**REDACTED DRAFT**

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Item 30 I. D. #5006

**ENERGY DIVISION** **RESOLUTION E-3957**

**October 27, 2005**

# R E S O L U T I O N

Resolution E-3957. Southern California Edison Company requests approval of a new solar energy renewable resource procurement contract with SES Solar One LLC. This contract is approved.

By Advice Letter 1909-E Filed on August 11, 2005 and supplemental Advice Letter 1909-E-A Filed on September 22, 2005.

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## SUMMARY


**This SCE Renewable contract complies with the interim bidding procedure and is approved.**

SCE's request for approval of this renewable resource procurement contract is granted under the interim procedures adopted in D. 02-08-071, Assigned Commissioner Peevey's Ruling of August 13, 2003 and the deadline extension granted by Executive Director Steve Larson on August 5, 2005. The energy acquired from these contracts will count toward SCE's Renewable Portfolio Standard (RPS) requirements.


**The table below gives details of the contracted project:**

| Seller | Generation Type | Initial Size (MW) | Possible Expansion Size (MW) | Estimated Annual Energy Based on Initial Size (GWH) | Estimated Annual Energy Based on Expansion Size (GWH) | Initial Phase On-Line Date | Completion Date for Initial Size | Term of Agreement (Years) | Estimated Capacity Factor |
|---|---|---|---|---|---|---|---|---|---|
| SES Solar One LLC | Solar Thermal | 500 | 850 | 1047 | 1780 | Jan-2009 | Dec-2012 | 20 | 23.90% |

**Energy Price.** Energy Division staff recommend that this and other redacted information be kept confidential. **[Redacted]**

## BACKGROUND

**The Commission provided guidance to the utilities on procuring renewable energy resources prior to full implementation of the Renewables Portfolio Standard (RPS) Program.**

D. 02-08-071 authorized the utilities to enter into procurement contracts between the effective date of the decision and January 1, 2003. On August 13, 2003, Assigned Commissioner Peevey in Rulemaking (R.) 01-10-024 issued a ruling, "Assigned Commissioner's Ruling Specifying Criteria for Interim Renewable Energy Solicitations" (ACR), which specified criteria for any further renewable energy procurement by the utilities prior to full RPS implementation. The ACR set forth the following general process requirements:

1. A utility must abide by the terms of the Commission's first RPS implementation decision (D.03-06-071);
2. Utilities may engage in bilateral negotiations or may issue a competitive solicitation (request for offer (RFO) to receive bids;
3. Issuance of an interim RFO by a utility does not constitute filing of a RPS procurement plan under the terms of D.03-06-071;
4. Any renewable procurement in the interim period must not anticipate the use of any Supplemental Energy Payments (SEPs) to be awarded by the California Energy Commission (CEC) pursuant to Public Utilities Code Sec. 383.5(d);
5. The utilities are allowed to "roll over" any under-procurement in 2003 into the Annual Procurement Target (APT) for 2004 without penalty. A decision not to issue an RFO prior to full RPS implementation will not waive this immunity. Conversely, any contract signed as a result of a bilateral negotiation or an RFO, and approved by the Commission, should count toward the APT; and
6. Following PRG review of any proposed contracts, the utility may submit those contracts for Commission approval via Advice Letter.

**SCE requests approval of this new renewable energy contract with SES Solar One, LLC.**

On August 11, 2005, SCE filed AL 1909-E in compliance with initial guidance for implementation of the Renewable Portfolio Standards (RPS) Program, as set forth in Sections 399.11 through 399.16 of the California Public Utilities Code, and the

August 13, 2003 Assigned Commissioner's Ruling Specifying Criteria for Interim Renewable Energy Solicitations in Rulemaking (R.) 01-10-024 (the ACR).

SCE executed a contract with SES Solar One, LLC. It was selected by SCE based on a Request for Offers (RFO) originally issued in 2003.

