

Decision 12-02-035 February 16, 2012

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U338E) for Authority to Implement and Recover in Rates the Cost of its Proposed Solar Photovoltaic (PV) Program.

Application 08-03-015
(Filed March 27, 2008)

**DECISION PARTIALLY GRANTING SOUTHERN CALIFORNIA
EDISON COMPANY'S PETITION FOR MODIFICATION OF
DECISION 09-06-049 (SPVP) AND MAKING CONFORMING
CHANGES TO DECISION 10-12-048 (RAM)**

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ATTACHMENT 1 – Summary of Solar Photovoltaic Program (SPVP) for Southern California Edison Company

ATTACHMENT 2 – Summary of Renewable Auction Mechanism (RAM) Program Rules

**DECISION PARTIALLY GRANTING SOUTHERN CALIFORNIA
EDISON COMPANY'S PETITION FOR MODIFICATION OF
DECISION 09-06-049 (SPVP) AND MAKING CONFORMING
CHANGES TO DECISION 10-12-048 (RAM)**

We partially grant Southern California Edison Company's petition for modification of the Solar Photovoltaic Program (SPVP) adopted in Decision (D.) 09-06-049. As adopted in 2009, the SPVP involves 250 megawatts (MW) of solar photovoltaic generation to be owned by the utility, and 250 MW to be owned by independent power producers. As modified, the program will be no more than 125 MW of utility ownership, no more than 125 MW of independent power producer ownership, and 225 MW to be procured through the Renewable Auction Mechanism program. We do this to reduce costs, promote simplicity, maximize program efficiency, and minimize market disruption. We reduce our previous finding of the total amount of reasonable program costs to track the program changes adopted here. We also make conforming changes to the Renewable Auction Mechanism program by modifying D.10-12-048. The proceeding is closed.

1. Background

On June 22, 2009, we issued our decision adopting a solar photovoltaic program (SPVP) for Southern California Edison Company (SCE). (*See* Decision (D.) 09-06-049 in this proceeding, Application (A.) 08-03-015.) The adopted SPVP is a five-year program to develop 500 megawatts (MW) of direct current (DC) output from solar photovoltaic (PV) facilities on existing commercial rooftops using facilities generally in the size range of one to two MW per project. The SPVP is composed of 250 MW of utility-owned generation (UOG), and 250 MW of power purchase agreements (PPA) with independent power producers (IPP).

On December 17, 2010, we issued a decision adopting a Renewable Auction Mechanism (RAM) as part of the Renewables Portfolio Standard (RPS) program. (See D.10-12-048 in Rulemaking (R.) 08-08-009.) RAM is a new procurement process for utility purchases from IPPs of electricity generated from eligible renewable facilities up to 20 MW per project. Our initial implementation of RAM is in a two-year program for the three largest investor-owned utilities (IOUs) to purchase at least 1,000 MW of electricity generated by facilities using renewable resources.¹ SCE's portion of the total 1,000 MW is 498.4 MW.²

On February 11, 2011, SCE filed a petition for modification of D.09-06-049 in A.08-03-015. SCE seeks to (a) reduce the 250 MW UOG portion to no more than 125 MW, (b) reduce the 250 MW IPP portion to no more than 125 MW, and (c) reassign the remaining 250 MW to a separate competitive solicitation within the SPVP called "IPP Revised." SCE proposes for the UOG and IPP portions that the current 10% limitation on ground-mounted installations be increased to 20%, but that other parameters remain unchanged. SCE proposes that IPP Revised

¹ The California Energy Commission (CEC) certifies RPS eligibility of generation facilities using one or more of the following 15 CEC-identified categories of renewable resources or fuels, including PV: (1) biodiesel; (2) biogas (including pipeline biomethane); (3) biomass; (4) conduit hydroelectric; (5) digester gas; (6) fuel cells using renewable fuels; (7) geothermal; (8) hydroelectric incremental generation from efficiency improvements; (9) landfill gas; (10) municipal solid waste; (11) ocean wave, ocean thermal, and tidal current; (12) photovoltaic; (13) small hydroelectric (30 megawatts or less); (14) solar thermal electric; and (15) wind. (See Renewables Portfolio Standard Eligibility Guidebook, Fourth Edition, California Energy Commission, Efficiency and Renewable Energy Division, Publication Number: CEC-300-2010-007-CMF; January 2011 at 14.)

² SCE has applied 144 MW from its 2010 Renewable Standard Contract (RSC) Program to its total RAM allotment of 498.4 MW, leaving 354.4 MW. (D.10-12-048 at 32 and Appendix A at 1; Resolution E-4445 at 17-18.)

remain a five-year PV program exclusively targeted on solar installations, but recommends limited changes to permit procurement of lower cost solar facilities.

On or before March 14, 2011, responses in support or partial support were filed by six parties.³ Responses in opposition or partial opposition were filed by seven parties.⁴

On March 24, 2011, SCE filed a reply. In addition to supporting its petition, SCE recommends that the majority of the IPP Revised solicitation parameters be established through the advice letter process.

By ruling dated November 2, 2011, the Commission notified parties that it may consider changes to RAM (D.10-12-048 in R.08-08-009) as part of considering changes to SPVP. The ruling stated that these changes, if any, will be considered in SCE's SPVP proceeding (A.08-03-015), and set a schedule for comments.

On November 7, 2011 a response in opposition was filed by Clean Coalition, and a response in conditional support was filed by the Solar Alliance.⁵

³ Responses in support or partial support were filed by Silverado Power, LLC; Division of Ratepayer Advocates (DRA); The Utility Reform Network (TURN); Independent Energy Producers Association (IEP); the Greenlining Institute (Greenlining); and Recurrent Energy.

⁴ Responses in opposition or partial opposition were filed by California Solar Energy Industries Association; the Solar Alliance; jointly by SolarCity, Solyndra LLC, and United Solar Ovonic (Joint Solar Parties); CALifornians for Renewable Energy, Inc. (CARE); and Commercial Solar Solutions, LLC (CSS). A response in opposition was served by the Vote Solar Initiative, but not filed. The Vote Solar Initiative response is given the same weight as informal communication with the Commission (e.g., letter).

⁵ On January 6, 2012, Solar Alliance filed a notice in this proceeding that, effective January 1, 2012, it had merged with the Solar Energy Industries Association (SEIA), and that for all purposes going forward the name SEIA should be used in place of the name Solar Alliance. For references after January 1, 2012, the name SEIA is used herein.

On November 8, 2011, a late-response was filed by Northern California Basic Crafts Alliance (Basic Crafts Alliance). On November 10, 2011, SCE filed a reply.

2. Timing of Petition

A petition for modification must be filed within one year of the effective date of the decision proposed to be modified or, absent sufficient justification by petitioner for the delay, the petition is subject to summary denial. (Rule 16.4(d) of the Commission's Rules of Practice and Procedure.) The effective date of D.09-06-049 is June 22, 2009 (the day it was issued), while the petition was filed on February 11, 2011, nearly 20 months later. SCE's petition is eligible for summary denial, but we decline to do so.

We are convinced by the petitioner that the petition could not reasonably have been filed earlier. The information upon which petitioner relies has been the result of both SPVP implementation and PV market development over time. For example, while our decision was in June 2009, Commission approval of the PPA for the competitive solicitation was in January 2010, and we required SCE to make changes to its PPA. (Resolution E-4299.) SCE filed an advice letter in February 2010 to incorporate those requirements. The request for offers occurred on March 18, 2010, shortly after Commission approval of the February 2010 advice letter. SCE executed contracts with IPPs on July 26, 2010. The utility's cost analysis of the UOG and IPP portions of SPVP, and the striking comparison of those costs with the solar prices in SCE's 2010 Renewable Standard Contract (RSC) solicitation, was conducted as soon thereafter as feasible, according to SCE. We are also persuaded by SCE, Silverado Power, Recurrent Energy and others that dynamic changes in the solar PV market have occurred only somewhat recently. An earlier petition would not have fully reflected those recent changes.

We are persuaded that adequate reasons justify our consideration of the petition on its merits, and we decline to issue a summary denial.

3. Discussion

SCE essentially petitions for three modifications to SPVP:

1. Reduce the 250 MW UOG portion to no more than 125 MW, with the amount of ground-mounted facilities increased from 10% to 20%, but other program and solicitation parameters unchanged.
2. Reduce the 250 MW IPP portion to no more than 125 MW, with the amount of ground-mounted facilities increased from 10% to 20%, but other program and solicitation parameters unchanged.
3. Reassign the remaining 250 MW to a separate competitive solicitation within the SPVP called "IPP Revised" exclusively targeted on solar installations but subject to several modified parameters:
 - a. bids permitted for projects up to 20 MW;
 - b. no limitation on the number of ground-mounted installations;
 - c. startup deadline extended from 18 months after contract execution to 36 months after Commission approval; and
 - d. revise the SPVP PPA to parallel the current pro forma PPA used in the annual RPS Request for Proposals.

