

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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

CLEAN COALITION COMMENTS ON SOUTHERN CALIFORNIA EDISON
PETITION FOR MODIFICATION OF DECISION 09-06-049

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The Clean Coalition respectfully submits these comments on SCE's petition for modification of Decision 09-06-049, which authorized SCE's solar PV program.

The Clean Coalition is a California-based advocacy group, part of Natural Capitalism Solutions, a non-profit entity based in Colorado. The Clean Coalition advocates primarily for policies and programs that enable the "wholesale distributed generation" market segment, which is generation that connects to the distribution grid for local use. The Clean Coalition is active in proceedings in many regulatory venues, including the Commission, Air Resources Board, and the Energy Commission in California; the Federal Energy Regulatory Commission; and in other state and local jurisdictions across the country.

Our main points are as follows:

- The Commission's proposed modifications would result in a program that fails to support the original decision adopting the SPVP: to address the "gap in the development of 1 to 2 MW wholesale distributed solar projects." While it is *possible* that SB 32 will help to fill this gap, program pricing remains uncertain until at least March 2012 and there can be no evidence that SB 32 will fill the gap until it is successfully implemented. Similarly, until the RAM's methodology for recognizing locational benefits has been determined, there is no evidence that 1 to 2 MW rooftop solar will be able to compete successfully in the RAM either.
- Additionally, the 750 MW SB 32 program is likely to be filled almost entirely by existing AB 1969 projects awaiting a PPA and therefore will not support the new development envisioned for SPVP
- SCE's proposed modifications would reduce the capacity available to the "IPP rooftop" segment by 56%, which is far more drastic than the "fine tuning" that the Commission said to expect in the original decision adopting the SPVP. We

believe a 56% reduction would be a substantial and unwarranted disruption to business planning in this renewable energy sector and would constitute bad policy.

- SCE's refusal to respond to party queries (including the Clean Coalition) about the claimed \$300 million in savings has impeded the ability of all parties to analyze this issue quantitatively. As we detail below, the claimed \$300 million in savings appears materially overstated for two reasons:
 1. In terms of the UOG, SCE has modeled the savings based on the maximum allowed rate of 26 cents / kWh, even though actual costs are likely far lower. Our analysis, detailed below, indicates that roughly 75% of the claimed \$300 million in savings are attributed to reducing this overstated UOG portion. SCE needs to recalculate the savings based on the actual expected cost of UOG going forward. (If the actual expected cost of UOG is 26 cents / kWh, then we recommend keeping the IPP portion at 250 MW, reducing the extremely expensive UOG portion to 125 MW and transitioning 125 MW of the UOG portion to the RAM. This would allow program goals to be met and market disruptions to be minimized while STILL maintaining 75% of the claimed \$300 million in savings.)
 2. SCE's claimed \$300 million in savings are based on pricing received in the RSC program, which does not fully take into account transmission and upgrade costs. Therefore, SCE's savings estimate is artificially high, as it does not reflect additional transmission costs that will have to be borne by ratepayers. Given the average RSC project size of 9.6 MW, these hidden costs could be very high. SCE needs to recalculate the savings using reasonable estimates for transmission and upgrade costs for *both* the RSC contracts and rooftop solar projects.
- RSC pricing has generally been driven by projects closer in size to 20 MW, further weakening the pricing comparison used by SCE. Although the decision

states that 8 of 15 projects are 5 MW or less in size, it fails to recognize that the average RSC project is 9.6 MW and the *smallest* of the RSC projects is 4.7 MW, which is still substantially larger than projects in a 1 to 2 MW rooftop program.

- Rooftop projects have significant ratepayer value associated with location, including avoided line loss and transmission investment. These frequently not avoided in RAM procurement and are not reflected in SCE's analysis.
- SPVP projects would necessarily largely or entirely realize the avoided costs being located at or very close to loads matching their full capacity and by reducing the load requirements on transmission. These benefits will be increased as further Demand Response and smart grid system integration is developed and deployed. Rooftop projects will not contribute to future TAC charges, and SCE ratepayers will bear a greater share of total TAC charges if SPVP is transferred to RAM.
- The proposed decision provides SCE too much leeway by allowing it to wait until 180 days before the end of year five before announcing that it will own less than 115 MW of UOG and/or IPP. Given the short development lifecycle for these projects and the multiple auctions expected to occur, SCE should be required provide notice 545 days before the end of year five.
- Finally, we encourage the Commission to evaluate the technology, project sizes and pricing from the November 2011 RAM solicitation prior to ruling on this PD.

