a measure of flexibility regarding construction activities. We have therefore incorporated the version of **NOISE-6** which is found in the Supplemental Staff Assessment (Ex. 302, p. 9-24) and clarified by the August 11, 2010 Opening Briefs of Applicant (pp. 4-6) and Staff (pp. 3-4.) as it appears to balance Applicant's request and the mitigation of noise impacts.

To protect construction workers from injury due to excessive noise, Condition **NOISE-3** requires the project owner to implement a noise control program consistent with OSHA and Cal/OSHA requirements. Overall, the evidence establishes that construction noise impacts at affected receptors will be less than significant. (Exs. 300, p. C.9-14; 302, p. 9-21.) Moreover, there is no indication in the evidence of record that vibration from construction activities will be perceptible at any appreciable distance from the project site, or that it will cause any impact. (Ex. 300, pp. C.9-11.)

2. Operations

The noise emanating from a power plant is unique. It is generally broadband, steady state in nature. This noise contributes to, and becomes part of, the background noise level when most intermittent noises cease. (Ex. 300, p. C.9-12.) The project's primary new noise sources include the Stirling Engines (generator, cooling fan, and air compressor) utilized on each of the Sun Catchers, step-up transformers, and the new substation. (Ex. 300, p. C.9-11.) The evidence establishes that daytime operational noise levels are predicted to be 45 dBA Leq at sensitive receptors. (Ex. 302, Table 8, p. C.9-12.) This complies with the limit established by Imperial County and would result in only

inaudible daytime increases above the ambient level at the nearest sensitive receptors. (Exs. 300, pp. C.9-11 to C.9-13; 302, p. C.9-13.)

The evidence also establishes that strong tonal noises could be a source of annoyance. To avoid the creation of pure-tone noises, the project owner will balance the noise emissions of various power plant features. Condition **NOISE-4,** as it appears in the Supplemental Staff Assessment and as clarified in the August 11, 2010 Opening Briefs of Applicant (pp. 3-4) and Staff (pp. 25-26), ensures that tonal noises will not cause annoyances. (5/24/2010 (day 1) RT 232, 235; Exs. 38, pp. 30-31; 122, pp. 13-14; 302, pp. C.9-22 to C.9-23.) As with construction activities, operational and maintenance activities will meet OSHA and Cal/OSHA standards to protect workers. (Condition of Certification **NOISE-5;** Ex. 300 p. C.9-14.) The evidence also establishes that operational vibration – whether ground borne or air borne – will be undetectable by potential receptors. (Ex. 300, p. C.9-13.)

There are no future foreseeable projects close to the Imperial Valley Solar Project which could create cumulative noise impacts. (Ex. 300, p. C.9-19.) The analysis of record does, however, address the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and various No Project Alternatives in regard to this topic area. None of the Alternatives would substantially alter the level of noise impacts posed by the project. The Imperial Project does not create significant adverse impacts in this topic area. Therefore, it is not necessary to consider any of the project's Alternatives as a means of lessening the project's impacts to below a level of significance. (Ex. 300, pp. C.9-14 to C.9-19.)

**FINDINGS OF FACT**

Based on the evidence of record, we make the following findings.

1. The nearest noise receptors are those identified in the evidence of record, as reflected in the foregoing Table 1 contained in the Summary and Discussion portion of this portion of the Decision.

2. Operation of the Imperial Project will not significantly increase noise levels above existing ambient levels at the nearest receptors.

3. Construction noise levels are temporary and transitory in nature and will be mitigated to the extent feasible by sound reduction devices, limiting construction to day-time hours, and providing a notice and complaint process to the public.

4. Pile driving, if used, would result in increased levels of noise at the nearest receptors.

5. Project construction will increase noise levels at the nearest sensitive receptors. The evidence establishes that these increases will be temporary and not significant.

6. Mitigation, as identified in the evidence of record, and adherence to Condition of Certification **NOISE-6**, assure that noise from construction activities is reduced to below a level of significance.

7. The project owner will implement measures to protect workers from injury due to excessive noise levels during both construction and operation.

8. The Imperial Project will not create ground or air borne vibrations which will cause significant off-site impacts.

9. Implementation of the Conditions of Certification, below, ensure that project-related noise emissions will not cause significant adverse impacts to the closest noise receptors.

10. The noise from the Imperial Project will not create a significant adverse cumulative impact.

11. The record addresses the impacts of the 300 MW, the Drainage Avoidance #1, the Drainage Avoidance #2, and various No Project Alternatives in regard to this topic area.

12. None of the Alternatives mentioned above would result in an increased construction or operational noise level at the nearest sensitive receptors.

13. Implementation of any of the Alternatives mentioned above is not necessary or preferable as a means of reducing project related impacts to below a level of significance.

## CONCLUSIONS OF LAW

1. The Commission concludes that implementation of the following Conditions of Certification ensure that the Imperial Valley Solar Project will comply with the applicable laws, ordinances, regulations, and standards on noise and vibration as set forth in the pertinent portion of **Appendix A** of this Decision.

2. The project will not cause significant indirect, direct, or cumulative adverse noise impacts.

## CONDITIONS OF CERTIFICATION

**NOISE-1** At least 15 days prior to the start of ground disturbance, the project owner shall notify all residents within two miles of the site, by mail or other effective means, of the commencement of project construction. At the same time, the project owner shall establish a telephone number for use by the public to report any undesirable noise conditions associated with the construction and operation of the project and include that telephone number in the above notice. If the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended. This telephone number shall be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year.

**Verification:** Prior to ground disturbance, the project owner shall transmit to the Compliance Project Manager (CPM) a statement, signed by the project owner's project manager, stating that the above notification has been performed and describing the method of that notification, verifying that the telephone number has been established and posted at the site, and giving that telephone number.

## NOISE COMPLAINT PROCESS

**NOISE-2** Throughout the construction and operation of the IVS Project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form (below), or a functionally equivalent procedure acceptable to the CPM, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- Take all feasible measures to reduce the noise at its source if the noise is project related; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts, and if obtainable, a signed statement by the complainant stating

that the noise problem is resolved to the complainant's satisfaction.

**Verification:** Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form with the CPM, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

**NOISE-3** The project owner shall submit to the CPM for review and approval a noise control program and a statement, signed by the project owner's project manager, verifying that the noise control program will be implemented throughout construction of the project. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal/OSHA standards.

**Verification:** At least 30 days prior to the start of ground disturbance, the project owner shall submit to the CPM the noise control program and the project owner's project manager's signed statement. The project owner shall make the program available to Cal/OSHA upon request.

**NOISE RESTRICTIONS**

**NOISE-4** The project design and implementation shall include noise mitigation measures that ensure that the operation of the project will not cause the noise levels due to plant operation alone to exceed an average of 45 dBA $L_{eq}$ at the residence located at or near 1510 Painted Gorge Road.

No new pure-tone components shall be caused by the project. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints.

A. When the project first achieves a sustained output of 85% or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at the group of residences located near 1510 Painted Gorge Road, or at a closer location acceptable to the CPM. This survey shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been caused by the project.

During the period of this survey, the project owner shall also conduct a short-term survey of noise at monitoring location ML1 or at a closer location acceptable to the CPM. The short-term noise measurements at this location shall be conducted during morning, early afternoon, and evening hours.

The measurement of power plant noise for the purposes of demonstrating compliance with this condition of certification may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the affected residence. The character of the plant noise shall be evaluated at the affected receptor locations to determine the presence of pure tones or other dominant sources of plant noise.

B. If the results from the noise survey indicate that the power plant noise at the affected receptor sites exceeds the above specified values, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits.

C. If the results from the noise survey indicate that pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

**Verification:** The survey shall take place within 30 days of the project first achieving a sustained output of 85% or greater of rated capacity. Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the CPM. Included in the survey report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limit, and a schedule, subject to CPM approval, for implementing these measures. When these measures are in place, the project owner shall repeat the noise survey.

**NOISE-5** Following the project's first achieving a sustained output of 80% or greater of rated capacity, the project owner shall conduct an occupational noise survey to identify the noise hazardous areas in the facility.

The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations sections 5095–5099 and Title 29, Code of Federal Regulations section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure.

The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

**Verification:** Within 30 days after completing the survey, the project owner shall submit the noise survey report to the CPM. The project owner shall make the report available to OSHA and Cal/OSHA upon request.

## CONSTRUCTION TIME RESTRICTIONS

**NOISE-6** Heavy equipment operation and noisy construction[4] work relating to any project features shall be restricted to the times of day delineated below, unless:

the project owner obtains the consent of the respective homeowner; or

the CPM determines that the noise will not exceed the daytime ambient noise levels at ML1, ML5, and the residences near 1510 Painted Gorge Road (as shown in **Noise Table 5**) by more than 10 dBA and the nighttime ambient noise levels at those locations (as shown in **Noise Table 4**, 3rd column [$L_{eq}$ levels]) by more than 5 dBA; or construction that is expected to increase those daytime ambient noise levels at those locations by more than 10dBA continues through no longer than one month or construction that is expected to increase those nighttime ambient noise levels at those locations by more than 5 dBA continues through no longer than five nights.

Mondays through Fridays: 7:00 a.m. to 7:00 p.m.

Saturdays: 9:00 a.m. to 5:00 p.m.

Sundays and Holidays: No Construction Allowed

In the event that nighttime construction is believed necessary by the project owner, a written request shall be submitted to the CPM for approval. Approval for nighttime construction will be limited to construction activities which are not noisy and that would be difficult to complete during daytime hours (such as concrete pours during hot summer months).

Haul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

**Verification:** Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project. At least 20 days prior to the start of construction activities to occur outside the above required schedule restrictions,

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[4] Noisy Construction: "Noise that can potentially draw legitimate complaints."

Legitimate Complaint: "A legitimate noise complaint refers to a complaint about noise that is confirmed by the CPM to be disturbing, and that is caused by the Calico project as opposed to another source. A legitimate complaint constitutes a violation by the project of any noise condition of certification (as confirmed by the CPM), which is documented by an individual or entity affected by such noise."

the project owner shall submit to the CPM a letter showing the affected homeowner's consent. If the consent cannot be obtained, at least 15 days prior to the start of those activities, the project owner shall submit to the CPM documentation showing the expected construction noise levels at ML1, ML5, and the group of residents near 1510 Painted Gorge Road, the nature of the work, the time of day/night that work will occur, and the duration of the work.

## NOISE COMPLAINT RESOLUTION FORM

| Imperial Valley Solar Project<br>(08-AFC-5) |
|---|
| **NOISE COMPLAINT LOG NUMBER** _____<br><br>Complainant's name and address:<br><br>Phone number: _____ |
| Date complaint received: _____<br>Time complaint received: _____ |
| Nature of noise complaint: |
| Definition of problem after investigation by plant personnel:<br><br>Date complainant first contacted: _____ |
| Initial noise levels at 3 feet from noise source _____ dBA Date: _____<br>Initial noise levels at complainant's property: _____ dBA Date: _____<br><br>Final noise levels at 3 feet from noise source: _____ dBA Date: _____<br>Final noise levels at complainant's property: _____ dBA Date: _____ |
| Description of corrective measures taken:<br><br>Complainant's signature: _____ Date: _____ |
| Approximate installed cost of corrective measures: $ _____<br>Date installation completed: _____<br>Date first letter sent to complainant: _____ (copy attached)<br>Date final letter sent to complainant: _____ (copy attached) |
| This information is certified to be correct:<br><br>Plant Manager's signature: _____ |

(Attach additional pages and supporting documentation, as required).

## E. VISUAL RESOURCES

### SUMMARY AND DISCUSSION OF THE EVIDENCE

Visual resources are the features of the landscape that contribute to the visual character or quality of the environment. CEQA requires an examination of a project's visual impacts to determine whether the project has the potential to (a) cause substantial degradation to the existing visual character of the proposed project site and its surroundings; (b) have a substantial adverse effect on a scenic vista; (c) substantially damage scenic resources (including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway; or (d) create a substantial new source of light or glare affecting day or nighttime views in the project area. (Cal. Code Regs., tit. 14 §15382, Appendix G.)

This chapter determines that (1) the IVS project would cause such impacts, (2) some of these significant adverse effects on the environment will, with implementation of the adopted Conditions of Certification be avoided or reduced to insignificance, and (3) that the remaining, unmitigable impacts will have to be "overridden" if we are to approve the project. There are no LORS that impose substantive requirements concerning the facility's visual impacts.

The project includes land within the jurisdiction of the BLM, and thus, the analysis was conducted to be consistent with both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA).

1. Project Site and Vicinity

The proposed site is approximately 6,500 acres (roughly 10 square miles) in the southwest portion of Imperial County, roughly 14 miles west of the town of El Centro. Approximately 6,140 acres of land are under the jurisdiction of the BLM and approximately 360 acres are private land. The project site is located in the western portion of the Salton Trough, which includes the Salton Sea, a man-made lake located approximately 23 miles to the northeast. The project site is a transitional area between the relatively featureless and highly disturbed West Mesa to the north, and the topographically varied, scenically rich Yuha Desert Area of Critical Environmental Concern (ACEC) to the south. (Ex. 302, p. C.13-4.)

North of the project site is Plaster City, a large US Gypsum Corporation wallboard manufacturing plant, the Evan Hewes (Imperial) Highway (County

Road S80) and, north of the highway, the Plaster City Open Off-Highway Vehicle (OHV) Area. US Interstate 8 (I-8) and the BLM Yuha Desert ACEC are located to the south of the project. Two parcels, owned by a recreational vehicle club and a private landowner, will be surrounded by the proposed project, but will not be part of the project. (Ex. 302, pp. C.13-4 to C.13-5.)

The project site itself is primarily undeveloped public desert land. The BLM manages the site and has designated it for limited OHV use (vehicle travel restricted to designated trails). Uncontroverted evidence shows that vehicle tire tracks are visible throughout the site, both on and off the designated trails. Staff has described the site as "highly disturbed" from years of "heavy and ongoing" OHV use. One witness testified that there are also OHV race courses on the site (5/25/10 RT 104:4–105:16). Among the other existing manmade visual intrusions affecting the site are the Plaster City wallboard factory, the Southwest Powerlink transmission line, and Highways I-8 and S80. (Ex. 302, p. C.13-5.)

2. Scope of the Analysis

Our visual analysis evaluates the following components of the IVS project:

- **Solar power plant** that includes approximately 30,000, 38-foot-high solar dish Stirling systems (i.e. SunCatchers) and associated equipment and infrastructure within a fenced 6,400 acre area;
- **Construction staging area (or laydown area)** of approximately 110-acres that would be located east of the solar field, north of I-8, and east of Dunaway Road;
- **Site grading** potentially over the entire site;
- **Plant night lighting** that includes lighting at the Main Services Complex and at parking and roadways; and
- **Linear facilities** that include a 12-mile, 6-inch water pipeline, a 10.3 mile 730MW/230-kV transmission line, and approximately 275 miles of unpaved roads. (Ex. 302, pp. C.13-12 to C.13-13.)

Visual resources analyses have an inherently subjective aspect. The evidence describes the methodologies used to evaluate IVS's visual impacts. An assessment of compliance with applicable laws, the extent of any alteration to the existing viewshed including blockage of desirable views, creation of a decrease in visual quality, and the introduction of a substantial change to lighting levels are the overall factors considered in this analysis. Viewer perception of

visual change is analyzed by considering the type of visual change, duration of view, viewer sensitivity, and number of viewers. (Ex. 300, pp. C.13-2 to C.13-3.) A thorough description of this methodology is provided in Ex. 302, Visual Resources **Appendix VR-1.**

3. Construction Impacts and Mitigation

Here, we analyze the impacts from both the project's construction and the project's operation.

Construction is expected to take place over a period of 40 months. Project construction will include erection of industrial facilities for assembly and installation of SunCatcher units in a currently open area. In addition, the project includes a 110-acre laydown site that will be visually prominent along Dunaway Road. (Ex. 302, p. C13-22). These features will result in the placement of industrial features on land that is currently vacant, potentially creating an adverse impact on the view.

We adopt staff's recommended Condition of Certification **VIS-7** to reduce temporary construction visual impacts of the lay-down site. Condition **VIS-7** will reduce the impacts by requiring increased setback of the site from I-8, and re-grading and revegetation with locally native species following project construction. With implementation of **VIS-7**, visual impacts of the lay-down area will be less than significant. (Ex. 302, p. C.13-22.)

Project construction and grading will take place over an approximate 6,500 acre project area. Mitigation measures could not be identified to reduce visual impacts of construction activities on this scale to less than significant levels. (Ex. 302, p. C.13-22.) However, because of their temporary nature, we find that these project construction and grading impacts are below the level of significance.

4. Operation Impacts and Mitigation

The visual assessment evaluated both the existing visible physical environmental setting, and the anticipated visual change introduced by the proposed project to the view, from representative, fixed vantage points (called "Key Observation Points" [KOPs]). KOPs are initially selected by Applicant, and analyzed using "before" and "after" pictures. Staff analyzes Applicant's selected KOPs to determine whether they represent the most critical viewing groups and locations from which the project would be seen. KOPs were assessed according to the

visual quality of their setting, and the level of viewer concern and viewer exposure. In this case, Staff determined that Applicant's selections did represent the most critical viewing groups and locations from which the project would be seen. However, Staff noted that no KOPs were addressed in the AFC within other adjoining landscape units such as the Jacumba Wilderness, Coyote Mountain Wilderness, Painted Gorge, or Yuha Basin. The first three areas are located largely at background distance and would thus appear similar in character to KOP 4; relatively high viewer concern and open, unobstructed viewer exposure would be greatly moderated by distance, which would inherently reduce the dominance of the project to visually subordinate levels. Portions of the Yuha Basin landscape unit, however, are much closer, with some portions a little over a mile from the site. This unit includes a designated travel route (Route 274) identified by BLM and the National Park Service (NPS) as a portion of the historic Juan Bautista de Anza Trail, and many of the most-visited destinations within the Yuha Desert ACEC, including the Yuha Geoglyphs, Yuha Shell Beds, Yuha Well, distinctive and scenic topography of the Yuha Basin and Buttes, and several designated campgrounds.

Because this portion of the ACEC is among the most popular destinations in the El Centro BLM Field Office area, is more scenic than any other portion of the Yuha Desert, and lies at points within near-middle-ground distance of the project site, additional KOPs were identified within this landscape unit for analysis. The principal sensitive viewpoint in the ACEC in relation to the project is Route274, and the geoglyphs and campgrounds that are located along it. Staff therefore added KOPs 6, 7 and 8 to the analysis, all of them along Route 274.

Evaluation of the conditions at each KOP, with and without the project (i.e. visual quality, viewer concern, visibility, number of viewers, duration of view), resulted in the identification of the visual impact at these KOPs. (Exs. 1, pp. 5.13-11 to 5.13-13; 302, pp. C.13-2, C.13-13 to C.13-21.

In sum, the visual impacts from six KOPS are not significant. For two KOPs (KOPs 5 and 6) significant adverse impacts will result from implementation of the project. There are no mitigation measures that would effectively reduce these impacts to less than significant levels.

The eight KOPs we considered are (Ex. 302, pp. C.13-13 to C.13-19):

- KOP1 represents potential viewers of the project in the Plaster City Open OHV Area immediately north of the project site. The OHV Area is a BLM-

administered, and heavily used, off-road recreational vehicle area. (See **Visual Resources Figures 7a and 7b**)

- KOP 2 is a view from the residence nearest to the project, looking southwest into the project site from the Evan Hewes Highway at a distance of roughly 1.5 miles. (See **Visual Resources Figures 8a and 8b**)

- KOP 3 is a view from the residence nearest to the proposed project transmission line, adjoining the Westside Main Canal at the western edge of the Imperial Valley agricultural area. (See **Visual Resources Figures 9a and 9b**)

- KOP 4 is a view from the town of Ocotillo, approximately 4.5 miles west of the project site on I-8, and is representative of I-8 motorists at background distances from the project. (See **Visual Resources Figures 10a and 10b**)

- KOP 5 is a view from the southeast corner of the site west of Dunaway Road, and is representative of foreground views from I-8, and Evan Hewes Highway. (See **Visual Resources Figures 11a and 11b**)

- KOP 6, 7, 8: These KOPs illustrate the range of potential effects the project will have on sensitive recreational destinations within the Yuha Desert ACEC, including portions of the Juan Bautista de Anza National Historic Trail. (Ex. 302 p. C13-18.) No simulations were prepared for this group of KOPs. However, the level of visibility of the project from these KOPs was determined from field reconnaissance and photo-documentation. (Ex. 302, pp. C-13-10 and C-13-18.) These KOPs are:

    - KOP 6 is a view from the eastern segment of Route 274 near Dunaway Campground at a distance of ½-mile from the project site. (See **Visual Resources Figure 12**)

    - KOP 7 is a view from Overlook Campground on Route 274 at a distance of roughly one mile. (See **Visual Resources Figure 13**)

    - KOP 8 is a view from the vicinity of the Yuha Geoglyphs, also on Route 274 at a distance of roughly 3 miles. (See **Visual Resources Figure 14**)

**VISUAL RESOURCES - FIGURE 7b**

SES Solar Two - KOP #1 - Simulated View - View from Plaster City Open OHV Area

FEBRUARY 2010

VISUAL RESOURCES

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: AFC Figure 5.13-22

**VISUAL RESOURCES - FIGURE 8b**

SES Solar Two - KOP #2 - Simulated View - View from Nearby Residence on Evan Hewes Highway

FEBRUARY 2010

VISUAL RESOURCES

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: AFC Figure 5.13-23

**VISUAL RESOURCES - FIGURE 9b**

SES Solar Two - KOP #3 - Simulated View - View from Residence to Proposed Transmission Line

FEBRUARY 2010

VISUAL RESOURCES

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: AFC Figure 5.13-24

**VISUAL RESOURCES - FIGURE 10b**

SES Solar Two - KOP #4 - Simulated View - View from Town of Ocotillo

CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010

SOURCE: AFC Figure 5.13-25

**VISUAL RESOURCES - FIGURE 11b**

SES Solar Two - KOP #5 - Simulated View -View from I-8 Near Dunaway Road

FEBRUARY 2010

VISUAL RESOURCES

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: AFC Figure 5.13-

**VISUAL RESOURCES - FIGURE 12**

SES Solar Two - KOP 6, View from Route 274 (De Anza National Historic Trail) near Dunaway Campground

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: WK and Associates

**VISUAL RESOURCES - FIGURE 13**

SES Solar Two - KOP 7, View from Overlook Campground Route 274 (De Anza National Historic Trail)

FEBRUARY 2010

VISUAL RESOURCES

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: WK and Associates

**VISUAL RESOURCES - FIGURE 14**

SES Solar Two - KOP 8, View from Vicinity of the Yuha Geoglyphs (De Anza National Historic Trail)

FEBRUARY 2010

VISUAL RESOURCES

**CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMENTAL PROTECTION DIVISION, FEBRUARY 2010**

SOURCE: WK and Associates

5. Analysis of Impacts From Each KOP

KOP 1 represents a view of the project site from a middle-ground distance of approximately 1.5 miles. Visitors to the open OHV area north of the site could view the project from a closer or foreground distance (0.5 mile or under). Visual contrast will range from very strong to moderate depending on the viewer's distance from the site boundaries. Because the OHV recreation area is disturbed terrain and users of the OHV area are likely to be focused on their recreational activities, we find the moderate levels of visual change associated with the project to be less than significant, except for views from a foreground distance. Views within a foreground distance are addressed in KOP 5 below. (Ex. 302, pp. C.13 to C.13-14.)

KOP 2 represents a view of the site from the nearest residence, along Evan Hewes Highway, looking southwest. There is moderate visual contrast. As presented in this simulation (and KOP 1), the project will blend with the broad horizontal lines of the level terrain. The project would not block scenic views within this middle-ground distance zone.

Overall visual change from KOP 2 and similar middle-ground viewpoints is thus considered moderate. At this distance and under these level terrain relationships the project would attract attention but would not dominate the existing landscape.

Viewers from this KOP would likely have moderately high overall visual sensitivity. However, given the moderate level of visual change experienced by these residents and motorists on Evan Hewes Highway at distances of over one mile impacts would be less than significant. (Ex. 302, p. C-13-15.)