We grant the petition with limited changes. We do this to reduce costs, promote simplicity, maximize program efficiency, and minimize market disruption. Specifically, we grant the proposal to reduce both the UOG and IPP portions from 250 MW to no more than 125 MW (but no less than 115 MW absent additional authorization), with the amount of ground-mounted facilities increased from 10% to 20%, but other parameters unchanged. We do not reassign the remaining 250 MW to IPP Revised but use RAM to procure this capacity, subject to RAM parameters and protocols that are in effect at the time of contracting.⁶ We also reduce the total cost estimates we previously found reasonable to parallel the reduction in the UOG portion (from 250 MW to no more than 125 MW).

3.1. SPVP Modifications

We first consider whether or not to make any changes to SPVP. In support, petitioner and several parties claim that conditions have substantially changed since SPVP was approved. We agree for at least the following three reasons that limited modifications are reasonable based on changed conditions.

3.1.1. Changed Conditions

First, solar PV costs have fallen and program modifications offer the best opportunity to secure savings for ratepayers. In particular, SCE recently obtained 140 MW of solar PV through its 2009 RSC program at prices equal to the 2008 market price referent (MPR), and 144 MW of solar PV through its 2010

⁶ We explain below that for procurement via RAM we change the 250 MW in SPVP to 225 MW in RAM. This converts the DC capacity used in SPVP to alternating current (AC) capacity used in RAM. (See SCE's January 31, 2012 Comments on the Proposed Decision at 2-3).

RSC program at prices below the 2011 MPR.⁷ The most recent prices in particular are at a substantially lower procurement cost than assumed in our approval of SPVP. Other evidence also shows solar PV prices are falling.⁸ SCE estimates the savings from its proposed SPVP modifications to be about \$300 million in present value of revenue requirements. While some parties question SCE's estimate, no party claims the proposed modifications would produce no savings.⁹ We pledged in adopting SPVP that we would carefully monitor program progress, examine ways in which the program could be improved, and adjust the program as appropriate. Modifications to SPVP are now necessary and appropriate to capture valuable savings.

Second, the lingering economic downturn has slowed development opportunities. New roofs have the greatest chance of being structurally and economically suitable for coverage by solar panels. The weak economy, however, has diminished opportunities by reducing the amount of new large commercial and industrial construction with rooftop space available for solar PV installations.

Lastly, part of our motivation in adopting SPVP was to reduce the gap in development of one to two MW wholesale distributed solar projects.

⁷ Resolutions E-4359 and E-4445.

⁸ February 11, 2011 SCE Petition for Modification, Appendix B (Declaration of Mark E. Nelson).

⁹ DRA asserts that reducing SCE's authorized program expenditures by half results in "significant ratepayer savings above and beyond SCE's projected \$300 million in present value revenue requirement (PVRR)." (January 31, 2012 DRA Comments at 3.) Clean Coalition contends that SCE's analysis is flawed and its estimate overstated, but "[i]n no way does the Clean Coalition claim that the proposed modifications would produce no savings." (January 31, 2012 Clean Coalition Comments at 14.)

Programs have been now created or modified, however, that provide support to the one to two MW market segment, including rooftop solar PV facilities.

For example, we are currently administering a feed-in tariff (FIT) totaling 498 MW that involves the three largest IOUs, for projects up to 1.5 MW at a price equal to the MPR. We are considering changes to that program which increase project size (to 3 MW), increase program size (to 750 MW state-wide including publicly owned utilities), and may modify the price.¹⁰ Rooftop solar PV is eligible to participate in FIT.

We also recently adopted a new procurement tool which we call RAM. RAM provides a simplified approach for cost-effective renewable projects to secure long-term purchase commitments from utility buyers. Rooftop solar PV projects in the one to two MW size may participate.¹¹

Silverado Power also points out that net energy metering (NEM) caps have been raised (allowing for more development of behind the meter solar installations), and opportunities improved for customers to sell excess power to the utility at a reasonable rate (if unable to use all the solar PV generated on-site).¹² Thus, each of these new programs, or program changes, reduces the gap in development of one to two MW wholesale distributed solar projects that in part motivated our adoption of SPVP.

¹⁰ Pub. Util. Code § 399.20, as amended by Senate Bill (SB) 32 and SB 2 (First Extraordinary Session).

¹¹ The minimum project size eligible to participate in RAM is 1 MW, but projects as small as 500 kilowatts may aggregate output to reach the minimum of 1 MW, as long as they do not exceed 5 MW. (Resolution E-4414 at 8 and Attachment C, item 3, bullet 1 at 57.)

¹² Silverado Power March 14, 2011 Response at 4-5 (citing Assembly (AB) Bill 920 (2009) and AB 510 (2010), amending Pub. Util. Code § 2827).

3.1.2. Cancellation, Market Disruption, Specific Solar, Rooftop Availability

Opponents present several arguments in support of denying the petition. We are not persuaded for the following reasons.

Opponents contend that the proposed modifications are not a fine tuning of SPVP, but effectively a cancellation. Even if not a full cancellation, opponents assert the changes completely disrupt market expectations, thereby failing to provide participants with sufficient assurances to permit costly resource commitments. We disagree.

As proposed, 200 MW are still targeted for rooftop PV.¹³ This is not a cancellation of SPVP.

It is also not a total disruption. To be successful, developers must nimbly respond to market changes (e.g., changes in interest rates, input costs, input availabilities, inflation, opportunity costs). Similarly, the Commission must responsibly respond to changes when appropriate. We reach the right balance by not cancelling SPVP but scaling back the rooftop solar portion based on current conditions. We do this while maintaining the total program at 500 MW and increasing the opportunity for competition among technologies. This is after notice and opportunity for comment on the petition for modification, public review of a draft decision subject to comment, and adoption of a decision in a public meeting subject to public comment. Each step of this process over many months provides reasonable information to the market, along with opportunities for public participation. In short, while we make changes, these

¹³ UOG and IPP portions total 250 MW (125 MW each), with 80%, or 200 MW, targeted on rooftop PV.

changes are only after reasonable notice, are incremental, and do not radically disrupt the market.

Even assuming for the sake of argument there might be some disruption, opponents present inadequate quantification. For example, we have no evidence to conclude that, to the extent there may be disruption, that it is more than a few MW or a few dollars, or that disrupted projects, if any, cannot reasonably use other programs (e.g., FIT, RAM, NEM, Qualifying Facility, bilateral negotiations) to reach desired outcomes with minimal, or even beneficial, effect.¹⁴ Absent quantification, we are unable to compare the possible costs, if any, with the approximately \$300 million in savings.

Another argument advanced by opponents is that SPVP is designed to advance specific solar due to its unique benefits (i.e., rooftop PV in the one to two MW range) not just any solar (i.e., including ground-mounted installations up to 20 MW). SPVP should not be modified, opponents contend, so that the Commission's intent to advance specific solar is not disturbed. We are not convinced.

¹⁴ Joint Solar Parties assert that a recently executed agreement between SCE and a major solar producer and installer to produce up to 200 MW, or 80%, of the solar capacity needed for the UOG portion will be cancelled. (March 14, 2011 Response at 8.) On the other hand, we note that by adopting SCE's proposal this decision retains the combined UOG and IPP portions of the modified SPVP at 250 MW (200 MW rooftop and 50 MW ground mounted). We have inadequate information to conclude that the 200 MW cited by Joint Solar Parties cannot successfully participate in this 250 MW portion of the SPVP, the 225 MW to be procured via RAM, or other programs. Nor do Joint Solar Parties present sufficient information to compare the effect, if any, with the approximately \$300 million of benefits. We also lack information on whether the solar producer or other agreement signatories can still fulfill their part of the contract, or the terms for failure to do so.

SPVP, as modified, still advances the specific projects at issue here by directing 200 MW to rooftop solar PV in the one to two MW size. Moreover, small rooftop solar may compete for the 225 MW moved to RAM.

The modifications to SPVP adopted here do not change our commitment to advancing small sized rooftop solar. With today's order, however, we take the important additional step of increasing the amount of capacity subject to competition by more than one type of solar project, since RAM allows all types of solar facilities to participate. We also increase the amount of capacity subject to competition by projects up to 20 MW, and by more than one type of technology. We do this with the goal of enhancing the downward pressure on prices from all renewable project sizes and technologies, including small rooftop solar, for the benefit of consumers and the state.

