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Alan Solomon Project Manager California Energy Commission 1516 Ninth Street Sacramento, CA 95814

RE: Blythe Solar Power Project, Docket No. 09-AFC-6

Responses to Questions from the April 28, 29 and May 7, 2010 CEC Workshops Southern California Edison Colorado River Substation – Project Description Technical Areas: Transmission System Engineering

Dear Mr. Solomon:

Attached please find the following response to questions generated at the April 28, 29, and May 7, 2010 CEC Workshops for the Blythe Solar Power Project.

If you have any questions on this submittal, please feel free to contact me directly.

Sincerely,

Alice Harron

Senior Director, Development

SOUTHERN CALIFORNIA EDISON COLORADO RIVER SUBSTATION PROJECT DESCRIPTION

Dated: April 15, 2010

Submitted as Supplemental Data for the Blythe Solar Power Project Docket No. 09-AFC-6

1.0 COLORADO RIVER SUBSTATION EXPANSION PROJECT DESCRIPTION

1.1 PROJECT OVERVIEW:

1.1.1 Description of Project Elements

Southern California Edison (SCE) proposes to construct the Colorado River Substation Expansion (Project) near Blythe in Riverside County, California (Figure 1) to interconnect solar development projects in the Blythe area of the Mohave Desert to SCE's previously approved Colorado River Substation. The Project site was one of three sites analyzed in the Devers – Palo Verde No. 2 500 kV Transmission Line (DPV2) Final Environmental Impact Statement (FEIS)/Environmental Impact Report (FEIR). The site (Figure 1) was determined to be environmentally acceptable in the DPV2 FEIS/FEIR and was included in the Certificate of Public Convenience and Necessity (CPCN) issued by the California Public Utilities Commission (CPUC) for the DPV2 Project in CPCN Decision D.07-01-040, dated January 25, 2007. The following is a summary of the Colorado River Substation Expansion Project components common to multiple solar development projects that are described more fully in this document:

• Colorado River Substation Expansion Project (Project): Expand the 500 kV switchyard, previously approved as part of the DPV2 CPCN on approximately 45 acres of land, into a full 500/220 kV substation on approximately 90 acres of land.

Other related work components specifically associated with the previously approved DPV2 project are fully described in the DPV2 FEIS/FEIR, and therefore not described in this document, include:

- Colorado River Substation: Construct a new 500 kV switchyard, including appropriate support facilities, on approximately 45 acres of land.
- Transmission Lines: Loop the existing Devers-Palo Verde (DPV) 500 kV transmission line and terminate the new Devers-Colorado River (DCR) transmission line into the Colorado River Substation by adding a total of approximately 2,000 feet of new transmission lines (three lines of approximately 1,000 feet each located side-by-side within a corridor approximately 1,000 feet wide), Modification of existing 220 kV structures: The necessary crossing of the new NextEra Resources Buck-Julian Hinds 220 kV transmission lines by the proposed SCE 500 kV loop-in lines may require modifications. New tubular steel poles (details to be determined during detailed engineering phase) to modify the construction at the crossing location may be needed to replace the existing 220kV poles.
- Distribution Line for Substation Light and Power: Construct approximately 2500 feet of 12 kV overhead distribution line and approximately 1,000 feet of underground distribution line to connect a nearby existing distribution system to the Colorado River Substation to provide substation light and power.

Additional SCE-specific system components exclusively associated with each of the solar development interconnections to the Project are presented in separate Appendices to this Project Description.

This Project Description and the land disturbance estimates are based on planning level assumptions. Additional details would be clarified following completion of detailed engineering, identification of field conditions, labor availability, equipment, and compliance with applicable environmental and permitting requirements. The numbers presented in Table 1 are preliminary and subject to change as the result of detailed engineering.

1.1.2 Approval Process and Approving Public Agencies

Solar development projects have been proposed in the vicinity of Blythe, located on primarily government land under the jurisdiction of the Bureau of Land Management (BLM). The solar development projects would interconnect with SCE's regional transmission system via 220 kV gen-tie lines from each solar project to the Project, where they would connect to SCE's bulk transmission system via SCE's previously approved Colorado River Substation, DPV and DCR 500 kV transmission lines. SCE would construct and own the Project.

Each solar developer will submit an Application to the BLM for an Amended Right-of-Way Grant. If approved, the BLM will issue a Record of Decision and a Notice to Proceed allowing construction of the proposed solar development project under the administration of the BLM. Each solar developer may also submit a separate Application-For-Certification (AFC) to the California Energy Commission (CEC) for approval to construct their solar development project. The BLM and the CEC have agreed to work cooperatively and conduct joint National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) reviews of the solar development projects, including the solar developers' substations and the Project. Prior to approval of the Project, the BLM and CEC will have a joint Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) prepared by a third-party environmental consultant which analyzes the environmental impacts associated with each proposed solar development project.

The CPUC will participate as a Reviewing Agency in the CEQA review of the Project's components summarized in Section 1.1.1. It is anticipated that the BLM, the CEC, and the third party environmental consultant will work closely with the CPUC to ensure the Project is in compliance with CEQA.

Permits may be required from other federal agencies (e.g. Federal Communication Commission, Federal Aviation Administration, etc.), state agencies (e.g. California Department of Transportation, Department of Toxic Substances Control, South Coast Air Quality Management District, etc.) and local agencies (e.g. Riverside County, cities and local fire departments, etc.).

1.1.3 Duration of Construction Activities and Projected Operation Date

Construction of the Project elements identified in this document is expected to start in the fourth quarter of 2011 and would proceed through the projected substation operating date of approximately May 2013.¹

1.2 PROJECT LOCATION:

1.2.1 Regional and local location

The Project (Figure 1) would be located on an approximately 140 acre parcel of land located approximately 1.5 miles south of Interstate 10 and 4.75 miles east of Wileys Well Road, in the County of Riverside, California. The Project would be generally located in the eastern portion of the parcel. The approximate center of the Project would be at 33.59 degrees North and 114.82 degrees West.

1.2.2 Substation Site Land Use

The proposed Project site is on a BLM-owned parcel that would be granted for use by SCE. The proposed location for the Project is designated Open Space-Rural in the Riverside County General Plan. Portions of the County's eastern half are located within a Specific Area Plan boundary however; the proposed Project site is included in the Eastern Riverside County Areas that are not located within an Area Plan. The proposed Project site as well as the surrounding area is zoned Open Space-Rural (OS-RUR). Single-family residential uses are permitted at a density of one dwelling unit per 20 acres.