While we are aware that our comments are lengthy and require additional analysis, we note that our initial comments and concerns in this proceeding were not effectively addressed by SCE in its November 10, 2011, reply comments. In fact, many of our comments were effectively ignored by SCE and the Commission. As we demonstrate below, SCE's claimed analysis has multiple flaws that must be addressed before any real savings are analyzed and subjected to a thoughtful cost-benefit analysis. Until those flaws are fixed, it is unreasonable to make dramatic changes to the SPVP program.

I. Specific comments

a. Proposed modifications would result in a program that fails to support the original decision adopting the SPVP

As quoted by the Commission in its June 2009 “Decision Addressing a Solar Photovoltaic Program for SCE”, SCE explained the SPVP program as follows: “while the primary purpose of the program is to help meet the State’s ambitious Million Solar Rooftops goal, the Solar PV program will also add to SCE’s renewable portfolio.”

Additionally, the Commission made the following statement in support of the proposed SPVP program:

“We find that the SPVP is a reasonable step to encourage development of more distributed renewable resources in the one to two MW range. The SPVP projects can be located near load, thus avoiding the need to build new transmission facilities and help reduce local congestion. The ability to deploy this technology quickly also can help advance California’s broad goal of developing renewable energy and specifically help make progress toward the state’s emphasis on developing distributed rooftop solar PV projects while other options are being considered.”

Finally, the Commission also noted the following:

“We have stated our desire for the California investor-owned utilities (IOUs) to develop renewable generation in California. Renewable generation that is close to load, can be deployed quickly, and requires less transmission is a desirable option.”

Given all of the above statements, we believe that any post-modification SPVP must demonstrably continue to encourage the development of “more distributed renewable resources in the one to two MW range” and, in particular, generation that is “close to load, can be deployed quickly and requires less transmission.” The Commission seems

to believe that this requirement is no longer necessary on the basis of the feed-in tariff they are administering under AB1969/SB32 and the new RAM program. However, as we will explain below, both of these programs contain substantial uncertainties that mean they cannot be depended on to encourage the development of one to two MW projects.

SB32

While there is hope that SB32 will encourage the development of one to two MW projects, pricing remains uncertain until at least March 2012 and the program has not yet been implemented. As such, the success of the program is wholly unknown and it cannot be said with any confidence that SB32 will meet the SPVP program goals laid out above by SCE and the Commission.

RAM

In terms of the RAM, the Commission is, of course, correct that rooftop solar PV projects in the one to two MW size may *participate* in the RAM. However, until there is more clarity about how the RAM will be structured to recognize locational benefits, there is no evidence that 1 to 2 MW rooftop solar projects will be able to *win* in the RAM. Until that clarity is provided and evidence is shown that the locational benefits of distributed renewable resources in the one to two MW range will be fully recognized, it cannot be said with any confidence that the RAM will meet the SPVP program goals laid out above by SCE and the Commission.

- b. Proposed modifications would reduce the MWs available to the “IPP rooftop” segment by 56%, which is far more drastic than the “fine tuning” that the Commission said to expect in the original decision adopting the SPVP. We believe a 56% decline would be a substantial disruption and would constitute bad policy.**

The Commission made the following statement in their 2009 initial decision on the SCE SPVP: “we will carefully monitor the program’s progress, examine ways in which the program can be improved, and fine tune the program when and where appropriate.” We support the Commission’s willingness to respond to lessons learned, but believe that is a stretch to consider a 56% reduction in the “IPP rooftop” segment as nothing more than “fine tuning”.