Opponents also claim that the economic downturn has not reduced the availability of rooftops. Rather, they contend that effectively all the roofs that were in place in 2009 are still in place. To the contrary, the physical quantity of roofs may not have materially changed but, as convincingly argued by SCE, Recurrent Energy, Silverado Power and others, several factors often make older roofs not cost-effective for solar installation. For example, the lifespan of a typical roof is less than that of a solar facility (adding cost of system removal for roof repair and reducing the total number of candidate roofs when the developer wants to focus only on those that start with a full lifespan). Structural suitability further limits supply or increases costs (for roof reinforcement to survive wind load and solar facility weight). Even if the roof is reasonably new (so it has a long lifespan) and structurally suitable, the developer must secure multiple layers of agreements (e.g., from building owners, lenders, investors, tenants; developer's lenders). Multiple agreements increase transaction costs and risks.

Further, rooftops with enough scale for efficient development are often clustered within a concentrated area, triggering network upgrades (or at least the need to study upgrades, adding study costs and time delays). Thus, these factors make many existing rooftops economically unavailable, with the economic downturn further reducing opportunities.

Joint Solar Parties claim in response that rooftop availability may actually have increased due to the economic downturn as rooftop owners become even more interested in earning revenue through a roof lease. To the contrary, economically rational rooftop owners take steps to maximize profits during all stages of an economic cycle. We have no basis to assume that rooftop owners were not previously economically rational, or are only now becoming so. We also have no evidence that this particular economic downturn has materially changed the dynamics of rooftop owners seeking to maximize profits. If anything, the characteristics of this economic downturn have hindered, not helped, building owners make additional capital investments.¹⁵ Moreover, no data is presented here to quantify the effect, if any, of changed variables (e.g., interest rates, roof rental charges, building vacancy rates) on rooftop availability and, absent compelling data, we are not persuaded that the availability has increased as a result of current economic circumstances.

¹⁵ For example, this downturn (resulting from the nearly complete financial market meltdown in 2008) is characterized by large relative reductions in real estate values, significantly increased difficulty in obtaining credit, and increased building vacancy rates.

3.1.3. Savings

SCE estimates its proposed modifications would generate about a \$300 million savings in the present value of revenue requirements. SCE calculates the savings based on (a) moving 250 MW to IPP Revised (125 MW from UOG and 125 MW from IPP), and (b) using the difference between the levelized cost of 2010 RSC winning bids and SPVP prices (UOG levelized cost of \$0.26/kWh; IPP levelized cost of winning bids in the most recent SPVP solicitation).

Opponents point out that the levelized cost of the 2010 RSC winning bids is primarily driven by larger scale ground-mounted, rather than rooftop, PV facilities. They contend that that Commission already found that unique advantages justify a “niche” program focused on rooftop solar PV, and the Commission should not allow SCE to shift the program focus to ground-mounted facilities. CARE argues that it is invalid to use projects in the RSC due to their large size (20 MW) and economies of scale compared to the targeted market of one to two MW rooftop solar PV. We disagree.

Unique advantages (discussed more below) continue to justify a program focused on rooftop solar PV, but current economic conditions necessitate that we do this at a reduced level. We have addressed and dismissed above that granting this petition either eliminates the rooftop program, or unreasonably disrupts market expectations, even if as modified more ground-mounted facilities may participate. We also note that not all projects in RSC are large (e.g., 20 MW), as CARE suggests, but that eight out of 15 solar PV projects in the 2010 RSC are 5 MW or less. (*See* Resolution E-4445.) In fact, the evidence from the RSC program shows that solar PV prices are falling, with prices for actual PV facilities – even those that are small – to be less costly than

assumed for SPVP. Modifications to SPVP are necessary to capture these savings. At the same time, these modifications increase the competitive pressure on rooftop facilities to reduce costs to compete with ground-based and other renewable facilities.

Having decided to make modifications, we now turn to the specific proposals.

3.2. Reduce UOG to No More Than 125 MW

SCE proposes that the UOG portion be reduced from 250 MW to no more than 125 MW. Parties opposing the petition contend the SPVP program should not be changed, with the UOG piece remaining at 250 MW. On the other hand, SCE's proposal is supported by some parties while others contend total elimination of UOG would produce the most savings.

We continue the SPVP but reduce the UOG portion to 125 MW because we are motivated to secure savings. We identified several factors for adopting SPVP initially, and those factors continue to apply. For example, SPVP continues to be a reasonable way to encourage development of distributed renewable resources in the one to two MW range. SPVP projects can be located near load (thus avoiding the need to build new transmission and helping reduce local congestion), and rapid deployment of SPVP facilities can advance California's broad goal of developing renewable energy (particularly specific development of distributed rooftop solar PV projects). There is also an important role for UOG in California's electricity industry, and a program with comparable UOG and IPP portions will provide important information about the costs and benefits of each form of renewable facility ownership, including both the sharing of risks between various stakeholders and the ultimate effect on ratepayers. A 50%

reduction is reasonable to secure savings while maintaining a large enough UOG piece to permit reasonable collection of data.¹⁶

SCE proposes a level of no more than 125 MW, but does not sufficiently explain the “no more than” limitation. We reduce the UOG portion to no more than 125 MW as proposed, but we expect SCE to develop 125 MW, or as close to 125 MW as reasonable. We also expect SCE to explain in its periodic SPVP reports why it is not on target to achieve 125 MW of UOG if that is the case, and explain what steps it is taking to achieve 125 MW.¹⁷ We remain committed to SPVP advancing distributed small rooftop solar PV in the one to two MW size range. We also want a program of sufficient size to produce reliable data. Therefore, if SCE plans to own less than 115 MW of UOG by the end of year five, SCE must file a Tier 2 advice letter seeking authorization. The advice letter must be filed no later than 180 days before the end of year five.

3.2.1. Cost Reasonableness

A reduction in the UOG portion also requires reassessing our previous reasonableness finding with respect to certain costs. That is, in 2009, we found SCE’s cost estimates for a 250 MW UOG program reasonable. (D.09-06-049 at 35-36.) Those estimates over the 2008 through 2014 program period were approximately \$41.31 million (2008 dollars) in operation and maintenance (O&M) expenses, and \$962.5 million (2008 dollars) in direct capital expenditures (\$875.0 million (2008 dollars) in direct capital plus a

¹⁶ At one to two MW per project, a UOG portion of up to 125 MW still involves between about 62 and 125 rooftop solar installations.

¹⁷ Annually, on July 1 of each year, SCE files an SPVP compliance report. (See D.09-06-049 at 38-39, and Ordering Paragraph 4.)

10% contingency). This is based on a project cost target of \$3.50 per Watt with a 10% contingency (\$3.85 per Watt including contingency), with costs in excess of \$3.85 per Watt subject to a reasonableness review. (D.09-06-049, Ordering Paragraph 1.)

DRA recommends the Commission reduce SCE's authorized expenditures by half. We agree. For a 125 MW UOG program, we reduce the reasonable cost estimates over the 2008 through 2014 program period to approximately \$20.655 million (2008 dollars) in O&M expenses, and \$481.25 million (2008 dollars) in direct capital expenditures (\$427.5 million (2008 dollars) direct capital plus a 10% contingency). These total costs remain based on \$3.50 per Watt (\$3.85 per Watt including contingency), with costs in excess of \$3.85 per Watt subject to a reasonableness review. If SCE develops less than 125 MW, the reasonable total cost estimates will be based on the number of watts times \$3.50 per Watt (\$3.85 per Watt including contingency), with costs in excess of \$3.85 per Watt subject to a reasonableness review.

SCE continues to express its concern that lost economies of scale due to a reduced UOG program size may have a negative impact on project costs, including costs of contractual obligations to which SCE might be subject due to decreasing its build-out commitments. SCE notifies the Commission that "one impact of granting this Petition could be that SCE may not be able to meet the cost target and reasonableness threshold set in D.09-06-049." (Petition at 9, footnote 31.) We are convinced by DRA, however, that the directly proportional reduction advocated by DRA is supported by both current industry price trends and SCE's recent successes in bringing down costs. Moreover, we agree with DRA that contractual obligations, if any, due to decreasing build-out are sufficiently uncertain to prevent a fully informed decision here (and do not

support either adjusting the cost estimates upward or retaining the UOG program at 250 MW due to unquantified concerns about negative effects on project costs). Utilities always have an affirmative, ongoing obligation to reasonably manage contracts and projects, and to carry their burden of proof before the Commission when seeking cost recovery. Thus, we expect SCE to utilize each applicable contract provision and reasonable negotiation opportunities to ensure that these costs, if any, are minimal. We also require SCE to make a clear showing at the appropriate time demonstrating that it took all reasonable and feasible steps to minimize or eliminate these costs.