1.3 Substation Discussion

1.3.1 Introduction

SCE proposes to construct the Project to interconnect the proposed solar development project(s) to SCE's previously approved Colorado River Substation, DPV and DCR 500 kV transmission lines. The 500 kV transmission lines will connect to the Project by looping the lines into the previously approved Colorado River Substation. A 220 kV gen-tie line(s) would be extended from the solar development project(s) to the Project and associated expansion as shown in Figure 2.

1.3.2 Substation Design and Equipment

The Project along with the approved Colorado River Substation would be an initial 1120MVA 500/220kV substation measuring approximately 1,600 feet by 2,400 feet enclosed area to loop the DPV and DCR 500kV lines and provide for the solar developers' 220 kV gen-tie line position(s). The substation and Project will be surrounded by a wall with two gates.

1.3.2.1 Development Plan

The Project plan is presented in Figure 2.

¹ Proposed operating date and construction timeline is still under development and subject to regulatory approval timeline, Large Generator Interconnection Agreement execution and other matters.

1.3.2.2. Electric and magnetic fields (EMF)

A NEPA analysis does not commonly include a discussion of potential environmental impacts from electric and magnetic fields (EMF) due to the lack of a consensus among scientists that EMF exposure poses a risk to human health. Nor are there any CEQA standards regarding the analysis of potential human health risks caused by EMF exposure. However, the EIS prepared for this project is expected to contain a discussion of EMF to accommodate the public's interest and concern regarding potential human health effects related to EMF exposure from transmission lines.

Although there are no NEPA or CEQA standards regarding the analysis of potential human risks associated with EMF exposure, the CPUC reviewed and updated its EMF policy in 2006 (CPUC Decision 06-01-042) for California's regulated electric utilities. This policy decision update reaffirmed the finding that state and federal public health regulatory agencies have not established a direct link between exposure to EMF and human health effects, and that the existing "no-cost and low-cost" precautionary-based EMF policy should be continued for electrical facilities. As the electrical infrastructure is upgraded in California, measures to reduce magnetic fields will be incorporated into the project design in accordance with the California EMF Design Guidelines for Electrical Facilities, CPUC Decision 93-11-013 and CPUC Decision 06-01-042. Furthermore, the design of the proposed substation and transmission lines will incorporate "no-cost and low-cost" measures such as placing major substation electrical equipment away from the substation property lines to reduce magnetic fields. These measures would be documented in a project specific Field Management Plan.

1.3.3 <u>Substation Construction</u>

1.3.3.1 Grading and Drainage

The Project would be prepared by clearing existing vegetation and installing a temporary chain-link fence to surround the construction site. The site would be graded in accordance with approved grading plans. The area to be enclosed by the proposed substation perimeter wall would be graded to a slope that varies between one and two percent and compacted to 90 percent of the maximum dry density.

The Project site is located east of the Chuckwalla Dunes area and shows evidence of surface storm water runoff through the proposed site. While no designated Blue-line streams are located within the Project, it may still necessary to redirect surface water flow around one side of the substation. The combined Colorado River Substation and Project's northern boundary may need to be protected from surface runoff by the installation of a berm designed to direct the flow around both sides of the substation pad. These drainage improvements would potentially disturb an area approximately 80 feet wide around three sides of the fenced in substation, resulting in a total permanent disturbance area of approximately 20 acres.

Internal surface runoff would be directed towards a detention basin located at the south end of the substation. The basin would measure approximately 120 feet by 200 feet occupying approximately one-half acre and would be enclosed by an 8-foot high chain-link fence and one 20-foot wide double drive gate.

The final site drainage design would be subject to the conditions of the grading permit obtained from the County of Riverside.

Table 1 provides the approximate volume and type of earth materials to be used or disposed of at the Project site (within the substation wall and the required drainage structures outside/around the substation).

TABLE 1
COLORADO SUBSTATION EXPANSION SITE - GROUND SURFACE IMPROVEMENT MATERIALS AND ESTIMATED VOLUMES

Element	Material	Approximate Volume (yd³) (1)
Site Cut (2)	Soil	190,000
Site Fill (2)	Soil	190,000
Waste Removal (export)	Soil/Vegetation	20,000
Substation Equipment Foundations	Concrete	10,000
Equipment and cable trench excavations (3)	Soil	10,000
Cable Trenches (4)	Concrete	200
Internal Driveway	Asphalt concrete	1,200
	Class II aggregate base	2,800
External Driveway	Asphalt concrete	0
	Class II aggregate base	0
Substation Rock Surfacing	Rock, nominal 1 to 1-1/2 inch per SCE Standard	15,000

- (1) The material volumes presented in Table 1 are for the 45 acre Project site work only. Additional material volumes needed for surface improvement of the 45 acre Colorado River Substation are included in the previously approved DPV2 FEIS/FEIR.
- (2) The design concept would be intended to balance the earthwork quantities, utilizing any site cut material as site fill material, where feasible.
- (3) Excavation "spoils" would be placed on site during the below-ground construction phase and used to the extent possible for the required on-site grading.
- (4) Standard cable trench elements are factory fabricated, delivered to the site and installed by crane. Intersections are cast-in-place concrete.

The numbers presented in Table 1 are preliminary and subject to change as the result of detailed engineering.

1.3.3.2 Staging Areas

Additional temporary land disturbance (up to approximately 10 acres) adjacent to the Project may be necessary for temporary equipment storage and material staging areas associated with construction efforts.

1.3.3.3 Geotechnical Studies

Prior to the start of construction, SCE expects to conduct a geotechnical study of the Project site and the transmission line routes that would include an evaluation of the depth to the water table, evidence of faulting, liquefaction potential, physical properties of subsurface soils, soil resistivity, slope stability, and the presence of hazardous materials.

1.3.3.4 Below Grade Construction

After the Project site is graded, below grade facilities would be installed. Below grade facilities include a ground grid, underground conduit, trenches, and all required foundations. The design of the ground grid would be based on soil resistively measurements collected during the geotechnical investigation conducted prior to construction.