Under the original decision, the Commission allowed for 250 MW of IPP, of which 90% was to be rooftop solar (90% represents the inverse of the 10% limit on ground mounted solar), or 225 MW. In the revised SVPV, there would be 125 MW of IPP, of which 80% is to be rooftop solar, or 100 MW. This decline in IPP rooftop solar from 225 MW to 100 MW represents a 56% reduction, which is not “fine tuning” or “incremental”, but a substantial disruption that is certain to impair the development of an efficient market segment. The Commission may *hope* that this impact will be ameliorated by rooftop developers accessing SB32, RAM or other programs, but as we observed above, those programs are unproven alternatives and cannot be considered viable replacements until we see proof of success by smaller scale rooftop solar developers using them.

c. SCE Cost Savings Calculations

Before we discuss our own analysis of the claimed \$300 million cost savings, we want to emphasize that it is unacceptable that SCE chose not to respond to any of the specific questions about their claimed \$300 million in savings. These procedures are designed to allow all parties, including the Commission, to make educated, informed decisions and it is unclear why the Commission has let SCE ignore the majority of questions posed by the Clean Coalition and instead provide simplistic, and arguably disingenuous, responses to those few questions that they did deign to answer. The claimed \$300 million in savings are vital to this discussion and SCE, if it were receptive

to an open process, could easily provide far more detail without releasing any confidential data to the marketplace.

Therefore, we reiterate the need for a better understanding of these claimed savings and recap the questions that we posed in our November 11, 2011 filing:

1. Does the assumed “new rate” fully account for all incremental costs associated with developing larger projects far from load? (If these costs are NOT accounted for, then SCE’s analysis is flawed and cannot be considered an “apples to apples” comparison.)
2. How much of the total cost savings is due to the reduction in UOG? (Note that UOG is charged at an extremely high 26 cents/kWh and that any reduction in UOG will result in substantial savings.) What would the savings be if all additional UOG were replaced with IPP SPVP projects at recent solicitation prices?
3. How have the SPVP solicitations developed over time? (It is our understanding that solicitation prices have been declining as the market matures and becomes more competitive. If this is the case, has SCE factored this into its analysis?)”

To be certain that these points do not go unanswered *once again*, we review SCE’s November 10, 2011 responses to these questions (if any) and highlight areas where more information is still needed.

Question 1: Does the assumed “new rate” fully account for all incremental costs associated with developing larger projects far from load?

In response to our 1st question, SCE simply stated: “The Clean Coalition erroneously argues that SCE’s analysis did not take into account the locational benefits of rooftop solar or the likelihood that SPVP projects may be able to interconnect faster than larger,

ground-mounted solar projects. SCE stands by its view that customers will achieve significant cost savings if the SPVP is revised.”

No further analysis or evidence was provided by SCE and, frankly, it cannot be acceptable for SCE to refute a question by simply declaring it to be untrue and not providing any substantiating data or analysis. In order to assess the claimed \$300 million in savings in this proceeding, it is *crucial* to understand what these savings are based upon and whether the all-in costs, including transmission and upgrade costs, are similarly weighted on both sides of the savings equation. If the all-in costs are *not* treated equally on both sides of the equation, then the comparison is not “apples to apples” and the claimed \$300 million in savings must be deemed unreliable and, in all likelihood, overstated.

Importantly, it appears that the RSC contracts that were used as baseline pricing in SCE’s savings calculation do *not* fully take into consideration upgrade and transmission costs. This view is confirmed in the January 2011 report by Merrimack Energy Group, the Independent Evaluator of the RSC, which contains the following language: “SCE used the same renewable premium evaluation methodology and forecast as had been used in the 2009 RPS RFP, except that a generalized estimate was used for the locational capacity value and transmission adder for all of the projects, rather than a project-specific estimate.”

In that same report, Merrimack noted the following (underlining added):

“2010 RSC program also had a number of weaknesses, many of which are related to its strengths. First, the price evaluation mechanism does not take into consideration indirect costs, in particular the costs associated with transmission upgrades. Hence, the simplicity of the pricing approach comes at the cost of accuracy in terms of assessment of customer costs and benefits.”

Given the above statements by the RSC Independent Evaluator, it is apparent that SCE's use of RSC pricing as a baseline for comparison against the SPVP is a flawed methodology. This demonstrates that the claimed \$300 million are almost certainly overstated, as they do not reflect additional indirect costs that will be borne by the ratepayer. SCE needs to recalculate the savings using reasonable estimates for transmission and upgrade costs for *both* the RSC contracts and the rooftop solar projects.