3.2.2. Ratemaking Proposals

TURN, Greenlining, and CSS make various ratemaking proposals regarding the UOG portion of SPVP that involve limiting costs, sharing costs, or adopting minimum performance requirements. For example, TURN recommends that we (a) order SCE to consider levelized energy prices in selecting its UOG projects and (b) adopt a performance requirement (such as the 80% output performance requirement adopted for PG&E's program in D.10-04-052).¹⁸ Greenlining proposes that we modify our earlier order to (a) affirmatively cap UOG project costs at \$3.85 per Watt (without subjecting costs above \$3.85 to a reasonableness review) or (b) split costs above \$3.85 per Watt by a ratio of 80% ratepayers and 20% shareholders.¹⁹ CSS says SCE should be paid for production from its UOG facilities at the average price of comparable winning IPP bids.²⁰ We do not adopt these recommendations.

¹⁸ March 14, 2011 TURN Response at 3.

¹⁹ March 14, 2011 Greenlining Response at 5.

²⁰ March 5, 2001 CSS at 13-14.

We already considered and rejected proposals relative to limiting costs, sharing costs, and setting performance standards. (D.09-06-049 at 36-40.) We there explained our ongoing duty to ensure that utility investments are used, useful, and reasonably operated, with only just and reasonable investment and operating costs recovered from ratepayers. We have long-standing policies and procedures in place under which utility projects are reviewed to ensure that approved investments are made in a reasonable manner, that resulting facilities actually fulfill their stated purpose, and that continuing ownership and operations are reasonable. We do that in a range of proceedings, including but not limited to a General Rate Case, Energy Resource Recovery Account proceeding, or Certificate of Public Convenience and Necessity proceeding. Nothing presented here convinces us to revisit these issues.

3.3. Reduce IPP to No More Than 125 MW

SCE proposes that the IPP portion be reduced from 250 MW to no more than 125 MW. SCE's proposal is supported by several parties. Parties opposing the petition contend the SPVP program should not be changed, with the IPP portion remaining at 250 MW. Others propose increasing the IPP portion to 375 MW (by shifting SCE's 125 MW reduction to the IPP portion.)²¹ For the following reasons we reduce the IPP portion to no more than 125 MW.

²¹ March 5, 2011 CSS Response at 14.

We reject the idea of increasing the allocation to 375 MW, or making no change and retaining 250 MW, since reductions are necessary to capture savings. We do not eliminate the IPP portion of the program, however, since for the reasons stated above we continue to support an IPP portion focused on rooftop solar PV. We reduce the size to no more than 125 MW to capture a reasonable amount of savings while maintaining a large enough IPP piece to permit reasonable collection of data.²²

SCE proposes a level of no more than 125 MW, just as it did with the UOG portion, but does not sufficiently explain the “no more than” limitation. We reduce the IPP portion to no more than 125 MW as proposed, but we expect SCE to secure 125 MW from IPPs, or as close to 125 MW as reasonable. We also expect SCE to explain in its periodic SPVP reports why it is not on target to achieve 125 MW of IPP if that is the case, and explain what steps it is taking to achieve 125 MW. We remain committed to SPVP advancing distributed small rooftop solar PV in the one to two MW size range. We also want a program of sufficient size to produce reliable data. Therefore, if SCE plans to procure less than 115 MW of IPP PPAs by the end of year five, SCE must file a Tier 2 advice letter seeking authorization. The advice letter must be filed no later than 180 days before the end of year five.

3.4. 20% Ground-Mounted But Other Existing Parameters Unchanged

SCE proposes that the current 10% limitation on ground-mounted facilities be increased to 20% for both the UOG and IPP portions, but other

²² At one to two MW per project, an IPP portion of up to 125 MW still involves between about 62 and 125 rooftop solar installations.

SPVP parameters remain unchanged. In support, SCE says it has made commitments for approximately 25 MW of ground-mounted facilities in the UOG portion, and has already signed PPAs from 22.4 MW of ground-mounted projects in the IPP portion. An increase in the percentage, according to SCE, will allow it to accommodate existing obligations as project owner and program administrator. We agree.

SPVP currently is a 500 MW solar PV program (250 MW UOG and 250 MW IPP) with no more than 10% (50 MW) allowed to be ground-mounted facilities. As proposed, the specific UOG and IPP portions of SPVP total a 250 MW solar PV program (125 MW UOG and 125 MW IPP) with no more than 20% (50 MW) allowed to be ground-mounted facilities. That is, increasing the percentage to 20% maintains the same authorization of 50 MW for ground-mounted facilities. Accordingly, we authorize SCE to procure up to, but no more than, 25 MW of ground-mounted facilities in each of the UOG and IPP portions of the SPVP. This permits SCE to accommodate existing obligations and is reasonable.

Other program parameters have been established. (See D.09-06-049 and Resolution E-4299.) No party recommends changes in these other parameters, and we authorize none.

3.5. 225 MW to Be Procured Through RAM

SCE initially proposed that the 250 MW residual within SPVP be reassigned to IPP Revised, a separate competitive solicitation within SPVP. Opponents of SCE's petition propose rejection of IPP Revised. DRA proposes rejecting IPP Revised or, in the alternative, transferring the 250 MW to RAM. Solar Alliance supports moving the 250 MW to RAM subject to certain caveats. In its final reply, SCE says that it does not oppose increasing its RAM allocation, but only as long as this increment is consistent with RAM protocols and not a separate set-aside of rooftop solar projects within RAM. For the reasons explained below, we adopt a 225 MW increase in RAM, including the provision that this increment be procured consistent with existing RAM protocols and not as a separate set-aside within RAM.²³

One option is to eliminate the 250 MW residual (after reducing the specific UOG and IPP portions to a total of 250 MW). We do not do this because there is merit in keeping the program at 500 MW. Maintenance of 500 MW promotes a reasonable degree of continuity and consistency with market expectations created by our first adopting that size program in 2009.

We do not, however, reassign the 250 MW to IPP Revised. As originally proposed by SCE, IPP Revised would be a new program within SPVP

²³ The capacity in SPVP (as originally proposed by SCE in this proceeding and adopted with modifications in D.09-06-049) is DC. The capacity in RAM, however, is alternating current (AC). PV systems convert DC to AC for use in the electrical distribution grid. Similarly, a conversion must be made of the 250 MW DC in SPVP when that same amount of capacity is to be procured as AC electricity via RAM. We use a factor of 0.9 based on the record in the proceeding (and decline to use SCE's newly proposed 0.8 conversion factor). (See January 31, 2012 SCE Comments on Proposed Decision at 3, citing Exhibit SCE-1, Rev. 1, p.1, footnote 1.)

exclusively targeted on solar installations but subject to several modifications. Creation of a separate subset within SPVP (including several unique modifications) adds needless complexity and potential inefficiencies. For example, it requires stakeholders to understand and address multiple programs and program subsets containing a range of protocols, terms, and conditions. The range creates the potential for, if not actual occurrence of, confusion and conflicts among different program elements. It creates undesirable disruption more than 2.5 years after our first adopting a five year SPVP. It also, if modified as proposed by SCE, needlessly duplicates other programs.

RAM, on the other hand, already reasonably addresses several key elements of IPP Revised (e.g., up to 20 MW per project, no limitation on ground-mounted facilities, startup from Commission approval of PPA, standardized PPA). We agree with DRA that we should consolidate renewable programs when they have overlapping goals and characteristics, not create duplicative new programs. As DRA also says, consolidating the 250 MW with RAM will reduce developer confusion (as to which of many renewable programs is appropriate for a developer's circumstances) and enhance administrative efficiency (since SCE, Energy Division and the Commission only need to administer and track information in the RAM program, not a similar but slightly different subset within SPVP).

We do not create a subset within the expanded RAM for small rooftop solar for the same reasons we do not adopt IPP Revised. That is, we decline to require that this 225 MW increment be specifically procured from rooftop solar less than two MW per project within RAM because doing so would create needless complexities, inefficiencies, disruptions, and duplications among

programs. We adopted RAM to be a simplified, efficient procurement tool. We do not plan to disrupt those objectives here.

Solar Alliance proposes that a preference be given to rooftop solar facilities in the up to two MW range. We decline to do so. RAM selection is price-driven. Application of a preference for one type of facility would unreasonably deviate from adopted RAM protocols.