KOP 3 represents a view of the proposed project transmission line from the nearest residence. In the simulation photo, the Southwest Powerlink transmission lines and towers are visible. The proposed project transmission line will be parallel to the existing line and will incrementally add to the visibility of the transmission line corridor. This view has low visual exposure and a low number of viewers and viewers would have moderately low visual sensitivity. Moderately low overall visual sensitivity from this and similar locations coupled with low visual exposure and low viewer numbers supports our finding that anticipated visual change of caused by the combined powerlines is less than significant.

Therefore, we find that the visual impact at this KOP is less than significant. (Ex. 302, p. C-13-16.)

KOP 4 is a view from the town of Ocotillo, roughly 4.5 miles west of the project site on I-8, and is representative of the view for I-8 motorists at background distances from the project. A broad overview of the West Mesa and Yuha Desert area is visible from this elevated position above the valley floor. However, as depicted in the simulated view, visibility and prominence of the project at background distances such as this is limited. We find that the low level of visual change associated with this KOP will result in a less than significant impact. (Ex. 302, p. C-13-16.)

KOP 5 represents foreground views of the project for motorists on I-8. The project will cause a high level of visual contrast and change along approximately 6.5 miles of Highway I-8 and approximately 6 miles of Evan Hewes Highway. The 38 foot-tall mirror arrays will exhibit strong spatial dominance extending for miles. (Ex. 302, pp. C.13-16 to C.13-17.) In addition, in this view, the project power lines along the highway will combine with the existing Southwest Powerlink line to dominate the foreground view from the highway resulting in significant impacts if unmitigated. Overall the project would strongly demand attention, could not be overlooked, and would strongly dominate the landscape over more than 6 miles of highway frontage within foreground distance of the project features.

Views of mountains to the north and northwest, including the Coyote Mountains, Superstition Mountains, and Carrizo Mountain, would be largely obstructed to westbound motorists in the vicinity of the project.

We adopt staff-recommended Conditions of Certification to reduce visual impacts from KOP 5. Condition of Certification **VIS-1** will reduce the contrast of project security fencing and other non-mirror project features from I-8 by requiring the project owner to treat surfaces with colors that will blend with the setting. Staff had recommended Condition of Certification **VIS-3** to reduce visual impact of the segment of the new proposed transmission line that will parallel I-8. However, the Applicant has submitted evidence that this segment of the transmission line will no longer parallel I-8 and therefore this condition has been deleted. (RT 7/27/10 417:19 – 418:1.) Condition of Certification **VIS-4** was recommended to reduce the prominence of the project from I-8 by setting it back from the road and requiring screening. The Applicant suggested landscaping screening to reduce visual impacts. We find that this measure is not feasible because the landscaping will require large amounts of water and will be out of character with the project area. (Ex. 302, p. C-13-17.)

Applicant and Staff agreed that a setback from I-8 would help mitigate the impacts to users of I-8 because it would provide a space between the road and

the first row of SunCatchers. We adopt Condition of Certification **VIS-4** which provides for a setback of 223 feet. Even with the implementation of Conditions of Certification **VIS-1 and -4**, the project impacts from the foreground of I-8 would be reduced, but project contrast, dominance, and overall visual change would remain strong, and impacts, substantial. (Ex. 302, p. C.13-18.)

KOP 6 represents a foreground view from the eastern segment of Route 274 approximately 1/2 mile from the project site. This location is just across I-8 from the site. Existing transmission lines and towers, and the Plaster City industrial facility, are clearly within view (Figure 12). At this location, the project will add another industrial feature to the view. The project would not block views of mountains in the background, including the Superstition Mountains to the north. However, the project's pronounced contrast in color, texture, and at times, brightness; and its strong spatial dominance would represent a high level of visual change. The project would demand attention, could not be overlooked, and would be dominant in the landscape. (Ex. 302, p. C-13-19.) The project would have a significant impact on visual resources at this KOPand, as with KOP 5, there is no mitigation measure that could reduce the impact below the level of significance. The project setback described in Condition of Certification **VIS-4** would increase the distance between KOP 6 and the first row of SunCatchers, but not enough to overcome the project's impacts from KOP 6.

KOP 7 is a middle-ground view from Overlook Campground on Route 274 at a distance of approximately one mile. Like KOP 6, this location is across I-8 from the project site and existing transmission lines and towers and the Plaster City industrial facility are clearly within view, although at a greater distance than from KOP 6 (**Visual Resources Figure 13**). As with KOP 6, at this location the project will add another industrial feature to the view, but at a greater distance, further reducing its dominance and visibility. Despite the existing industrial features and the separation from them caused by I-8 to the north, due to moderate to high overall viewer sensitivity in foreground and middle-ground viewpoints within the Yuha ACEC, impacts from KOP 7, and other portions of the Anza Trail (Route 274) at these distances would be significant and could not be mitigated below the level of significance

KOP 8 represents the third view from Route 274 at a distance of approximately 3 miles from the site, near the Yuha Geoplyphs. (Ex. 302, p. C.13-19.) At this distance, the project would be very evident but would exhibit a moderate degree of contrast. Color and texture contrast could be moderately high, but form and line contrast would be weak due to the level, oblique angle of view and the small portion of the field of view occupied by the project. Similarly, visual dominance of

the project would be moderate in scale at this distance. Even though viewer sensitivity is expected to be high, impacts of the project at this distance would be less than significant.

a. Glare Impacts

The visual analysis also considered glare impacts from the project. Limited photometric data was available to assess the anticipated brightness or luminance of the proposed project and SunCatcher units. Staff testified that on the basis of limited available information including review of the project AFC, 5 percent of the visible spectrum, which is not directed to the power conversion unit (PCU), had the potential to make the SunCatcher mirrors appear as very bright objects. (Ex. 302, p. VR.1-3.) Staff calculated that a setback requirement of no less than 223 feet would be the minimum safe setback distance to minimize potential hazards from flash blindness from the SunCatchers. (Ex, 302, p. VR.1-5.)

The Applicant provided quantitative evidence that glare and brightness will be minimal from the project along the roadway and along the perimeter of the project site. The Applicant calculated the intensity of light at the proposed project boundary and at the nearest roadways and determined that the worst case values for irradiance of reflected light were 0.444 $kW/m^2$at the project boundary and 0.147 kW/m^2 at the nearest shoulder roadway (irradiance of the sun on a bright day is 1.000 $kW/m^2$). (Ex. 28, p. 86.) Accordingly, we find that the incorporation of a 223 foot setback requirement into the Conditions of Certification will ensure that glare impacts are insignificant.

Condition of Certification **VIS-6** is intended to reduce glare impacts through a combination of measures such as setbacks; turning away of outer rows of mirrors during times of greatest potential nuisance glare; and implementation of a Mirror Positioning Plan that would eliminate hazardous and nuisance glare. The Mirror Positioning Plan is described in detail in Condition of Certification **TRANS-4** in the **Traffic and Transportation** section of this Decision. Therefore, we adopt Condition of Certification **VIS-6** as agreed upon by Applicant and Staff. (Exs. 28, p. 90; 302, p. C.13-20; Applicant's Opening Post-Hearing Brief, Appendix A, p. 9; Staff's Reply Brief, p. 13.)

b. Night Lighting

The project includes night lighting for the Main Services Complex, and parking and roadway lighting. (Ex.1, Figure 3-20, 21.) Nighttime light pollution as a result of the project is a concern because the area around the project site is now largely

dark at night. Unmitigated night lighting of the project could have a substantial impact on the experience of campers at nearby recreational areas. To minimize night sky light pollution, we adopt staff- recommended Condition of Certification **VIS-2,** which sets forth specific requirements for the design and operation of all exterior lighting to reduce night lighting impacts.

6. Cumulative Impacts

The cumulative project assessment considered the proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project. [14 Cal. Code Regs, §15355.] The geographic scope of Staff's analysis included southwestern Imperial County within a distance of five miles or less of the proposed project, the southern California Colorado (Sonoran) Desert, and proposed solar and other renewable energy projects with a region-wide focus. (Ex. 302, pp. C.13-34 to C.13-38.) Among the cumulative projects considered are the GreenPath 230 kV Upgrade Project, the Sunrise PowerLink Project, the Ocotillo Express Wind Facility, and the West-wide Energy Corridor. Each of these would be situated within the immediate local view-shed of the proposed IVS project.

The construction of the IVS project is expected to cause short term adverse impacts because of the large area of ground disturbance. It is expected that some of the cumulative projects described above which are not yet built may be under construction at the same time as the IVS project. If so there will be substantial short-term impacts during construction of those cumulative projects related to visual resources.

The IVS project, if under construction at the same time as other projects in the vicinity, would contribute substantially to these possible short-term cumulative impacts related to visual resources because the vast area of ground disturbance resulting from its construction would greatly increase the overall degree, extent, and intensity of visual construction effects occurring in the viewshed at the same time, likely becoming the single greatest contributor to the overall effect. (Ex. 302, p. C.13-36.)

The operation of the IVS project is expected to result in long-term adverse impacts during operation of the project related to visual resources. It is expected that some of the cumulative projects described above will be operational at the same time as the IVS project. If so, there will be substantial long-term cumulative impacts during operation of those projects as they relate to visual resources.

The IVS project would contribute substantially to these possible-long term operational cumulative impacts related to visual resources due to its vast extent, and the high level of change to visual character and quality that it would contribute to the viewshed. It could essentially form a part of a very large corridor of wind and solar development reaching from the Imperial Valley substation to the border of Imperial County to the west. (Ex. 302, p. C.13-35.)

Staff's Cumulative Impacts assessment identified 72 solar and 61 wind project applications with a total overall area of over one million acres within the California Desert Conservation Area (CDCA). Of the 61 wind applications in the California Desert District, only five of the applications are for actual wind development; the remaining proposals are for site testing and monitoring for potential wind development. BLM's experience is that only a small percentage of applications for site testing have resulted in wind development proposals. (Ex. 302, p. C.13-36.)

Staff asserts that cumulative impacts across the entire desert region must be considered and concludes that the IVS project, when combined with past and foreseeable future projects, will have significant visual impacts in the CDCA. According to Staff, the region-wide focus is justified because the affected landscape type, the southern California Desert, has been specifically identified as a resource of concern in the California Desert Conservation Area Plan of 1980, the California Desert Protection Act of 1994, and the proposed 2010 California Desert Protection Act. In each case, the scenic value of the desert landscape is cited as one primary reason for its conservation. (Ex. 302, p. C.13-35.)

Staff accounts for the fact that one would not be able to see projects in other parts of the desert from the IVS site by explaining that highways are the location from which the vast majority of viewers experience the California desert. Thus, motorists could encounter views of several projects during a single day of travel. Staff also voices concern that the potential for profound widespread cumulative impacts to scenic resources could include a substantial decline in the overall number and extent of scenically intact, undisturbed desert landscapes, and a substantially more urbanized character in the overall southern California desert landscape. Staff's equivocal statements, however, demonstrate to us that is not possible to do more than speculate in general terms about the nature of cumulative visual impacts in so large an area as the 25 million acre CDCA. In our view, the use of such a large area for cumulative impact analysis in this case is not warranted by this evidence, and we decline to do so.

Staff also proposed a more limited area for consideration of cumulative impacts—foreseeable future projects in southwestern Imperial County within a distance of five miles of the proposed project. (Ex. 302, p. C.13-35.) This strikes us as too small an area to consider for cumulative impacts because within 5 miles the IVS project itself will still be visible from some vantage points. Confining the area for cumulative analysis to the distance within which the next closest cumulative project could be seen from the proposed project is more properly the area of direct impacts. Staff points out the solar and wind development applications have been submitted for approximately 107,000 acres of land in the Imperial County region of the CDCA. (Ex. 302, p. B.3-4.) We find that defining the area of potential cumulative impact as the Imperial County region of the CDCA allows consideration of cumulative visual impacts over an area large enough to ensure that the project is not considered in isolation, but not so large as to create cumulative impacts that have no evidentiary basis.

We find that the anticipated visual impacts of the IVS project in combination with past and foreseeable future local projects in the Imperial County Desert region, are considered cumulatively considerable, and significant under CEQA. These cumulative visual impacts are not mitigable, and we therefore include visual impacts, both direct and cumulative, within the areas we include in our discussion of overriding considerations. See the **Override** section of this Decision.

7. Compliance with LORS

We have analyzed the proposed project's compliance with LORS and made a determination of consistency or inconsistency with each applicable LORS. The applicable LORS, and our determinations regarding consistency, are set forth in **Appendix A** of this Decision. The project will be consistent with all applicable LORS except for potential visual impacts to any sites found to be eligible for inclusion on the National Register of Historic Places, pursuant to the National Historic Preservation Act. These potential impacts, and appropriate mitigation, are discussed in the **Cultural Resources** section of this Decision. Source: Ex. 302, pp.C.13-39 to C.13-42.

8. Public and Intervenor Comments

Staff received a number of comments regarding the project's potential impacts on visual resources, and has adequately addressed them in the SSA, Ex. 302, pp. C.13-42 to C.13-47.

## FINDINGS OF FACT

Based on the evidence of record, we find and conclude as follows:

1. The IVS project will be located in an area that is primarily undeveloped public land administered by the BLM.

2. To assess the significance of a visual impact, CEQA requires a determination of whether the project would have a substantial adverse effect on a scenic vista.

3. To assess the significance of a visual impact, CEQA requires a determination of whether the project would have a significant impact on scenic resources.

4. To assess the significance of a visual impact, CEQA requires a determination of whether the project would substantially degrade the existing visual character or quality of the site and its surroundings

5. Construction of the project, grading, and the 100-acre lay down area will result in prominent, although temporary, visual changes to the area landscape.

6. Condition of Certification VIS-7 has been adopted to reduce impacts from construction of the lay-down site.

7. With implementation of Condition of Certification VIS-7, visual impacts from construction of the lay-down site will be below the level of significance.

8. Unlike the lay-down area, mitigation measures could not be identified to reduce visual impacts of grading and construction of the approximate 6,500 acre project area.

9. Because of the temporary nature (40 months) of the construction of the project area, we find the project construction and grading impacts are below the level of significance.

10. The evidence includes evaluation of views from eight KOPs and the project's potential to have glare impacts. The project's impacts on some of these views will be less than significant.

11. The project will have significant impacts on views from KOPs 5, 6 and 7. We have adopted conditions of certification to reduce these impacts, but even with implementation of the conditions, impacts remain significant.

12. The project's linear facilities will be placed within an existing transmission line corridor and will incrementally add to the visual presence of the transmission line.

13. Condition of Certification VIS-1 has been adopted to reduce visual impacts from the transmission line.

14. With Implementation of Condition of Certification VIS-1, visual impacts from the transmission line will be below the level of significance.

15. Implementation of the Conditions of Certification will ensure that most of the project's visual impacts are less than significant.

16. To assess the significance of a visual impact, CEQA requires a determination of whether the project will create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

17. [Conditions of Certification we have adopted herein will mitigate the impacts of the project due to glare and lighting below the level of significance.

18. The IVS project will create or contribute to significant cumulative visual impacts because of the project's effect on the undeveloped landscape and the potential for development of other similar projects in the Imperial County Desert Region.

19. The IVS project will be consistent with all applicable visual laws, ordinances, regulations, and standards relating to visual resources identified in the pertinent portion of **Appendix A** of this Decision.

## CONCLUSION OF LAW

1. Although many visual impacts have either been determined to be below a level of significance or will be below a level of significance with implementation of applicable Conditions of Certification, the project will have significant and unavoidable impacts, and a Statement of Overriding Considerations will need to be adopted as part of the project decision if the project is approved.

## CONDITIONS OF CERTIFICATION

### SURFACE TREATMENT OF PROJECT STRUCTURES AND BUILDINGS

**VIS-1** As feasible, the project owner shall treat all non-mirror surfaces of all project structures and buildings visible to the public such that a) their colors minimize visual intrusion and contrast by blending with the existing tan and brown color of the surrounding landscape; b) their colors and finishes do not create excessive glare; and c) their colors and finishes are consistent with local policies and ordinances. The transmission line conductors shall be non-specular and nonreflective, and the insulators shall be non-reflective and non-refractive. This

measure shall include coloring of security fencing with vinyl or other nonreflective coating; or with slats or similar semi-opaque, non-reflective material, to blend to the greatest feasible extent with the background soil.

The project owner shall submit for CPM and BLM Authorized Officer review and approval, a specific Surface Treatment Plan that will satisfy these requirements. The treatment plan shall include:

A. A description of the overall rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes;

B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each. Colors must be identified by vendor, name, and number; or according to a universal designation system;

C. One set of color brochures or color chips showing each proposed color and finish;

D. A specific schedule for completion of the treatment; and

E. A procedure to ensure proper treatment maintenance for the life of the project.

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until the project owner receives notification of approval of the treatment plan by BLM's Authorized Officer and the CPM. Subsequent modifications to the treatment plan are prohibited without BLM's Authorized Officer and CPM approval.

**Verification:** At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's Authorized Officer (AO)and the CPM for review and approval and simultaneously to Imperial County for review and comment. The CPM and BLM AO shall make a field determination of an appropriate color from the BLM Environmental Color Chart and provide guidance t the proponent to maximize effectiveness of mitigation. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's Authorized Officer and the CPM for review and approval.

Prior to the start of commercial operation, the project owner shall notify BLM's Authorized Officer and the CPM that surface treatment of all listed structures and buildings has been completed and they are ready for inspection and shall submit to each one set of electronic color photographs from the same key observation points identified in (d) above. The project owner shall provide a status report regarding surface treatment maintenance in the Annual Compliance Report. The report shall specify a): the condition of the surfaces of all structures and buildings at the end of the reporting year; b) maintenance activities that occurred during the reporting year; and c) the schedule of maintenance activities for the next year.

**TEMPORARY AND PERMANENT EXTERIOR LIGHTING**

**VIS-2** To the extent feasible and consistent with safety and security considerations, the project owner shall design and install all temporary and permanent exterior lighting so that:

a) lighting does not cause excessive reflected glare;

b) lighting does not illuminate the nighttime sky;

c) mounting heights and locations of all lighting fixtures will not allow light to fall on the mirror surfaces of the SunCatchers in the stowed position,

d) illumination of the project and its immediate vicinity is minimized as to times of use and extent, and;

Permanent night lighting shall comply with all applicable standards, practices, and regulations including, and specifically, the following Illuminating Engineering Society documents:

1. RP-33-99 Lighting for Exterior Environments

2. DG-13-99 Outdoor Lighting

3. TM-10-00 Addressing Obtrusive Light (Urban Sky Glow and Light Trespass) in Conjunction with Roadway Lighting 4. TM-15-07 Luminaire Classification System for Outdoor Luminaires

**Verification:** At least 30 days prior to ordering any temporary exterior lighting, the project owner shall contact the CPM to show compliance of temporary lighting with all of the above requirements. At least 30 days prior to ordering any permanent exterior lighting, the project owner shall contact the CPM to show compliance of permanent lighting with all of the above requirements. This shall include, but not be limited to, final lighting plans, fixture and control schedules, fixture and control cut sheets and specifications, a photometric plan showing vertical and horizontal footcandles at all property lines to a height of 20 feet, and the proposed time clock schedule.

Prior to construction and prior to commercial operation, the project owner shall notify the CPM that the installation of the temporary and permanent lighting has been completed and is ready for inspection. If after inspection the CPM notifies the project owner that modifications to the lighting are needed, within 30 days after receiving the notification the project owner shall implement the modifications and notify the CPM when the modifications are competed and ready for inspection.

Within 48 hours of receiving a lighting complaint, the project owner shall provide the CPM with a complaint resolution form as specified in the Compliance General Conditions, including a proposal to resolve the complaint, and a schedule for implementation of the proposed resolution. The project owner shall notify the CPM within 48 hours after completing the resolution of the complaint. A copy of the complaint resolution form report shall be submitted to the CPM within 30 days and included in the Annual Report.

**SETBACK OF SUNCATCHERS FROM HIGHWAY I-8**

**VIS-4** To reduce the visual dominance and glare effects of the SunCatchers to motorists on Highway I-8, the applicant shall employ a combination of measures as necessary, including set-backs of the nearest SunCatcher units to a distance of 223 feet from the adjoining roadway or as necessary to avoid excessive glare and reduce visual height and dominance of SunCatchers, slatted fencing as described under Condition of Certification VIS-6, and set-backs of SunCatcher units from project fencing.

**Verification:** At least 90 days prior to start of construction, the project owner shall present to BLM's Authorized Officer and the CPM a revised plan depicting how the proposed SunCatchers will be set back from the highway. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not begin construction until receiving BLM Authorized Officer and CPM approval of the revised plan.

**REFLECTIVE GLARE MITIGATION**

**VIS-6**

1. The project owner shall insure the minimum distance from any SunCatcher reflector assembly to the property line shall be no less than 223 feet to the nearest public roadway to reduce the possibility of flash blindness.

2. The project owner shall add a perforated metal diffusion shield to all SunCatchers behind the PCU to mitigate the 5% of the visible light spectrum that is observed in the operational images. If the PCU is

approximately, 5'x7', then 2' on either side of the PCU should give a significant reduction in the halo effect.

3. The project owner shall modify the "offset tracking" procedure to require a 25° offset to minimize the presence of intrusive brightness.

4. The project owner shall modify the "Morning Stow to Tracking Transitions" timing to occur 30 minutes before sunrise and end in a 25° offset tracking position, ready to move into tracking position.

5. The project owner shall modify the "Night Stow" timing so it occurs 30 minutes after sunset to avoid any intrusive light effects.

6. The project owner shall develop an Emergency Glare Response Plan to quickly redirect a malfunctioning mirror to a safe orientation.

7. The project owner shall monitor the site during all hours of operation on a weekly basis for five years using video surveillance trucks to identify and document intrusive light conditions needing correction

**Verification:** Within 90 days before commercial operation of any part of the generation system, the project owner will submit an Emergency Response Plan, a visual monitoring plan and a confirmation of the intrusive light reduction of the modifications of the SunCatcher units If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM . The project owner shall not begin commercial operation until receiving BLM Authorized Officer and CPM approval of the revised plan. Within 48 hours of receiving a glare complaint, the project owner shall provide the BLM Authorized Officer and CPM with a complaint resolution form report as specified in the Compliance General Conditions including a proposal to resolve the complaint, and a schedule for implementation.

The project owner shall notify the BLM Authorized Officer and CPM within 48 hours after completing implementation of the proposal. A copy of the complaint resolution form report shall be submitted to the BLM Authorized Officer and CPM within 30 days.

**SET-BACK AND RE-VEGETATION OF STAGING AREA**

**VIS-7** In order to minimize the visual prominence of the proposed staging area to motorists on I-8, the project owner shall provide a revised site plan for staging that includes a set-back of at least ¼-mile or more from the highway, and a description of measures to identify and address biological and cultural issues potentially connected to the plan. In addition, the project owner shall provide a re-vegetation plan describing how the staging site will be restored following construction. The plan

shall call for beginning of restoration of the site within the shortest feasible time following completion of construction.

**Verification:** 30 days prior to construction or a lesser number of days agreed to by the applicant and the CPM or CBO, the project owner shall present to BLM's Authorized Officer and the CPM a revised staging area site plan including a set-back from I-8 of at least ¼-mile. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not begin construction until receiving BLM Authorized Officer and CPM approval of the revised plan.

At least 60 days prior to start of operation, the project owner shall present to BLM's Authorized Officer and the CPM a revegetation plan for the staging area. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not begin operation until receiving BLM Authorized Officer and CPM approval of the revised plan.

## VIII. OVERRIDE FINDINGS

Based on our analysis of the evidentiary record in this proceeding, we find that the Imperial Valley Solar Project (IVS) will have significant direct and cumulative unmitigated environmental impacts, which are described in detail below.

The California Environmental Quality Act (CEQA) requires that we make certain findings before approving a project. We address the requirement as follows:

CEQA prohibits a public agency from approving a project which identifies one or more significant effects on the environment unless both of the following occur:

> "(a) The public agency makes one or more of the following findings with respect to each significant effect:
>
> > (1) Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
> >
> > (2) Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
> >
> > (3) Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or alternatives identified in the environmental impact report.
>
> (b) With respect to significant effects which were subject to a finding under paragraph (3) of subdivision (a), the public agency finds that specific overriding economic, legal, social, technological, or other benefits of the project outweigh the significant effects on the environment."
> (Pub. Res. Code § 21081.)