1.3.3.5 Equipment Installation

Above grade installation of substation facilities associated with the Project (i.e., buses, circuit breakers and steel structures) would commence after the below grade structures are in place.

1.3.3.6 Hazards and Hazardous Materials

Construction of the Project would require the limited use of hazardous materials, such as fuels, lubricants, and cleaning solvents. All hazardous materials would be stored, handled and used in accordance with applicable regulations. Material Safety Data Sheets would be made available at the construction site for all crew workers.

The Storm Water Pollution Prevention Plan prepared for the Colorado River Substation and Project would provide the locations for storage of hazardous materials during construction, as well as protective measures, notifications, and cleanup requirements for any incidental spills or other potential releases of hazardous materials.

1.3.3.7 Waste Management

Construction of the Project would result in the generation of various waste materials that can be recycled and salvaged. Waste items and materials would be collected by construction crews and separated into roll off boxes at the materials staging area. All waste materials that are not recycled would be categorized by SCE in order to assure appropriate final disposal. Non-hazardous waste would be transported to local authorized waste management facilities.

Soil excavated for the Project would either be used as fill or disposed of off-site at an approved licensed facility.

1.3.3.8 Post-Construction Cleanup

Any damage to existing roads as a result of construction would be repaired once construction is complete, in accordance with local agency requirements.

Following completion of construction activities, SCE would also restore all areas that were temporarily disturbed by construction of the Project to as close to preconstruction conditions as possible, or, where applicable, to the conditions agreed upon between the landowner and SCE. In addition, all construction materials and debris would be removed from the area and recycled or properly disposed of off-site at local authorized waste management facilities. SCE would conduct a final inspection to ensure that cleanup activities were successfully completed.

1.3.3.9 Land Disturbance

Table 2 provides a preliminary estimate of temporary and permanent land disturbance related to construction of the Project (outside the substation fence and the required drainage structures outside/around the Project). The numbers presented in Table 2 are preliminary and subject to change as the result of detailed engineering.

TABLE 2
PROJECT CONSTRUCTION
ESTIMATED LAND DISTURBANCE SUMMARY (1)

CONSTRUCTION ACTIVITY	ACRES TEMPORARILY DISTURBED	ACRES PERMANENTLY DISTURBED
Substation Grading	-	45.0
Drainage/Side Slopes	-	20.0
Access Road	-	-
Staging Area	10.0	-
Total Acres Disturbed	10.0	65.0

⁽¹⁾ The land disturbance estimates presented in Table 2 are for the 45 acre Project site work only. Initial land disturbance for the 45 acre switchyard grading and access road are included as part of the DPV2 FEIS/FEIR.

1.3.10 Construction Equipment and Labor

The estimated elements, materials, number of personnel and equipment required for construction of the Project are summarized below in Table 3 below. The numbers presented in Table 3 are preliminary and subject to change as the result of additional detailed engineering.

In addition to the information provided in Table 3, a temporary office trailer and equipment trailer may be placed within the proposed construction area during the construction phase of the Project.

Construction would be performed by either SCE construction crews or contractors, depending on the availability of SCE construction personnel at the time of construction. Contractor construction personnel would be managed by SCE construction management personnel. SCE anticipates a minimum of approximately 25 construction personnel working on any given day. SCE anticipates that crews would work concurrently whenever possible; however, the estimated deployment and number of crew members would be dependent upon city permitting, material availability, and construction scheduling. For example, electrical equipment (such as substation MEER, wiring, and circuit breaker) installation may occur while transmission line construction proceeds.

Construction activities would generally be scheduled during daylight hours in accordance with applicable noise abatement ordinances. In the event construction activities need to occur on different days or hours, SCE would obtain variances as necessary from appropriate jurisdiction where the work would take place.

TABLE 3
PROJECT EQUIPMENT AND LABOR ESTIMATES (PRELIMINARY)

	-	ND LABOR ESTIMATES (PREL	
Activity and number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Survey	10	2-Survey Trucks (Gasoline)	8
(2 people)			
Grading	60	1-Dozer (Diesel)	4
(8 people)		2-Loader (Diesel)	4
(11)		1-Scraper (Diesel)	3
		1-Grader (Diesel)	3
		2-Water Truck (Diesel)	2
		2-4X4 Backhoe (Diesel)	2
		1-4X4 Tamper (Diesel)	2
		1-Tool Truck (Gasoline)	2
		1-Pickup 4X4 (Gasoline)	2
Fencing	25	1-Bobcat (Diesel)	8
(4 people)		1-Flatbed Truck (Gasoline)	2
(I I)		1-Crewcab Truck (Gasoline)	4
Civil	90	1-Excavator (Diesel)	4
(8 people)		1-Foundationauger (Diesel)	5
		2-Backhoes (Diesel)	3
		1-Dump truck (Diesel)	2
		1-Skip Loader (Diesel)	3
		1-Water Truck (Diesel)	3
		2-Bobcat Skid Steer (Diesel)	3
		1-Forklift (Propane)	4
		1-17TonCrane (Diesel)	2 hours/day for
			45 days
		1-Tool Truck (Gasoline)	3
MEER	60	1-Carry-all Truck (Gasoline)	3
(6 people)		1-tool truck (Gasoline)	2
		1-Stake Truck (Gasoline)	2
Electrical	120	2-Scissor Lifts (Propane)	3
(10) people)		2-Manlifts (Propane)	3
		1-Reach Manlift (Propane)	4
		1-15 ton Crane (Diesel)	3
		1-Tool Trailer	3
		3-Crew Trucks (Gasoline)	2
Wiring	90	1-Manlift (Propane)	4
(6 people)		1-Tool Trailer	3
Maintenance Crew	30	2-MaintenanceTrucks	4
Equipment Check		(Gasoline)	
(2 people)			
Testing	90	1-Crew Truck (Gasoline)	3
(2 people)			

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CRS Project Description Based Upon Preliminary Engineering – Subject to Revision and Supplement

Activity and number of Personnel	Number of Work Days	Equipment and Quantity	Duration of Use (Hours/Day)
Asphalting	40	2-Paving Roller (Diesel)	4
(6 people)		1-Asphalt Paver (Diesel)	4
		1-Stake Truck (Gasoline)	4
		1-Tractor (Diesel)	3
		1-Dump Truck (Diesel)	3
		2-Crew Trucks (Gasoline)	2
		1-Asphalt Curb Machine	3
		(Diesel)	