Stakeholders are familiar with RAM, the first auction has occurred (November 2011), and upcoming auctions are on an established and known schedule (allowing stakeholders to reasonably plan). We use existing RAM protocols without changes, subsets or preferences so that RAM remains simple, efficient, consistent and reasonably stable.

3.5.1. RAM Product Categories

In order for SPVP objectives to be met, Solar Alliance recommends that the transferred capacity be procured from the peaking as-available RAM category.²⁴ SCE strongly opposes a set-aside or preferential treatment in RAM. We agree with SCE, but encourage SCE to reasonably incorporate SPVP goals in the 225 MW added to RAM.

RAM procurement by utilities is from three product categories, and utilities must specify before an auction the amount of each product to be sought.²⁵ We agree with SCE, as explained above, that there should be no

²⁴ Solar Alliance identifies these SPVP objectives as: (1) advancement of specific solar technology (i.e., rooftop solar) and (2) filling an identified gap in development of renewable projects in the one to two MW range. (November 7, 2011 Response at 2.)

²⁵ The product categories are: firm (baseload), non-firm peaking (peaking as-available), and non-firm non-peaking (non-peaking as-available). (See Resolution E-4414, Attachment C.) Utilities were required to specify the amount of each product for the initial four auctions in the first advice letter. (D.10-12-048.) SCE reports that for its first

Footnote continued on next page

preference or specific set-aside for rooftop solar installations up to 2 MW within RAM. At the same time, utilities are permitted to propose the amount of each product to be solicited in each RAM auction, subject to parties' comments. SCE may propose seeking a large portion, or all, of the additional 225 MW from the non-firm peaking product (which will tend to be filled by solar technologies), and from products that do not require significant interconnection upgrades (which will likely be from smaller projects).²⁶

RAM solicitation on November 15, 2011, it sought a total of 65 MW, with targets of 55 MW peaking, 5 MW non-peaking, and 5 MW baseload (including discretion to be +/- 20 MW in each category so long as the total is within +/- 20 MW). (November 10, 2011 Reply at 4.)

²⁶ One reason the Commission adopted RAM is that it encourages "the development of resources that can utilize existing transmission and distribution infrastructure..." (D.10-12-048 at 2.) The Commission requires IOUs to provide information and maps to help bidders locate projects where no or minimal transmission or distribution upgrade costs are involved. (*Id.*, Appendix A, at 5, item 6.a.) Smaller, compared to larger, projects will tend to be able to use surplus transmission and distribution before triggering upgrades. Economically rational bidders will include transmission and distribution costs in their non-negotiable RAM bids, thereby making bids that require transmission or distribution upgrade costs relatively less price-competitive. Finally, in evaluating bids, IOUs "shall add the most recent estimated interconnection study costs of transmission network upgrades resulting from the project's interconnection study to bid prices for ranking purposes." (Resolution E-4414, Ordering Paragraph 11 at 46; emphasis in original not included here.) Thus, smaller rooftop solar PV projects may have a cost advantage in RAM, but we also allow ground-mounted solar and other projects up to 20 MW to vigorously compete. In short, to the extent that solar rooftop PV technology is a cost-effective and competitive resource (because it avoids costly interconnection upgrades, for example), it will be able to successfully compete in RAM.

SCE should file a Tier 2 advice letter consistent with existing practice that specifies the amount of each product it will solicit in each remaining RAM auction for the 225 MW of increased capacity resulting from this decision. We encourage, but do not require, SCE to propose an amount that reasonably takes into account SPVP goals, with a focus on small rooftop PV systems. The advice letter should also identify the resulting amounts of each product in its new RAM total of 723.4 MW (of which 144 MW is met from projects procured via its 2010 RSC program).

3.5.2. Other Solicitation Parameters

Finally, SCE recommends for the IPP Revised (or RAM) capacity at issue here that (a) the startup deadline be 36 months from Commission approval of the project-specific PPA (rather than 18 months from contract execution) and (b) the PPA provisions conform to the current pro forma contract used in its annual RPS Renewable Request for Proposals. SCE also recommends that other solicitation parameters be resolved through the advice letter process.

We decline to adopt these provisions. First, we have already (a) modified the startup period to be 18 months from Commission approval (rather than contract execution), (b) considered and rejected 36 months, and (c) decided the terms of the RAM PPA (including similarities to, and differences from, the RPS annual solicitation pro forma). (*See* Resolution E-4414.) Nothing provided by parties here convinces us to reconsider these provisions now. Second, we will not entertain new, or variations on other, solicitation parameters in an additional advice letter. We have already weighed the alternatives and decided the terms of the RAM PPA. We require the use of the RAM PPA in place at the time of contracting in order to promote simplicity, maximize program efficiency, and minimize market disruption.

4. Conclusion

We approve the petition to the extent provided herein, and deny it in every other respect. Specifically, we modify D.09-06-049 and D.10-12-048 to accomplish the following:

1. Reduce the 250 MW UOG portion to no more than 125 MW, with the maximum amount of ground-mounted facilities increased from 10% to 20% (25 MW), but other parameters unchanged; require SCE to file an advice letter for authorization if UOG procurement will be less than 115 MW by the end of year five.
2. Reduce the 250 MW IPP portion to no more than 125 MW, with the maximum amount of ground-mounted facilities increased from 10% to 20% (25 MW), but other parameters unchanged; require SCE to file an advice letter for authorization if IPP procurement will be less than 115 MW by the end of year five.
3. Procure the remaining amount of SPVP through 225 MW of RAM, with an increase in SCE's total RAM allocation from 498.4 MW to 723.4 MW. (SCE has applied 144 MW procured via its 2010 RSC program to RAM, leaving a net initial RAM procurement of 354.4 MW, or net adjusted 579.4 MW when increased by the 225 MW transferred here.) All other RAM parameters and protocols are unchanged (e.g., projects up to 20 MW; any eligible renewable technology; commercial operation within 18 months from Commission approval of the PPA, subject to a one-time six month extension).
4. Reduce the reasonable cost estimates for 125 MW of UOG over the 2008 to 2014 program period to approximately \$20.655 million (2008 dollars) in O&M expenses, and \$481.25 million (2008 dollars) in direct capital expenditures (\$427.5 million (2008 dollars) direct capital plus a 10% contingency). These costs are based on \$3.50 per Watt (\$3.85 per Watt including contingency), with costs in excess of \$3.85 per Watt subject to a reasonableness review. If SCE develops less than 125 MW of UOG, the reasonable

total cost estimates are based on the number of Watts times \$3.50 per Watt (\$3.85 per Watt including contingency), with costs in excess of \$3.85 per Watt subject to a reasonableness review.

Because this decision only changes the SPVP and RAM programs going forward, we do not need to change the language in D.09-06-049 or D.10-12-048. Rather, to implement the changes adopted today, we only need to modify each program effective today. We do that by adopting appendices attached to this order that summarize each program, as modified.

Finally, we also direct SCE to file and serve a Tier 2 advice letter to specify the amount of each product it will solicit in each remaining RAM auction for the 225 MW of capacity added to RAM via today's order, along with identifying the resulting amount of each product in its new RAM total of 723.4 MW.

5. Comments on Proposed Decision

The proposed decision of the Administrative Law Judge (ALJ) in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on January 31, 2012 by eight parties (SCE, DRA, IEP, SEIA, Silverado Power, Clean Coalition, Basic Crafts Alliance, and Southern California District Council of Laborers). Reply comments were filed on February 6, 2012 by two parties (SCE, and the Coalition of California Utility Employees). As required by our rules, comments must focus on factual, legal, or technical errors and, in citing such errors, must make specific references to the record. Comments which fail to do so, or which merely reargue positions taken in the proceeding, are given no weight (Rule 14.3.) We similarly give no weight to new facts first asserted in comments. Specific contract clauses

and labor issues are not within the scope of the petition for modification, and we decline to address them here.²⁷

We make limited changes based on comments. For example, we clarify that the contract we expect parties to use for the additional 225 MW solicited via RAM is the RAM contract in effect at the time of contracting (not the contract used for the first RAM solicitation “frozen” over time even if changes to the RAM contract are later made by the Commission). We clarify that the 20% limitation on ground-mounted facilities in the remaining UOG and IPP portions of SPVP is up to a total of 50 MW (25 MW each in the UOG and IPP portions). We adjust the capacity transferred to RAM from the 250 MW cited in the proposed decision to 225 MW here to reflect the conversion from DC to AC output. We also more clearly state the MW for the remaining three RAM auctions (*see* Attachment 2).