Perhaps aware of this flaw in their savings calculations, SCE's reply comments attempted to obfuscate our argument with the following statement: "Of course, the implicit assumption to this argument is that each and every rooftop project has no upgrade costs or somehow defers upgrades, which SCE has found not to be the case." This statement by SCE is a misrepresentation of our argument. Nowhere do we claim that rooftop projects have no upgrade costs. However, given our understanding of how interconnection works and project-specific conversations with developers, we have found that 1 MW rooftop projects typically cause no contribution to transmission network upgrades, unlike remotely-located 10 MW and 20 MW projects that typically materially interact with the transmission grid. If this *is* an accurate statement, then SCE's claimed \$300 million in savings are overstated. (If this is an inaccurate statement, we encourage SCE to provide data proving otherwise.)

RAM procurement favors lowest cost of production but not lowest total delivered price. This has encouraged generation projects in areas where transmission constraints exist, as clearly evidenced by both the SCE WDAT queue and CAISO interconnection cluster studies and the planned investment in transmission upgrades to be repaid by ratepayers. The cost of existing transmission investments adds an average of \$14.50 per MWh to the delivered cost of energy using the transmission system (HV and LV TACs), and the CPUC has estimated that remote renewable generation will require an average additional transmission investment equal to \$34 per MWh. The recent Sunrise

transmission line is an example of this, with an expected cost of \$1.883 billion , which is anticipated to allow for development of up to 1900 MW of renewable resources, roughly \$1/W.

In addition to the cost of required transmission infrastructure, significant line losses occur when generation is not sited close to load, increasing the ratepayer cost by roughly 5%, and up to 11% during peak demand periods. The Value of avoided distribution costs alone is as great as 1.4 cents per kWh within SCE’s service territory.¹ An illustration of the impact of locational benefits on effective ratepayer cost is provided below

PV Project size and type	Distribution Grid					T-Grid
	100kW roof	500kW roof	1 MW roof	1 MW ground	5 MW ground	50 MW ground
Required PPA Rate	15¢	14¢	13¢	12¢	11¢	10¢
T&D costs	0¢	0-1¢	1¢	1¢	1-2¢	2-4¢
Ratepayer cost per kWh	15¢	14-15¢	14¢	13¢	12-13¢	12-14¢

Question 2: How much of the total cost savings is due to the reduction in UOG?

SCE completely failed to address this question. This omission is notable given that the Clean Coalition analysis indicates that at least 75% of the total cost savings are due to the reduction in UOG. Again, SCE is preventing proper consideration of their petition by refusing to answer critically relevant questions.

Again, the Clean Coalition contends that, before this Proposed Decision can be properly considered SCE must provide more data and insight into its analysis. The Clean

¹ ‘Methodology and Forecast of Long Term Avoided Costs’, 2004. Prepared for the CPUC by Energy and Environmental Economics, Inc, San Francisco

Coalition has done its own analysis of the revenue requirements. Unless SCE provides additional data, our numbers are necessarily based in part on our own estimates. Nevertheless, we believe these numbers to be directionally accurate.

Our assumptions are as follows:

- Contract terms: 20 years
- Capacity factor: 22.0%
- Discount rate: 10% per annum
- Panel decay: 1.0% per annum
- UOG cost / kWh: Assumed to be 26.0 cents, as stated by SCE in its February 11, 2011 Petition for Modification
- IPP cost / kWh: assumed to be 17.0 cents for Original SPVP and SCE Feb-2011 proposal. Based on conversations with solar developers².
- RAM cost / kWh: assumed to be 12.5 cents. Based on conversations with solar developers.

	Original SPVP	SCE Feb-2011 Proposal
UOG MW	250	125
UOG cost / kWh	26.0 cents	26.0 cents
IPP MW	250	125
IPP cost / kWh	17.0 cents (CleanCo estimate)	17.0 cents (CleanCo estimate)
IPP Revised	NM	250
IPP Revised cost / kWh	NM	12.5 cents (CleanCo estimate)

² The municipal utility of the City of Palo Alto is preparing a 2012 standard offer (FIT) for local rooftop solar priced at fixed flat rate of 13 – 15 cents, and has received substantial interest from IPPs; such pricing would further contradict SCE’s claimed costs and potential savings. The Palo Alto utility has calculated the avoided cost of delivered energy to be 13.1 cents after accounting for TAC and line losses from projects relying on transmission.