D.04-12-048, Ordering Paragraph 21 adopted a deadline of February 8, 2005, after which the interim authority would expire. SCE requested on February 3, 2005, and was granted on February 8, 2005, a 30-day extension to file advice letters based on contracts stemming from this RFO. On August 2, 2005 SCE requested a further extension to August 31, 2005 for this and one other renewable energy contract (with PPM, Inc. for 22 to 75 MW of wind power). This extension was granted via a letter from the CPUC Executive Director, Steve Larson on August 5, 2005. The SCE/SES AL was filed on August 11, 2005.

SCE in its AL seeks "Final CPUC Approval"[1] of the power purchase agreement (the PPAs) with SES. Commission approval of this PPA will result, assuming the pilot program is successful, in SCE's procuring approximately an additional 1047 GWh (initial build out of 500 MW) to 1780 GWh (with the SCE option of expansion to 850 MW) annually from eligible renewable energy resources ("ERRs"). This electrical output represents from approximately 1.4% to 2.6% of SCE's annual sales (including CDWR sales but excluding direct access sales) recorded for 2004.

**The RPS Program requires each utility to increase the amount of renewable energy in its portfolio, subject to requirements specified by the Legislature and the Commission.**

The RPS Program, created by SB 1078 (Statutes of 2002, Chapter 516, codified in Sections 399.11 though 399.16 of the California Public Utilities Code), requires each utility to increase the amount of renewable energy in its portfolio to 20 percent by 2017, increasing by a minimum of one percent per year. The Energy Action Plan (EAP) calls for acceleration of this goal to reach 20 percent by 2010. The Assigned Commissioner's Ruling and Scoping Memo for Phase II of the Renewables Portfolio Standard Program issued on December 6, 2004, encourages the utilities to procure cost-effective renewable generation in excess of their

[1] The resolution becomes unappealable 30 days after CPUC approval.

Annual Procurement Targets (APTs) for 2004, in order to make progress towards the 20% renewable by 2010 goal expressed in the EAP.[2]

In order for the output of a renewable resource to count toward a utility's RPS requirements, the resource must meet the requirements of an "eligible renewable energy resource" under the definitions of the program. Solar energy is an eligible renewable energy resource.

R.04-04-026 established a framework for further implementation of the RPS Program, including establishing baseline quantities and 2004 procurement targets for the utilities. The RPS Program requires each utility to increase the amount of renewable energy in its portfolio by a minimum of one percent per year. The Commission establishes an APT for each utility, which consists of two separate components: the baseline, representing the amount of renewable generation a utility must retain in its portfolio to continue to satisfy its obligations under the RPS targets of previous years; and the incremental procurement target (IPT)[3], defined as at least one percent of the previous year's total retail electrical sales, including power sold to a utility's customers from its DWR contracts.

## NOTICE

Notice of AL 1909-E was made by publication in the Commission's Daily Calendar on August 15, 2005. Southern California Edison states that a copy of the Advice Letter was mailed and distributed in accordance with Section III-G of General Order 96-A.

## PROTESTS

Advice Letter AL 1909-E was not protested.

[2] Most recently reaffirmed in D.05-07-039.

[3] Decision D.04-06-014

## DISCUSSION

Energy Division has reviewed this contract.

**The contracts are consistent with the SCE Long Term Procurement Plan**.
The inclusion of this solar energy source adds to the diversity goal of SCE's plan, which also includes geothermal, biomass, and wind energy.

All bids of all renewable technologies were ranked using a measure of least cost and best fit analysis. The bid rankings were done using computer model runs based on SCE's 2003 Long Term Preferred Procurement plan. Although the use of the December 2004 CPUC approved plan would have been preferable, the 2004 plan was not yet available at the time of the model runs. Nevertheless, it does not appear that use of the 2004 CPUC plan would have changed the *relative* rankings of the bids.