APPENDIX

PROJECT DESCRIPTION OF THE GENERATION INTERCONNECTION

FROM

SOLAR MILLENNIUM/CHEVRON ENERGY'S PROPOSED BLYTHE SOLAR POWER PROJECT

TO

SOUTHERN CALIFORNIA EDISON'S PROPOSED COLORADO RIVER SUBSTATION

APPENDIX

PROJECT DESCRIPTION OF THE GENERATION INTERCONNECTION

FROM

SOLAR MILLENNIUM/CHEVRON ENERGY'S PROPOSED BLYTHE SOLAR POWER PROJECT

TO

SOUTHERN CALIFORNIA EDISON'S PROPOSED COLORADO RIVER SUBSTATION

1.0 PROJECT DESCRIPTION OF THE GENERATION INTERCONNECTION FROM SOLAR MILLENNIUM/CHEVRON ENERGY'S PROPOSED BLYTHE SOLAR POWER PROJECT TO SOUTHERN CALIFORNIA EDISON'S PROPOSED COLORADO RIVER SUBSTATION

1.1 PROJECT OVERVIEW

1.1.1 Description of Project Elements

Solar Millennium, LLC and Chevron Energy Solutions (Developer) propose to construct, own, and operate the Blythe Solar Power Project (Project). The Project site is located approximately two miles north of U.S. Interstate 10 (I-10) and eight miles west of the City of Blythe in an unincorporated area of Riverside County, California (Figure A-1). The Project is a concentrated solar thermal electric generating facility with four adjacent, and identical solar plants of 250 megawatt (MW) nominal capacity each for a total capacity of 1,000 MW. The Project will utilize solar parabolic trough technology to generate electricity. The four 250MW solar plants will connect to a 220kV switchyard constructed by the Developer at the Project site.

The Developer propose to construct two 220 kV generation interconnection transmission lines from the Project site to the Southern California Edison (SCE) regional transmission grid at SCE's proposed Colorado River Substation near Blythe (Figure A-1). The following is a summary of the generation interconnection components:

- Generation Tie Line Connection: SCE would connect the Developer built 220 kV generation tie lines (gen-ties) into the Colorado River Substation by installing the last spans of conductor between the 220 kV switch rack and the first Project transmission line structure(s) north of the substation.
- Telecommunications Facilities: SCE would connect to the Developer built OPGW system on the gen-ties into the Colorado River Substation by installing the last spans of fiber optic cables between the substation mechanical electrical equipment room (MEER) and the first Project transmission line structure(s) north of the substation. SCE would install optical ADSS fiber cable and connect to associate equipment installed inside both Colorado River and the Project Substation.

1.1.2 Duration of Construction Activities and Projected Operation Date

Subject to execution of a Large Generation Generator Agreement (LGIA) between SCE, the Developer, and the California System Independent System Operator (CAISO), construction of the interconnection facilities identified in Section 1.1.1 are expected to occur in the first quarter of 2013.

1.1.3 220 kV Generation tie-line extension design

The proposed Colorado River Substation design includes bringing the final span from the Project 220 kV gen-tie lines¹ into the switch rack, just north of the Colorado River Substation (Figure A-

2). There would be single-circuit lattice steel (LST) or tubular steel pole (TSP) structures just north of the Colorado River Substation for the connection of the Project gen-tie lines to 220 kV positions inside the Colorado River Substation. From the termination point at the final generator tie line structure located north of the substation, the generator tie line will be routed adjacent to the substation proceeding east and then south within BLM right-of-way as shown in Figure A-3, Proposed New SCE Colorado River Substation Site and Riverside County Assessor Parcels.

While the Project 220 kV gen-tie lines would each initially carry 500 MW, the TSPs or LSTs are expected to be designed for maximum future load, potentially utilizing 2B-1590 kcmil "Lapwing" Aluminum Conductor Steel Reinforced (ACSR) conductor. SCE would work with the Developer to determine what conductor would be installed.

The first structures constructed by the Developer and located just north of Colorado River Substation would be dead end structures; SCE would work with the Developer to integrate final design. SCE would construct, own, operate, and maintain the final spans of the circuits from the substation dead end structure to the tower connection at the first Project structure(s).

Gen-tie Transmission Line Construction

1.1.4.1 Construction of 220 kV gen-tie transmission structure(s)

The construction of the 220 kV gen-tie structure(s) just north of Colorado River Substation would be the responsibility of the Developer.

1.1.4.2 Wire stringing of 220 kV conductor

Wire-stringing includes all activities associated with the installation of conductors. This activity includes the installation of primary conductor and overhead ground wire (OHGW), vibration dampeners, weights, spacers, and suspension and dead-end hardware assemblies. Insulators and stringing sheaves (rollers or travelers) are typically attached during the steel erection process.

A standard wire-stringing plan includes a sequenced program of events starting with determination of wire pulls and wire pull equipment set-up positions. Advanced planning by supervision determines circuit outages, pulling times, and safety protocols needed for ensuring that safe and quick installation of wire is accomplished.

Wire-stringing activities would be conducted in accordance with SCE specifications, which is similar to process methods detailed in Institute of Electrical and Electronics Engineers Standard (IEEE) 524-2003, Guide to the Installation of Overhead Transmission Line Conductors.

Wire pulls are the length of any given continuous wire installation process between two selected points along the line. Wire pulls are selected, where possible, based on availability of dead-end structures at the ends of each pull, geometry of the line as affected by points of inflection, terrain, and suitability of stringing and splicing equipment setups. In some cases, it may be preferable to select an equipment setup position between two suspension structures. Anchor rods would then be installed to provide dead-ending capability for wire sagging purposes, and also to provide a convenient splicing area.

To ensure the safety of workers and the public, safety devices such as traveling grounds, temporary grounding grid/mats around stringing equipment, guard structures, and radio-equipped public safety roving vehicles and linemen would be in place prior to the initiation of wire-stringing activities.

