

- **Board of Directors**  
**Engineering and Capital Programs Committee**

July 8, 2008 Board Meeting

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8-3

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**Subject**

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Appropriate \$14.262 million; and award \$9,984,000 contract to SunPower, Inc. for construction of the Skinner Solar Power Generation Facility (Approp. 15391)

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**Description**

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This action awards a contract to furnish and install a new solar power generation facility at the Robert A. Skinner Water Treatment plant. The work involves installation of a one-megawatt solar facility and power inverters; connection of the solar power equipment to the plant's electrical infrastructure; and installation of meters to track production as required by the California Solar Initiative (CSI) Program. Site improvements and extension of electrical duct banks from the Skinner plant will be performed by the Oxidation Retrofit Program (ORP) contractor, and is the subject of a separate board action this month. This project is categorized as a Stewardship project and is budgeted within Metropolitan's Capital Investment Plan (CIP).

**Background**

In November 2007, Metropolitan's Board authorized final design of the Skinner Solar Power Generation Facility. Metropolitan previously reserved a rebate incentive through the CSI Program of \$0.46 per kilowatt-hour of production, which would provide an estimated rebate of up to \$5 million over the first five years of operation. Based on an annual increase in retail electrical rates of 5 percent, the resulting return on investment would be approximately 12 years, dependent on actual power production by the facility. If the annual retail rate increased by 10 percent, the return on investment would be 7-9 years, depending on actual power production. When completed, the solar power generation facility will be capable of generating over 2 million kilowatt-hours of power annually and will meet up to one-sixth of the post-ORP average energy demand of the Skinner plant. The solar power plant requires an area of up to eight acres, which is available within the Skinner plant's operational area north of Tualota Creek ([Attachment 3](#)). This project will reduce Metropolitan's greenhouse gas emissions by over 2 million pounds annually.

**Skinner Solar Power Generation Facility – Construction (\$11,714,000)**

Specifications No. 1619 for the Skinner Solar Power Generation Facility was advertised for bids on May 15, 2008. The project consists of installation of a one-megawatt solar power generation facility, including procurement and installation of photovoltaic panels, tracking systems, power inverters, foundations and canopies for inverters, perimeter lighting, fencing, system instrumentation, performance monitoring and reporting meters, a weather station, and grounding. In addition, the contractor will be required to test and commission the generation facility.

Due to the specialized nature of the solar power generation facility, the bid evaluation included both initial capital cost and projected long-term energy production to determine the best overall value to Metropolitan. For the purpose of evaluating bids, the following factors were considered in the determination of the successful bidder: initial capital cost, CSI rebates for five years, and the power revenue for ten years. The guaranteed power generation capacity will be verified through performance testing once the equipment is installed.

As shown in [Attachment 2](#), four bids were received and opened on June 11, 2008. The low bid from SunPower, Inc., in the amount of \$9.984 million, complies with the requirements of the specifications. The next two higher bids ranged from \$13 million to \$16 million. A fourth bid was rejected as it did not meet bidding requirements as outlined in the specifications. The engineer's estimate was \$8.8 million. Staff has investigated the difference

between the low bid and the engineer's estimate and attributes the difference to the high demand and low availability of solar equipment. Due to the specialized and proprietary nature of the equipment furnished under this contract, Metropolitan did not establish a Small Business Enterprise (SBE) participation level for this work.

Construction inspection of the contract will be performed by Metropolitan staff. The anticipated cost of inspection as a percentage of the total construction cost is approximately 9 percent. Engineering Services' goal for inspection of contracts with construction cost greater than \$3 million is 9 to 12 percent.

This action appropriates \$11.714 million in budgeted funds and awards a \$9,984,000 contract to SunPower, Inc. for the Skinner Solar Power Generation Facility. In addition to the amount of the contract, the appropriated funds include \$550,000 for construction inspection, \$200,000 for design and installation of security-related equipment, \$460,000 for all other staff and consultant support, \$20,000 for fee to the California Climate Action Registry, and \$500,000 for remaining budget. Support activities include \$45,000 for project management; \$325,000 for technical support by the design consultant, MWH Americas, Inc.; and \$90,000 for SCADA integration, record drawings, and submittals review.