**The contract Standard Terms and Conditions (STC), with the waiver of one term, are consistent with the CPUC's adopted standard terms and conditions.**
These STCs, established in Decision D.04-06-014, included some leeway. We recognize there are elements that can be negotiated between the utility and the renewable bidder. These terms have been reviewed by Energy Division staff. One term, **[Redacted]**was questioned by E.D. staff **[Redacted]** On September 22, 2005, SCE filed with the Commission supplemental Advice Letter 1909-E-A which included a limited waiver agreement that resolved this issue. This resolution approval takes account of SCE granting this waiver as set forth in the supplement.

**The bid evaluation process is consistent with the CPUC's adopted Least Cost and Best Fit (LC/BF) decision.**
The RFP and resulting PPAs substantially comply with the Least Cost Best Fit Methodology approved by the Commission in D.04-07-029. The SCE Procurement Review Group (PRG) was involved in developing the ranking methods used for the contracts, and while some PRG members voiced concerns about SCE's proposed ranking method, the PRG ultimately recommended Commission acceptance of SCE's methodology as described below.

To generate a short list of bidders in the RFP, SCE used an evaluation model that substantially complied with the Least Cost and Best Fit Methodology approved by the Commission in D.04-07-029. The bids were ranked based on an SCE calculated benefit to cost ratio (B/C). These benefits and costs are estimated by use of the Global Energy Marketsym and Global Energy Risksym production simulations models[4]. SCE evaluated Individual projects using Edison's specific resource plan to determine the effect on the total system production costs. The models considered the benefits and costs associated with each proposed renewable project. Specifically, the models calculated the replacement energy benefits associated with a particular project, including energy remarketing costs. Also included was an estimated cost of any necessary transmission improvements.

Since the modeling includes a daily projected output pattern for each bid, and an hourly estimated spot market price, this will increase the rank of bids with a good fit to portfolio needs.

Remarketing costs are also estimated by the production cost models. When the necessary minimum purchase of contracted power from all sources exceeds the expected load, the model compares its predicted spot market price to the contract price for the bid being analyzed, and finds any profit or loss due to having the contract for the hour based on which price is higher.

**The contract is consistent with CPUC's adopted Transmission decision.**
Costs of upgrading the SCE lines will be considered a system upgrade, and allocated to all ratepayers**. [Redacted]**

**No bidder claimed to have special qualities with regard to local reliability, benefits to minority and low income communities and environmental stewardship**.
Thus these factors played no role in the bid ranking.

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[4] These production simulation models are the same models used by Edison in the long term resource planning proceeding and for other Edison projects, such as the Mountainview project, the SONGS steam generator replacement filing and the Mohave Generating Station analysis.

**The contract adds to SCE's resource diversity.**
SCE shows that its ranking system allowed all the technologies to be represented in their first cut. SCE grouped the bids by "baseload", "peaking" and "as available". But the evaluation method was the same for all. However the "peaking" plants (e.g. solar, such as this contract) get benefits based on their higher production during high energy cost summer afternoon hours. This increased their B/C ratio.

**Debt equivalence has no significant effect on the ranking order or on contract selection.**
This was included in the evaluation methodology, but did not have a significant effect on the ranking order or on contract selection.

**SCE verified Project Viability associated with the Filed Contract.**
The contract incorporates project milestones and various affirmative covenants related to the construction and financing of the generating facility in order to ensure project viability. **[Redacted]** Such provisions allow for SCE to assess project viability on an ongoing basis with the termination rights in the event that key project milestones are not achieved by the Seller.

**PRG feedback was positive**.
In D. 02-08-071, the Commission required each utility to establish a Procurement Review Group (PRG) whose members, subject to an appropriate non-disclosure agreement, have the right to consult with the utilities and review the details of the:

1. Overall transitional procurement strategy;
2. Proposed procurement processes including, but not limited to, RFO; and
3. Proposed procurement contracts before any of the contracts are submitted to the Commission for expedited review.

The PRG for SCE includes the California Department of Water Resources, California Energy Commission, the Commission's Energy Division, Natural Resources Defense Council, Office of Ratepayer Advocates (ORA), The Utility Reform Network (TURN), and others. SCE discussed these contracts with its PRG and provided it with the details of the contracts and the method used to choose between the bids. The members of SCE's PRG supported the approval of this contract.