The following four steps describe the wire installation activities utilized by SCE:

- Step 1: Sock Line, Threading: Typically, a lightweight sock line is passed from structure to structure, which would be threaded through the wire rollers in order to engage a camlock device that would secure the pulling sock in the roller. This threading process would continue between all structures through the rollers of a particular set of spans selected for a conductor pull.
- Step 2: Pulling: The sock line would be used to pull in the conductor pulling cable. The conductor pulling cable would be attached to the conductor using a special swivel joint to prevent damage to the wire and to allow the wire to rotate freely to prevent complications from twisting as the conductor unwinds off the reel. A piece of hardware known as a running board would be installed to properly feed the conductor into the roller; this device keeps the bundle conductor from wrapping during installation.
- Step 3: Splicing, Sagging, and Dead-ending: After the conductor is pulled in, the conductor would be sagged to proper tension and dead-ended to structures.
- Step 4: Clipping-in, Spacers: After the conductor is dead-ended, the conductors would be secured to all tangent structures; a process called clipping in. Once this is complete, spacers would be attached between the bundled conductors of each phase to keep uniform separation between each conductor.

The dimensions of the area needed for the stringing setups associated with wire installation are variable and depends upon terrain. For this project, SCE estimates that an area of 150 feet by 500 feet (1.72 acres) would be optimal for tensioning equipment set-up sites. An area of 150 feet by 300 feet (1.03 acres) would be optimal for pulling and equipment set-up sites; however, crews can work from within slightly smaller areas when space is limited. Each stringing operation would include one puller positioned at one end and one tensioner and wire reel stand truck positioned at the other end.

For stringing equipment that cannot be positioned at either side of a dead-end transmission structure, field snubs (i.e., anchoring and dead-end hardware) would be temporarily installed to sag conductor wire to the correct tension.

The puller and tensioner set-up locations require level areas to allow for maneuvering of the equipment. When possible, these locations would be located on existing level areas and existing roads to minimize the need for grading and cleanup. The final number and locations of the puller and tensioner sites would be determined during detailed engineering for the project and the construction methods chosen by SCE or its Contractor.

An overhead ground wire (OHGW) for shielding would be installed on the transmission line. The OHGW would be installed in the same manner as the conductor; it is typically installed in conjunction with the conductor, depending upon various factors, including line direction, inclination, and accessibility.

1.1.4.3 Land disturbance

Table A-1 below provides an estimate of temporary and permanent land disturbance areas related to construction of the gen-tie transmission lines. The numbers presented in Table A-1 are preliminary and subject to change as the result of detailed engineering.

TABLE A-1 COLORADO RIVER SUBSTATION GEN-TIE TRANSMISSION LINE CONSTRUCTION – LAND DISTURBANCE

Project Feature	Site Quantity	Disturbed Acreage Calculation (L x W)	Acres Disturbed During Construction	Acres Temporarily Disturbed	Acres Permanently Disturbed
Install New 220 kV Gen- Tie Spans to Switchrack (1)	1	150' x 300'	1.03	1.03	0.00
TOTAL ESTIMATED DISTURBED ACRES (2)			1.03	1.03	0.00

Notes to Table A-1:

- 1. Structure construction work, including foundation installation, structure assembly & erection, is the responsibility of the Developer, and is therefore not described here. All disturbance herein is solely for the installation of the final SCE-owned spans between the final structure and the substation 220kV switchrack. This work would require only temporary disturbance area to set up wire stringing and pulling equipment.
- 2. The disturbed acreage calculations are estimates based upon SCE's preferred area of use for the described project feature, the width of the existing right-of-way, or the width of the proposed right-of-way and, they do not include any new access/spur road information; they are subject to revision based upon final engineering and review of the project by SCE's Construction Manager and/or Contractor awarded project.

Note: All data provided in this table is based on planning level assumptions and may change following completion of more detailed engineering, identification of field conditions, availability of material, and equipment, and any environmental and/or permitting requirements.

TABLE A-2 CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY INSTALL NEW 220 KV TRANSMISSION LINE GEN-TIE

COLORADO RIVER SUBSTATION PROJECT

WORK ACTIVITY			A	ACTIVITY	PRODUC	CTION	
Primary Equipment Description	Estimated Horse- Power	Probable Fuel Type	Primary Equipment Quantity	Estimated Workforce	Estimated Schedule (Days)	Duration of Use (Hrs/Day)	Estimated Production Per Day
Install Conductor & O	GW (1)	-		20	2	-	0.1 Circuit Miles
1-Ton Crew Cab Truck, 4x4	300	Diesel	2		2	8	
Wire Truck/Trailer	350	Diesel	2		2	2	
Dump Truck (Trash)	350	Diesel	1		2	2	
Rough Terrain Crane	350	Diesel	1		2	2	
22-Ton Manitex	350	Diesel	2		2	8	
30-Ton Line Truck	350	Diesel	4		2	6	0.37 Mile/Day
Static Truck/ Tensioner	350	Diesel	1		2	6	0.57 Wille/Day
Sock Line Puller	300	Diesel	1		1	6	
Bull Wheel Puller	525	Diesel	1		1	6	
580 Case Backhoe	120	Diesel	1		2	2	
Lowboy Truck/Trailer	500	Diesel	2		2	2	

Crew Size Assumptions:

#1 Conductor & GW Installation = one 20-man crew

1.1.5 Telecommunication system description

A telecommunication system would be required in order to provide monitoring and remote operation capabilities of the electrical equipment at the Project's substation for protection of the Project's gen-tie line. To provide this system, SCE would build the following:

- Line protection, Supervisory Control and Data Acquisition (SCADA) and telecommunications circuits from the Project Substation to the Colorado River Substation and Devers Substation on an optical system utilizing optical ground wires (OPGW) on the 220 kV gen-tie line and utilizing ADSS fiber on new and existing distribution and transmission poles and in buried conduit.
- SCE would construct a duct bank from the Colorado River Substation MEER to the new transmission towers of the solar developer's 220kV generator tie line. Each duct bank from the MEER would contain one five inch duct. The trench would be dug 36 inches deep and 18 inches wide. The conduit would be laid in and then covered with slurry. The slurry would be covered with soil that came out the excavation. The total length of each of the ducts is approximately 1,000 foot.
- SCE would also construct a second duct bank from the Colorado River Substation MEER to the generator's 220kV transmission line right-of-way to connect with a fiber optic

cable that is built by the generator and buried within the generator's tie line right-of-way. The duct bank from the MEER would contain one five inch duct. The trench would be dug 36 inches deep and 18 inches wide. The conduit would be laid in and then covered with slurry. The slurry would be covered with soil that came out the excavation. The total length of the duct is approximately 1,000 foot.