The Project may also be inconsistent with Imperial County Land Use Ordinance, Title 9, Division 2 pertaining to pertaining to applications for determination of similar use. A 360-acre portion of the project site is within Imperial County jurisdiction, zoned S-2 Open Space/Preservation and the Land Use Ordinance does not specifically allow electrical generation in the S-2 zone. This triggers our duty to make override findings pursuant to Public Resources Code Sections 25525 and 25523(d).

1. Significant Project Impacts

In the Biological Resources, Cultural Resources, Land Use, and Visual Resources sections of this Decision, we discuss in detail our findings that IVS will have the following significant environmental impacts:

- **Biological Resources**. We have determined that The IVS project will cause significant direct and cumulative impacts to Flat-tailed Horned Lizard which, while reduced through mitigation, will nonetheless remain significant.

- **Cultural Resources**. The evidentiary record shows that significant cultural resources are present on the IVS site footprint and linear corridor. Although mitigation measures we have adopted will reduce impacts to archeological resources to below a level of significance, our findings are that the project's impacts to the associative values of archaeological and ethnographic resources **may** be unmitigable. The project also **may** permanently change **and/or** result in the destruction of cultural resources, **both known and as yet unknown**, contributing to a cumulatively **considerable** impact which will be mitigated **to the extent possible**, **but may not** be **fully** mitigated.

- **Land Use**. The contribution of the IVS project in combination with the other renewable energy projects proposed in the region, to the loss of desert lands, is cumulatively significant. Lands currently available for habitat, open space, grazing, mining, and recreation will no longer be available for those uses once a power plant is constructed. In addition, construction of the project may be inconsistent with Imperial County Land Use Ordinance, Title 9, Division 2 pertaining to pertaining to applications for determination of similar use. A 360-acre portion of the project site is within Imperial County jurisdiction, zoned S-2 Open Space/Preservation and the Land Use Ordinance does not specifically allow electrical generation in the S-2 zone. is complete.

- **Visual Resources**. The IVS project will result in the installation of a large, industrial facility on presently undeveloped (although partially disturbed) landscape and will, in combination with the other renewable energy projects proposed in the Imperial County Desert Region, make a cumulatively considerable contribution to significant cumulative visual impacts.

2. Project Benefits

The IVS, if constructed and operated as set forth in this Decision, will provide the following benefits to California and its residents:

- IVS will provide 709 MW of renewable energy power, which will assist in meeting California's Renewable Portfolio Standard, which specifies that retail sellers of electricity serve 20 percent of their load with renewable energy by 2010. (Pub. Util. Code, § 399.11 et seq.) Governor's Executive Order S-14-08increased the requirement to 33 percent by 2020.

- Producing electricity from renewable resources provides a number of significant benefits to California's environment and economy, including improving local air quality and public health, reducing global warming emissions, developing local energy sources and diversifying our energy supply, improving energy security, enhancing economic development and creating jobs. (2009 CEC Integrated Energy Policy Report, page 231.)

- Scientific studies quantify the negative impacts of global climate change to California's and the world's population, environment, food supplies, flora and fauna, coastal regions, and public health. In order to reduce the impact, the State has adopted goals to reduce greenhouse gas (GHG) emissions through, among other things, renewable energy development.

- IVS will assist the state in meeting its ambitious GHG reduction targets by generating 709 MW of electricity with substantially lower greenhouse gas emissions than existing fossil fuel burning generating facilities.

- In its June 2010, Staff Report on California's Renewable Electricity Standard, Initial Statement of Reasons, the California Air Resources Board (CARB) estimates that the environmental benefits resulting from a 20 percent renewable energy goal in 2020 are as follows:

    a. GHG reductions from California's electricity sector by at least 12 million metric tons of carbon dioxide equivalent ($MMTCO_2E$) in 2020, making renewable energy development one of California's largest GHG emission reduction strategies.

    b. The overall GHG emission benefit from adding wind and solar generation is 830 lbs $CO_2e$ per MWh (GHG emissions from displaced or avoided fossil fuel generation) minus emissions from combustion turbines used to backup wind and solar generation.

    c. Reductions in statewide criteria pollutant emissions by five to 10 percent. These criteria pollutants under the Clean Air Act include reactive organic gas (ROG), $NO_x$, $SO_x$, CO, and $PM_{2.5}$. Most of the pollutant reductions result from decreased generation by existing natural gas plants. These reductions, in turn, should lead to reductions in the incidence of a variety of adverse health impacts.

d. Decreased statewide emission of toxic air contaminants (TACs) as fossil-fuel power generation - including coal, once-through cooled, and natural gas generation - is displaced by renewable generation.

- By generating electricity with the use of a minimal amount of fossil fuels, IVS will reduce California's dependence on fossil fuels.

- IVS will provide construction jobs for an average and peak workforce of 360 and 731, respectively, and approximately 164 jobs during operations. Most of those jobs will require highly trained workers.

- Construction and operation of IVS will add to the economy a $42.1 million annual construction payroll, a local annual operation payroll of $9 million, sales and use taxes during construction of $623,100 and during operation of $387,500 annually. An estimated $2.41 million would be spent locally for materials and equipment during construction, and an additional $7.4 million would be spent annually for local operations and maintenance.

- Additional indirect economic benefits, such as employment in local service industry jobs and induced employment, will result from these expenditures associated with the construction and operation of IVS.

3. Comparison of Project Alternatives

As discussed in the Alternatives section, none of the staff-analyzed project alternatives will significantly reduce the project impacts while still meeting the defined project objectives. The no-project alternative, which would eliminate the project's impacts, would also eliminate its benefits. The distributed solar energy (photovoltaic or thermal) generation and other renewable technologies are required *in addition to* large scale projects such as this in order to meet our renewable energy and GHG policy goals; the two complement, rather than compete with, each other. The preliminary LEDPA/Agency Preferred Alternative/709 MW alternative, which we have adopted in this Decision, does significantly reduce the project impacts to soil resources while still meeting the project objectives.

4. Site Characteristics

The Imperial Valley Solar Project site is located primarily on public land managed by the BLM. The project site is approximately 100 miles east of San Diego, 14 miles west of El Centro, and 4 miles east of Ocotillo. Interstate 8, existing electricity infrastructure, including major transmission lines, the Plaster City gypsum processing plant, and OHV recreational areas are all in close proximity to the site.

5. Statement of Terry O'Brien

Terry O'Brien, Deputy Director of the California Energy Commission Siting, Transmission and Environmental Protection Division, representing the Energy Commission Staff, docketed a memorandum to the Committee entitled "Staff Comments Regarding a Possible Energy Commission Finding of Overriding Considerations for the Imperial Valley Solar Project." (CEC Docket No. 57759, July 27, 2010.)

Mr. O'Brien's memorandum states that "[n]otwithstanding the unmitigable impacts, consideration needs to be given to the fact that the project is a solar power plant that will help California meet its renewable portfolio standard (RPS) of 33 percent in 2020 and AB 32 greenhouse gas emission reduction goals. As such, it will provide critical environmental benefits by helping the state reduce its greenhouse gas emissions, and these positive attributes must be weighed against the project's adverse impacts. It is because of these benefits and the concerns regarding the adverse impacts that global warming will have upon the state and our environment, including desert ecosystems, that Staff believes it would be appropriate for the Commission to approve the project based on a finding of overriding considerations, consistent with CEQA Guideline Section 15093, if the Commission adopts staff's proposed mitigation measures/conditions of certification."

6. Official Notice

In arriving at the following findings, we have taken official notice of the following documents:

- The California Renewables Portfolio Standard (RPS) was created in 2002 under Senate Bill 1078 and further accelerated in 2006 under Senate Bill 107. The RPS program requires electric corporations to increase procurement from eligible renewable energy resources by at least 1 percent of their retail sales annually, until they reach 20 percent by 2010.

- EXECUTIVE ORDER S-21-09 was signed by Governor Arnold Schwarzenegger establishing the 33 percent Renewable Electricity Standard.

- Climate Action Team Report to Governor Schwarzenegger and the Legislature. CalEPA, March 2006.

- AB 32 Scoping Plan. CARB, December 2008.

- Integration of Renewable Resources. CAISO, Nov. 2007.
- 2007 Integrated Energy Policy Report. CEC, Nov. 2007.
- 2009 Integrated Energy Policy Report. CEC. Nov. 2009.
- California Air Resources Board Staff Report on California's Renewable Electricity Standard, Initial Statement of Reasons, June 2010.
- Draft Final Opinion on Greenhouse Gas Regulatory Strategies:
    - Joint Agency Proposed Final Opinion. CPUC/CEC 2008.
- Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California. CEC (MRW and Associates). May 2009.
- Memorandum from Terry O'Brien, Deputy Director of the California Energy Commission Siting, Transmission and Environmental Protection Division, representing the Energy Commission Staff, entitled "Staff Comments Regarding a Possible Energy Commission Finding of Overriding Considerations for the Imperial Valley Solar Project." (CEC Docket No. 57759, July 27, 2010.)

Based upon the above documents, evidence and Staff recommendations, we find that overriding considerations warrant the approval of the project as mitigated through the Conditions of Certification we adopt herein. We further find that the project is required for public convenience and necessity and that there are no more prudent and feasible means of achieving such public convenience and necessity.

## FINDINGS OF FACT

Based on the evidence and the conclusions drawn in other sections of this Decision, we make the following findings and conclusions:

1. Climate change poses a serious threat to the economic well-being, public health, natural resources, and the environment of California.
2. The proposed project will have the following impacts which cannot be mitigated to insignificant levels:
    a. Impacts to cultural resources containing ethnographic values will be mitigated to the fullest extent, but may not be mitigated below the level of significance.

b. Permanent change and/or potential destruction of cultural resources, both known and as yet unknown, contributing to a cumulatively considerable impact which will be mitigated to the extent possible, but may not be fully mitigated.

c. The IVS project would combine with other past and reasonably foreseeable future projects to result in a significant and unavoidable cumulative land use impact in the Imperial County desert and southern California desert region. Lands currently available for habitat, open space, grazing, and recreation will no longer be available for those uses once construction of the project is complete.

d. Significant direct and cumulative impacts to Flat-tailed Horned Lizard which, while reduced through mitigation, will nonetheless remain significant.

e. Cumulatively considerable changes to scenic vistas for motorists, recreationists, hikers, and others from various points in the region.

3. This Decision will result in mitigation of all direct project impacts for IVS, except to Biological and Cultural Resources, as noted above, and imposes all feasible mitigation measures to reduce the significant direct impacts of the project below a level of significance.

4. This Decision will result in mitigation of all cumulative project impacts for IVS, except to Biological Resources, Cultural Resources, Land Use and Visual Resources, as noted above, and imposes all feasible mitigation measures to reduce the project's contribution to cumulative impacts to the extent feasible.

5. The project will provide the following benefits:

a. Contribution of 709 MW of renewable energy power toward meeting California's Renewables Portfolio Standard and California's adopted renewable energy and GHG policy goals.

b. A significant reduction in greenhouse gas emissions when compared with existing fossil fuel-burning generating facilities.

c. Other important benefits to California's environment and economy include improving local air quality and public health, developing local energy sources, and diversifying our energy supply.

d. Reduction of California's dependence on fossil fuels.

e. Will boost the economy due to the purchase of major equipment, payroll, and supplies, and increased sales tax revenue. Additional

indirect economic benefits, such as indirect employment, and induced employment, will result from these expenditures as well.

f. IVS will provide construction jobs for an average and peak workforce of 360 and 731, respectively, and approximately 164 jobs during operations. Most of those jobs will require highly trained workers.

6. The IVS is in the vicinity of existing development including Interstate 8, existing electricity infrastructure, including major transmission lines, the Plaster City gypsum processing plant, and OHV recreational areas.

7. We further find that the project may also be inconsistent with Imperial County Land Use Ordinance, Title 9, Division 2 pertaining to pertaining to applications for determination of similar use. A 360-acre portion of the project site is within Imperial County jurisdiction, zoned S-2 Open Space/Preservation and the Land Use Ordinance does not specifically allow electrical generation in the S-2 zone.

8. The project is required for public convenience and necessity and there are no more prudent and feasible means of achieving such public convenience and necessity.

**CONCLUSIONS OF LAW**

1. The IVS project benefits outweigh the significant direct and cumulative impacts identified above.

2. It is appropriate to approve the IVS despite its remaining significant environmental impacts.

3. Therefore, this decision overrides the remaining significant unavoidable impacts that may result from this project, even with the implementation of the required mitigation measures described in this Decision.

Appendix A: *Laws, Ordinances, Regulations, and Standards*

Appendix B: *Exhibit List*

Appendix C: *Proof of Service List*

# APPENDICES

## Air Quality

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| 40 Code of Federal Regulations (CFR) Part 52 | Nonattainment New Source Review (NSR) requires a permit and requires Best Available Control Technology (BACT) and Offsets. Permitting and enforcement delegated to ICAPCD.<br><br>Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants. The SES Solar Two Project is a new source that does not have a rule listed emission source thus the PSD trigger levels are 250 tons per year for NOx, VOC, $SO_2$, PM2.5 and CO. |
| 40 CFR Part 60 | New Source Performance Standards (NSPS), Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compression ignition internal combustion engines, including emergency fire water pump engines. |
| 40 CFR Part 93 General Conformity | Requires determination of conformity with State Implementation Plan for Projects requiring federal approvals if project annual emissions are above specified levels. |
| **State** | |
| Health and Safety Code (HSC) Section 40910-40930 | Permitting of source needs to be consistent with Air Resource Board (ARB) approved Clean Air Plans. |
| HSC Section 41700 | Restricts emissions that would cause nuisance or injury. |
| California Code of Regulations (CCR) Section 93115 | Airborne Toxics Control Measure for Stationary Compression Ignition Engines. Limits the types of fuels allowed, establishes maximum emission rates, and establishes recordkeeping requirements on stationary compression ignition engines, including emergency fire water pump engines. |
| **Local (Imperial County Air Pollution Control District)** | |
| ICAPCD Rule 201 Permits Required | Requires an Authority to Construct before construction of an emission source occurs. Prohibits operation of any equipment that emits or controls air pollutants without first obtaining a permit to operate. |
| ICAPCD Rule 207 New and Modified Stationary Source Review | Specifies BACT/Offsets technology and requirements for a new emissions unit that has potential to emit any regulated pollutants. Also, specifies District participation requirements for power plant projects under the jurisdiction of the Energy Commission. |
| ICAPCD Rule 400 Fuel Burning Equipment - Oxides of Nitrogen | Limits the emission levels of oxides of nitrogen from any source to no more than 140 lbs/hr of NOx, calculated as $NO_2$. |
| ICAPCD Rule 401 Opacity of Emissions | Limits the opacity of discharges from any single source to less than 20% opacity or No. 1 on the Ringlemann Chart. |
| ICAPCD Rule 403 General Limitations on the Discharge of Air Contaminants | Limits the concentration of the discharge of air contaminants, combustion contaminants, and particulate matter into the atmosphere. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| ICAPCD Rule 405 Sulfur Compounds Emission Standards, Limitations, and Prohibitions | Limits the concentration of the discharge of sulfur compounds and the sulfur content of liquid fuels. |
| ICAPCD Rule 407 Nuisances | Prohibits the discharge from any source of any air contaminant that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endangers such persons or public or which may cause injury or damage to business or property. |
| ICAPCD Rule 415 Transfer and Storage of Gasoline | This rule specifies the vapor recovery requirement for tank filling (Phase I) and vehicle refueling (Phase II) for gasoline storage and refueling facilities. |
| ICAPCD Rule VIII Fugitive Dust Rules 800 through 806 | These rules identify mitigation requirements to reduce fugitive dust emissions. |
| ICAPCD Rule 1101 New Source Performance Standards | Incorporates the Federal NSPS (40 CFR 60) rules by reference. |

## Alternatives

### California Environmental Quality Act Criteria

The *Guidelines for Implementation of the California Environmental Quality Act*, Title 14, California Code of Regulation, section 15126.6(a), provides direction by requiring an evaluation of the comparative merits of "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." In addition, the analysis must address the No Project Alternative. (Cal. Code Regs., tit. 14, § 15126.6(e).)

The range of alternatives is governed by the "rule of reason" which requires consideration only of those alternatives necessary to permit informed decision making and public participation. CEQA states that an environmental document does not have to consider an alternative of which the effect cannot be reasonably ascertained and of which the implementation is remote and speculative. (Cal. Code Regs., tit. 14, § 15125(d)(5).)

### National Environmental Policy Act Criteria

NEPA requires that the decision-makers and the public be fully informed of the impacts associated with the proposed project. The intent is to make decisions based on an understanding of environmental consequences, and to take actions to protect, restore, and enhance the environment.

Regulations promulgated by the Council on Environmental Quality require that an EIS rigorously explore and objectively evaluate all reasonable alternatives to a proposed action. Reasonable alternatives are those for which effects can be reasonably ascertained, whose implementation is not remote or speculative, that are feasible, effective, are not remote from reality, and those that are consistent with the basic policy objectives for management of the area. (40 CFR 1502.14; CEQ Forty Questions, No. 1A; Headwaters, Inc. v. BLM, 914 F.2d. 1174 (9th Cir. 1990)). Reasonable alternatives are dictated by the nature and scope of the proposed action. To determine reasonable alternatives, an agency must define the purpose and need of the proposal. The purpose and need of the proposed action is to be evaluated under a reasonableness standard. CEQ regulations state that an agency should include reasonable alternatives not within the jurisdiction of the lead agency [40 CFR 1502.14(c)]. BLM interprets this to apply to exceptional circumstances and limits its application to broad, programmatic EISs that would involve multiple agencies. For most actions, the purpose and need statement should be constructed to reflect BLM's discretion consistent with its decision space under its statutory and regulatory requirements. Thus, alternatives that are not within BLM jurisdiction would not be considered reasonable. Further, "[i]n determining the scope of alternatives to be considered,

the emphasis is on what is ‘reasonable’ rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative...” (CEQ Forty Questions, No. 2a.)

Consideration of a No Action Alternative is mandated by NEPA. As with the CEQA No Project Alternative, this is the scenario that would exist if the proposed project were not constructed and no land use plan amendment were undertaken. Under the first No Action Alternative, the land would continue to be managed by BLM under the existing management plan as defined in the California Desert Conservation Area plan. This SA/DEIS also evaluates two other No Action Alternatives: one in which the project could be disapproved, but the plan amendment approved to allow other solar projects, and one in which the project would be disapproved and a plan amendment implemented to prohibit solar or renewable project development at the site.

**U.S. Army Corps of Engineers Regulations**

Federal regulations require that if waters of the U.S. are affected by a proposed project, alternatives must be considered that reduce effects on the waters of the U.S. These regulations are presented in CFR 40 Part 230 Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, Subpart B--Compliance With the Guidelines, Sec. 230.10 Restrictions on discharge. Those regulations require that the Corps prepare a “404(b)1 Analysis” to evaluate alternatives.

Regarding the Corps’ required alternatives analysis, the regulations state the following:

> (a) Except as provided under section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences.
>
> (1) For the purpose of this requirement, practicable alternatives include, but are not limited to:
>
> > (i) Activities which do not involve a discharge of dredged or fill material into the waters of the United States or ocean waters;
> >
> > (ii) Discharges of dredged or fill material at other locations in waters of the United States or ocean waters;
>
> (2) An alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant, which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered.

(3) Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in subpart E) does not require access or proximity to or sighting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise.

## Biological Resources

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Federal Endangered Species Act (Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq.) | Designates and provides for protection of threatened and endangered plant and animal species, and their critical habitat. |
| Migratory Bird Treaty (Title 16, United States Code, sections 703 through 711) | Makes it unlawful to take or possess any migratory nongame bird (or any part of such migratory nongame bird) as designated in the Migratory Bird Treaty Act. |
| Clean Water Act (Title 33, United States Code, sections 1251 through 1376, and Code of Federal Regulations (CFR), part 30, section 330.5(a)(26)) | Requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the U.S. Army Corps of Engineers (USACE) for a discharge from dredged or fill materials into Waters of the U.S., including wetlands. Section 401 requires a permit from a regional water quality control board (RWQCB) for the discharge of pollutants. By federal law, every applicant for a federal permit or license for an activity that may result in a discharge into a California water body, including wetlands, must request state certification that the proposed activity would not violate state and federal water quality standards. |
| U.S. Environmental Protection Agency (USEPA) Section 404 (b)(1) Guidelines (40 CFR 230 et seq.) | Requires the USACE to analyze alternatives in a sequential approach such that the USACE must first consider avoidance and minimization of impacts to the extent practicable to determine whether a proposed discharge can be authorized. |
| National Environmental Policy Act (NEPA), (Title 42, United States Code, section 4321 et seq.) | NEPA requires an evaluation of environmental impacts of projects proposed on federal lands or receiving federal funding. |
| California Desert Conservation Area Plan | The California Desert Conservation Area (CDCA) comprises one of two national conservation areas established by Congress at the time of the passage of the Federal Land and Policy Management Act (FLPMA). The FLPMA outlines how the BLM would manage public lands. Congress specifically provided guidance for the management of the CDCA and directed the development of the 1980 CDCA Plan. |

| *Applicable LORS* | *Description* |
|---|---|
| Flat-tailed Horned Lizard Rangewide Management Strategy | Provides guidance for the conservation and management of sufficient habitat to maintain viable populations of flat-tailed horned lizards. |
| Federal Noxious Weed Act of 1974 (P.L. 93-629) (7 U.S.C. 2801 et seq.; 88 Stat. 2148) | Establishes a federal program to control the spread of noxious weeds. Authority is given to the Secretary of Agriculture to designate plants as noxious weeds by regulation, and the movement of all such weeds in interstate or foreign commerce was prohibited except under permit. |
| Executive Order 13112 of February 3, 1999 – Invasive Species (FR doc 99-3184; FR V. 64, No. 25, Presidential documents 6183-6186) | Federal agencies are mandated to take actions to prevent the introduction of invasive species, provide for their control, and minimize the economic, ecological, and human health impacts that invasive species cause. |
| Permit for take under the Bald and Golden Eagle Protection Act, (Title 50, Code of Federal Regulations, section 22.26) | Authorizes limited take of bald eagles and golden eagles under the Bald and Golden Eagle Protection Act, where the taking is associated with, but not the purpose of the activity, and cannot practicably be avoided. |
| Permit for take under the Bald and Golden Eagle Protection Act, (Title 50, Code of Federal Regulations, section 22.27) | Authorizes intentional take of eagle nests where: necessary to alleviate a safety hazard to people or eagles; necessary to ensure public health and safety; the nest prevents the use of a human-engineered structure; the activity, or mitigation for the activity, will provide a net benefit to eagles; and allows inactive nests to be taken only in the case of safety emergencies |
| **State** | |
| California Endangered Species Act of 1984 (Fish and Game Code, sections 2050 through 2098) | Protects California's rare, threatened, and endangered species. |
| California Code of Regulations (Title 14, section 460) | Lists state protected fur-bearing mammals. |
| California Code of Regulations (Title 14, sections 670.2 and 670.5) | Lists the plants and animals of California that are declared rare, threatened, or endangered. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Nest or Eggs (Fish and Game Code section 3503) | Protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. |
| Birds of Prey (Fish and Game Code section 3503.5 | Unlawful to take, possess, or destroy any birds in the orders Falconiformes and Strigiformes or to take, possess, or destroy the nest or eggs of any such bird. |
| Migratory Birds (Fish and Game Code section 3513) | Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds. |
| Fur-bearing Mammals (Fish and Game Code sections 4000 and 4002) | Lists fur-bearing mammals which require a permit for take. |
| California Environmental Quality Act (CEQA), CEQA Guidelines section 15380 | CEQA defines rare species more broadly than the definitions for species listed under the state and federal Endangered Species Acts. Under section 15830, species not protected through state or federal listing but nonetheless demonstrable as "endangered" or "rare" under CEQA should also receive consideration in environmental analyses. Included in this category are many plants considered rare by the California Native Plant Society (CNPS) and some animals on the CDFG's Special Animals List. |
| Lake and Streambed Alteration Agreement (Fish and Game Code sections 1600 et seq.) | Regulates activities that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit. Impacts to vegetation and wildlife resulting from disturbances to waterways are also reviewed and regulated during the permitting process. |
| California Desert Native Plants Act of 1981 (Food and Agricultural Code section 80001 et seq. and California Fish and Game Code sections 1925-1926) | Protects non-listed California desert native plants from unlawful harvesting on both public and private lands in Imperial, Inyo, Kern, Los Angeles, Mono, Riverside, San Bernardino, and San Diego counties. Unless issued a valid permit, wood receipt, tag, and seal by the commissioner or sheriff, harvesting, transporting, selling, or possessing specific desert plants is prohibited. |
| California Food and Agriculture Code, section 403 | The California Department of Food and Agriculture is designated to prevent the introduction and spread of injurious insect or animal pests, plant diseases, and noxious weeds. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Noxious Weeds (Title 3, California Code of Regulations, section 4500) | List of plant species that are considered noxious weeds. |
| **Local** | |
| Imperial County General Plan (Imperial County 1993) | The Conservation and Open Space and Land Use Elements of the General Plan direct the county to evaluate the compatibility of proposed development projects with the preservation of biological resources and open space. |
| Imperial County Land Use Ordinance (Title 9, Division 10) | Provides grading regulations for proposed development projects throughout the unincorporated areas of the County. |