6. Assignment of Proceeding

Mark J. Ferron is the assigned Commissioner and Maryam Ebke is the assigned ALJ in this proceeding.

Findings of Fact

1. Since SPVP was approved in 2009, solar PV costs have fallen, the economic downturn has slowed development opportunities, and other programs have been created or modified that provide support for the one to two MW market segment, including rooftop solar PV facilities.

2. Modifications to SPVP are necessary to offer the best opportunity to secure savings for ratepayers resulting from falling PV costs, and may be designed to complement changes in other conditions and programs.

²⁷ Specific SPVP contract issues are addressed in draft Resolution E-4453.

3. SPVP, as modified, neither cancels SPVP nor completely disrupts the market.

4. SPVP, as modified, still targets 200 MW for rooftop solar PV in the one to two MW size range.

5. The economic downturn has reduced the economic availability of rooftops.

6. SPVP, as modified, increases competitive pressure on rooftop owners and rooftop PV plants to reduce costs to compete with ground-mounted PV and other renewable facilities.

7. Reducing the UOG and IPP portions of SPVP (from 250 MW each to no more than 125 MW each, but at least 115 MW each absent additional authorization) provides the best opportunity to capture savings while continuing to secure several advantages of SPVP, including the maintenance of large enough UOG and IPP pieces to permit reasonable data collection.

8. The current trend of industry price reductions, and SCE's recent successes in bringing down costs, support a directly proportional reduction in the costs previously found reasonable by the Commission for the UOG portion of SPVP.

9. The Commission, upon its adoption of SPVP, considered and dismissed a range of ratemaking proposals to address limiting costs, sharing costs, or setting performance requirements, and nothing new on these matters is presented here.

10. Increasing the percentage from 10% (in the original SPVP) to 20% (in the UOG and IPP portions of SPVP as modified) maintains the same allowance for up to 50 MW ground-mounted facilities, thereby permitting SCE to accommodate existing obligations.

11. Retaining SPVP, as modified, at 500 MW promotes a reasonable degree of continuity and consistency with market expectations created by the original SPVP.

12. Needless complexity, inefficiency, disruption, and duplication would occur by establishing either IPP Revised (as a separate PV program within SPVP for projects up to 20 MW with no limit on ground-mounted facilities) or 225 MW as a set-aside within RAM (for rooftop solar less than two MW).

13. RAM already reasonably addresses several key elements of IPP Revised.

14. Consolidating 250 MW DC (equal to 225 MW AC) of SPVP with RAM will reduce developer confusion and enhance administrative efficiency.

15. Using RAM protocols promotes simplicity, efficiency and continuity.

16. The goals and efficiencies of SPVP can be reasonably incorporated in the capacity transferred to, and to be procured via, RAM to the extent SCE seeks a larger proportion of the 225 MW from the RAM non-firm peaking product and from projects that do not require significant interconnection upgrades.

17. Nothing presented here justifies reconsidering recently adopted solicitation parameters, or consideration of other solicitation parameters in a new advice letter.

Conclusions of Law

1. Petitioner reasonably justifies why the petition was not filed within 12 months of the effective date of the decision proposed to be modified.

2. The Commission should reasonably, responsibly, and appropriately respond to market and industry changes, including changes that permit SPVP modifications to enhance downward pressure on costs and prices for all renewable projects across a range of sizes and technologies, and should take reasonable opportunities to consolidate and simplify programs with overlapping goals.

3. The February 11, 2011 SCE petition for modification of D.09-06-049 should be granted in part, and denied in all other respects, in order to capture savings while promoting simplicity, maximizing program efficiency and minimizing market disruption.

4. The petition should be granted to the extent that it:
- a. Reduces the 250 MW UOG portion to no more than 125 MW (but no less than 115 MW absent additional authorization), with the maximum amount of ground-mounted facilities increased from 10% to 20% (25 MW), but other parameters unchanged.
 - b. Reduces the 250 MW IPP portion to no more than 125 MW (but no less than 115 MW absent additional authorization), with the maximum amount of ground-mounted facilities increased from 10% to 20% (25 MW), but other parameters unchanged.
 - c. Procures the remaining 250 MW DC (225 MW AC) through RAM, subject to existing RAM protocols and procedures.
 - d. Requires SCE to develop 125 MW each of UOG and IPP, or as close to each as reasonable, with SCE explaining in periodic SPVP reports why it is not on target to achieve 125 MW each if that is the case, and what steps SCE is taking to achieve 125 MW each.
 - e. Proportionately reduces the total costs previously found reasonable.
 - f. Requires SCE to file a Tier 2 advice letter to specify the amount of each RAM product it will solicit in each remaining RAM auction for the 225 MW AC of capacity transferred to RAM, and the resulting amounts of each product in its new RAM total of 723.4 MW.

5. The petition should be denied to the extent it would reassign 250 MW to IPP Revised.

6. This order should be effective today so that the modified program may proceed expeditiously and thereby reduce costs, promote simplicity, maximize efficiency and minimize disruption.

O R D E R

IT IS ORDERED that:

1. The February 11, 2011 Southern California Edison Company petition for modification of Decision 09-06-049 is granted in part, and denied in all other respects.

2. The Solar Photovoltaic Program (as adopted in Decision 09-06-048 and modified herein) is summarized in Attachment 1. The Renewable Auction Mechanism program (as adopted in Decision (D.) 10-12-048, modified in Resolution E-4414, and further modified herein) is summarized in Attachment 2. The modifications, as summarized in Attachments 1 and 2, are adopted.

3. Within 14 days of the date this order is issued, Southern California Edison Company (SCE) shall file a Tier 2 advice letter. The advice letter shall specify the amount of each product SCE shall solicit in each remaining Renewable Auction Mechanism (RAM) solicitation for the additional 225 megawatts (MW) of alternating current capacity to be procured via RAM, and the amount of each product in its new total RAM allocation of 723.4 MW.

4. Application 08-03-015 is closed.

This order is effective today.

Dated February 16, 2012, at San Francisco, California.

MICHAEL R. PEEVEY

President

TIMOTHY ALAN SIMON

CATHERINE J.K. SANDOVAL

MARK J. FERRON

Commissioners

I abstain.

/s/ MICHEL PETER FLORIO

Commissioner

ATTACHMENT 1

SUMMARY OF SOLAR PHOTOVOLTAIC PROGRAM (SPVP) FOR SOUTHERN CALIFORNIA EDISON COMPANY

February 2012

Commission Decision 09-06-049 (June 18, 2009) adopted the Solar Photovoltaic Program (SPVP) for Southern California Edison Company. The program was implemented via Resolution E-4299 (January 21, 2010). This attachment summarizes SPVP, as modified by Decision 12-02-035, but complete terms and conditions are in Commission decisions and resolutions.

1. General Overview

The Solar Photovoltaic Program (SPVP) is a five-year program to develop 500 megawatts (MW) of direct current (DC) renewable generation. It is composed of three parts:

- a. Utility-Owned Generation (UOG): up to 125 MW
- b. Independent Power Producers (IPP): up to 125 MW
- c. Renewable Auction Mechanism (RAM): 250 MW (equivalent to 225 MW alternating current (AC))

The UOG and IPP parts are each designed for development of up to 125 MW of solar photovoltaic (PV) generation on rooftops in the service area of Southern California Edison Company (SCE) from projects primarily in the one to two MW size range, with some exceptions.

The RAM part involves procuring 250 MW DC (225 MW AC) from the original SPVP (adopted in Decision 09-06-049) through RAM. RAM includes projects that would qualify under SPVP, but also includes other eligible renewable projects.

2. Utility-Owned Generation

SCE is authorized to own, develop, install, maintain and operate up to 125 MW (but no less than 115 MW absent additional authorization) of solar PV projects in the one to two MW range, located in SCE's service area, primarily on rooftops, over a five year program (about 25 MW annually, although SCE is encouraged to accelerate the development if practical and not adverse to program costs).

Project costs are subject to cost of service ratemaking treatment, and are capped at \$3.50 per Watt with a 10% contingency. Costs in excess of \$3.85 per Watt are subject to reasonableness review. No more than 20% (25 MW) may be ground-mounted facilities, and the bulk of SPVP projects must be in range of one to two MW. SCE shall develop 125 MW, or as close to 125 MW as reasonable. SCE shall explain in periodic SPVP reports why it is not on target to achieve 125 MW of UOG if that is the case, and explain what steps it is taking to achieve 125 MW. SCE shall, no later than 180 days before the end of the five year SPVP program, file a Tier 2 advice letter for authorization if UOG procurement will be less than 115 MW by the end of year five.