• SCE would install optical ADSS fiber cable and connect to associated equipment installed inside both Colorado River and the Project Substation.

1.1.5.1 Redundant telecommunication system equipment and installation

Approximately 53,000 feet of ADSS fiber optic cable will be installed between and into the Colorado River Substation and the Project Substation MEER. Standard construction methods will be used to construct this fiber optic cable.

1.1.5.2 Fiber optic cable route

The fiber optic route description follows: starting at the Colorado River Substation MEER, the redundant data line from the Colorado River substation to the project will be buried in the transmission line right-of-way south of I10. Using horizontal directional drilling, a conduit will be installed under the I10. North of I10, the data line will be routed in a common conduit with the project's telecom lines from Black Rock Road up to the project substation in the site access road right-of-way. The total distance of the line routing is approximately 53,000 feet.

1.1.5.3 Marshalling yard

The crews will utilize the Colorado River Substation and SCE's Blythe District Office as laydown areas for all material for the proposed fiber optic cable, which would be delivered by truck. Material would be placed inside the perimeter of the fenced substation in a designated area during construction. The majority of the truck traffic would use major streets and would be scheduled for off-peak traffic hours. All construction debris would be placed in appropriate onsite containers and periodically disposed of in accordance with all applicable local jurisdiction The primary marshalling would be established inside the Colorado River regulations. Substation, or, if room is not available, a suitable existing manned SCE facility outside the substation would be located. This yard location would be selected based on its central location, and proximity to the construction project. If a primary marshalling yard is required outside of the Colorado River Substation property, the alternate location would preferably be no further than 20 miles from the Colorado River Substation. Materials and equipment to be staged to this yard include but are not limited to: fiber optic cable reels and hardware, heavy equipment, light trucks, and portable sanitation facilities. In addition to the materials and equipment already detailed for new construction, the following may be routed through this yard: empty fiber optic cable and innerduct reels, and other debris associated with the installation of the fiber optic cable process.

1.1.5.4 Fiber optic cable installation

For the installation in the new underground conduit and underground structures, the fiber optic cable will utilize a high density polyethylene smoothwall innerduct, which provides protection and identification for the cable. The fiber optic cable will be installed in and throughout the length of the new underground conduit structure using 5" Schedule 40 PVC and 4'x4'x5' underground manhole structures.

1.1.5.6 Land Disturbance

Table A-3 provides a preliminary estimate of temporary and permanent land disturbance related to installation of the telecommunication system between the Colorado River Substation and the Project Substation. It is estimated that the fiber optic cable buried within the generator tie line right-of-way by the generator will not create any additional land disturbance beyond that contemplated for the actual generator tie line construction. The numbers presented in Table A-3 are preliminary and subject to change as the result of detailed engineering.

TABLE A-3
COLORADO RIVER SUBSTATION – BLYTHE SOLAR POWER PROJECT
TELECOMMUNICATION SYSTEM CONSTRUCTION
ESTIMATED LAND DISTURBANCE SUMMARY

CONSTRUCTION	ACRES TEMPORARILY	ACRES PERMANENTLY
ACTIVITY	DISTURBED	DISTURBED
Two ducts from Colorado	0.06	-
River telecom vault to first		
220kV tower outside station		
(1)		
Duct from Colorado River	0.06	-
telecom vault to generator tie		
line right-of-way (1)		
New pole installation	-	-
Access Roads	-	-
Cable pulls	0.01	-
Staging Area	0	0
Total Acres Disturbed	0.13	0.00

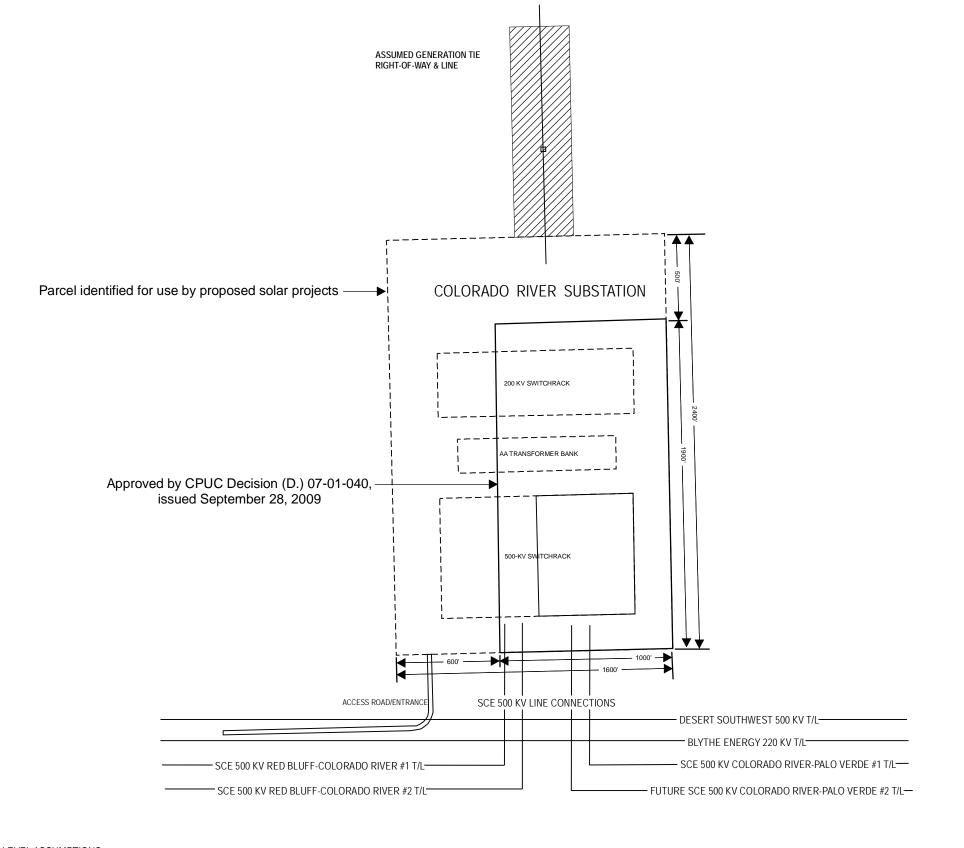
^{(1) 1,000} feet long by 1.5 feet wide trench.