## Cultural Resources

| ***Applicable LORS*** | ***Description*** |
|---|---|
| **Federal** | |
| National Historic Preservation Act of 1966, as amended, 16 USC 470(f) | Section 106 of the Act requires Federal agencies to take into account the effects of a proposed action on cultural resources (historic properties) and afford the Advisory Council on Historic Preservation the opportunity to comment. |
| 36 CFR Part 800 (as amended August 5, 2004), | Implementing regulations of Section 106 of the National Historic Preservation Act |
| National Environmental Policy Act (NEPA): Title 42, USC, section 4321-et seq. | This statute requires Federal agencies to consider potential environmental impacts of projects with Federal involvement and to consider appropriate mitigation measures. |
| Federal Land Policy and Management Act (FLPMA): Title 43, USC, section 1701 et seq. | This statute requires the Secretary of the Interior to retain and maintain public lands in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric water resource, and archaeological values [Section 1701(a)(8)]; the Secretary, with respect to the public lands, shall promulgate rules and regulations to carry out the purposes of this Act and of other laws applicable to public lands [Section 1740]. |
| Federal Guidelines for Historic Preservation Projects, Federal Register 44739-44738, 190 (September 30, 1983) | The Secretary of the Interior has published a set of Standards and Guidelines for Archaeology and Historic Preservation. These are considered to be the appropriate professional methods and techniques for the preservation of archaeological and historic properties. The Secretary's standards and guidelines are used by Federal agencies, such as the Forest Service, the Bureau of Land Management, and the National Park Service. The California Office of Historic Preservation refers to these standards in its requirements for selection of qualified personnel and in the mitigation of potential impacts to cultural resources on public lands in California. |
| Executive Order 11593 May 13, 1971 (36 Federal Register 8921) | This order mandates the protection and enhancement of the cultural environment through providing leadership, establishing state offices of historic preservation, and developing criteria for assessing resource values. |
| American Indian Religious Freedom Act; Title 42, USC, Section 1996 | Protects Native American religious practices, ethnic heritage sites, and land uses. |
| Native American Graves Protection and Repatriation Act (1990); Title 25, USC Section 3001, et seq., | The stature defines "cultural items," "sacred objects," and "objects of cultural patrimony;" establishes an ownership hierarchy; provides for review; allows excavation of human remains, but stipulates return of the remains according to ownership; sets penalties; calls for inventories; and provides for the return of specified cultural items. |
| U.S. Dept. of the Interior, Bureau of Land Management (BLM), the California Desert Conservation Area | 1. Broaden the archaeological and historical knowledge of the CDCA through continuing efforts and the use of existing data. Continue the effort to identify the full array of the CDCA's cultural resources. |
| | 2. Preserve and protect representative sample of the full array of the CDCA's cultural resources. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| (CDCA) Plan 1980 as amended – Cultural Resources Element Goals | 3. Ensure that cultural resources are given full consideration in land use planning and management decisions, and ensure that BLM-authorized actions avoid inadvertent impacts. |
| | 4. Ensure proper data recovery of significant (National Register of Historic Places-quality) cultural resources where adverse impacts can be avoided. |
| **State** | |
| California Environmental Quality Act (CEQA), Sections 21000 et seq. of the Public Resources Code (PRC) with Guidelines for implementation codified in the California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq. | CEQA requires that state and local public agencies to identify the environmental impacts of the proposed discretionary activities or projects, determine if the impacts will be significant, and identify alternatives and mitigation measures that will substantially reduce or eliminate significant impacts to the environment.<br><br>Historical resources are considered a part of the environment and a project that may cause a substantial adverse effect on the significance of a historical resource is a project that may have a significant effect on the environment. The definition of "historical resources" is contained in Section 15064.5 of the CEQA Guidelines. |
| AB 4239, 1976 | Established the Native American Heritage Commission (NAHC) as the primary government agency responsible for identifying and cataloging Native American cultural resources. The bill authorized the Commission to act in order to prevent damage to and insure Native American access to sacred sites and authorized the commission to prepare an inventory of Native American sacred sites located on public lands. |
| Public Resources Code 5097.97 | No public agency, and no private party using or occupying public property, or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977, shall in any manner whatsoever interfere with the free expression or exercise of Native American religion as provided in the United States Constitution and the California Constitution; nor shall any such agency or party cause severe or irreparable damage to any Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require. |
| Public Resources Code 5097.98 (b) and (e) | Requires a landowner on whose property Native American human remains are found to limit further development activity in the vicinity until he/she confers with the Native American Heritage Commission-identified Most Likely Descendents (MLDs) to consider treatment options. In the absence of MLDs or of a treatment acceptable to all parties, the landowner is required to reinter the remains elsewhere on the property in a location not subject to further disturbance. |
| California Health and Safety Code, Section 7050.5 | This code makes it a misdemeanor to disturb or remove human remains found outside a cemetery. This code also requires a project owner to halt construction if human remains are discovered and to contact the county coroner. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| **Local** | |
| Imperial County General Plan, Land Use Element, 2008, Protection of Environmental Resources, Goal 9, Objective 9.1, Page 42 | Goal: Identify and Preserve the significant natural, cultural, and community character resources and the County's air and water quality.<br><br>Objective: Preserve as open space those lands containing watersheds, aquifer recharge areas, floodplains, important natural resources, sensitive vegetation, wildlife habitats, historic and prehistoric sites, or lands which are subject to seismic hazards and establish compatible minimum lot sizes. |
| Imperial County General Plan, Conservation and Open Space Element, Goals and Objectives, Preservation of Cultural Resources, Page 48 | Goal 3: Important prehistoric and historic resources shall be preserved to advance scientific knowledge and maintain the traditional historic element of the Imperial Valley landscape.<br><br>Objective 3.1: Protect and preserve sites of archaeological, ecological, historical, and scientific value, and/or cultural significance. |
| Imperial County General Plan, Conservation and Open Space Element, Implementation Programs and Policies, Cultural Resources Conservation, Pages 57–58 | Programs:<br><br>The County will use the environmental impact report process to conserve cultural resources. Public awareness of cultural heritage will be stressed. All information and artifactual resources recovered in this process will be stored in an appropriate institution and made available for public exhibit and scientific review.<br><br>Encourage the use of open space easements in the conservation of high value cultural resources.<br><br>Consider measures which would provide incentives to report archaeological discoveries immediately to the Imperial Valley College – Baker Museum.<br><br>Coordinate with appropriate federal, state, and local agencies to provide adequate maps identifying cultural resource locations for use during development review. Newly discovered archaeological resources shall be added to the "Sensitivity Map for Cultural Resources."<br><br>Discourage vandalism of cultural resources and excavation by persons other than qualified archaeologists. The County shall study the feasibility of implementing policies and enacting ordinances toward the protection of cultural resources such as can be found in California Penal Code, Title 14, Point 1, Section 622-1/2. |

## Facility Design

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | Title 29 Code of Federal Regulations (CFR), Part 1910, Occupational Safety and Health standards |
| **State** | 2007 California Building Standards Code (CBSC) (also known as Title 24, California Code of Regulations) |
| **Local** | Imperial County regulations and ordinances |
| **General** | American National Standards Institute (ANSI)<br>American Society of Mechanical Engineers (ASME)<br>American Welding Society (AWS)<br>American Society for Testing and Materials (ASTM) |

## Geology and Paleontology

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Antiquities Act of 1906 (16 United States Code [USC], 431-433) | The proposed SES Solar Two facility site is located entirely on land currently administered by the Bureau of Land Management (BLM). Although there is no specific mention of natural or paleontological resources in the Act itself, or in the Act's uniform rules and regulations (Title 43 Part 3, Code of Federal Regulations [43 CFR Part 3], 'objects of antiquity' has been interpreted to include fossils by the Federal Highways Act of 1956, the National Park Service (NPS), the BLM, the Forest Service (USFS), and other Federal agencies. |
| National Environmental Policy Act (NEPA) of 1970 (42 USC 4321, et. seq.) | Established the Council on Environmental Quality (CEQ), which is charged with preserving 'important historic, cultural, and natural aspects of our national heritage'. |
| Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC 1701-1784) | Authorizes the BLM to manage public lands to protect the quality scientific, scenic, historical, archeological, and other values, and to develop 'regulations and plans for the protection of public land areas of critical environmental concern', which include 'important historic, cultural or scenic values'. Also charged with the protection of 'life and safety from natural hazards'. |
| Paleontologic Resources Preservation Act (PRPA) (Public Law [PL] 111-011) | Authorizes Departments of Interior and Agriculture Secretaries to manage the protection of paleontological resources on Federal lands. |
| National Historic Preservation Act of 1966 (NHPA) (16 USC 470) | Establishes policies for the 'preservation of the prehistoric and historic resources of the United States', under the direction of the Secretary of the Interior and the BLM. |
| **State** | |
| California Building Code (CBC), 2007 | The CBC (2007) includes a series of standards that are used in project investigation, design, and construction (including grading and erosion control). |

| *Applicable LORS* | *Description* |
|---|---|
| Alquist-Priolo Earthquake Fault Zoning Act, Public Resources Code (PRC), section 2621–2630 | Mitigates against surface fault rupture of known active faults beneath occupied structures. Requires disclosure to potential buyers of existing real estate and a 50-foot setback for new occupied buildings. Portions of the site and proposed ancillary facilities are located within designated Alquist-Priolo Fault Zones. The proposed site layout places occupied structures outside of the 50-foot setback zone. |
| The Seismic Hazards Mapping Act, PRC Section 2690–2699 | Areas are identified that are subject to the effects of strong ground shaking, such as liquefaction, landslides, tsunamis, and seiches. |
| PRC, Chapter 1.7, sections 5097.5 and 30244 | Regulates removal of paleontological resources from state lands, defines unauthorized removal of fossil resources as a misdemeanor, and requires mitigation of disturbed sites. |
| Warren-Alquist Act, PRC, sections 25527 and 25550.5(i) | The Warren-Alquist Act requires the Energy Commission to “give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; unique historical, archaeological, and cultural sites.” With respect to paleontological resources, the Energy Commission relies on guidelines from the Society for Vertebrate Paleontology, indicated below. |
| California Environmental Quality Act (CEQA), PRC sections 15000 et seq., Appendix G | Mandates that public and private entities identify the potential impacts on the environment during proposed activities. Appendix G outlines the requirements for compliance with CEQA and provides a definition of significant impacts on a fossil site. |
| Society for Vertebrate Paleontology (SVP), 1995 | The “Measures for Assessment and Mitigation of Adverse Impacts to Non-Renewable Paleontologic Resources: Standard Procedures” is a set of procedures and standards for assessing and mitigating impacts to vertebrate paleontological resources. The measures were adopted in October 1995 by the SVP, a national organization of professional scientists. |
| **Local** | |
| Imperial County General Plan | Section 5.3.5.3 Seismic and Public Safety Element requires utilities that cross active faults to prepare an operations plan. |

## Hazardous Materials Management

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| The Superfund Amendments and Reauthorization Act of 1986 (42 USC §9601 et seq.) | Contains the Emergency Planning and Community Right To Know Act (also known as SARA Title III). |
| The Clean Air Act (CAA) of 1990 (42 USC 7401 et seq. as amended) | Establishes a nationwide emergency planning and response program, and imposes reporting requirements for businesses that store, handle, or produce significant quantities of extremely hazardous materials. |
| The CAA Section on Risk Management Plans (42 USC §112(r) | Requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility. The requirements of both SARA Title III and the CAA are reflected in the California Health and Safety Code, section 25531, et seq. |
| 49 CFR 172.800 | Requires that the suppliers of hazardous materials prepare and implement security plans in accordance with U.S. Department of Transportation (DOT) regulations. |
| 49 CFR Part 1572, Subparts A and B | Requires that suppliers of hazardous materials ensure that their hazardous material drivers comply with personnel background security checks. |
| The Clean Water Act (CWA) (40 CFR 112) | Aims to prevent the discharge or threat of discharge of oil into navigable waters or adjoining shorelines. Requires a written spill prevention, control, and countermeasures (SPCC) plan to be prepared for facilities that store oil that could leak into navigable waters. |
| Title 49, Code of Federal Regulations, Part 190 | Outlines gas pipeline safety program procedures. |
| Title 49, Code of Federal Regulations, Part 191 | Addresses the transportation of natural and other gases by pipeline. Requires preparation of annual reports, incident reports, and safety-related condition reports. Also requires operators of pipeline systems to notify the U.S. Department of Transportation DOT) of any reportable incident by telephone and submit a follow-up written report within 30 days. |

| *Applicable LORS* | *Description* |
|---|---|
| Title 49, Code of Federal Regulations, Part 192 | Addresses transportation of natural and other gases by pipeline: Requires minimum federal safety standards, specifies minimum safety requirements for pipelines, and includes material selection, design requirements, and corrosion protection. The safety requirements for pipeline construction vary according to the population density and land use that characterize the surrounding land. This part also contains regulations governing pipeline construction, which must be followed for Class 2 and Class 3 pipelines, and requirements for preparing a pipeline integrity management program. |
| 6 CFR Part 27 | The CFATS (Chemical Facility Anti-Terrorism Standard) regulation of the U.S. Department of Homeland Security (DHS) that requires facilities that use or store certain hazardous materials to submit information to the DHS so that a vulnerability assessment can be conducted to determine what certain specified security measures shall be implemented. |
| **State** | |
| California Health and Safety Code, section 25531 to 25543.4 | The California Accidental Release Program (Cal-ARP) requires the preparation of a Risk Management Plan (RMP) and Off-site Consequence Analysis (OCA) and submittal to the local Certified Unified Program Authority (CUPA) for approval. |
| Title 8, California Code of Regulations, Section 5189 | Requires facility owners to develop and implement effective safety management plans to ensure that large quantities of hazardous materials are handled safely. While these requirements primarily provide for the protection of workers, they also indirectly improve public safety and are coordinated with the RMP process. |
| Title 8, California Code of Regulations, Section 5189 | Sets forth requirements for design, construction, and operation of the vessels and equipment used to store and transfer ammonia. These sections generally codify the requirements of several industry codes including the American Society for Material Engineering (ASME) Pressure Vessel Code, the American National Standards Institute (ANSI) K61.1, and the National Boiler and Pressure Vessel Inspection Code. These codes apply to anhydrous ammonia but are also used to design storage facilities for aqueous ammonia. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| California Health and Safety Code, Section 41700 | Requires that "No person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property." |
| California Safe Drinking Water and Toxic Enforcement Act (Proposition 65) | Prevents certain chemicals that cause cancer and reproductive toxicity from being discharged into sources of drinking water. |
| **Local** | |
| | Imperial County Department of Toxic Substances Control does not have additional LORS that apply to Hazardous Materials Handling, but administers the State of California programs as the CUPA. |

## Land Use

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Federal Land Policy and Management Act (FLPMA), 1976 – 43 CFR 1600 | 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). |
| Farmland Protection Policy Act, Subtitle I of Title XV, Section 1539-1549 of the Agriculture and Food Act of 1981(NRCS 2009) | The FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that—to the extent possible—federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every 2 years. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land. |
| Bureau of Land Management – California Desert Conservation Area (CDCA) Plan, 1980 as Amended (BLM 1980) | The 25 million-acre CDCA Plan Area 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.<br><br>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. |
| Yuha Desert Management Plan (1985) (YDMP 1985) | The BLM's Yuha Desert Management Plan establishes goals and planned actions that are designed to meet the goals of the CDCA Plan. They emphasize the protection of wildlife and cultural resource values while permitting a compatible level of competitive vehicle use and energy development. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Public Rangelands Improvement Act (1978) (PRIA 1978) | Establishes and reaffirms the national policy and commitment to inventory and identifies current public rangeland conditions and trends; manages, maintains and improves the condition of public rangelands so that they become as productive as feasible for all rangeland values in accordance with management objectives and the land use planning process; and continues the policy of protecting wild free-roaming horses and burros from capture, branding, harassment, or death, while at the same time facilitating the removal and disposal of excess wild free-roaming horses and burros which pose a threat to themselves, their habitat, and to other rangeland values. |
| Wild Free-Roaming Horses and Burros 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. |
| **State** | |
| Subdivision Map Act (Public Resources Code Section 66410-66499.58) | This section of the California Public Resources Code provides procedures and requirements regulating land division (subdivisions) and parcel legality. Regulation and control of the design and improvement of subdivisions have been vested in the legislative bodies of local agencies. |

| *Applicable LORS* | *Description* |
|---|---|
| **Local** | |
| Imperial County General Plan, Land Use Element (Imperial County 2008a) | Imperial County covers an area of 4,597 square miles within the southeastern portion of the State of California. Approximately 50% of Imperial County lands are undeveloped and under federal ownership and jurisdiction. Currently, 20% of the nearly 3 million acres of Imperial County is irrigated for agricultural purposes, most notably the central area known as Imperial Valley. The Imperial County General Plan consists of 9 elements that serve as the primary policy statement by the Board of Supervisors for implementing development policies and land uses in Imperial County.<br><br>The primary purpose of the Land Use Element is to identify the goals, policies and standards of the General Plan that will guide the physical growth of Imperial County, and serves as the primary policy statement by the Board of Supervisors for implementing development policies and land uses (Imperial County 2008a). The Land Use Element describes existing land uses within the county and the facilities and services which provide the public infrastructure to support these uses. Also stated are goals and objectives for future growth, expansion of public facilities, environmental resource protection, and policies and programs to guide such future growth. In particular, the goals and objectives are intended to serve as long-term principles and policy statements representing ideals which have been determined by the citizens as being desirable and deserving of community time and resources to achieve. These goals and objectives, therefore, are important guidelines for land use decision making. (Imperial County 2008a). |
| Imperial County General Plan, Conservation and Open Space Element (Imperial County 2006a) | The Conservation and Open Space Element identifies goals and policies to insure the managed use of environmental resources. The goals and policies are also designed to prevent limiting the range of resources available to future generations.<br><br>The purpose of the Conservation and Open Space Element is to:<br>• promote the protection, maintenance, and use the county's natural resources with particular emphasis on scarce resources and resources that require special control and management;<br>• prevent the wasteful exploitation, destruction, and neglect of the State's natural resources;<br>• recognize that natural resources must be maintained for their ecological value as well as for the direct benefit to the public; and<br>• protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Imperial County General Plan, Geothermal/ Alternative Energy and Transmission Element (2006) (Imperial County 2006b) | Imperial County has expanded the Geothermal/Alternative Energy and Transmission Element of the General Plan to provide guidance and approaches for public input into the planning process with respect to the future siting of electrical transmission lines in the county. This addition to the element is intended to take into account the potential and probable growth of major transmission facilities anticipated to occur in Imperial County over the next decade. New transmission would accommodate increased demand for power delivery due to local growth, expected demand growth and system delivery requirements in Southern California's service area, overall system reliability and support the development of expanded renewable energy power production and exportation. |
| Imperial County Land Use Ordinance, Title 9 (2008) (Imperial County 2008b) | This title constitutes the comprehensive land use regulations for all unincorporated areas of Imperial County. These regulations are adopted to, promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of the county. |
| Ocotillo/Nomirage Community Area Plan (1994) (ONCAP 1994) | The Ocotillo/Nomirage Community Area Plan designates the proposed distribution and general location and extent of the uses of land for housing, business, industry, open space, including natural resources, recreation and enjoyment of scenic beauty, education, public buildings and grounds, solid waste disposal facilities and other categories of public and private uses of land. |

## Noise and Vibration

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| (OSHA): 29 U.S.C. § 651 et seq. | Protects workers from the effects of occupational noise exposure. Under the Occupational Safety and Health Act of 1970 (29 USC § 651 et seq.), the Department of Labor, Occupational Safety and Health Administration (OSHA) has adopted regulations designed to protect workers against the effects of occupational noise exposure (29 CFR § 1910.95). These regulations list permissible noise exposure levels as a function of the amount of time during which the worker is exposed. The regulations further specify a hearing conservation program that involves monitoring the noise to which workers are exposed, assuring that workers are made aware of overexposure to noise, and periodically testing the workers' hearing to detect any degradation.<br><br>There are no federal laws governing off-site (community) noise.<br><br>The only guidance available for evaluation of power plant vibration is guidelines published by the Federal Transit Administration (FTA) for assessing the impacts of groundborne vibration associated with construction of rail projects. These guidelines have been applied by other jurisdictions to assess groundborne vibration of other types of projects. The FTA-recommended vibration standards are expressed in terms of the "vibration level," which is calculated from the peak particle velocity measured from groundborne vibration. The FTA measure of the threshold of perception is 65 VdB,[1] which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec. |
| **State** | |

[1] VdB is the common measure of vibration energy.

| ***Applicable LORS*** | ***Description*** |
|---|---|
| (Cal/OSHA): Cal. Code Regs., tit. 8, §§ 5095–5099 | Protects workers from the effects of occupational noise exposure. California Government Code section 65302(f) encourages each local governmental entity to perform noise studies and implement a noise element as part of its General Plan. In addition, the California Office of Planning and Research has published guidelines for preparing noise elements, which include recommendations for evaluating the compatibility of various land uses as a function of community noise exposure. The California Occupational Safety and Health Administration (Cal/OSHA) has promulgated Occupational Noise Exposure Regulations (Cal. Code Regs., tit. 8, §§ 5095–5099) that set employee noise exposure limits. These standards are equivalent to the federal OSHA standards. |
| **Local** | |
| Imperial County General Plan - Noise Element<br><br>Imperial County Noise Ordinance | Establishes acceptable noise levels and limits hours of construction. The County's General Plan Noise Element sets standards for the control of noise. The Noise Element defines "sensitive receptors" to include residences, schools, hospitals, parks and office buildings; it further states that riparian bird species may also be considered sensitive receptors (Imperial County 2001, § II.C). Imperial County has adopted the State of California land use compatibility guidelines. The noise levels considered generally acceptable and conditionally acceptable for single-family residences are 60 dB Community Noise Equivalent Level (CNEL) and 70 dB CNEL, respectively.<br><br>Objectives of the Noise Element include controlling noise at the source where feasible (Imperial County 2001, § III.B, Goal 1, Objective 1.3). |

## POWER PLANT EFFICIENCY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) apply to the efficiency of this project.

## POWER PLANT RELIABILITY

No federal, state, local, or county laws, ordinances, regulations and standards (LORS) pertain to the reliability of this project.