**This project will rely on federal investment tax credits rather than the federal Production Tax Credit.**
The federal Energy Policy Act of 2005 significantly increased the investment tax credits for solar energy. This type of incentive is based on a percentage of the up-front capital costs of the plant. Most other renewable energy sources make use of the federal production tax credit (PTC), which was recently extended to the end of 2007 as part of the energy bill. The PTC incentives are based on a fixed payment per kWh (presently 1.8 cents) produced over a 10 year period. Its extension for projects becoming operational in later years is probable, but not certain. Due to the solar technology of this project, rather than wind or geothermal, investment credits will be used rather than the PTC. This is anticipated to be a more reliable source of funding.

**Contract Terms**
The contract outlines terms that protect the ratepayer from under-performance/default of the generator while also providing SCE all of the environmental attributes associated with purchased output. The key terms include:

- The contracts contain performance standards, and in the event that actual output is below guaranteed energy production, the contractors are subject to penalties for failing to meet those standards;
- The selected contractors are subject to penalties if the project does not come on line by date specified by specific contracts.
- All environmental attributes associated with output purchased by SCE shall be the property of SCE at no additional cost and in their entirety without unbundling of any component attributes.
- A pilot plant will be constructed first in order to establish performance and operating standards and protocols. **[Redacted]**

The terms and conditions of delivery shown in Advice Letter 1909-E include point of delivery, scheduling coordinator, allocation of congestion risk, and mitigation mechanisms.

**The proposed contract is contingent upon several conditions:**

1) Commission approval of terms, conditions, and of full recovery of costs associated with Agreement

2) Commission finding that output delivered under the Agreement will count towards SCE's APT and that the Agreement is in compliance with the California RPS program requirements under SB 1078[5].
3) Commission finding that the output purchased by SCE under the Agreement includes all Renewable environmental attributes associated with that output.

## COMMENTS

This is an uncontested matter in which the resolution grants the relief requested. Accordingly, pursuant to PU Code 311(g)(2), the otherwise applicable 30-day period for public review and comment is being waived.

## FINDINGS

1. The "Assigned Commissioner's Ruling Specifying Criteria for Interim Renewable Energy Solicitations," issued on August 13, 2003, specified criteria for any further renewable energy procurement by the utilities prior to full RPS implementation. The Ruling stated that a utility may submit renewable energy contracts for Commission approval via Advice Letter.
2. SCE filed Advice Letter 1909-E Filed on August 11, 2005, requesting Commission review and approval of the SES contract.
3. The RPS Program requires each utility, including SCE, to increase the amount of renewable energy in its portfolio to 20 percent by 2017, increasing by a minimum of one percent per year. The Energy Action Plan (EAP) calls for acceleration of this goal to reach 20 percent by 2010.
4. Solar energy facilities are RPS-eligible renewable energy resources.
5. The Commission required each utility to establish a Procurement Review Group (PRG) to review the utilities' interim procurement needs and strategy, proposed procurement process, and selected contracts.

[5] The California Energy Commission is responsible for determining the RPS-eligibility of a renewable generator. See Public Utilities Code Sect. 399.12 and CPUC decision D.04-06-014.