1.1.5.7 Construction Equipment and Labor

See Table A-4 for the construction workforce and type of equipment expected to be used in constructing the proposed telecommunications facilities. The numbers presented in Table A-4 are preliminary and subject to change as the result of detailed engineering.

TABLE A- 4 COLORADO RIVER SUBSTATION – BLYTHE SOLAR POWER PROJECT TELECOMMUNICATION SYSTEM CONSTRUCTION EQUIPMENT AND WORKFORCE ESTIMATES BY ACTIVITY

CONSTRUCTION	NUMBER OF	NUMBER	EQUIPMENT REQUIREMENTS
ACTIVITY	PERSONNEL	OF DAYS	
Trench Construction	5	12	2-crew trucks (gas/diesel)
			1-backhoe (diesel)
			1-stakebed truck (diesel)
			1-concrete mixer (diesel)
Underground Fiber	3	3	1-crew trucks (gas/diesel)
Cable Installation			2-line trucks (diesel)
Telecommunications	2	10	2-vans (gas)
Installation Crew			



0 250 500 1,000 Feet

COLORADO RIVER SUBSTATION
SITE DEVELOPMENT PLAN

THIS LAYOUT EXHIBIT IS BASED ON PLANNING LEVEL ASSUMPTIONS.
THE EXTACT DETAILS WOULD BE DETERMINED FOLLOWING COMPLETION OF PRELIMINARY AND FINAL ENGINEERING, IDENTIFICATIONS OF FIELD CONDITIONS, AND COMPLIANCE WITH APPLICABLE ENVIRONMENTAL AND PERMITTING REQUIREMENTS.



V SCE COLORADO RIVER

STATION SITE

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.

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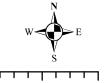


GENERATION INTERCONNECTION FROM SOLAR MILLENNIUM/CHEVRON ENERGY PROPOSED BLYTHE SOLAR POWER PROJECT TO PROPOSED NEW SCE COLORADO RIVER
Thomas Bros. Maps is a registered trademark of Rand McNally & Company.
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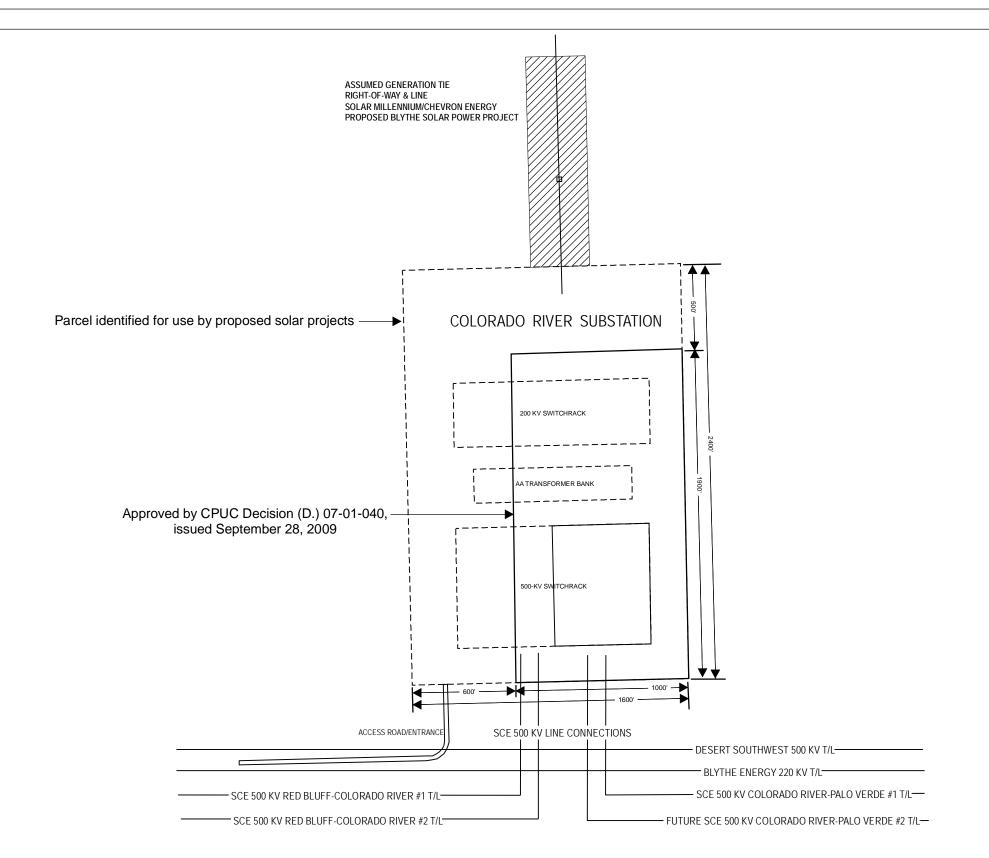
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0 0.5 1



250 500 1,000 Feet

COLORADO RIVER SUBSTATION SITE DEVELOPMENT PLAN

THIS LAYOUT EXHIBIT IS BASED ON PLANNING LEVEL ASSUMPTIONS. THE EXTACT DETAILS WOULD BE DETERMINED FOLLOWING COMPLETION OF PRELIMINARY AND FINAL ENGINEERING, IDENTIFICATIONS OF FIELD CONDITIONS, AND COMPLIANCE WITH APPLICABLE ENVIRONMENTAL AND PERMITTING REQUIREMENTS.