## Public Health and Safety

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Federal | |
| Clean Air Act section 112 (Title 42, U.S. Code section 7412) | This act requires new sources that emit more than 10 tons per year of any specified Hazardous Air Pollutant (HAP) or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology. |
| State | |
| California Health and Safety Code section 25249.5 et seq. (Proposition 65) | These sections establish thresholds of exposure to carcinogenic substances above which Prop 65 exposure warnings are required. |
| California Health and Safety Code section 41700 | This section states that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.” |
| California Public Resource Code section 25523(a); Title 20 California Code of Regulations (CCR) section 1752.5, 2300–2309 and Division 2 Chapter 5, Article 1, Appendix B, Part (1); California Clean Air Act, Health and Safety Code section 39650, et seq. | These regulations require a quantitative health risk assessment for new or modified sources, including power plants that emit one or more toxic air contaminants (TACs). |
| Local | |
| Imperial County Air Pollution Control District (ICAPCD) Rule 216 | Requires use of T-BACT for major sources. |
| ICAPCD Rule 309 | Requires annual fees for the Air Toxic Hot Spots (AB2588). |
| ICAPCD Rule 407 | States that no source shall cause injury, detriment, nuisance or annoyance to the public, which could endanger their comfort, repose, health and safety, or property. |
| ICAPCD Rule 1002 | California Airborne Toxic Control Measures. |

## Socioeconomics

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Emergency Economic Stabilization Act of 2008 (P.L. 110-343) Business Solar Investment Tax Credit (IR Code §48) | Extends the 30% investment tax credit (ITC) for solar energy property for eight years through December 31, 2016. The bill allows the ITC to be used to offset both regular and alternative minimum tax (AMT) and waives the public utility exception of current law (i.e., permits utilities to directly invest in solar facilities and claim the ITC). The five-year accelerated depreciation allowance for solar property is permanent and unaffected by passage of the eight-year extension of the solar ITC. |
| **State** | |
| California Education Code, Section 17620 | The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities. |
| California Government Code, Sections 65996-65997 | These sections include provisions for school district levies against development projects. As amended by Senate Bill (SB) 50 (stats. 1998, ch. 407, sec. 23), these sections state that, except for fees established under Education Code 17620, state and local public agencies may not impose fees, charges, or other financial requirements to offset the cost of school facilities. |
| California Revenue and Tax Code 70-74.7 | Property taxes are not assessed on solar facilities. Assembly Bill 1451 extended the current property tax exclusion for new construction of solar energy systems to January 1, 2017. |

## Soil and Water Resources

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Clean Water Act (33 U.S.C. Section 1251 et seq.) | The Clean Water Act (33 USC § 1257 et seq.) requires states to set standards to protect water quality, which includes regulation of storm water and wastewater discharges during construction and operation of a facility. California established its regulations to comply with the Clean Water Act under the Porter-Cologne Water Quality Control Act of 1967.<br><br>The Clean Water Act (CWA) establishes protection of waters of the United States such as perennial and ephemeral drainages, streams, washes, ponds, pools, and wetlands through CWA Sections 401 and 404.<br><br>Section 401 of the CWA requires that any activity which may result in a discharge into waters of the U.S. must be certified by the California State Water Resources Control Board (SWRCB) as administered by the Regional Water Quality Control Boards (RWQCB). This certification ensures that the proposed activity does not violate State and/or federal water quality standards. The SES Solar Two project is within the jurisdictional area of the Colorado River RWQCB.<br><br>Section 404 of the CWA authorizes the U.S. Army Corps of Engineers (Corps of Engineers) to regulate the discharge of dredged or fill material to the waters of the U.S. and adjacent wetlands. The Corps of Engineers issues individual site-specific or general (Nationwide) permits for such discharges. Section 404 Permits are not granted without prior 401 certification (see above paragraph).<br><br>Section 303(d) requires states to develop a list of impaired waters that do not meet water quality standards, establish priority rankings, and develop action plans, called Total Maximum Daily Loads (TMDLs) to improve water quality.<br><br>Section 311 prohibits the discharge of oil or hazardous materials to waters of the U.S. |
| **State** | |
| California Constitution, Article X, Section 2 | This section requires that the water resources of the State be put to beneficial use to the fullest extent possible and states that the waste, unreasonable use or unreasonable method of use of water is prohibited. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| The Porter-Cologne Water Quality Control Act of 1967, Water Code Sec 13000 et seq. | The Porter Cologne Water Quality Control Act of 1967, Water Code Section 13000 et seq., requires the SWRCB) and the nine RWQCBs (specifically the Colorado River RWQCB for the SES Solar Two site) to adopt water quality criteria to protect State waters (Waters of the State), defined in Section 13050 as "any surface water or groundwater, including saline waters, within the boundaries of the state." Water quality criteria include the identification of beneficial uses, narrative and numerical water quality standards, and implementation procedures. Section 13260 sets reporting requirements for waste discharge to waters of the State. Section 13263 authorizes the RWQCBs to issue Waste Discharge Requirements specifying conditions for protection of water quality. Section 13181 of the act requires the SWRCB to develop water quality reports and lists required under Section 303(d) of the Federal Clean Water Act. |
| State Water Resources Control Board WQO 99-08 | The SWRCB regulates storm water discharges associated with construction projects affecting areas 1 acre or larger to protect state waters. Under Order 99-08, the SWRCB has issued a National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges associated with construction activity for which applicants can qualify if they meet the criteria and upon preparing and implementing an acceptable Storm Water Pollution Prevention Plan (SWPPP) and notifying the SWRCB with a Notice of Intent. A new General Permit is proposed to become effective July 1, 2010. This new permit would modify compliance and notification requirements based in part upon a water quality risk level assessment for each site. |
| State Water Resources Control Board WQO 2003-0003 – DWQ | This general permit applies to the discharge of water to land that has a low threat to water quality. Categories of low threat discharges include water storage tank flushing and testing. |
| California Code of Regulations, Title 17 | Requires prevention measures for backflow and cross connections of potable and non-potable water lines. |
| California Code of Regulations, Title 22 | Title 22, Division 4, Chapter 15 regulates the quality and use of recycled water and specifies Primary and Secondary Drinking Water Standards in terms of Maximum Contaminant Levels. |
| California Code of Regulations, Title 23 | Title 23, Division 3, Chapter 15 applies to waste discharges to land and requires the Regional Board issue Waste Discharge Requirements specifying conditions for protection of water quality as applicable. |
| Title 27, California Code of Regulations Division 2. Section 20375 | Title 27 regulates and gives design requirements for surface impoundments used for waste management. |

| *Applicable LORS* | *Description* |
|---|---|
| California Plumbing Code. California Code of Regulations Title 24, Part 5 | Appendix K relates to private sewage disposal systems. Regulates septic tank capacity, disposal fields and seepage pits, Requires: a) septic tank and disposal field system where groundwater is within 12 feet of the ground surface; b) disposal systems shall not be located in flood hazard areas; c) additional systems be installed if the original system is unable to absorb all of the sewage; and, c) leach lines must be more than 5 feet above groundwater (10 feet if groundwater is degraded). |
| State Water Board Resolution No. 68-16 | Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings or facts. |
| California Water Code Section 1211 | Section 1211 of the Water Code requires that before making a change in the point of discharge, place of use, or purpose of use of treated wastewater, the owner of the treatment plant must seek approval from the Division of Water Rights, which is accomplished by filing a Petition for Change for Owners of Waste Water Treatment Plants (Petition for Change). |
| **Local** | |
| Imperial County Land Use Ordinance, Title 9 | Division 16 is the flood damage prevention regulation. Restricts floodplain uses, requires that floodplain uses be protected against flood damage, controls alteration of floodplains and stream channels, controls filling and grading in floodplains, prevents diversion of flood flows where these would increase flood hazards in other areas.<br><br>Division 22 is the groundwater ordinance. Intended to preserve, protect and manage groundwater within the county.<br><br>Division 10 regulates building, sewer and grading. Includes regulations on septic tanks. |
| **State Policies and Guidance** | |
| Water Quality Control Plan Colorado River – Region 7 | The Water Quality Control Plan (also known as the Basin Plan) establishes beneficial uses, water quality objectives that protect the beneficial uses of surface water and groundwater, and describes an implementation plan for water quality management in the Colorado River Region. The Basin Plan describes measures designed to ensure compliance with statewide plans and policies and provides comprehensive water quality planning. |
| Integrated Energy Policy Report (Public Resources Code, Div. 15, Section 25300 et seq.) | In the 2003 Integrated Energy Policy Report, consistent with SWRCB Policy 75-58 and the Warren-Alquist Act, the Energy Commission adopted a policy stating they would approve the use of fresh water for cooling purposes by power plants only where alternative water supply sources and alternative cooling technologies are shown to be “environmentally undesirable” or “economically unsound.” |
| SWRCB Sources of Drinking Water Policy / Res. No. 88-63 | States that all groundwater and surface water of the State are considered to be suitable for municipal or domestic water supply with the exception of those waters that meet specified conditions. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| SWRCB Res. No. 2005-0006 | Adopts the concept of sustainability as a core value for State Water Board programs and directs its incorporation in all future policies, guidelines, and regulatory actions. |
| SWRCB Res. No. 2008-0030 | Requires sustainable water resources management such as low impact development (LID) and climate change considerations (all future policies, guidelines, and regulatory actions. Directs Regional Water Boards to "aggressively promote measures such as recycled water, conservation and LID Best Management Practices where appropriate and work with Dischargers to ensure proposed compliance documents include appropriate, sustainable water management strategies." |
| California Water Code Section 13523 | Requires that a RWQCB shall prescribe water reuse requirements for water, which is to be used or proposed to be used as recycled water after consultation with and upon receipt of recommendations from the State Department of Public Health, and if it determines such action to be necessary to protect the public health, safety, or welfare. |
| The California Safe Drinking Water and Toxic Enforcement Act | The California Health & Safety Code Section 25249.5 et seq. prohibits actions contaminating drinking water with chemicals known to cause cancer or possessing reproductive toxicity. The RWQCB administers the requirements of the Act. |
| **Local Policies and Guidance** | |
| County of Imperial Engineering Design Guidelines Manual for the Preparation and Checking of Street Improvements, Drainage and Grading Plans Within Imperial County | Provides drainage design standards for development within Imperial County. These include:<br>• Retention volume of 3 inches rainfall with no assumed infiltration or evaporation for development impervious areas. Retention basins are to empty within 72 hours after receiving water.<br>• Finished pad elevations for buildings shall be at or above the 100-year flood elevation. Finished floors shall be 6 inches above the 100-year flood.<br>• Drainage report required for all developments. |

## Traffic and Transportation

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Code of Federal Regulations Title 49, Sections 171-177 & 350-399. | Governs the transportation of hazardous materials and related guidelines. |
| Code of Federal Regulations Part 77, Federal Aviation Administration Regulations | Implements standards for determining obstructions in navigable airspace. Sets forth requirements for notice to the FAA of certain proposed construction or alteration. Also, provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace. |
| Code of Federal Regulations Title 49, Sections 350-399 and Appendices A-G | Includes procedures and regulations pertaining to interstate and intrastate transport (includes hazardous materials program procedures) and provides safety measures for motor carriers and motor vehicles who operate on public highways. |
| **State** | |
| California Vehicle Code Division 2, Chapter 2.5, Division 6, Chapter 7, Division 13, Chapter 5, Division 14.1, Chapter 1 and 2, Division 14.8, Division 15 | Includes regulations pertaining to licensing, size, weight and load of vehicles operated on highways, safe operation of vehicles, and the transportation of hazardous materials. |
| California Streets and Highways Code Division 1 and 2, Chapter 3 and Chapter 5.5 | Includes regulations for the care and protection of State and County highways, and provisions for the issuance of written permits. |
| **Local** | |
| County of Imperial General Plan Circulation and Scenic Highways Element | Requires that developments contribute positively to the County's transportation network and that negative impacts are reduced. For example, requirements include new developments provide local roads to serve the needs of the development, future construction does not interfere with present and potential highway and right-of-way needs, and freight loading/unloading does not occur on public roadways. In addition, construction of private streets in developments is allowed. |

## Transmission Line Safety and Nuisance

| *Applicable LORS* | *Description* |
|---|---|
| **Aviation Safety** | |
| **Federal** | |
| Title 14, Part 77 of the Code of Federal Regulations (CFR),"Objects Affecting the Navigable Air Space" | Describes the criteria used to determine the need for a Federal Aviation Administration (FAA) "Notice of Proposed Construction or Alteration" in cases of potential obstruction hazards. |
| FAA Advisory Circular No. 70/7460-1G, "Proposed Construction and/or Alteration of Objects that May Affect the Navigation Space" | Addresses the need to file the "Notice of Proposed Construction or Alteration" form (Form 7640) with the FAA in cases of potential for an obstruction hazard. |
| FAA Advisory Circular 70/460-1G, "Obstruction Marking and Lighting" | Describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria in Title 14, Part 77 of the CFR. |
| **Interference with Radio Frequency Communication** | |
| **Federal** | |
| Title 47, CFR, section 15.2524, Federal Communications Commission (FCC) | Prohibits operation of devices that can interfere with radio-frequency communication. |
| **State** | |
| California Public Utilities Commission (CPUC) General Order 52 (GO-52 ) | Governs the construction and operation of power and communications lines to prevent or mitigate interference. |
| **Audible Noise** | |
| **Local** | |
| Imperial County General Plan, Noise Element | References the county's Ordinance Code for noise limits. |
| Imperial County Noise Ordinance | Establishes performance standards for planned residential or other noise-sensitive land uses. |
| **Hazardous and Nuisance Shocks** | |
| **State** | |
| CPUC GO-95, "Rules for Overhead Electric Line Construction" | Governs clearance requirements to prevent hazardous shocks, grounding techniques to minimize nuisance shocks, and maintenance and inspection requirements. |
| Title 8, California Code of Regulations (CCR) section 2700 et seq. "High Voltage Safety Orders" | Specifies requirements and minimum standards for safely installing, operating, working around, and maintaining electrical installations and equipment. |
| National Electrical Safety Code | Specifies grounding procedures to limit nuisance shocks. Also specifies minimum conductor ground clearances. |
| **Industry Standards** | |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Institute of Electrical and Electronics Engineers (IEEE) 1119, “IEEE Guide for Fence Safety Clearances in Electric-Supply Stations” | Specifies the guidelines for grounding-related practices within the right-of-way and substations. |
| **Electric and Magnetic Fields** | |
| **State** | |
| GO-131-D, CPUC ”Rules for Planning and Construction of Electric Generation Line and Substation Facilities in California” | Specifies application and noticing requirements for new line construction including EMF reduction. |
| CPUC Decision 93-11-013 | Specifies CPUC requirements for reducing power frequency electric and magnetic fields. |
| **Industry Standards** | |
| American National Standards Institute (ANSI/IEEE) 644-1944 Standard Procedures for Measurement of Power Frequency Electric and Magnetic Fields from AC Power Lines | Specifies standard procedures for measuring electric and magnetic fields from an operating electric line. |
| **Fire Hazards** | |
| **State** | |
| 14 CCR sections 1250-1258, “Fire Prevention Standards for Electric Utilities” | Provides specific exemptions from electric pole and tower firebreak and conductor clearance standards and specifies when and where standards apply. |

## Transmission System Engineering

| ***Applicable LORS*** | ***Description*** |
|---|---|
| The North American Electric Reliability Corporation (NERC) | North American Reliability Council (NERC) Reliability Standards for the Bulk Electric Systems of North America provide national policies, standards, principles and guidelines to assure the adequacy and security of the electric transmission system. The NERC Reliability Standards provide for system performance levels under normal and contingency conditions. With regard to power flow and stability simulations, while these Reliability Standards are similar to NERC/WECC Standards, certain aspects of the NERC/WECC Standards are either more stringent or more specific than the NERC Standards for Transmission System Contingency Performance. The NERC Reliability Standards apply not only to interconnected system operation but also to individual service areas (NERC 2006). |
| Western Electricity Coordinating Council's (WECC) | The Western Electricity Coordinating Council (WECC) Planning Standards are merged with the North American Electric Reliability Council (NERC) Planning Standards and provide the system performance standards used in assessing the reliability of the interconnected system. These standards require the continuity of service to loads as the first priority and preservation of interconnected operation as a secondary priority. Certain aspects of the NERC/WECC standards are either more stringent or more specific than the NERC standards alone. These standards provide planning for electric systems so as to withstand the more probable forced and maintenance outage system contingencies at projected customer demand and anticipated electricity transfer levels, while continuing to operate reliably within equipment and electric system thermal, voltage and stability limits. These standards include the reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of the standards, "NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table" and on Section I.D, "NERC and WECC Standards for Voltage Support and Reactive Power". These standards require that the results of power flow and stability simulations verify defined performance levels. Performance levels are defined by specifying the allowable variations in thermal loading, voltage and frequency, and loss of load that may occur on systems during various disturbances. Performance levels range from no significant adverse effects inside and outside a system area during a minor disturbance |

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| | (loss of load or a single transmission element out of service) to a level that seeks to prevent system cascading and the subsequent blackout of islanded areas during a major disturbance (such as loss of multiple 500 kV lines along a common right of way, and/or multiple generators). While controlled loss of generation or load or system separation is permitted in certain circumstances, their uncontrolled loss is not permitted (WECC 2006). |
| California Public Utilities Commission (CPUC) General Order 95 (GO-95*), Rules for Overhead Electric Line Construction* | Specifies uniform requirements for the construction of overhead electric lines. Compliance with this order ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of overhead electric lines, and for the safety of the general public. |
| CPUC General Order 128 (GO-128), *Rules for Underground Electric Line Construction* | Establishes uniform requirements for the construction of underground electric lines. Compliance with this order also ensures both reliable service and a safe working environment for those working in the construction, maintenance, operation, or use of underground electric lines, and for the safety of the general public. |
| National Electric Safety Code 1999 | Provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation. |
| California Independent System Operator (CAISO) | California ISO Planning Standards also provide standards, and guidelines to assure the adequacy, security and reliability in the planning of the California ISO transmission grid facilities. The California ISO Grid Planning Standards incorporate the NERC/WECC and NERC Reliability Planning Standards. With regard to power flow and stability simulations, these Planning Standards are similar to the NERC/WECC or NERC Reliability Planning Standards for Transmission System Contingency Performance. However, the California ISO Standards also provide some additional requirements that are not found in the WECC/NERC or NERC Standards. The California ISO Standards apply to all participating transmission owners interconnecting to the California ISO controlled grid. They also apply when there are any impacts to the California ISO grid due to facilities interconnecting to adjacent controlled grids not operated by the California ISO (California ISO 2002a).California ISO/FERC Electric Tariff provides guidelines for construction of all transmission additions/upgrades (projects) within the California ISO controlled grid. The California ISO determines the “Need” for the proposed project where it will promote economic efficiency or maintain system reliability. The California ISO also determines the Cost Responsibility of the proposed project and provides an Operational Review of all facilities that are to be connected to the California ISO grid (California ISO 2007a). |

SES Solar Two project are:

- California Public Utilities Commission (CPUC) General Order 95 (GO-95), Rules for Overhead Electric Line Construction, sets forth uniform requirements for the construction of overhead lines. Compliance with this Order ensures adequate service and the safety of the public and the people who build, maintain, and operate overhead electric lines.
- CPUC General Order 128 (GO-128), Rules for Construction of Underground Electric Supply and Communications Systems, sets forth uniform requirements and minimum standards for underground supply systems to ensure adequate service and the safety of the public and the people who build, maintain, and operate underground electric lines.
- The National Electric Safety Code, 1999, provides electrical, mechanical, civil, and structural requirements for overhead electric line construction and operation.
- The combined North American Electric Reliability Corporation/Western Electricity Coordinating Council (NERC/WECC) planning standards provide system performance standards for assessing the reliability of the interconnected transmission system. These standards require continuity of service and the preservation of interconnected operation as the first and second priorities, respectively. Some aspects of NERC/WECC standards are either more stringent or more specific than the either agency's standards alone. These standards are designed to ensure that transmission systems can withstand both forced and maintenance outage system contingencies while operating reliably within equipment and electric system thermal, voltage, and stability limits. These standards include reliability criteria for system adequacy and security, system modeling data requirements, system protection and control, and system restoration. Analysis of the WECC system is based to a large degree on Section I.A of WECC standards, NERC and WECC Planning Standards with Table I and WECC Disturbance-Performance Table, and on Section I.D, NERC and WECC Standards for Voltage Support and Reactive Power. These standards require that power flows and stability simulations verify defined performance levels. Performance levels are defined by specifying allowable variations in thermal loading, voltage and frequency, and loss of load that may occur during various disturbances. Performance levels range from no substantial adverse effects inside and outside a system area during a minor disturbance (such as the loss of load from a single transmission element) to a catastrophic loss level designed to prevent system cascading and the subsequent blackout of islanded areas and millions of consumers during a major transmission disturbance (such as the loss of multiple 500-kV lines along a common right-of- way, and/or of multiple large generators). While the controlled loss of generation or system separation is

permitted under certain specific circumstances, a major uncontrolled loss is not permitted (WECC, 2002).

- NERC's reliability standards for North America's electric transmission system spell out the national policies, standards, principles, and guidelines that ensure the adequacy and security of the nation's transmission system. These reliability standards provide for system performance levels under both normal and contingency conditions. While these standards are similar to the combined NERC/WECC standards, certain aspects of the combined standards are either more stringent or more specific than the NERC performance standards alone. NERC's reliability standards apply to both interconnected system operations and to individual service areas (NERC, 2006).
- California ISO planning standards provide the standards and guidelines that ensure the adequacy, security, and reliability of the state's member grid facilities. These standards incorporate the combined NERC/WECC and NERC standards. These standards are also similar to the NERC/WECC or NERC standards for transmission system contingency performance. However, the California ISO standards provide additional requirements not included in the WECC/NERC or NERC standards. The California ISO standards apply to all participating transmission owners interconnecting to the California ISO-controlled grid. They also apply to non-member facilities that impact the California ISO grid through their interconnections with adjacent control grids (California ISO, 2002a).
- California ISO/Federal Energy Regulatory Commission (FERC) electricity tariffs contain guidelines for building all transmission additions/upgrades within the California ISO-controlled grid. (California ISO, 2003a).