6. SCE briefed its PRG regarding these contracts. The members of SCE's PRG supported this contract.
7. Certain material filed under seal pursuant to Public Utilities (Pub. Util.) Code Section 583 and General Order (G.O.) 66-C, and considered for possible disclosure, should not be disclosed. Accordingly, the "Confidential Appendix" should not be included with the "unredacted" version of this resolution. Also, items enclosed in brackets **[ ]** in the unredacted version should not be disclosed in the redacted version.
8. The purchased output of the facilities under this PPA will count toward SCE's RPS requirements.
9. Any electric energy sold to SCE pursuant to this PPA ("Procurement") constitutes procurement by SCE from an eligible renewable energy resource (ERR) for the purposed of determining SCE's compliance with any obligation that it may have to procure from ERR pursuant to the RPS Program or its successor.
10. All Procurement counts in full, subject to CEC determination of eligibility, towards any annual procurement target established by the RPS Program or its successor.
11. All Procurement counts in full, subject to CEC determination of eligibility, towards the requirement in the RPS Program that SCE procure 20% of its retail sales from ERRs by 2010, pursuant to the Energy Action Plan and most recently reaffirmed in Decision 05-07-039.
12. The solicitation for renewable energy which resulted in this PPA and SCE's conduct in respect of the solicitation were reasonable.
13. The PPA, and SCE's entry into the PPA, is reasonable and prudent. SCE may recover in rates payments made pursuant to the PPA, subject only to further review with respect to the reasonableness of SCE's administration of the PPAs.
14. SCE filed supplemental Advice Letter 1909-E-A on September 22, 2005 agreeing to waive a contract term**[Redacted]**.

15. The "Assigned Commissioner's Ruling Specifying Criteria for Interim Renewable Energy Solicitations," issued on August 13, 2003, specified criteria for any further renewable energy procurement by the utilities prior to full RPS implementation.

16. Energy Division finds this contract acceptable with the waiver of the contract term mentioned in Finding 14 above.

**THEREFORE IT IS ORDERED THAT:**

1. The request of the Southern California Edison to implement their renewable electricity procurement contract with SES Solar One LLC requested in Advice Letters AL 1909-E and AL 1909-E-A is approved.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on October 27, 2005, the following Commissioners voting favorably thereon:

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STEVE LARSON
Executive Director

## Non-Confidential Appendix A

### A. The Stirling Dish Technology

The SES Project, if fully developed, consists of at least a 500 MW facility that will utilize innovative technology to convert solar energy to electrical energy. The SES Project contemplates deploying at least 20,000 mirrored dishes that will focus the sun's energy onto a receiver mounted in the focal point of each dish. The dishes are approximately 37 feet in diameter. The receiver is mounted on a Stirling engine, a non-combustion type of engine that has been available for many years. The internal side of the receiver heats hydrogen gas which expands inside the Stirling engine. The pressure created by the expanding gas drives a piston, crank shaft, and drive shaft assembly much like those found in internal combustion engines but without igniting the gas. The drive shaft turns a 480-volt induction generator. The entire process takes place within a canister the size of an oil barrel. Each solar dish Stirling unit tracks the sun independently and consists of a structure supporting mirrored facets, engine, controls, azimuth drive and elevation drive. The peak output of each unit is approximately 25 kW.

**Figure A. A Stirling Solar Dish Unit**

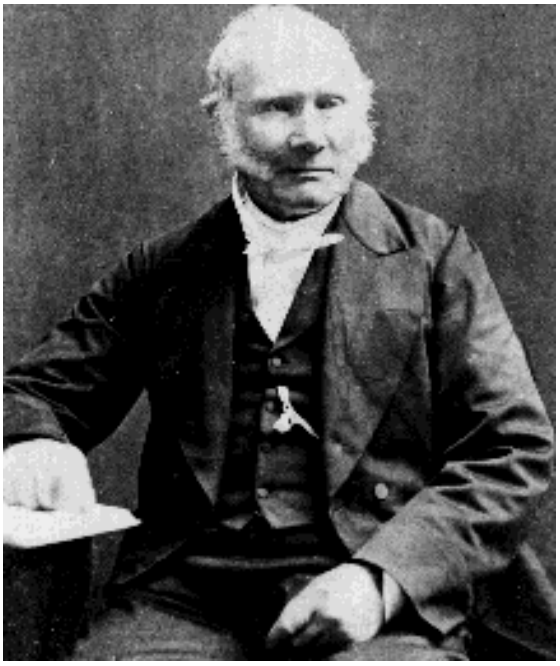

Figure B. The Rev. Dr. Robert Stirling,
Inventor of the Stirling engine, which he patented in 1816.

[Confidential Exhibit 1, Redacted ]