FIGURE A-2 PROPOSED NEW SCE COLORADO RIVER SUBSTATION SITE GEN-TIE HOOKUP FROM SOLAR MILLENNIUM/CHEVRON ENERGY PROPOSED BLYTHE SOLAR POWER PROJECT

Features depicted herein are planning level accuracy, and intended for informational purposes only. Distances and locations may be distorted at this scale. Always consult with the proper legal documents or agencies regarding such features.
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Best Management Practices (BMP's)

BMP NO.	BMP DESCRIPTION
	AIR QUALITY
AIR-1	The construction activities would be in compliance with AQMD
	requirements, as applicable to the project,
	AESTHETICS AND VISUAL RESOURCES
AES-1	LSTs and TSPs would be galvanized steel with a dulled grey finish that
	minimizes reflected light.
AES-2	Insulators that minimize reflection of light would be utilized.
AES-3	Substation equipment would have materials that minimize reflective
	light.
AES-4	If chain link fence is used, it would have a dulled-finish.
AES-5	The substation lighting would be designed to be manually operated for
	non-routine nighttime work.
	BIOLOGICAL RESOURCES
BIO-1	Preconstruction biological clearance surveys would be conducted to
	identify special-status plants and wildlife.
BIO-2	SCE would prepare a Worker Environmental Awareness Program
	(WEAP). All construction crews and contractors would be required to
	participate in WEAP training prior to starting work on the project.
BIO-3	All transmission and subtransmission towers and poles would be
	designed to be avian-safe in accordance with the suggested practices
	for Avian Protection on Power Lines: the State of the Art in 2006
	(Avian Power Line Interaction Committee 2006).
	CULTURAL RESOURCES
CR-1	A cultural resource inventory of the project area would be conducted
	for cultural resources prior to any disturbance. All surveys would be
	conducted and documented as per applicable laws, regulations, and
	guidelines.
CR-2	To the extent feasible, all ground-disturbing activities shall be sited to
	avoid or minimize impacts to cultural resources listed as, or
	potentially-eligible for listing as, unique archaeological sites, historical
	resources, or historic properties.
CR-3	A protective buffer zone would be established and maintained around
	each recorded archaeological site within or immediately adjacent to the
	ROW.
	PALEONTOLOGY RESOURCES
PALEO-1	A paleontologist would conduct a pre-construction field survey of the
D 1	project area.
PALEO-2	Prior to construction, a certified paleontologist would supervise
	monitoring of construction excavations.
and t	GEOLOGY AND SOILS
GEO-1	Prior to final design of substation facilities, and transmission and, a

GEO-2	combined geotechnical engineering and engineering geology study would be conducted to identify site-specific geologic conditions and potential geologic hazards in sufficient detail to support sound engineering practices. For new substation construction, specific requirements for seismic design would be followed based on the Institute of Electrical and Electronic Engineers' 693 "Recommended Practices for Seismic Design of Substations". New access roads, where required, would be designed to minimize
GEO-4	ground disturbance during grading. Cut and fill slopes would be minimized by a combination of benching and following natural topography where feasible.
GEO-5	Any disturbed areas associated with temporary construction would be returned to preconstruction conditions (to the extent feasible) after the completion of project construction.
HAZ-1	HAZARDS AND HAZARDOUS WASTE A Phase I ESA would be performed at each new or expanded substation location and along newly acquired transmission subtransmission line ROWs.
HAZ-2	SCE would implement standard fire prevention and response practices for the construction activities.
HAZ-3	As applicable, SCE would follow fire codes per Cal Fire Power Line Fire Prevention Fire Guide requirements for vegetation clearance during construction of the project to reduce the fire hazard potential.
HAZ-4	Hazardous materials and waste handling would be managed in accordance with the following SCE plans and programs: • Spill Prevention, Countermeasure, and Control Plan (SPCC Plan). In accordance with Title 40 of the CFR, Part 112, SCE would prepare a SPCC for proposed and/or expanded substations, as applicable. • Hazardous Materials Business Plans (HMBPs). Prior to operation of new or expanded substations, SCE would prepare or update and submit, in accordance with Chapter 6.95 of the CHSD, and Title 22 CCR, an HMBP, as applicable. • Storm Water Pollution Prevention Plan (SWPPP): A project-specific construction SWPPP would be prepared and implemented prior to the start of construction of the transmission line and substation. • Health and Safety Program: SCE would prepare and implement a health and safety program to address site-specific health and safety issues. • Hazardous Materials and Hazardous Waste Handling: A project-specific hazardous materials management and hazardous waste management program would be developed prior to initiation of the

	project. Material Safety Data Sheets would be made available to all Project workers
	• Emergency Release Response Procedures: An Emergency Response Plan detailing responses to releases of hazardous materials would be developed prior to construction activities. All construction personnel, including environmental monitors, would be aware of state and federal emergency response reporting guidelines.
HAZ-5	Hazardous materials would be used or stored and disposed of in accordance with Federal, State, and Local regulations.
HAZ-6	The substation would be grounded to limit electric shock and surges that could ignite fires.
HAZ-7	All construction and demolition waste would be removed and transported to an appropriately permitted disposal facility.
	HYDROLOGY AND WATER QUALITY
HYDRO-1	Construction equipment would be kept out of flowing stream channels as feasible.
HYDRO-2	Towers would be located to avoid active drainage channels, especially downstream of steep hill slope areas, to minimize the potential for damage.
	LAND USE
LAND USE-1	SCE shall provide 14 days of advance notice of the start of construction to property owners located within 300 feet of construction-related activities.
	NOISE
NOISE-1	SCE would comply with local noise ordinances.
	TRANSPORTATION AND TRAFFIC
TRANS-1	Traffic control services would be used for equipment, supply delivery, and conductor stringing, as applicable.
TRANS-2	Construction traffic would be scheduled for off-peak hours to the extent feasible and would not block emergency equipment routes.
TRANS-3	If work requires modifications or activities within local roadway and railroad ROWs, appropriate permits would be obtained prior to the commencement of construction activities.

STATE OF CALIFORNIA ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:
APPLICATION FOR CERTIFICATION
for the BLYTHE SOLAR POWER PROJECT

Docket No. 09-AFC-6 PROOF OF SERVICE

(Revised 4/19/2010)

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DECLARATION OF SERVICE

I, Carl Lindner, declare that on, May 17, 2010, I served and filed copies of the attached Blythe Solar Power Project Materials:

Responses to Questions from the April 28, 29 and May 7, 2010 CEC Workshops – Southern California Edison Colorado River Substation – Project Description Technical Areas: Transmission System Engineering

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/solar_millennium_blythe].

The document has been sent to 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:

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<u>X</u>	_ sent electronically to all email addresses on the Proof of Service list;
	_ by personal delivery or by overnight delivery service or depositing in the United States mail at California with postage or fees thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."
AND	
For fil	ing with the Energy Commission:
<u>X</u>	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, along with 13 CDs, as follows:
	CALIFORNIA ENERGY COMMISSION Attn: Docket No. 09-AFC-6 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.

Carl E. Lindner