## Visual Resources

| ***Applicable LORS*** | ***Description*** |
|---|---|
| **FEDERAL** | |
| National Environmental Policy Act (NEPA) | |
| Federal Land Policy and Management Act of 1976 (FLPMA) | Section 102 (a) of the Federal Land Policy and Management Act of 1976 (FLPMA) states that " . . . . the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values …. "<br>Section 103 (c) identifies "scenic values" as one of the resources for which public land should be managed.<br>Section 201 (a) states that "The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resources and other values (including ... scenic values) ...."<br>Section 505 (a) requires that "Each right-of-way shall contain terms and conditions which will... minimize damage to the scenic and esthetic values...." |

| ***Applicable LORS*** | ***Description*** | |
|---|---|---|
| California Desert Conservation Area Plan (CDCA Plan) | The CDCA Plan represents the Resource Management Plan (RMP) for the area required under FLPMA. The CDCA Plan did not contain VRM mapping as in most RMPs. VR Inventory mapping was prepared prior to this project by BLM.<br>The SES Solar Two site is classified in the CDCA Plan as Multiple-Use Class (MUC) L (Limited Use). Multiple-Use Class L, the most restrictive under the plan, "protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.<br>Under the CDCA Plan Electrical Power Generation Facilities, including Wind/Solar facilities, may be allowed within MUC Class L if NEPA requirements are met. | Consistent. Solar electrical generation plants are specifically allowed for under the MUC Class L Guidelines if NEPA requirements are met.<br>Disclosure of potential visual project effects under NEPA has been conducted through the analysis in this study. |
| National Historic Preservation Act (NHPA) | **Under regulations of the NHPA, visual impacts to a listed or eligible National Register property that may diminish the integrity of the property's ". . . setting . . .(or) feeling . . . ." in a way that affects the property's eligibility for listing, may result in a potentially significant adverse effect. "Examples of adverse effects . . . include . . .:**<br>Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features . . . . " (36 CFR Part 800.5) | Designated and eligible pre-historic and historic sites were identified by Energy Commission staff within the viewshed of the SES Solar Two Project, and may potentially be affected by visual effects of the project.<br>These potential impacts are partially addressed under Condition of Certification VIS-5.<br>These potential impacts are further addressed in the **Cultural Resources** section of this SA/DEIS. |
| **STATE** | | |
| State Scenic Highway Program (CA. Streets and Highways Code, Section 260 et seq.) | The State Scenic Highway Program promotes protection of designated State scenic highways through certification and adoption of local scenic corridor protection programs that conform with requirements of the State program. | Consistent. Highway I-8 within the project viewshed is not an eligible or designated State scenic highway. |

| *Applicable LORS* | *Description* | |
|---|---|---|
| Imperial County General Plan (1993)<br>Applicable Conservation Element Goals, Objectives, Programs | **Conservation and Open Space Element (1993)**<br>**Preservation of Visual Resources**<br>Goal 7: The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.<br>Objective 7.1 Encourage the preservation and enhancement of the natural beauty of the desert and mountain landscape. | While the Goals and Objectives call for development of programs to institute preservation and enhancement of visual resources and open space, polices and implementation programs have not yet been developed. |
| | **Preservation of Open Space**<br>Goal 10: Open space shall be maintained to protect the aesthetic character of the region, protect natural resources, provide recreational opportunities, and minimize hazards to human activity. | No specific policies have yet been developed to implement these goals and objectives. The project would not conform with this goal, but there is no specific policy non-conformance. |
| | Objective 10.9 Conserve desert lands, within the county's jurisdiction for wildlife protection, recreation, and aesthetic purposes. | The majority of the project site does not lie within county jurisdiction. Those portions that do would not conform with this objective. However, no policies have been developed for implementation of this objective so there is no specific policy non-conformance. |
| | **Circulation-Scenic Highways Element (2006)**<br>**Scenic Highways**<br>Objective 4.3 Protect areas of outstanding scenic beauty along any scenic highways and protect the aesthetics of those areas. | There are no designated state or county scenic highways within the project viewshed. |
| | Objective 4.5 Develop standards for aesthetically valuable sites. Design review may be required so that structures, facilities, and activities are properly merged with the surrounding environment. | No implementation programs or polices have been developed to date. |
| | **IV. IMPLEMENTATION PROGRAMS AND POLICIES**<br>**5. Open Space Conservation Programs**<br>Encourage the use of unobtrusive materials, structures, and color in power line transmission corridors. Vegetative screening is encouraged wherever possible. | Consistent with recommended conditions. Condition of Certification **VIS-1** calls for unobtrusive, non-reflective paint treatment of all non-mirror structural surfaces of the project to minimize visual contrast.<br>Vegetative screening has not been recommended in this staff assessment. |

| ***Applicable LORS*** | ***Description*** | |
|---|---|---|
| Imperial County Code – Title 9, Land Use Ordinance. 90301.02 (K) | All exterior lighting shall be shielded and directed away from adjacent properties and away from or shielded from public roads. | Consistent with recommended conditions. Condition of Certification VIS-2 requires shielding of lighting to prevent all direct off-site illumination, and to otherwise minimize night lighting. |
| Imperial County Code – Title 9, Land Use Ordinance. 90301.03 (A,B,C,D,E,F) | Require that industrial uses provide design features such as landscaping, setbacks, and landscape boundaries as buffers from different zoned parcels | Consistent with recommended conditions. Setbacks of both transmission lines and mirror units have been recommended under Conditions of Certification **VIS-3, -4,** and **–7**. to reduce visual impacts of the project. |

## Waste Management

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| Title 42, United States Code (U.S.C.), §6901, et seq.<br><br>Solid Waste Disposal Act of 1965 (as amended and revised by the Resource Conservation and Recovery Act of 1976, et al.) | The Solid Waste Disposal Act, as amended and revised by the Resource Conservation and Recovery Act (RCRA) et al., establishes requirements for the management of solid wastes (including hazardous wastes), landfills, underground storage tanks, and certain medical wastes. The statute also addresses program administration, implementation and delegation to states, enforcement provisions, and responsibilities, as well as research, training, and grant funding provisions.<br><br>RCRA Subtitle C establishes provisions for the generation, storage, treatment, and disposal of hazardous waste, including requirements addressing:<br>• Generator record keeping practices that identify quantities of hazardous wastes generated and their disposition;<br>• Waste labeling practices and use of appropriate containers;<br>• Use of a manifest when transporting wastes;<br>• Submission of periodic reports to the United States Environmental Protection Agency (U.S. EPA) or other authorized agency; and<br>• Corrective action to remediate releases of hazardous waste and contamination associated with RCRA-regulated facilities.<br><br>RCRA Subtitle D establishes provisions for the design and operation of solid waste landfills.<br><br>RCRA is administered at the federal level by U.S. EPA and its 10 regional offices. The Pacific Southwest regional office (Region 9) implements U.S. EPA programs in California, Nevada, Arizona, and Hawaii. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Title 42, U.S.C., §9601, et seq.<br><br>Comprehensive Environmental Response, Compensation and Liability Act | The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), also known as *Superfund*, establishes authority and funding mechanisms for cleanup of uncontrolled or abandoned hazardous waste sites, as well as cleanup of accidents, spills, or emergency releases of pollutants and contaminants into the environment. Among other things, the statute addresses:<br>• Reporting requirements for releases of hazardous substances;<br>• Requirements for remedial action at closed or abandoned hazardous waste sites, and brownfields;<br>• Liability of persons responsible for releases of hazardous substances or waste; and<br>• Requirements for property owners/potential buyers to conduct "all appropriate inquiries" into previous ownership and uses of the property to 1) determine if hazardous substances have been or may have been released at the site, and 2) establish that the owner/buyer did not cause or contribute to the release. A Phase I Environmental Site Assessment is commonly used to satisfy CERCLA "all appropriate inquiries" requirements. |
| Title 40, Code of Federal Regulations (CFR), Subchapter I – Solid Wastes | These regulations were established by U.S. EPA to implement the provisions of the Solid Waste Disposal Act and RCRA (described above). Among other things, the regulations establish the criteria for classification of solid waste disposal facilities (landfills), hazardous waste characteristic criteria and regulatory thresholds, hazardous waste generator requirements, and requirements for management of used oil and universal wastes.<br>• Part 257 addresses the criteria for classification of solid waste disposal facilities and practices.<br>• Part 258 addresses the criteria for municipal solid waste landfills.<br>• Parts 260 through 279 address management of hazardous wastes, used oil, and universal wastes (i.e., batteries, mercury-containing equipment, and lamps).<br><br>U.S. EPA implements the regulations at the federal level. However, California is an RCRA-authorized state, so most of the solid and hazardous waste regulations are implemented by state agencies and authorized local agencies in lieu of U.S. EPA. |
| Title 49, CFR, Parts 172 and 173.<br><br>Hazardous Materials Regulations | These regulations address the United States Department of Transportation (DOT) established standards for transport of hazardous materials and hazardous wastes. The standards include requirements for labeling, packaging, and shipping of hazardous materials and hazardous wastes, as well as training requirements for personnel completing shipping papers and manifests. Section 172.205 specifically addresses use and preparation of hazardous waste manifests in accordance with Title 40, CFR, section 262.20. |
| Federal CWA, 33 USC § 1251 *et seq.* | The Clean Water Act controls discharge of wastewater to the surface waters of the U.S. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| **State** | |
| California Health and Safety Code (HSC), Chapter 6.5, §25100, et seq.<br><br>Hazardous Waste Control Act of 1972, as amended | This California law creates the framework under which hazardous wastes must be managed in California. The law provides for the development of a state hazardous waste program that administers and implements the provisions of the federal RCRA program. It also provides for the designation of California-only hazardous wastes and development of standards (regulations) that are equal to or, in some cases, more stringent than federal requirements.<br><br>The California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC) administers and implements the provisions of the law at the state level. Certified Unified Program Agencies (CUPAs) implement some elements of the law at the local level. |
| Title 22, California Code of Regulations (CCR), Division 4.5.<br><br>Environmental Health Standards for the Management of Hazardous Waste | These regulations establish requirements for the management and disposal of hazardous waste in accordance with the provisions of the California Hazardous Waste Control Act and federal RCRA. As with the federal requirements, waste generators must determine if their wastes are hazardous according to specified characteristics or lists of wastes. Hazardous waste generators must obtain identification numbers; prepare manifests before transporting the waste off site; and use only permitted treatment, storage, and disposal facilities. Generator standards also include requirements for record keeping, reporting, packaging, and labeling. Additionally, while not a federal requirement, California requires that hazardous waste be transported by registered hazardous waste transporters.<br><br>The standards addressed by Title 22, CCR include:<br>• Identification and Listing of Hazardous Waste (Chapter 11, §66261.1, et seq.).<br>• Standards Applicable to Generator of Hazardous Waste (Chapter 12, §66262.10, et seq.).<br>• Standards Applicable to Transporters of Hazardous Waste (Chapter 13, §66263.10, et seq.).<br>• Standards for Universal Waste Management (Chapter 23, §66273.1, et seq.).<br>• Standards for the Management of Used Oil (Chapter 29, §66279.1, et seq.).<br>• Requirements for Units and Facilities Deemed to Have a Permit by Rule (Chapter 45, §67450.1, et seq.).<br><br>The Title 22 regulations are established and enforced at the state level by DTSC. Some generator and waste treatment standards are also enforced at the local level by CUPAs. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| HSC, Chapter 6.11 §§25404 – 25404.9<br><br>Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program) | The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of the six environmental and emergency response programs listed below.<br>• Aboveground Petroleum Storage Act requirements for Spill Prevention, Control, and Countermeasure (SPCC) Plans.<br>• Hazardous Materials Release and Response Plans and Inventories (Business Plans).<br>• California Accidental Release Prevention (CalARP) Program.<br>• Hazardous Materials Management Plan / Hazardous Materials Inventory Statements.<br>• Hazardous Waste Generator / Tiered Permitting Program.<br>• Underground Storage Tank Program.<br><br>The state agencies responsible for these programs set the standards for their programs while local governments implement the standards. The local agencies implementing the Unified Program are known as CUPAs. The DTSC's Calexico Field Office is the CUPA for the SES Solar Two project.<br><br>Note: The Waste Management analysis only considers application of the Hazardous Waste Generator/Tiered Permitting element of the Unified Program. |
| Title 27, CCR, Division 1, Sub-division 4, Chapter 1, §15100, et seq.<br><br>Unified Hazardous Waste and Hazardous Materials Management Regulatory Program | While these regulations primarily address certification and implementation of the program by the local CUPAs, the regulations do contain specific reporting requirements for businesses.<br>• Article 9 – Unified Program Standardized Forms and Formats (§§ 15400–15410).<br>• Article 10 – Business Reporting to CUPAs (§§15600–15620). |
| Public Resources Code, Division 30, §40000, et seq.<br><br>California Integrated Waste Management Act of 1989 | The California Integrated Waste Management Act (CIWMA) establishes mandates and standards for management of solid waste in California. The law addresses solid waste landfill diversion requirements; establishes the preferred waste management hierarchy (source reduction first, then recycling and reuse, and treatment and disposal last); sets standards for design and construction of municipal landfills; and addresses programs for county waste management plans and local implementation of solid waste requirements. |

| ***Applicable LORS*** | ***Description*** |
|---|---|
| Title 14, CCR, Division 7, §17200, et seq.<br><br>California Integrated Waste Management Board | These regulations implement the provisions of the California Integrated Waste Management Act and set forth minimum standards for solid waste handling and disposal. The regulations include standards for solid waste management, as well as enforcement and program administration provisions.<br><br>• Chapter 3 – Minimum Standards for Solid Waste Handling and Disposal.<br>• Chapter 3.5 – Standards for Handling and Disposal of Asbestos Containing Waste.<br>• Chapter 7 – Special Waste Standards.<br>• Chapter 8 – Used Oil Recycling Program.<br>• Chapter 8.2 – Electronic Waste Recovery and Recycling. |
| HSC, Division 20, Chapter 6.5, Article 11.9, §25244.12, et seq.<br><br>Hazardous Waste Source Reduction and Management Review Act of 1989 | This law was enacted to expand the state's hazardous waste source reduction activities. Among other things, it establishes hazardous waste source reduction review, planning, and reporting requirements for businesses that routinely generate more than 12,000 kilograms (approximately 26,400 pounds) of hazardous waste in a designated reporting year. The review and planning elements are required to be done on a four-year cycle, with a summary progress report due to DTSC every fourth year. |
| Title 22, CCR, §67100.1 et seq.<br><br>Hazardous Waste Source Reduction and Management Review | These regulations further clarify and implement the provisions of the Hazardous Waste Source Reduction and Management Review Act of 1989 (noted above). The regulations establish the specific review elements and reporting requirements to be completed by generators subject to the act. |
| Title 23, CCR Division 3, Chapters 16 and 18 | These regulations relate to hazardous material storage and petroleum UST cleanup, as well as hazardous waste generator permitting, handling, and storage. The DTSC Imperial County CUPA is responsible for local enforcement. |
| **Local** | |
| County of Imperial General Plan | The General Plan ensures all new development complies with applicable provisions of the County Integrated Solid Waste Management Plan. |
| Imperial County, Countywide Integrated Waste Management Plan | This document sets forth the county's goals, policies, and programs for reducing dependence on landfilling solid wastes and increasing source reduction, recycling, and reuse of products and waste, in compliance with the CIWMA. The plan also addresses the siting and development of recycling and disposal facilities and programs within the county. |
| Imperial County Municipal Code Chapter 8.20<br><br>Imperial County Uniform Fire Code | The Uniform Fire Code adopts the California Fire Code, 2001 Edition, together with the county amendments. It also sets forth provisions for violations/penalties, miscellaneous fees, and storage restrictions/prohibitions. |

## Worker Safety and Fire Protection

| *Applicable LORS* | *Description* |
|---|---|
| **Federal** | |
| 29 U.S. Code sections 651 et seq (Occupational Safety and Health Act of 1970) | This Act mandates safety requirements in the workplace, with the purpose of "[assuring] so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources" (29 USC § 651). |
| 29 CFR sections 1910.1 to 1910.1500 (Occupational Safety and Health Administration Safety and Health Regulations) | These sections define the procedures for promulgating regulations and conducting inspections to implement and enforce safety and health procedures to protect workers, particularly in the industrial sector. |
| 29 CFR sections 1952.170 to 1952.175 | These sections provide federal approval of California's plan for enforcement of its own safety and health requirements, in lieu of most of the federal requirements found in 29 CFR §1910.1 to 1910.1500. |
| **State** | |
| 2007 Edition of California Fire Code and all applicable NFPA standards (24 CCR Part 9) | NFPA standards are incorporated into the California State Fire Code. The fire code contains general provisions for fire safety, including road and building access, water supplies, fire protection and life safety systems, fire-resistive construction, storage of combustible materials, exits and emergency escapes, and fire alarm systems. |
| Title 24, California Code of Regulations (24 CCR § 3, et seq.) | The California Building Code is comprised of 11 parts containing building design and construction requirements as they relate to fire, life, and structural safety. It incorporates current editions of the International Building Code, including the electrical, mechanical, energy, and fire codes applicable to the project. |
| 8 CCR all applicable sections (Cal/OSHA regulations) | Requires that all employers follow these regulations as they pertain to the work involved. This includes regulations pertaining to safety matters during the construction, commissioning, and operation of power plants, as well as safety around electrical components, fire safety, and hazardous materials usage, storage, and handling. |
| 24 CCR section 3, et seq. | Incorporates the current edition of the International Building Code. |

| *Applicable LORS* | *Description* |
|---|---|
| Health and Safety Code sections 25500 to 25541 | Requires a Hazardous Materials Business plan detailing emergency response plans for hazardous materials emergencies at a facility. |
| **Local (or locally enforced)** | |
| County of Imperial Codified Ordinances Section 820.0100 | The County Imperial has adopted the 2007 California Fire Code in Section 820.0100 of the County Codified Ordinance does not have additional LORS that apply to Hazardous Materials Handling, but administers the State of California programs as the CUPA. |

**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**

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| **APPLICATION FOR CERTIFICATION FOR THE IMPERIAL VALLEY SOLAR PROJECT**<br>(formerly known as SES Solar Two Project)<br>**IMPERIAL VALLEY SOLAR, LLC** | **DOCKET NO. 08-AFC-5** |

# EXHIBIT LIST

***All listed exhibits were received into evidence at the Evidentiary Hearing on August 16, 2010***

## APPLICANT EXHIBITS

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| **EXHIBIT 1** | Application for Certification, Volume I and II, docketed on June 6, 2008. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 2** | Air Quality – Information on Data Adequacy. Docketed on July 25, 2008. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 3** | Responses to Imperial County questions.; docketed 9-3-08. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 4** | E-mail regarding School Impact Fees; docketed 9-10-08. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 5** | E-mail regarding Property Taxes; docketed 9-10-08. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 6** | Data Adequacy Supplement; docketed 9-26-08. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 7** | CEC/BLM Data Request Responses 1-52; docketed 12-08-08. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 8** | SES Alternatives and Cumulative Impacts; docketed 2-8-09. Sponsored by Applicant and received into evidence on |

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| **EXHIBIT 9** | CEC/BLM Data Request Responses 1-3, 5-10, 14-15, 24-26, 31-32, 36-38, 44, 111-127; docketed 3-19-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 10** | CEC/BLM Data Request Responses 53-110; docketed 3-26-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 11** | Supplemental Cumulative Analysis; docketed 4-29-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 12** | CEC/BLM Data Request Responses 128-144; docketed 6-5-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 13** | CURE Data Request Responses 1-143; docketed 6-6-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 14** | Supplement to AFC; docketed 6-12-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 15** | CEC/BLM Data Request Responses 31-32; docketed 7-2-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 16** | CEC/BLM Data Request Responses 151-155; docketed 7-7-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 17** | CURE Data Request Responses 143-178; docketed 8-5-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 18** | Additional Supportive Materials, Biology & Water; docketed 9-23-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 19** | CEC/BLM Data Request Responses 142-150; docketed 10-17-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 20** | Current Project Acreage; docketed 10-28-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 21** | Supplemental Biology and Water Information; docketed 10-30-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 22** | Revised Page 300-1 of SWPP; docketed 12-21-09. Sponsored by Applicant and received into evidence on |
| **EXHIBIT 23** | Corridor Conflict Analysis; docketed 1-8-10. Sponsored by Applicant and received into evidence on |

**EXHIBIT 24** San Diego MTS Agreement; docketed 1-8-10. Sponsored by Applicant and received into evidence on

**EXHIBIT 25** Glint and Glare Study. Sponsored by Applicant and received into evidence on

**EXHIBIT 26** Juan Batista de Anza Historic Trail Visual Impact Analysis, dated January 22, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 27** Additional information related to SWWTF Improvements, dated February 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 28** Applicant's Comments on the Energy Commission Draft Environmental Impact Statement (DEIS), dated March 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 29** Modeling Analysis for the Federal NO2 1 hour Standard, dated March 31, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 30** Imperial Valley Solar Sediment Transport Analysis, dated April 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 31** Early Spring 2010 Botanical Surveys, dated April 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 32** Supplement to the Imperial Valley Solar Application for Certification (formerly Solar Two). Dated May 2010, docketed on May 5, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 33** Overview of the SWWTF Project Limits, dated May 10, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 34** Revised Project Wash Avoidance Site Plan, dated May 10, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 35** Letters of Project Support, dated May 10, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 36** Peninsular Big Horn Sheep Locations and Critical Habitat, dated May 10, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 37** Project Footprint Evolution, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 38** Applicant's Proposed Revisions to Conditions of Certification, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 39** Preliminary Greenhouse Gas Emissions from SWWTF Improvements, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 40** Independent Technical Review by Dr. Eric LaBolle, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 41** Existing Edge Effects Onsite, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 42** USFWS final rule on PBS Designated Critical Habitat, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 43** Harwood's Milk-Vetch CNDDB Records, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 44** Brown Turbans CNDDB Records, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 45** Wiggin's Croton CNDDB Records, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 46** Dr. Chang's Response to Comments from CURE, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 47** Maricopa Solar – Noise Survey and Analysis, dated May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 48** Rain Event Site Visit, dated May 17, 2010. Sponsored by Applicant and received into evidence on

## APPLICANT' S DECLARATIONS

**EXHIBIT 100** Prepared direct testimony of Carolyn Dunmire on Cumulative Impacts and Alternatives. Sponsored by Applicant and received into evidence on

**EXHIBIT 101** Prepared direct testimony of Jason Pfaff on Visual Resources – Glint & Glare. Sponsored by Applicant and received into evidence on

**EXHIBIT 102** Prepared direct testimony of Julie Mitchell on Air Quality, Public Health, and Safety. Sponsored by Applicant and received into evidence on

**EXHIBIT 103** Prepared direct testimony of Kenneth Kostok on Project Description (Including Efficiency, Reliability, Transmission System Engineering). Sponsored by Applicant and received into evidence on

**EXHIBIT 104** Prepared direct testimony of Lanny Fisk on Paleontology. Sponsored by Applicant and received into evidence on

**EXHIBIT 105** Prepared direct testimony of Mark Storm on Noise. Sponsored by Applicant and received into evidence on

**EXHIBIT 106** Prepared direct testimony of Matthew Moore on Water Resources. Sponsored by Applicant and received into evidence on

**EXHIBIT 107** Prepared direct testimony of Michael Hatch on Geology/Soils. Sponsored by Applicant and received into evidence on

**EXHIBIT 108** Marc Van Patten, Sr. Director of Development with Tessera Solar North America on Project Objectives, Need, Water Supply, Alternatives, and Miscellaneous. Sponsored by Applicant and received into evidence on

**EXHIBIT 109** Prepared direct testimony of Noel Casil on Traffic and Transportation. Sponsored by Applicant and received into evidence on

**EXHIBIT 110** Prepared direct testimony of Patrick Mock, PhD on Biological Resources. Sponsored by Applicant and received into evidence on

**EXHIBIT 111** Prepared direct testimony of Rebecca Apple on Cultural Resources. Sponsored by Applicant and received into evidence on

**EXHIBIT 112** Prepared direct testimony of Sean Gallagher on Override Evidence. Sponsored by Applicant and received into evidence on

**EXHIBIT 113** Prepared direct testimony of Seth Hopkins on Land Use, Socioeconomics, and Visual Resources. Sponsored by Applicant and received into evidence on

**EXHIBIT 114** Prepared direct testimony of Tricia Winterbauer on Waste Management, Hazardous Waste, and Worker Safety. Sponsored by Applicant and received into evidence on

**EXHIBIT 115** Applicant's Submittal of Rebuttal Testimony Declarations submitted May 10, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 116** Applicant's Submittal of Testimony Compilation Declarations submitted May 17, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 117** Applicant's Revised Proposed Conditions of Certification submitted May 26, 2010 For Visual Resources. Sponsored by Applicant and received into evidence on

**EXHIBIT 118** Letter from Imperial County Planning Department to Dan Boyer submitted May 27, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 119** 404B-1 Alternatives Analysis for Imperial Valley Solar Project, July 13, 2010, dated June 3, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 120** Computation of Local Scour on Streambed Induced by SunCatchers, July 13, 2010, dated May 28, 2010 Sponsored by Applicant and received into evidence on

**EXHIBIT 121** Evaluation of Engineering Impacts of Revised Plan of Development, July 13, 2010. Site Plan, and Fencing Design for Solar 2 Site and Recommendations for Impact Mitigation, dated May 25, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 122** Applicant's Requested Changes to Conditions July 21, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 123** Letter from the BLM on Estimated Mitigation Funds, dated July 21, 2010. December 7, 2009. Sponsored by Applicant and received into evidence on

**EXHIBIT 124** Applicant's Brief Regarding Land Use Issues, dated June 10, 2010 June 10, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 125** Groundwater Well Registration for the Dan Boyer Water Company July 15, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 126** Declaration from Dan Boyer, dated July 16, 2010 July 21, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 127** Letter from David Dale, Seeley County Water District, dated July 21, 2010 July 19, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 128** Email from Imperial Irrigation District, dated June 16, 2010 July 21, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 129** 404B-1 Alternatives Analysis for Imperial Valley Solar Project, July 21, 2010, dated July 16, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 130** Prepared Rebuttal Testimony of Marc Van Patten submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 131** Prepared Rebuttal Testimony of Julie Mitchell submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 132** Prepared Rebuttal Testimony of Sean Gallagher submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 133** Major Project changes to Reduce Environmental Impacts submitted July 26, 2010 and/or respond to Agency concerns. Sponsored by Applicant and received into evidence on