Technical support by MWH will be performed under an existing board-authorized agreement; MWH was selected through a competitive process. As the engineer of record, MWH will review submittals, respond to requests for information, and advise inspection staff on technical issues as they may arise. For this agreement, Metropolitan has established an SBE participation level of 20 percent. No amendment to the existing MWH agreement is required for this work.

Design and installation of security-related equipment is recommended to be performed by Johnson Controls, Inc. under an existing board-authorized agreement. Johnson Controls, Inc. will design, procure and install security-related equipment and integrate the solar generation facility with the existing plant security system. Due to the specialized nature of the work, Metropolitan did not establish an SBE participation level for this agreement. No amendment to the existing Johnson Controls, Inc. agreement is required for this work.

#### **Site Improvements and Extension of Electrical Infrastructure for Solar Facility – Construction (\$2,548,000)**

Prior to construction of the solar power generation facility, preparation of the site is recommended to be performed by the ORP contractor, Shimmick/Obayashi, under a change order to that existing contract. Authorization of that change order is the subject of a separate board action this month, while funding for the site preparation work is included within this action. Site preparation work will include grading of up to 70,000 cubic yards of onsite soil material at Skinner, extension of electrical duct banks to tie-in to the solar power facility, and provision of electrical switchgear. Performance of this work by the ORP contractor is the most cost-effective and expedient method to prepare the site for the solar contractor, and compared to the engineer's estimate for this work, will result in an overall savings of at least \$200,000 to Metropolitan. The location of the solar generation facility is currently occupied by the ORP contractor, who has sited his equipment storage, material stockpiles, and maintenance yard in this area. At the end of ORP construction, the site would be restored to its original condition. Under the proposed plan, rework will be avoided and Shimmick/Obayashi will leave the site in a condition suitable for the follow-on construction of the solar facility. Similarly, the electrical work proposed to be performed by the ORP contractor represents a small addition to the electrical scope of that contract and is a natural extension of the work already underway. Due to the CSI Program's completion deadline of March 2009 for the solar power generation facility, use of Shimmick/Obayashi for this work minimizes the opportunity for construction delays and helps ensure that the power generation facility will be completed on schedule to obtain the maximum rebate. Delaying the completion by as little as three months would result in Metropolitan losing its current reserved rebate rate of \$0.46 per kilowatt-hour of production, and would require Metropolitan to reapply at a reduced rebate rate, resulting in a potential loss of nearly \$300,000 annually, or \$1,500,000 over the five-year rebate period.

This action appropriates \$2,548,000 in budgeted funds for site improvements and extension of electrical infrastructure for the Skinner Solar Power Generation Facility. The work will be performed under the existing Skinner ORP construction contract as a change order to that contract.

## Summary

This action appropriates \$14.262 million and awards a \$9.984-million construction contract to SunPower, Inc. for the Skinner Solar Power Generation Facility, including site improvements and electrical infrastructure, which will be included under a change order to the Skinner ORP construction contract. Authorization of that change order is the subject of a separate board action this month.

The Skinner Solar Power Generation Facility is consistent with Metropolitan's goals for sustainability by providing an alternative source of renewable energy, and it will reduce Metropolitan's overall carbon emissions. This project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included within the fiscal year 2008/09 capital budget. See [Attachment 1](#) for the Financial Statement.

## Actions and Milestones

May 2009 – Completion of Skinner Solar Power Generation Facility project

## Policy

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Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

## California Environmental Quality Act (CEQA)

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CEQA determination for Option #1:

To comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Negative Declaration (ND) for the Robert A. Skinner Water Treatment Plant Solar Power Generation Facility. The ND was distributed for a 30-day public review period that began on August 23, 2007. The Board later adopted the ND on November 20, 2007 and approved the project itself. The present board action is based on the appropriation of funds and award of a construction contract. Hence, the previously adopted environmental documentation in conjunction with the current action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed action.

CEQA determination is: Determine that the proposed action has been previously addressed in the adopted 2007 ND and that no further environmental analysis or documentation is required.

CEQA Determination for Option #2:

None required

## Board Options

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### Option #1

Adopt the CEQA determination and

- a. Appropriate \$14.262 million in budgeted funds; and
- b. Award a \$9,984,000 contract to SunPower, Inc. for the Skinner Solar Power Generation Facility.