3. Independent Power Producer

SCE is authorized to procure via competitive solicitation up to 125 MW (but no less than 115 MW absent additional authorization) of solar PV generation owned by independent power producers. The solicitations shall be at least once per year. The generation shall primarily be from rooftop solar PV projects in the one to two MW range, located in SCE's service area, over a five year program (about 25 MW annually, although SCE is encouraged to accelerate the procurement if practical and not adverse to program costs). Bids are capped at SCE's estimated levelized cost of electricity (\$0.26 per kilowatthour). No more than 20% (25 MW) may be ground-mounted facilities, and the bulk of SPVP projects must be in range of one to two MW. SCE shall procure 125 MW, or as close to 125 MW as reasonable. SCE shall explain in periodic SPVP reports why it is not on target to achieve 125 MW of IPP if that is the case, and explain what steps it is taking to achieve 125 MW. SCE shall, no later than 180 days before the end of the five year SPVP program, file a Tier 2 advice letter for authorization if IPP procurement will be less than 115 MW by the end of year five.

4. Renewable Auction Mechanism

The RAM component of SPVP involves procuring 250 MW DC of SPVP through RAM (225 MW AC). This 225 MW AC is subject to RAM protocols and practices. Rooftop solar PV facilities in the one to two MW size range are eligible to participate along with all other eligible renewable projects. SCE shall file a Tier 2 advice letter stating, for the capacity transferred here, the amount of each RAM product it will solicit in each remaining RAM auction, and the resulting amounts of each product in its new RAM total of 723.4 MW. SCE is encouraged, but not required, to propose RAM products that incorporate SPVP goals for the capacity moved to RAM (e.g., most or all of the 225 MW procured from the non-firm peaking product that does not require significant interconnection upgrades).

(END OF ATTACHMENT 1)

ATTACHMENT 2

ATTACHMENT 2

**SUMMARY OF RENEWABLE AUCTION MECHANISM (RAM)
PROGRAM RULES**

January 2012

Commission Decision 10-12-048 (December 16, 2010) adopted the Renewable Auction Mechanism (RAM). Resolution E-4414 (August 18, 2011) modified the program. The program summary, as modified, is updated here to reflect the transfer of 250 MW from Southern California Edison Company's Solar Photovoltaic Program to RAM (in particular, see changes made in Section 2.a.III below). This attachment summarizes RAM, as modified, but complete terms and conditions are in Commission decisions and resolutions.

RENEWABLE AUCTION MECHANISM

1. Price Determination: Renewable Auction Mechanism (RAM)

- Projects submit price bids
- IOUs select projects in order of least-costly first, up to program capacity limit

2. Auction Design:

a. Program Procurement Requirement:

- i. 1,000 MW Capacity Limit
- ii. Adjustment to the Program Capacity Limit: May occur in any appropriate proceeding or through a Tier 3 advice letter/Resolution, or a Resolution on the Commission's own motion

iii. Capacity Allocation for total RAM program and per auction

UTILITY	TOTAL PROGRAM (MW)	PER AUCTION (MW)
SCE	723.4 ¹	171.5 ²
PG&E	420.9	105.2
SDG&E	154.7	44.9 ³
TOTAL	1299.0 ⁴	321.6 ⁵

iv. **Number of Auctions per Year:** Two per year, every six months, held concurrently by all three IOUs; a project may bid into all three auctions.

v. **Amount per auction:** 25% of the total program allocation will be offered in the initial auction; unsubscribed capacity, or drop out capacity, is added to the next auction.

¹ SCE's initial RAM procurement obligation was 498.4 MW. (D.10-12-048, Appendix A at 1.) The Commission modified the Solar Photovoltaic Program (SPVP) to authorize SCE procurement of 250 MW direct current (equal to 225 MW alternating current) of the initial SPVP through RAM, increasing SCE's RAM procurement obligation to 723.4 MW. (Decision 12-02-035.) SCE applied 144 MW from 15 contracts procured via SCE's 2010 Renewable Standard Contract (RSC) program to its RAM obligation. (Resolution E-4445, December 15, 2011.) This leaves 579.4 MW to be procured via RAM.

² The additional 225 MW is procured over only the last three RAM auctions. SCE's first RAM auction sought 65.0 MW. SCE's net amount of 579.4 MW to be procured via RAM (see prior footnote), less the 65.0 MW sought in the first auction, leaves 514.4 MW to be procured over the last three auctions, or 171.5 MW per auction (plus any unsubscribed or drop out capacity brought forward).

³ SDG&E total and per auction amounts are as adjusted by D.12-02-002.

⁴ The RAM program total of 1,299 MW is composed of the initial 1,000 MW (D.10-12-048), plus 74 MW for SDG&E (D.12-02-002), plus 225 MW for SCE (Decision 12-02-035).

⁵ The additional 299 MW (74 MW SDG&E, 225 MW SCE) is procured over only the last three RAM auctions. The first RAM auction was 250 MW, and the last three are 325.0 MW.

- vi. **Procurement Requirement:** Each IOU must enter into a standard contract with each winning bidder up to the capacity limits in each solicitation and total program capacity limits. IOUs select on the basis of least costly projects first until the IOU fully subscribes its allocated capacity for that auction. IOUs have the discretion to not enter into contracts if there is evidence of market manipulation or if the bids are not competitive compared to other renewable procurement opportunities. The IOU must submit an advice letter explaining its decision not to enter into contracts.

b. **Products and Selection**

- **Products:** Firm (baseload), non-firm peaking (peaking as-available), and non-firm non-peaking (non-peaking as-available) electricity
 - IOU shall specify the amount of each product for the initial four auctions in the first advice letter filed pursuant to this order. Utilities are required to solicit and procure capacity up to the capacity limit for each solicitation.
 - Project must submit eligibility information (e.g., generation profile, project characteristic information) corresponding to the product bid, as established by the IOU
- **Selection:** Each product is selected on the basis of price, least expensive first until the capacity limit in each solicitation is reached; IOU may normalize (adjust) bids to place bids on an equivalent basis before making least cost selection using method approved, if any, in the advice letter implementing RAM; IOUs should add the estimated transmission network upgrade costs to the bids for ranking purposes.
- **Independent Evaluator:** Utilities will employ an Independent Evaluator to assess the competitiveness and integrity of each RAM auction and submit the IE's report with its Tier 2 advice letter requesting approval of contracts resulting from those auctions.

3. Eligibility:

- **Minimum Size:** Minimum contract size of 1 MW, but projects 500 kilowatts and greater can aggregate to meet the minimum contract size of 1 MW. Projects can aggregate as long as they interconnect to the same p-node and the contract size does not exceed 5 MW
- **Project Vintage:** New and existing projects are eligible for RAM
- **Location:** Combined IOU service territories (e.g. a project bidding into SCE's auction can be located in either PG&E or SDG&E's service territory).
- **Retail Customer/Third Party Ownership:** Seller need not be a retail customer and the facility need not be located on property owned or under the control of a retail customer
- **Utility Applicability:** Southern California Edison Company (SCE), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E)
- **Project and Transaction Limit:** 20 megawatts (MW)
This is the maximum size for any project signing a full buy/sell or excess sales transaction through the RAM⁶
- **Full Buy/Sell or Excess Sales:** Seller may elect either full buy/sell or excess sales
- **Counting Excess Sales:** Capacity associated with the transaction size is applied to the program cap.

⁶ If a project elects to pursue excess sales, the total project size, including the capacity associated with the wholesale transaction under RAM as well as the capacity associated with onsite load, is counted as part of the project's capacity for purposes of project eligibility. However, only the capacity associated with the wholesale transaction will count against the capacity limit under RAM.

- **Seller Concentration:** IOUs have the discretion to apply a seller concentration limit after the bids are received. PG&E is authorized to apply a seller concentration limit of 20 MW per seller per auction.