**EXHIBIT 134** SSA Conditions of Certification Applicant Agrees and Disagrees submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 135** Applicant's Proposed Changes to COC BIO-10 submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 136** Applicant's Proposed Changes to COC BIO-17 submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 137** Applicant's Proposed Changes to COC BIO-19 submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 138** Applicant's Proposed Changes to COC SOIL & WATER-7 submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 139** Applicant's Proposed Changes to COC Worker Safety-7 submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 140** Prepared Rebuttal Testimony for Robert Scott Prepared Rebuttal Testimony for Robert Scot submitted July 26, 2010 July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 141** Prepared Rebuttal Testimony for Dr. Howard Chang submitted July 26, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 142** Prepared Rebuttal Testimony for Dr. Patrick Mock submitted July 27, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 143** Prepared Rebuttal Testimony for Mike Fitzgerald July 27, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 144** Letter from Imperial County Fire Department submitted July 27, 2010. Sponsored by Applicant and received into evidence on

**EXHIBIT 145** Prepared Rebuttal Testimony for Waymon Votaw submitted July 27, 2010. Sponsored by Applicant and received into evidence on

**Exhibit 146** Air Quality Modeling Analysis Demonstrating Compliance with California 1-Hour NO2 Standard During First Year Construction. Sponsored by Applicant and received into evidence on

**Exhibit 147** Imperial Valley Solar Revised Conditions. Sponsored by Applicant and received into evidence on

**Exhibit 148** Applicant's Submittal of Phase I Initial Disturbance Area. Sponsored by Applicant and received into evidence on

**Exhibit 149** Applicant's Submittal of Estimated First Year Construction Water Use. Sponsored by Applicant and received into evidence on

**Exhibit 150** Applicant's Late Spring Survey Results. Sponsored by Applicant and received into evidence on

**ENERGY COMMISSION STAFF EXHIBITS**

**EXHIBIT 300** Staff Assessment. Sponsored by Staff and received into evidence on

**EXHIBIT 301** Appendix 1, Seeley Wastewater Reclamation Facility Improvements. Sponsored by Staff and received into evidence on

**EXHIBIT 302** Supplemental Staff Assessment, dated July 7, 2010. Sponsored by Staff and received into evidence on

**EXHIBIT 303** Staff's Rebuttal Testimony and Errata, dated July 21, 2010. Sponsored by Staff and received into evidence on

**EXHIBIT 304** Stipulation of Staff and Applicant on **WORKER SAFETY-7** and **-8**. Sponsored by Staff and received into evidence on

**EXHIBIT 305** "Hoffman Study" - Memorandum from Stanley R. Hoffman Associates, Inc. to Gerry Newcombe and Chief Peter Brierty dated June 30, 2010 Re: Estimated Allocation of Fire Facility Costs to Proposed Solar Energy Installations. Sponsored by Staff and received into evidence on

**EXHIBIT 306** Final Determination of Compliance. Sponsored by Staff and received into evidence on

**EXHIBIT 307** Cultural SSA dated August 2, 2010. Sponsored by Staff and received into evidence on

**EXHIBIT 308** Document entitled "Agreed-Upon Changes to Conditions of Certification" distributed at August 16 Evidentiary Hearing. Sponsored by Staff and received into evidence on

**EXHIBIT 309** Grant & Doherty Report. Sponsored by Staff and received into evidence on

**EXHIBIT 310** FTHL Rangewide Management Strategy. Sponsored by Staff and received into evidence on

**EXHIBIT 311** Staff- submitted documents pertaining to Identification of Parcels of Land. Sponsored by Staff and received into evidence on

**INTERVENOR CURE EXHIBITS**

**EXHIBIT 400** Opening Testimony of Dr. Vernon C. Bleich on Behalf of the California Unions for Reliable Energy on Biological Resources for the Imperial Valley Solar Project, dated 5/10/10. Sponsored by CURE and received into evidence on

**EXHIBIT 401** Bleich Declaration, dated 5/10/10. Sponsored by CURE and received into evidence on

**EXHIBIT 402** Bleich C.V. Sponsored by CURE and received into evidence on

**EXHIBIT 403** DeForge, J. R., S. D. Ostermann, D. E. Toweill, P. E. Cyrog, and E. M. Barrett. 1993. Helicopter survey of peninsular bighorn sheep in northern Baja California. Desert Bighorn Council Transactions 37:24-28, dated 1993. Sponsored by CURE and received into evidence on

**EXHIBIT 404** U.S. Fish and Wildlife Service. 2000. Recovery plan for bighorn sheep in the peninsular ranges, California. Sponsored by CURE and received into evidence on

**EXHIBIT 405** Memo from Guy Wagner to Toni Parr dated 17 June 2009, with a subject line of Solar Two Map PBHS Map.ppt. Sponsored by CURE and received into evidence on

**EXHIBIT 406** Bleich, V. C., J. D. Wehausen, and S. A. Holl. 1990. Desert-dwelling mountain sheep: conservation implications of a naturally fragmented distribution. Conservation Biology 4:383-390. Sponsored by CURE and received into evidence on

**EXHIBIT 407** Epps, C. W., J. D. Wehausen, V. C. Bleich, S. G. Torres, and J. S. Brashares. 2007. Optimizing dispersal and corridor models using landscape genetics. Journal of Applied Ecology 44:714-724. Sponsored by CURE and received into evidence on

**EXHIBIT 408** Schwartz, O. A., V. C. Bleich, and S. A. Holl. 1986. Genetics and the conservation of mountain sheep *Ovis canadensis nelsoni*. Biological Conservation 37:179-190. Sponsored by CURE and received into evidence on

**EXHIBIT 409** Bleich, V. C., J. D. Wehausen, R. R. Ramey II, and J. L. Rechel. 1996. Metapopulation theory and mountain sheep: implications for conservation. Pages 353-373 in D. R. McCullough (editor). Metapopulations and wildlife conservation. Island Press, Covelo, California. Sponsored by CURE and received into evidence on

**EXHIBIT 410** Bleich, V. C. 2005. Politics, promises, and illogical legislation confound wildlife conservation. Wildlife Society Bulletin 33:66-73. Sponsored by CURE and received into evidence on

**EXHIBIT 411** Flesch, A. D., C. W. Epps, J. W. Cain III, M. Clark, P. R. Krausman, and J. R. Morgart. 2010. Potential effects of the United States-Mexico border fence on wildlife. Conservation Biology 24:171-181. Sponsored by CURE and received into evidence on

**EXHIBIT 412** Andrew, N. G., V. C. Bleich, and P. V. August. 1999. Habitat selection by mountain sheep in the Sonoran Desert: implications for conservation in the United States and Mexico. California Wildlife Conservation Bulletin 12:1-30. Sponsored by CURE and received into evidence on

**EXHIBIT 413** Pierce, B. M., R. T. Bowyer, and V. C. Bleich. 2004. Habitat selection by mule deer: forage benefits or risk of predation? Journal of Wildlife Management 68:533-541. Sponsored by CURE and received into evidence on

**EXHIBIT 414** Bleich, V. C., R. T. Bowyer, and J. D. Wehausen. 1997. Sexual segregation in mountain sheep: resources or predation? Wildlife Monographs 134:1-50. Sponsored by CURE and received into evidence on

**EXHIBIT 415** Andrew, N. G. 1994. Demography and habitat use of desert-dwelling mountain sheep in the East Chocolate Mountains, Imperial County, California. MS Thesis, University of Rhode Island, Kingston, Rhode Island, USA. Sponsored by CURE and received into evidence on

**EXHIBIT 416** Marshal, J. P., P. R. Krausman, and V. C. Bleich. 2005. Dynamics of mule deer forage in the Sonoran Desert. Journal of Arid Environments 60:593-609. Sponsored by CURE and received into evidence on

**EXHIBIT 417** SES Solar Two LLC, Response to CURE Data Requests, Set One, 08-AFC-5. Sponsored by CURE and received into evidence on

**EXHIBIT 418** Rubin, E. S., W. M. Boyce, and V. C. Bleich. 2000. Reproductive strategies of desert bighorn sheep. Journal of Mammalogy 81:769-786. Sponsored by CURE and received into evidence on

**EXHIBIT 419** Marshal, J. P., P. R. Krausman, and V. C. Bleich. 2005. Rainfall, temperature, and forage dynamics affect nutritional quality of desert mule deer forage. Rangeland Ecology and Management 58:360-365. Sponsored by CURE and received into evidence on

**EXHIBIT 420** Bleich, V. C., R. T. Bowyer, D. J. Clark, and T. O. Clark. 1992. Quality of forages eaten by mountain sheep in the eastern Mojave Desert, California. Desert Bighorn Council Transactions 36:41-47. Sponsored by CURE and received into evidence on

**EXHIBIT 421** Oehler, M. W., Sr., R. T. Bowyer, and V. C. Bleich. 2003. Home ranges of mountain sheep: effects of precipitation in a desert ecosystem. Mammalia 67:385-402. Sponsored by CURE and received into evidence on

**EXHIBIT 422** Oehler, M. W., V. C. Bleich, R. T. Bowyer, and M. C. Nicholson. 2005. Mountain sheep and mining: implications for conservation and management. California Fish and Game 91:149-178. Sponsored by CURE and received into evidence on

**EXHIBIT 423** Wehausen, J. D. 2005. Nutrient predictability, birthing seasons, and lamb recruitment for desert bighorn sheep. Pages 37-50 in J. Goerrissen and J. M. Andre, editors. Sweeney Granite Mountains Desert Research Center 1978-2003. A Quarter Century of Research and Teaching. University of California Natural Reserve System, Riverside, California, USA. Sponsored by CURE and received into evidence on

**EXHIBIT 424** SES Solar Two, Appendix Y. Biological Resources Technical Report, Attachment B. Plant species observed on the Solar Two project site. Pages B-1 – B-4. Sponsored by CURE and received into evidence on

**EXHIBIT 425** Weaver, R. A., J. L. Mensch, and W. V. Fait. 1968. A survey of the California desert bighorn (*Ovis canadensis*) in San Diego County. California Department of Fish and Game, Federal Aid in Wildlife Restoration Project W-51-R-14. Final Report. Sponsored by CURE and received into evidence on

**EXHIBIT 426** Hicks, L. L. 1978. The status and distribution of peninsular bighorn sheep in the In-Ko-Pah Mountains, California. USDI Bureau of Land Management, Riverside District, El Centro, California, USA. Sponsored by CURE and received into evidence on

**EXHIBIT 427** Dodd, N. 1989. Dietary considerations. Pages 109-134 in R. M. Lee (editor). The desert bighorn sheep in Arizona. Arizona Game and Fish Department, Phoenix, Arizona, USA. Sponsored by CURE and received into evidence on

**EXHIBIT 428** Scott, J. E. 1986. Food habits and nutrition of desert bighorn sheep (*Ovis canadensis cremnobates*) in the Santa Rosa Mountains, California. MS Thesis, California State Polytechnic University, Pomona, California, USA. Sponsored by CURE and received into evidence on

**EXHIBIT 429** Opening Testimony of Scott Cashen on Behalf of the California Unions for Reliable Energy on Biological Resources for the Imperial Valley Solar Project

- Figure 1 – Map #1 of MA blockage
- Figure 2 – Map #2 of MA blockage
- Figure 3 – GOEA nesting habitat
- Figure 4 – CDFTL map
- Figure 5 – Pictures of sensitive communities
- Figure 6 – SS plants near Seeley
- Figure 7 – Yuha and W. Mesa MAS

Sponsored by CURE and received into evidence on

**EXHIBIT 430** Cashen Declaration Sponsored by CURE and received into evidence on

**EXHIBIT 431** Cashen C.V. Sponsored by CURE and received into evidence on

**EXHIBIT 432** Calico Solar Project SA/DEIS Sponsored by CURE and received into evidence on

**EXHIBIT 433** Calico Solar Project. Applicant's response to CURE data request 162 Sponsored by CURE and received into evidence on

**EXHIBIT 434** Energy Commission Staff's Rebuttal Testimony, Ivanpah Solar Electric Generating System Sponsored by CURE and received into evidence on

**EXHIBIT 435** Final Staff Assessment, Ivanpah Solar Electric Generating System Sponsored by CURE and received into evidence on

**EXHIBIT 436** Applicant's Comments on the SA/DEIS. Imperial Valley Solar (formerly solar Two) (08-AFC-5) Sponsored by CURE and received into evidence on

**EXHIBIT 437** California Native Plant Society (CNPS). 2010. Inventory of Rare and Endangered Plants (online edition, v7-10a). California Native Plant Society. Sacramento, CA Sponsored by CURE and received into evidence on

**EXHIBIT 438** California Natural Diversity Database Info [internet]. Sacramento: California Department of Fish and Game; [cited 2010 Apr 29]. Sponsored by CURE and received into evidence on

**EXHIBIT 439** Bureau of Land Management. 2009. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species Sponsored by CURE and received into evidence on

**EXHIBIT 440** Flat-tailed Horned Lizard Interagency Coordinating Committee. 2003. Flat-tailed horned lizard rangewide management strategy, 2003 revision. 80 pp. plus appendices Sponsored by CURE and received into evidence on

**EXHIBIT 441** Dodd CK Jr., RA Seigel. 1991. Relocation, repatriation, and translocation of amphibians and reptiles: Are they conservation strategies that work? Herpetologica 47(3): 336-350 Sponsored by CURE and received into evidence on

**EXHIBIT 442** Flat-tailed Horned Lizard Interagency Coordinating Committee. 2009 Mar. Annual Progress Report: Implementation of the Flat-tailed Horned Lizard Rangewide Management Strategy, January 1, 2008 – December 31, 2008. Sponsored by CURE and received into evidence on

**EXHIBIT 443** Ecosphere Environmental Services. 2009 Apr 21. SES Solar Two AFC Supplemental Cumulative Analysis Sponsored by CURE and received into evidence on

**EXHIBIT 444** Young KV and AT Young. 2005. Indirect effects of development on the flat-tailed horned lizard. Final Report submitted to Arizona Game and Fish Department, Yuma. 11 pp. Sponsored by CURE and received into evidence on

**EXHIBIT 445** Painter ML, MF Ingraldi. 2007. Use of Simulated Highway Underpass Crossing Structures by Flat-Tailed Horned Lizards (*Phrynosoma mcallii*), Final Report 594. Arizona Department of Transportation, Phoenix, Arizona Sponsored by CURE and received into evidence on

**EXHIBIT 446** 58 Fed. Reg. 62624 (November 29, 1993), Proposed Rule to List Flat-tailed Horned Lizard as Threatened. Sponsored by CURE and received into evidence on

**EXHIBIT 447** Okin GS, B Murray, WH Schlesinger. 2000. Degradation of sandy arid shrubland environments: observations, process modelling, and management implications. Journal of Arid Environments Vol. 47, No. 2 Sponsored by CURE and received into evidence on

**EXHIBIT 448** Bates C. 2006. Burrowing Owl (*Athene cunicularia*). In The Draft Desert Bird Conservation Plan: a strategy for reversing the decline of desert-associated birds in California. California Partners in Flight. Sponsored by CURE and received into evidence on

**EXHIBIT 449** DeSante DF, ED Ruhlen, DK Rosenberg. 2004. Density and abundance of burrowing owls in the agricultural matrix of the Imperial Valley, California. Studies in Avian Biology No. 27: 116-119 Sponsored by CURE and received into evidence on

**EXHIBIT 450** Rosenburg, DK and KL Haley. 2004. The ecology of burrowing owls in the agroecosystem of the Imperial Valley, California. Studies in Avian Biology No. 27: 120-135 Sponsored by CURE and received into evidence on

**EXHIBIT 451** The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines Sponsored by CURE and received into evidence on

**EXHIBIT 452** California Department of Fish and Game. 1995. Staff Report on Burrowing Owl Mitigation Sponsored by CURE and received into evidence on

**EXHIBIT 453** AFC, Biological Resources, Figure 6 Sponsored by CURE and received into evidence on

**EXHIBIT 454** US Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior Sponsored by CURE and received into evidence on

**EXHIBIT 455** AFC, p. 5.6-9 Sponsored by CURE and received into evidence on

**EXHIBIT 456** Martin TE, GR Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. J. Field Ornithol. 64(4):507-519 Sponsored by CURE and received into evidence on

**EXHIBIT 457** North American Bird Conservation Initiative, U.S. Committee, 2009. The State of the Birds, United States of America, 2009. U.S. Department of Interior: Washington, DC. Sponsored by CURE and received into evidence on

**EXHIBIT 458** DeSante DF, GR Geupel. 1987. Landbird productivity in central coastal California: the relationship to annual rainfall and a reproductive failure in 1986. Condor. 89:636-653. Sponsored by CURE and received into evidence on

**EXHIBIT 459** Martin TE, C Paine, CJ Conway, WM Hochacka. 1996. BBIRD field protocol. Montana Cooperative Wildlife Research Unit, Missoula (MT). Sponsored by CURE and received into evidence on

**EXHIBIT 460** AFC p. 5.6-4. Sponsored by CURE and received into evidence on

**EXHIBIT 461** California Department of Fish and Game. 2009 Dec 28. List of California Vegetation Alliances. Sacramento: Biogeographic Data Branch. Sponsored by CURE and received into evidence on

**EXHIBIT 462** BRG Consulting, Inc. 2003. Final Mitigated Negative Declaration and Environmental Assessment: Proposed Seeley Water / Wastewater Master Plans. Sponsored by CURE and received into evidence on

**EXHIBIT 463** US Fish and Wildlife Service. 2010. Species Profile: Yuma clapper rail [internet]. Environmental Online Conservation System. Sponsored by CURE and received into evidence on

**EXHIBIT 464** Dudek. 2009. Draft Mitigated Negative Declaration for the Seeley Wastewater Reclamation Facility Improvements, Imperial County, California. Sponsored by CURE and received into evidence on

**EXHIBIT 465** Gould GI Jr. 1975. Yuma Clapper Rail Study – Census and Habitat Distribution. Wildlife Management Branch Administrative Report No. 75-2. Supported by Federal Aid in Wildlife Restoration Project W-54-R-7, Nongame Wildlife Investigations. Sponsored by CURE and received into evidence on

**EXHIBIT 466** US Fish and Wildlife Service. 2006. Yuma Clapper Rail 5-Year Review. Sponsored by CURE and received into evidence on

**EXHIBIT 467** California Department of Water Resources and California Department of Fish and Game. 2006. Salton Sea Ecosystem Restoration Program Draft Programmatic Environmental Impact Report. Sponsored by CURE and received into evidence on

**EXHIBIT 468** URS Corporation. 2009 Sep 23. Letter from Matt Moore, Project Engineer, to David Dale, Seeley County Water District. Sponsored by CURE and received into evidence on

**EXHIBIT 469** Imperial Irrigation District. 2010 Jan 7. Comment letter on the Seeley County Water District's Wastewater Reclamation Facility Improvements Project. Sponsored by CURE and received into evidence on

**EXHIBIT 470** URS. 2009 Jun. Supplement to SES Solar Two Application for Certification. p. 2.6-1. Sponsored by CURE and received into evidence on

**EXHIBIT 471** Evans Ogden LJ. 2002. Summary Report on the Bird Friendly Building Program: Effect of Light Reduction on Collision of Migratory Birds. Special Report for the Fatal Light Awareness Program (FLAP). Available at: http://www.flap.org/. Sponsored by CURE and received into evidence on

**EXHIBIT 472** National Park Service. 1994. Report to Congress: Report on effects of aircraft overflights on the National Park System. Sponsored by CURE and received into evidence on

**EXHIBIT 473** A. Letter from Sierra Club San Diego Chapter to David Dale, Seeley County Water District, February 2, 2010.

B. Salton Sea Authority Website Information, Environmental Issues Around the Sea, accessed online at http://www.saltonsea.ca.gov/environ.htm on 2/2/2010.

C. Letter from U.S. Fish and Wildlife Service to Seeley County Water District, February 2, 2010, re: Draft Mitigated Negative Declaration for the Seeley Wastewater Treatment Plant Improvements, Imperial County, California.

D. California Environmental Protection Agency, Regional Water Quality Control Board, Staff Report: Water Quality Issues in the Salton Sea Transboundary Watershed, February 2003.

E. State Water Resources Control Board – Colorado River Basin Region, website, www.waterboards.ca.gov/coloradoriver/water_issues/programs/salton_sea/index.shtml, accessed on 2/2/2010.

F. Letter from Imperial County Public Works Department, January 25, 2010 re: Notice of Intent to adopt a Mitigated Negative Declaration for Seeley County Water District.

G. Letter from Department of Toxic Substances Control to Seeley County Water District, January 25, 2010 re: Notice of Intent to adopt a Proposed Mitigated Negative Declaration for Seeley County Water District Wastewater Reclamation Facility.