**Fiscal Impact:** \$14,262,000 of budgeted funds under Approp. 15391

**Business Analysis:** This option will allow Metropolitan to continue its efforts to reduce operating costs and increase efficiency. The project will reduce power purchases for the Skinner plant, while providing renewable green energy that will reduce Metropolitan's overall carbon emissions. Metropolitan will receive up to \$5 million in rebate incentives over the first five years of operation. Based on an annual increase in retail electrical rates of 5 percent, the resulting return on investment would be 12 years. If the annual retail rate increased by 10 percent, the return on investment would be 7-9 years.

### Option #2

Do not award the contract and re-advertise in an attempt to receive more favorable bids.

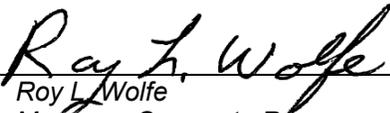
**Fiscal Impact:** Unknown

**Business Analysis:** This option would delay completion of the solar power generation facility and may or may not result in more favorable bids. Under the CSI Program's tiered, step-down rebate structure, delaying the completion by as little as three months would result in Metropolitan losing its current reserved rebate rate of \$0.46 per kilowatt-hour of production, and would require Metropolitan to reapply at a reduced rebate rate, resulting in a potential loss of nearly \$300,000 annually, or \$1,500,000 over the five-year rebate period.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Roy L. Wolfe  
Manager, Corporate Resources

6/24/2008  
Date

  
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Jeffrey Lightlinger  
General Manager

6/24/2008  
Date

**Attachment 1 – Financial Statement**

**Attachment 2 – Abstract of Bids**

**Attachment 3 – Location Maps**

BLA #6164

## Financial Statement for Power Reliability and Energy Conservation Program

A breakdown of Board Action No. 7 for Appropriation No. 15391 is as follows:

	<b>Previous Total Appropriated Amount (May 2008)</b>	<b>Current Board Action No. 7 (July 2008)</b>	<b>New Total Appropriated Amount</b>
Labor			
Owner costs (Project mgmt, permitting, rebate coordination)	\$ 895,700	\$ 45,000	\$ 940,700
Studies and Investigations	315,000	-	315,000
Final Design	780,000	-	780,000
Submittal Review & As-Builts	420,000	61,500	481,500
Control Systems Integration	128,000	28,500	156,500
Construction Inspection & Support	1,822,250	550,000	2,372,250
Metropolitan Force Construction	391,000	-	391,000
Value Engineering	60,000	-	60,000
Materials and Supplies	1,020,000	-	1,020,000
Incidental Expenses	90,105	-	90,105
Climate Action Registry	15,000	20,000	35,000
Professional Services	1,790,000	-	2,315,000
MWH Americas	-	325,000	-
Johnson Controls	-	200,000	-
Equipment Use	-	-	-
Contracts	9,845,000	-	-
Solar Power Generation Facility		9,984,000	19,829,000
Site Preparation Change Order to Skinner ORP		2,548,000	2,548,000
Remaining Budget	732,945	500,000	1,232,945
<b>Total</b>	<b>\$ 18,305,000</b>	<b>\$ 14,262,000</b>	<b>\$ 32,567,000</b>

### Funding Request

<b>Program Name:</b>	Power Reliability and Energy Conservation Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15391	<b>Board Action No.:</b>	7
<b>Requested Amount:</b>	\$ 14,262,000	<b>Capital Program No.:</b>	15391-E
<b>Total Appropriated Amount:</b>	\$ 32,567,000	<b>Capital Program Page No.:</b>	E-50
<b>Total Program Estimate:</b>	\$ 42,700,000	<b>Program Goal:</b>	E- Cost Efficiency / Productivity

**The Metropolitan Water District of Southern California**

**Abstract of Bids Received on June 11 at 2:00 P.M.**

**Specifications No. 1619**

**Robert A. Skinner Water Treatment Plant  
Solar Power Generation Facility**

The project consists of construction of a one-megawatt solar photovoltaic power generation facility, including procurement and construction of solar panels, tracking systems, inverters, foundations and canopies for inverters, chain link fencing, perimeter lights and conduits for security camera and fence security system, solar system instrumentation, performance monitoring and reporting meters, weather station, and grounding. In addition, the contractor will test and commission the solar power generation facility and report power production to Southern California Edison.