4. RAM Standard Contract:

- **Contract Language:** IOUs can use their individual contracts, but should start with a contract that is simple, streamlined, and has already been vetted by stakeholders through another CPUC program.
- **Negotiations:** Price, terms, and conditions are not negotiable.
- **Contract Terms and Conditions**
 - **Length of Contract:** 10, 15, or 20 years
 - **Length of Time to COD:** Within 18 months of CPUC Approval, with one 6-month extension for regulatory delays. Seller can request a contract extension by providing a 60-day notice prior to the guaranteed commercial operation date.
 - **Development Deposit:** \$20/kW for projects 5 MW and smaller, and a \$60/\$90 per kW for intermittent and baseload resources, respectively, for projects greater than 5 MW and up to 20 MW in size, refundable upon achieving commercial operation or applied to the performance deposit; development deposit is due on the date of contract execution in the form of cash or letter of credit from a reputable U.S. bank; development deposit forfeited if project fails to come on line within 18 months or other 6-month extension granted by IOU.
 - **Performance Deposit:**
 - For projects less than five MW: conversion of development deposit to performance deposit
 - For projects five MW and larger: 5% of expected total project revenues

- **Performance Obligation:**
 - Performance is required to be consistent with good utility (or prudent electrical) practices; project is obligated to have liability insurance against utility losses; the project is liable for an IOU's direct, actual losses; and project must perform consistent with generation profile or other characteristics for the product, to the extent stated in the Commission-adopted contract
 - Minimum deliveries of 140% of expected annual net energy production based on two years of rolling production
- **Damages for Failure to Perform:** Damages are limited to actual, direct damages; neither party is liable for consequential, incidental, punitive, exemplary or indirect damages, lost profits or other business interruption damages regardless of cause
- **Force Majeure and Events of Default:** Each RAM contract shall include a force majeure definition and provision
- **Insurance:** IOU discretion, submitted in implementation advice letter
- **Scheduling Coordinator:** Where possible, the contracting IOU shall be the scheduling coordinator for each project using the RAM, and the IOU shall bear the risk of scheduling deviations if the generator provides the IOU with timely information on its availability; the IOU can decline scheduling coordinator responsibilities only upon a written, affirmative request from the seller that the IOU not be the scheduling coordinator, or if unable to perform these duties

5. Project Viability Requirements

Bidder must demonstrate the following items with its bid. An IOU shall reject a bid that fails to demonstrate the following items. Each IOU shall adopt reasonable definitions and lists, related to:

- **Site Control:** Bidder must show 100% site control through (a) direct ownership, (b) lease or (c) an option to lease or purchase that may be exercised upon award of the RAM contract
- **Development Experience:** Bidder must show that at least one member of the development team has (a) completed at least one project of similar technology and capacity or (b) begun construction of at least one other similar project
- **Commercialized Technology:** Bidder must show the project is based on commercialized technology (e.g., is neither experimental, research, demonstration, nor development)
- **Interconnection Application:** Bidder must show that it has filed its interconnection application. In addition, bidder must have completed a System-Impact Study, Cluster Study Phase 1, or have passed the Fast Track screens.

6. Market Elements

- a. **Preferred Locations:** The IOUs must provide the “available capacity” at the substation and circuit level, defined as the total capacity minus the allocated and queued capacity. The IOUs should provide this information in map format. If unable to initially provide this level of detail, each IOU must provide the data at the most detailed level feasible, and work to increase the precision of the information over time. This information is to be available in the advice letter implementing RAM and updated on a monthly basis.
- i. Each IOU should examine DG interconnection screening tools currently used to screen DG interconnection applications. The IOUs should evaluate how individual project studies could be automated to provide the requested data and a reasonable assessment of a DG project’s impact on the distribution system.

- ii. The IOUs should work with parties and Commission staff through the Renewable Distributed Energy Collaborative (Re-DEC) or other forums in order to improve the data, usefulness of the maps, and to discuss other issues related to the interconnection of distributed resources.
- b. **Project Milestones:** Sellers shall submit a project development milestone timeline to the IOU upon RAM contract signing, and progress reports every six months. The only enforceable milestone is the commercial operation data (COD) (subject to a one 6-month extension for regulatory delays).
- c. **Relationship to Voluntary and Other Programs:** 1,000 MW capacity limit does not include capacity subscribed under the Existing FIT (up to 1.5 MW, subject to expansion to three MW under SB 32). SCE is permitted to draw down its capacity limit with the 21 contracts it selected in November 2010 from the RSC solicitation, if the CPUC approves these contracts
- d. **FERC Certification:** No FERC certification as a QF is required for a project to be eligible for RAM
- e. **Conveyance of RECs:** RECs transferred in relationship to the amount of the purchase (for full buy/sell, the IOU buys the RECs coincident with the entire output; for excess sales, the IOU buys the RECs coincident with the purchased excess energy)

7. Regulation and Commission Oversight

- a. **Program Modifications:** The Commission can modify any element of the program at any time through a Commission resolution.
- b. **Advice Letter Review:** All executed RAM contracts from each auction are filed with the Commission in one Tier 2 advice letter.
- c. **Program Evaluation:** RAM to be monitored and evaluated annually, with each IOU filing a report each year. The report shall be filed with ED and posted on the IOU's website. ED

shall include RAM program information in the Commission's reports to the legislature on the RPS program.

d. **Data:**

Each annual report shall include information and evaluation on all relevant items and characteristics including but not limited to:

- Competition and competitiveness
- Auction design
- Time necessary to complete projects
- Auction timing
- Project status
- Analysis comparing the price and value of contracts with and without resource adequacy.
- Anything else determined by ED to be necessary for a complete report

IOUs shall adopt a uniform report template with guidance from Energy Division

The first report shall include each IOU's proposal for a definition of a competitive market, proposed measurements of RPS markets generally, and proposed measurements of this RAM market specifically

As available over time, each report shall include data on:

- Measures of the requirements for a perfectly competitive market
- Measures of market power
- Seller concentration
- Data on each RAM results
- Information on the achievement of project development milestones for all executed RAM contracts
- Any other information necessary to present a complete report

e. **Public Release of Aggregated Data:** IOUs and ED shall make the maximum amount of RAM data public, including the following:

- Names of participating companies and number of bids per company
- Number of bids received and shortlisted
- Project size
- Participating technologies
- Quantitative summary of how many projects passed each project viability screen
- Location of bids by county provided in a map format
- Information on the achievement of project development milestones for all executed RAM contracts; reporting requirements are:
 - Project Name
 - Company Name
 - Project Status (Delayed/On Schedule)
 - Product Category/Technology Type
 - Location (County, City)
 - RAM Solicitation in which Project Was Bid
 - CPUC Final, Non-Appealable Approval Date
 - Guaranteed Commercial Operation Date
 - 6-month Regulatory Delay Extension (Yes/No)
 - If Extension, Reason (Force Majeure/Transmission/Permitting/Interconnection)
 - Actual Commercial Operation Date (if operating)
 - Construction Started? (Y/N)
 - Original Bid Capacity
 - Installed Capacity
 - Full Buy/Sell or Excess Sales

- All Necessary Permitting/Government Approvals Received? (Y/N)
 - All Necessary Permitting/Government Approvals Filed? (Y/N)
 - If Filed, Expected Date by Which All Necessary Permitting/Government Will Be Approved
 - If Not Yet Filed, Expected Date by Which All Necessary Permitting/Government Will Be Filed
 - Interconnection Agreement Signed? (Y/N)
 - Interconnection Application Deemed Complete? (Y/N)
 - State in Interconnection Process (Studies/Interconnection Agreement Signed/Construction)
- f. **Cost Recovery:** RAM costs may be charged to bundled and departing customers consistent with current practice
- g. **Program Forum:** IOUs will hold a program forum once per year in order to meet with sellers and discuss seller experience participating in an auction. The IOUs are required to:
- Notice all stakeholders of the date, time, location and methods for participation⁷ for each program forum;
 - Issue a request for feedback from all stakeholders after the close of each solicitation in order to inform the agenda for the program forum;
 - Provide CPUC staff with a draft of the agenda at least 14 days prior to the program forum;
 - At the program forum, the IOUs shall provide sufficient time to address key issues identified in the request for feedback and the independent evaluator's report;
 - At the program forum, the IOUs shall provide sufficient time for stakeholders to discuss their experience with the

⁷ The IOUs should utilize telecom and web-based technologies to facilitate remote participation.

solicitation, interconnection process, or the program in general; and

- The independent evaluator should participate in the program forum.

8. Implementation Advice Letter: PG&E, SCE, and SDG&E shall file Tier 3 advice letters within 60 days of the date this order. The implementation advice letters shall include:

- Procurement protocols
- RAM standard contract
- Program implementation details
- Timing of RAM auctions
- Specific amounts of capacity and type of resources in each auction over the next two years
- Explanation of any normalization procedures used for bid selection process
- Detailed description of the generation profiles and characteristics that correspond with each product bucket
- Description of how IOU-proposed product eligibility requirements will provide reasonable assurance that a bid for one product will, if selected, deliver energy in a manner that corresponds to the generation profile associated with that
- Identify seller concentration limit, if any
- Provide the preferred locations map and a description of how the maps were computed
- Provide a simple methodology to measure the status of project development milestones

(END OF ATTACHMENT 2)