Sponsored by CURE and received into evidence on

**EXHIBIT 474** CNPS Botanical Survey Guidelines, December 9, 1983, Revised June 2, 2001. Sponsored by CURE and received into evidence on

**EXHIBIT 475** Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities, State of California, Natural Resources Agency, Department of Fish and Game, November 24, 2009. Sponsored by CURE and received into evidence on

**EXHIBIT 476** Yuma Clapper Rail, Species Profile, US Fish and Wildlife Service. Sponsored by CURE and received into evidence on

**EXHIBIT 477** Klem, Preventing Bird-Window Collisions (2000) Wilson Ornithological Society. Sponsored by CURE and received into evidence on

**EXHIBIT 478** Opening Testimony of Dr. Chris Bowles and Chris Campbell on Behalf of California Unions for Reliable Energy on Soil and Water Resources for the Imperial Valley Solar Project

- Figure 1 – 100-year discharge comparison
- Figure 2 – 6-hour temporal rainfall distributions

Sponsored by CURE and received into evidence on

**EXHIBIT 479** Bowles Declaration. Sponsored by CURE and received into evidence on

**EXHIBIT 480** Campbell Declaration. Sponsored by CURE and received into evidence on

**EXHIBIT 481** Christopher Bowles, Ph.D., C.V. Sponsored by CURE and received into evidence on

**EXHIBIT 482** Christopher Campbell, M.S., C.V. Sponsored by CURE and received into evidence on

**EXHIBIT 483** California Department of Water Resources, California Department of Fish and Game (October 2006), Salton Sea Ecosystem Restoration Program, Draft Programmatic Environmental Impact Report, Volume I: PEIR, Hydrology chapter. Sponsored by CURE and received into evidence on

**EXHIBIT 484** Y.A. Wood, R.C. Graham, S.G. Wells. 2005. Surface control of desert pavement pedologic process and landscape function, Cima Volcanic field, Mojave Desert, California. Sponsored by CURE and received into evidence on

**EXHIBIT 485** Julianne J. Miller, Todd G. Caldwell, Michael H. Young, and Graham K. Dalldorf (2008) Verifying Curve Numbers in Arid Environments by Combining Detailed Geomorphic Mapping and Pedotransfer Functions. Sponsored by CURE and received into evidence on

**EXHIBIT 486** Young & Chen. (2009) "Soil Heterogeneity and Moisture Distribution Due to Rainfall Events in Vegetated Desert Areas: Potential Impact on Soil Recharge and Ecosystems Annual Report 2009". Sponsored by CURE and received into evidence on

**EXHIBIT 487** Jon D. Pelletier, Michael Cline, Stephen B. DeLong (2007) Desert pavement dynamics: numerical modeling and field-based calibration. Sponsored by CURE and received into evidence on

**EXHIBIT 488** Biological Soil Crusts: Ecology and Management, Technical Reference 1730-2, 2001, US Department of the Interior: BLM and USGS. Sponsored by CURE and received into evidence on

**EXHIBIT 489** James R. Angel, Michael A. Palecki, Steven E. Hollinger. (2005) Storm Precipitation in the United States. Part II: Soil Erosion Characteristics. Sponsored by CURE and received into evidence on

**EXHIBIT 490** F. Gonzalez-Bonrino, W.R. Osterkamp (2004) Applying RUSLE 2.0 on burned-forest lands: An appraisal. Sponsored by CURE and received into evidence on

**EXHIBIT 491** Li Chen, Jun Yin, Julianne Miller, Michael Young (2009) The Role of the Clast Layer of Desert pavement in Rainfall-Runoff Processes. Sponsored by CURE and received into evidence on

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|---|---|
| **EXHIBIT 492** | Peter R. Griffiths, Richard Hereford, Robert H. Webb (2006) Sediment yield and runoff frequency of small drainage basins in the Mojave Desert, U.S.A. Sponsored by CURE and received into evidence on |
| **EXHIBIT 493** | Draft Programmatic Agreement – Imperial Valley Solar Project. Sponsored by CURE and received into evidence on |
| **EXHIBIT 494** | CURE Comments on the Draft Programmatic Agreement. Sponsored by CURE and received into evidence on |
| **EXHIBIT 495** | National Register Bulletin, Guidelines for Evaluating and Documenting Historic Aids to Navigation to the National Register of Historic Places. Sponsored by CURE and received into evidence on |
| **EXHIBIT 496** | Letter from the National Park Service to the Energy Commission and BLM commenting on The Staff Assessment/Draft Environmental Impact Statement. Sponsored by CURE and received into evidence on |
| **EXHIBIT 497** | Letter from Quechan Indian Tribe, Ft. Yuma Indian Reservation, to Carrie Simmons, Bureau of Land Management commenting on the Draft Programmatic Agreement. Sponsored by CURE and received into evidence on |
| **EXHIBIT 498-A** | 5/17/10 Rebuttal Testimony of Scott Cashen on Behalf of California Unions for Reliable Energy on Biological Resources for the Imperial Valley Solar Project. Sponsored by CURE and received into evidence on |
| **EXHIBIT 498-B** | Cashen Declaration. Sponsored by CURE and received into evidence on |
| **EXHIBIT 498-C** | Cashen comment letter to Army Corps. Sponsored by CURE and received into evidence on |
| **EXHIBIT 498-D** | Manci KM, DN Gladwin, R Villella, MG Cavendish. 1988. Effects of aircraft noise and sonic booms on domestic animals and wildlife: a literature synthesis. National Ecology Research Center Report # NERC-88/29. Sponsored by CURE and received into evidence on |
| **EXHIBIT 498-E** | ICC Meeting Minutes. Sponsored by CURE and received into evidence on |
| **EXHIBIT 498-F** | 2010 Western Regional Climate Center [internet]. 2010. Period of Record Monthly Climate Summary, El Centro 2 SSW, California. Available at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca2713. Sponsored by CURE and received into evidence on |

**EXHIBIT 498-G** 2003 Department of Fish and Game. List of California Terrestrial Natural Communities Recognized by The California Natural Diversity Database. September 2003 edition. Sponsored by CURE and received into evidence on

**EXHIBIT 498-H** 2001 Okin GS, B Murray, WH Schlesinger. 2001. Degradation of sandy arid shrubland environments: observations, process modeling, and management implications. Journal of Arid Environments Vol. 47, No. 2, pp. 123–144. Sponsored by CURE and received into evidence on

**EXHIBIT 498-I** US Gypsum Final EIR/EIS, p. 3.3-42. Sponsored by CURE and received into evidence on

**EXHIBIT 498-J** USEPA letter to USACE (5/12/10) re Public Notice (PN) SPL-2008-01244-MLM for the proposed Imperial Valley Solar Project, Tessera Solar North America, Imperial County, California. Sponsored by CURE and received into evidence on

**EXHIBIT 498-K** Travis Huxman, UA Biosphere 2 and B2 Earthscience, Associate Professor, Ecology and Evolutionary Biology, University of Arizon, Tucson, Arizona: Climate Change and the Sonoran Desert. Sponsored by CURE and received into evidence on

**EXHIBIT 498-L** CURE letter addressed to Christopher Meyer and Jim Stobaugh (5/28/09) re Biological Resource Survey Techniques for the Solar Two Project. Sponsored by CURE and received into evidence on

**EXHIBIT 498-M** Monthly Precipitation, EL Centro 2 SSW, California. Sponsored by CURE and received into evidence on

**EXHIBIT 498-N** EPA: Sole Source Aquifer Designations in EPA, Region 9. Sponsored by CURE and received into evidence on

**EXHIBIT 498-O** Ground-Water Resources, Ocotillo-Coyote Wells Basin, Calif. Sponsored by CURE and received into evidence on

**EXHIBIT 498-P** U.S. Geological Survey Water-Resources Investigations 77-30: Digital-Model Evaluation of the Ground-Water Resources in the Ocotillo-Coyote Wells Basin, Imperial County, California. Sponsored by CURE and received into evidence on

**EXHIBIT 498-Q** Rebuttal Testimony of Dr. Vernon C. Bleich on Behalf of California Unions for Reliable Energy on Biological Resources for the Imperial Valley Solar Project. Sponsored by CURE and received into evidence on

**EXHIBIT 498-R** Bleich Declaration. Sponsored by CURE and received into evidence on

**EXHIBIT 498-S** S. Torres email 5/13/10. Sponsored by CURE and received into evidence on

**EXHIBIT 498-T** R. Botta email 5/14/10. Sponsored by CURE and received into evidence on

**EXHIBIT 498-U** Felicia Sirchia email 5/11/10. Sponsored by CURE and received into evidence on

**EXHIBIT 498-V** Testimony of Bridget Nash-Chrabascz on Cultural Resources for the Imperial Valley Solar Project 5/17/10. Sponsored by CURE and received into evidence on

**EXHIBIT 498-W** Nash-Chrabascz Declaration 5/17/10. Sponsored by CURE and received into evidence on

**EXHIBIT 498-X** Nash-Chrabascz C.V. Sponsored by CURE and received into evidence on

**EXHIBIT 498-Y** Quechan Indian Tribe Comments on Staff Assessment/Draft Environmental Impact Statement, May 17, 2010. Sponsored by CURE and received into evidence on

**EXHIBIT 498-Z** Comment letters on Draft Programmatic Agreement for Imperial Valley Solar Project from consulting parties. Sponsored by CURE and received into evidence on

**EXHIBIT 499-A** Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell on Behalf of California Unions for Reliable Energy on Soil and Water Resources for the Imperial Valley Solar Project 5/17/10. Sponsored by CURE and received into evidence on

**EXHIBIT 499-B** Bowles/Campbell Declaration. Sponsored by CURE and received into evidence on

**EXHIBIT 499-C** Grismer, M.E., M. Orang, R. Snyder, and R. Matyac. 2002. Pan evaporation to reference evapotranspiration conversion methods. *Journal of Irrigation and Drainage Engineering* 128(3):180-184. Sponsored by CURE and received into evidence on

**EXHIBIT 499-D** Coleman, MacRae and Stein, Effect of Increases in Peak Flows and Imperviousness on the Morphology of southern California Streams, April 2005. Sponsored by CURE and received into evidence on

**EXHIBIT 499-E** Comment letter from Center for Biological Diversity on the USACE Review of the Imperial Valley Solar Project dated 5/11/10. Sponsored by CURE and received into evidence on

**EXHIBIT 499-F** 7/21/10 Additional Rebuttal Testimony of Dr. Vernon Bleich on Behalf of California Unions for Reliable Energy on Biological Resources. Sponsored by CURE and received into evidence on

**EXHIBIT 499-G** 7/21/10 Bleich Declaration Biology Vernon C. Bleich. Sponsored by CURE and received into evidence on

**EXHIBIT 499-H** 2010 Epps, C. W., J. D. Wehausen, P. J. Palsbøll, and D. R. McCullough. 2005. Using genetic methods to describe and infer recent colonizations by desert bighorn sheep. Sponsored by CURE and received into evidence on

**EXHIBIT 499-I** 7/21/10 Additional Rebuttal Testimony of Dr. Christopher Bowles and Christopher Campbell on Behalf of California Unions for Reliable Energy on Soil and Water Resources for the Soil/Water Bowles/Campbell 2218-135a. Sponsored by CURE and received into evidence on

**EXHIBIT 499-J** 7/21/10 Bowles/Campbell Declaration Soil/Water Bowles/Campbell. Sponsored by CURE and received into evidence on

**EXHIBIT 499-K** 7/21/10 Additional Rebuttal Testimony of Scott Cashen on Behalf of California Unions for Reliable Energy on Biological Resources and Alternatives. Sponsored by CURE and received into evidence on

**EXHIBIT 499-L** 7/21/10 Declaration Biology Alternatives, Scott Cashen. Sponsored by CURE and received into evidence on

**EXHIBIT 499-M** 4/7/10 SDGE Advice Letter 2161-E re: 300 Mw Project Alternatives. Scott Cashen. Sponsored by CURE and received into evidence on

**EXHIBIT 499-N** Imperial County Comments on SA/DEIS dated 5/27/10. Sponsored by CURE and received into evidence on

**EXHIBIT 499-O** Interim Golden Eagle Inventory/Monitoring Protocols dated 2/10. Sponsored by CURE and received into evidence on

**EXHIBIT 499-P** California Wildlife Habitat Relationship System. Sponsored by CURE and received into evidence on

**EXHIBIT 499-Q** Map of San Diego County Golden Eagle Distribution dated 7/10. Sponsored by CURE and received into evidence on

**EXHIBIT 499-R** Ocotillo MET Tower EA dated 11/08. Sponsored by CURE and received into evidence on

**Exhibit 499-S** Rebuttal Testimony Of Claudia Nissley dated 8/10. Sponsored by CURE and received into evidence on

**INTERVENOR TOM BUDLONG EXHIBITS**

**EXHIBIT 500** The National Environmental Policy Act of 1969, As Amended. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 501** Executive Order 13212. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 502** Secretarial Order 3285. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 503** 2010_01_22, 60 Press Release, 60 units in AZ. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 504** Dr. Butler's 2007-05 Stirling Technology Evaluation. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 505** Energy Policy Act of 2005. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 506** South County Phase 2 Particulate Study, Exec Summary. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 507** CEQ 40 Questions, Questions 1-10. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 508** CEQ Authorization Memo. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 509** Solar Two Concentrating Solar Power Tech Project May Rise Near San Diego. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 510** BLM Web Page Excerpt. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 511** Omitted.
**EXHIBIT 512** Omitted.

**EXHIBIT 513** Omitted.
**EXHIBIT 514** Omitted.

**EXHIBIT 515** US EPA 1996 designated Ocotillo-Coyote Wells Groundwater Basin as a "Sole Source Aquifer" 61 FR 47752, Sept 10, 1996). Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 516** "EH Table 10 Water well information, water quality, and groundwater elevations Ocotillo/Coyote Wells Groundwater Basin, a Sole Source Aquifer, Imperial County CA" Updated March 2010 from Sierra Club comments on USG FEIR/EIS 2008 and included in CWSP Scoping comments found at 28appa-nop-initial-study-a at pp 7-17 (USG EIR/EIS Appendix B-1 USGS Hydrologic Data, USGS NWIS water level and quality data & Bookman-Edmonston 3/96 (BE96), BE 1/2004 (BE04). 11pages. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 517** Ocotillo/Nomirage Community Area Plan (ONCAP) a part of the Land Use Element of the Imperial County General Plan 1994 with groundwater basin map. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 518** US EPA 2010-04-11 letter re Final EIS for US Gypsum project. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 519** USGS 2008-12-24 letter to Cong. Filner re Final EIS for US Gypsum Project. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 520** US EPA 2009-02-25 comments re NOI for Coyote Wells Specific Plan Area. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 521** USG FEIR/S 4.0 Collective Responses Table 4.0-1 Water quality info from USGS. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 522** USG FEIR/S 4.0 Collective Responses Fig. 4 Wells with Water Quality Data. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 523** USG FEIR/S 4.0 Collective Responses Fig 7. Wells with Recent Water Level data. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 524** BE 2004 Table 4-2 Historic Groundwater Pumping in 2006 USG DEIR/S. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 525** Ocotillo Express Wind Draft Plan of Development 2009. Sponsored by

Intervenor Budlong and received into evidence on

**EXHIBIT 526** SES Applicant's Submittal of Opening Testimony re Van Patten re well 16S/9E-36G4. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 527** Terms for Well 16S/9E-436G4. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 528** Moore in SES Applicant's submittal of Opening Testimony re well 16S/9E-36G4. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 529** Ocotillo Express Wind Facility 4 pgs. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 530** USG FEIR/S Mitigation & Monitoring re Hydrology ES 9-11 submitted as an exhibit for the CWSP DEIR comments 20210. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 531** USG DEIR/S Mitigation & Monitoring re Hydrology See Applicant's Appendix C for Hydrology. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 532** San Diego Smart Energy 2020, The 21st Century Alternative, Prepared by E-Tech International, Santa Fe, New Mexico, Author: Bill Powers, P.E., dated October 2007. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 533** In Our Backyard, How to Increase Renewable Energy Production on Big Buildings and Other Local Spaces, dated December 2009. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 534** Imperial Valley Solar Project, Frequently Asked Questions, dated May 2010. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 535** Imperial Valley Solar – Fact Sheet – Tessera Solar. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 536** 2010-4 URS Fig. Impacts of Avoidance or Partial Avoidance of Drainage Areas I K C E G014. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 537** USGS 1977 GW Report 019. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 538** AppCt. Decision 2006-10 DOD034281 SC V. Col re USG. Sponsored

by Intervenor Budlong and received into evidence on

**EXHIBIT 539** US EPA re 2006 USG DEIS in FEIS 5.0 Response to Comments. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 540** USGS re 2006 USG DEIS in FEIS 5.0 Response to Comments. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 541** Powers re Best Comparative Costs of Solar 2010-05-13. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 542** San Diego Solar Panels Costs Less with 1BOG. http:solarsandiego.1bog. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 543** 16-Apr-10 REW US Solar PV grows 38% in 2009. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 544** 07-Apr-10 RETI Phase 28 Draft Report Thin Film PV Lower Cost than Solar thermal. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 545** 10-MAR-10 SNL SCE Orders 200 MW of Sunpower T5 Solar Tiles $3.50 Watt. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 546** Powers 2010-05-13 Email Re Solar Costs http:mail.google. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 547** 01-May-10 Sun Centric CSI Study Cost Trends. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 548** Huntley 1993 re Chloride Changes. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 549** Huntley 1979 Magnitude and Potential Effects of Declining GW Elev 003. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 550** 2010 RMT Impacts Avoidance of Drainages. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 551** 2010 Harmon Fig. Water Levels AMSL Most Recent 017. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 552** Tisdale re 2006 USG DEIR in 5.0 Response to Comments. Sponsored

by Intervenor Budlong and received into evidence on

**EXHIBIT 553** Well Ownership USGS 1977 GW Doc 001. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 554** Zipp 1980 GW. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 555** Table Westwind Water Sales History and Water Levels Well 16S9E-36G4 & USG 16S9E-36H1. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 556** Hamilton Well 16S9E-34B1 Water Levels 2010 http:groundwater watch.usgs.gov_AWLSites. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 557** Hamilton Well Water Level Table 98-09 http:nwis.waterdata.usgs. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 558** Table 16, 17 Discrepancies in USG Groundwater Pumping-Rhone 2003 & USG EIR-EIS. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 559** Table 14 USG Annual Pumping and Water Levels in 3 USG Wells. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 560** USG Annual Reports 93-02 002. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 561** Rhone 2003 Email re USG Annual Pumpage 003. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 562** Location of private lands, wells, faults 91 map 004. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 563** B. E. 04 Westwind Painted Gorge-West Texas. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 564** B. E. 96 Westwind WaterPainted Gorge-West Texas. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 565** ICPDS Response to Brammer 2004-09-07001. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 566** EH Comments re Solar 2 Alternative Water Supply. Sponsored by

Intervenor Budlong and received into evidence on

**EXHIBIT 567**

**EXHIBIT 568** Rush is on for Desertsolar project 2010-05-26 SDUThttp_. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 569**

**EXHIBIT 570**

**EXHIBIT 571**

**EXHIBIT 572** ACE 404 Comments FINAL (2). Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 573** EH Comments re SA-DEIS. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 574** Solar 2 near Wind Zero map 2008 URS. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 575**

**EXHIBIT 576** Imperial County Region and Bombing Ranges AAA Map 002. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 577** Imperial Co SW and Military Lands BLM 003. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 578** NAF El Centro No. of Seeley CA. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 579** Ocotillo-Coyote-Wells-SSA map EPA. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 580** Eh COMMENTS RE SA-DEIS. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 581** USG 2006 Draft EIR-EIS Figure 3.3-1 Groundwater Basin Location Map. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 582** USG 2006 Draft EIR-EIS Figure 3.3-4 Location of Wells. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 583** USG 2006 Draft EIR-EIS Table S-1 Potential Impacts and Mitigation. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 584** USG 2006 Draft EIR-EIS Figure 3.3-1 Groundwater Basin Location. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 585** USG 2006 Draft EIR-EIS Figure 3.3-4 Location of Wells. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 586** WZ GW use in Coyote Well FEIR_FINAL. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 587** RE_WIND Zero-CWSP Notice PUBNOTICE TO SURROUNDING LAND OWNERS. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 588** Table 6 Water Use at Building out of ONCAP 2008. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 589** Phreatophytic mesquite hummocks SE of Nomirage CA. Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 590** Final Comments on USG FEIR-EIS 3-17-Sponsored by Intervenor Budlong and received into evidence on

**EXHIBIT 591** Testimony of EH re FSA and GW for IV Solar Project July 21st. Sponsored by Intervenor Budlong and received into evidence on

**INTERVENOR CALIFORNIA NATIVE PLANT SOCIETY EXHIBITS**

**EXHIBIT 600** Anthropogenic Degradation of the Southern California Desert Ecosystem
and Prospects for Natural Recovery and Restoration, Jeffrey E. Lovich and David Bainbridge, Environmental Management Vol. 24, No.3, pp. 309-326; 1999, not docketed. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 601** Citizen Guide to The California Environmental Quality Act, J. William Yeates, Esq.; January 2000, not docketed. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 602** - A Citizen's Guide to the NEPA: Having your voice heard, Council on Environmental Quality, Executive Office of the President; December 2007, not docketed. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 603** 2009 California Environmental Quality Act (CEQA) Statute and

Guidelines, California Resources Agency, not docketed. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 604** Resume of Carolyn Martus, California Native Plant Society, Botanist. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 605** Letter from Carolyn Martus, dated March 30, 2010, addressing the inadequate botanical surveys for SES Solar 2 (project). Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 606** Salton Sea Watershed (diagram), Salton Sea Restoration Plan Draft EIR, Volume III, Appendix H-2 Hydrology and Hydrologic Models). Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 607** Opening Testimony of Intervenor, California Native Plant Society. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 608** Technical Bulletin 89-5R3, The Micron Rating for Media in Fluid Filters, Filter Manufacturers Council, October 2005. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 609** Meteorological Data, a. El Centro 2 SSW, California – Monthly Total Precipitation; b. El Centro, CA Weather, Normal Precipitation, Monthly; Averages; c. Snapshot of the 2006-2007 California Rainfall Season, Jan Null, CCM, June 29, 2007; d. Imperial, California – Monthly Total Precipitation. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 610** Surface Dust Impacts on Gas Exchange in Mojave Desert Shrubs, M. Rasoul Sharifi, Arthur C. Gibson, and Philip W. Rundel, Journal of Applied Ecology 997.34, 37-846. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 611** True Cost Environmental Accounting for a Post-Autistic Economy, David A. Bainbridge, Post-Autistic Economics Review, Issue No. 41. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 612** "Camera Focused on Illegal Students", San DiegoUnion Tribune, Elliot Spagat, January 1, 2008. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 613** "US Crops Left to Rot As Mexicans Leave The Fields For Better-Paid Jobs", The Guardian, Dan Glaister, February 4, 2006. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 614** "Fertile Ground For Joblessness", San Diego Union Tribune, Matthew T. Hall, April 26, 2009. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 615** Soil Losses by Wind Erosion, D. W. Fryrear, Soil Sci. Soc. Am. J. 59:668-672 (1995). Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 616** Responses of Biological Soil Crusts to Sand Burial in a Revegetated Area of the Tengger Desert, Northern China, Rong Liang Jia, Xin Rong Li*, Li Chao Liu, Yan Hong Gao, Xiao Jun Li Soil Biology & Biochemistry 40 (2008) 2827–2834. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 617** Microbial Diversity in Desert Ecosystems, Ashish Bhatnager and Monica Bhatnager, Current Science, Vol. 89, No. 1, July 10, 2005. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 618** Wind Erosion From Military Training Lands in the Mojave Desert, California, U.S.A., Simon J. van Donk, Xuewen Huang, Edward L. Skidmore, Alan B. Anderson, Dick L. Gebhart, Valerie E. Prehodaz & Elizabeth M. Kellogg, Journal of Arid Environments (2003) 54: 687–703. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 619** "Plant Tolerance to Sandblast Damage, D.V. Armbrust, Soil Erosion Research for the 21st Century, pp. 67-70, January 3-5, 2001 (abstract only). Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 620** Wind Erosion, Dust Emission and Air Quality Prediction, Chapter 3. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 621** Preliminary Jurisdictional Determination Form, Completion date 01/05/2010, United States Army Corps of Engineers, Applicant: Tessara Solar. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 622** "The Anatomy, Physiology, Psychology and Economics of Desert

Destruction and Restoration", David A. Bainbridge, Alliant International University, PowerPoint Presentation 2004. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 623** "Unemployment Statistics: Is There A Border Bias?", NOBE/REF U.S.-Mexico Border Economic Indicators Workshop, Gerald L. Schmaedick, Northern Arizona University, PowerPoint Presentation, August 6, 2004. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 624** "Assessing and Mitigating the Effects of Windblown Soil on Rare and Common Vegetation", Sean M. Gleason, Dave T. Faucette, Mai M. Toyofuku, Carlos A. Torres, Calvin F. Bagley, Environmental Management (2007) 40:1016–1024. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 625** "Ecological Effects of Particulate Matter", D.A. Grantz and others, Environmental International 29 (2003) 213-219. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 626** Employment Statistics, U.S.Bureau of Labor Statistics, Labor force data by county, annual averages 1998, 2000-2009. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 627** California Legislature

e. Senate Bill No. 1217
f. Senate Bill No. 654
g. Senate Bill No. 317
h. Senate Bill No. 277 – Salton Sea Restoration Act.

Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 628** Salton Sea Ecosystem Draft PEIR, Appendix E, Attachment E3, Evaluation of Playa Dust Emissions (PM10), 2006. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 629** Wind Storm Photos and Meteorological Data, Borrego Springs, CA, February 3, 2008. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 630** Wind Storm Photos and Meteorological Data, Borrego Springs, CA,

May 9, 2010. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 631** Salton Sea Ecosystem Restoration Program Draft PEIR, Executive Summary, Volume I thru III. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 632** Salton Sea Ecosystem Restoration Program Final PEIR, Volume I and II. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 633** Salton Sea Ecosystem Restoration Program Preferred Alternative Report and Funding Plan. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 634** Applicant's Supplemental And Rebuttal Testimony, Application for Certification, 08-AFC-5, Imperial Valley Solar, LLC. Sponsored by Intervenor California Native Plant Society and received into evidence on

**EXHIBIT 635** Supplemental Testimony, California Native Plant Society, May 17, 2010. Sponsored by Intervenor California Native Plant Society and received into evidence on

## INTERVENOR HOSSEIN ALIMAMAGHANI EXHIBITS

**EXHIBIT 700** Petition to Intervene, dated April 15, 2010. Sponsored by Intervenor Alimamaghani and received into evidence on

**EXHIBIT 701** Parcel and Water District Maps from the Seeley County Water District. Sponsored by Intervenor Alimamaghani and received into evidence on

**EXHIBIT 702** Declaration of Service, dated April 15, 2010. Sponsored by Intervenor Alimamaghani and received into evidence on

**EXHIBIT 703** Proof of Service. Sponsored by Intervenor Alimamaghani and received into evidence on

**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***
**IMPERIAL VALLEY SOLAR PROJECT**
(formerly known as SES Solar Two Project)
***IMPERIAL VALLEY SOLAR, LLC***

**Docket No. 08-AFC-5**
**PROOF OF SERVICE**

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## DECLARATION OF SERVICE

I, _____, declare that on_____, I served and filed copies of the attached_____, dated ____2010. 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:
[http://www.energy.ca.gov/sitingcases/solartwo].

The documents have 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:

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

_____ by personal delivery;

____ by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

*AND*

### FOR FILING WITH THE ENERGY COMMISSION:

____ 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, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

_____
Signature