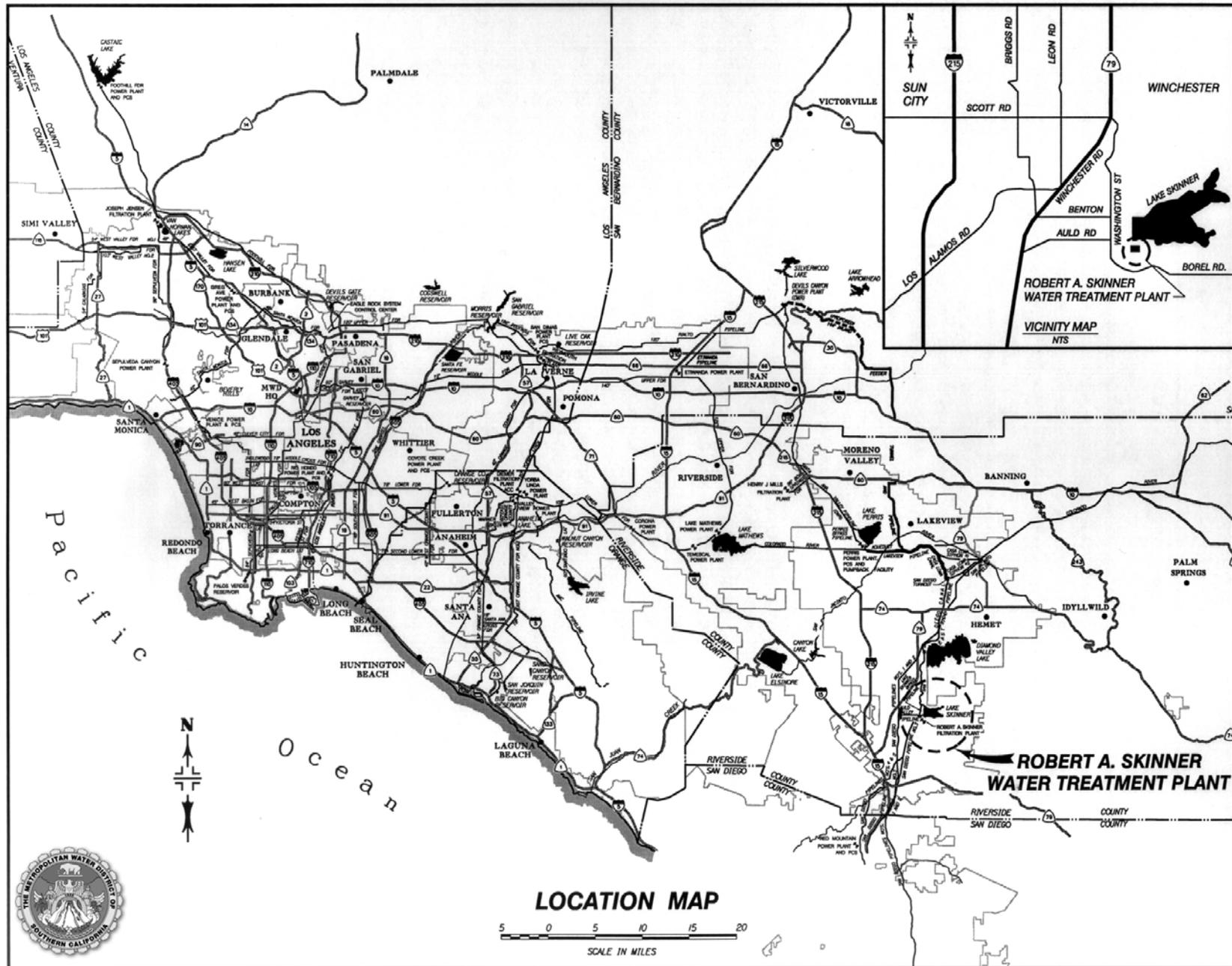
**Engineer's Estimate: \$8,780,000**

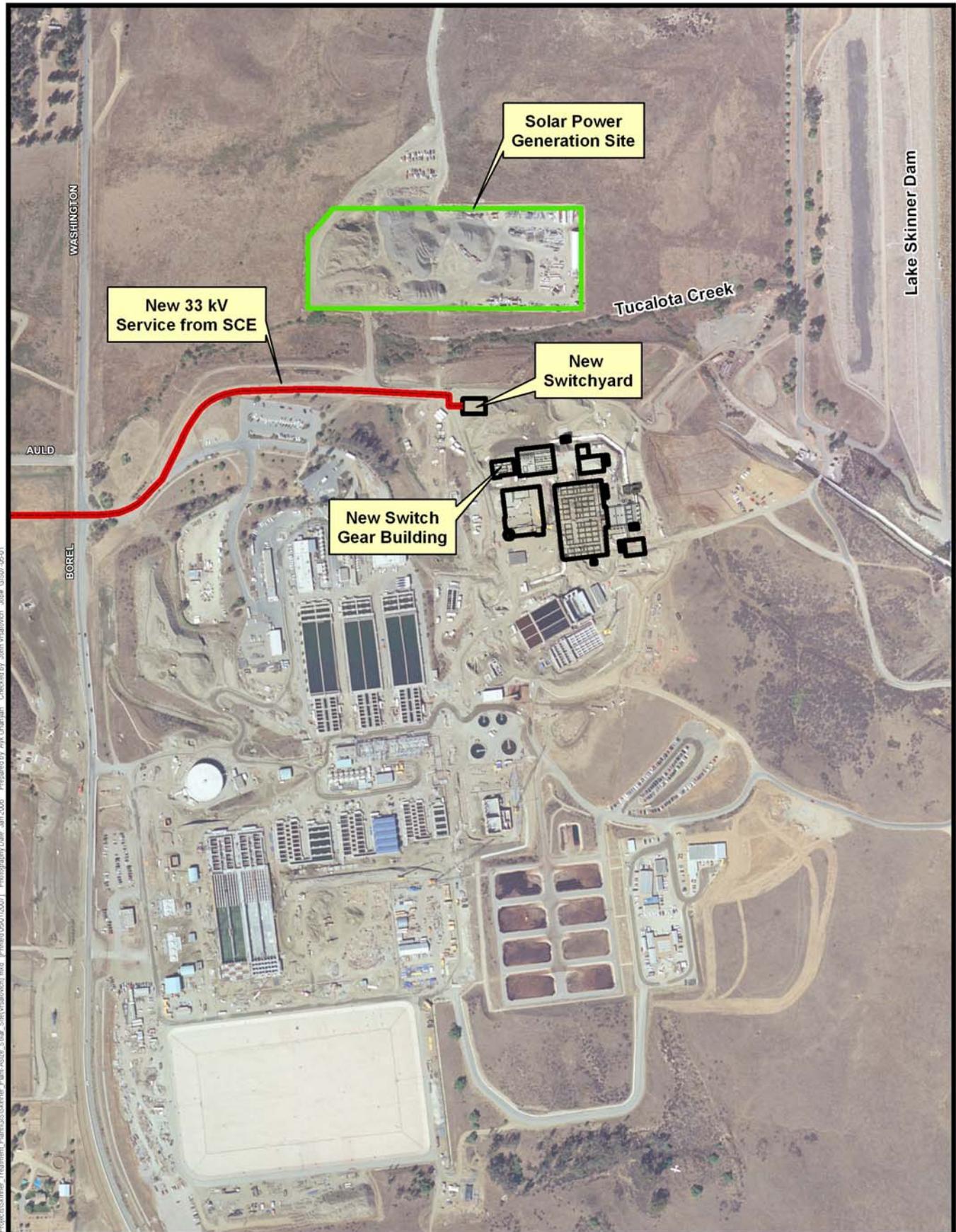
<b>Bidder and Location</b>	<b>Base Bid *</b>	<b>Estimated Long-term Power Costs **</b>	<b>Total Evaluated Bid Price ***</b>
SunPower – Richmond, CA	\$9,984,000	\$9,026,621	\$957,379
BEC/Regenesis – San Bernardino, CA	\$13,280,000	\$8,124,808	\$5,155,192
Shimmick – Irvine, CA	\$16,280,000	\$8,124,808	\$8,155,192

\* Includes 8.25% sales tax.

\*\*Based on 10-year present-worth of energy usage.

\*\*\*Basis for determination of low bid.





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Skinner Plant Site Map