Using the assumptions above, we calculate an estimated savings of roughly \$346 million relative to the base case, of which \$260 million, or 75%, is attributable to the reduction in the UOG portion from 250 MW in Base Case scenario to 125 MW in the SCE Proposal. Expressed differently, only 25% of the savings are attributable to changes made in the IPP portion of the Base Case. SCE must explain why they used 26.0 cents / kWh (the maximum allowable rate) to model the UOG costs. If actual UOG costs have been lower, then why weren't the lower numbers used in the modeling of the claimed savings? How much does the claimed \$300 million in savings decline if more realistic costs are used for the UOG portion? In our analysis, for example, reducing the UOG rate to 20 cents / kWh reduces the claimed savings by more than \$100 million and more than 60% of the remaining savings are still attributed to reducing the UOG portion from 250 MW to 125 MW.

If SCE says that the expected cost of UOG is actually 26 cents / kWh, then clearly the UOG is dramatically overpriced and we would recommend keeping the IPP portion at 250 MW, reducing the UOG portion to 125 MW and transitioning 125 MW of the UOG portion to the RAM. This would allow program goals to be met and market disruptions to be minimized while *still* maintaining roughly 75% of the claimed \$300 million in savings.

Question 3: How have the SPVP solicitations developed over time?

SCE opted to ignore this question also, which is important since it is our understanding that solicitation prices have been declining as the market matures and becomes more competitive. If SCE has NOT accounted for declining prices in its modeling, then this would be yet another reason why the claimed \$300 million in savings are overstated. (see footnote 2 above)

- d. RSC pricing has generally been driven by projects closer in size to 20 MW, further weakening the pricing comparison used by SCE. Although**

the Decision states that 8 or of the 15 projects are 5 MW or less in size, it fails to provide the detail that the *smallest* of these projects is 4.7 MW, still substantially larger than 1 to 2 MW projects in a rooftop program

As the Commission noted in its January 2011 proposed decision, other opponents stated that the “levelized cost of the 2010 RSC winning bids is primarily driven by larger scale ground-mounted, rather than rooftop, PV facilities.” The Proposed Decision appears to refute this point by stating 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.” While this statement is technically true, it implies that there are RSC projects in the targeted size of one to two MW. In reality, the list of RSC projects below reveals that there are *no* projects smaller than 4.7 MW and that the average project size is 9.6 MW. As such, it seems that CARE’s initial concerns are extremely valid and need to be addressed.

Seller	Contract Capacity (MW)	Initial Operation Date
Lancaster Dry Farm Ranch B LLC	5.0	4/2014
Lancaster WAD B LLC	5.0	4/2014
Central Antelope Dry Ranch B LLC	5.0	4/2014
Victor Dry Farm Ranch A LLC	5.0	4/2014
Victor Dry Farm Ranch B LLC	5.0	4/2014
Sierra View Solar V LLC	19.0	12/2013
Sierra View Solar IV LLC	19.0	12/2013
Nicolis LLC	20.0	9/2013
Blythe Solar Power GS 1 LLC	4.7	6/2013
Littlerock Solar Power GS 1, LLC	5.0	4/2013
Garnet Solar Power GS 1 LLC	4.8	6/2013
Lucerne Solar Power GS 1 LLC	14.0	3/2014
Tropico LLC	14.0	9/2013
Clear Peak Energy, Inc	8.5	12/2013
RE Columbia 3, LLC	10.0	1/2014
AVERAGE	9.6	

Additionally, it is interesting to note that the forecasted initial operation dates are mid-2013 or later. Many market observers believe that some developers are following a strategy of submitting uneconomic bids now in hopes that they can defer construction until panel prices decline further and the bids become economic. If this is the case, then RSC prices may be artificially low, raising further questions about the merits of the RSC as a baseline.

In summary, the RSC is a deeply flawed baseline for the claimed \$300 million in savings. As should be apparent in the table below, this is not an “apples to apples” comparison:

Category	Size	Months to Operation	Interconnection
RSC (Average)	9.6 MW	36	Due to project size/location, likely to be costly and time-consuming
SPVP Rooftop (Average)	1.5 MW	18	Likely to be far lower cost than 10 MW to 20 MW projects that interact with the transmission grid

In no way does the Clean Coalition we claim that the proposed modifications would produce no savings. However, the Clean Coalition does claim that the savings appear to be based on flawed assumptions and are therefore materially overstated. Until these multiple flaws are addressed and the real savings can be analyzed and subjected to a thoughtful cost-benefit analysis, it is unreasonable to make dramatic changes to the SPVP program.

- e. **The proposed decision provides SCE too much leeway by allowing it to wait until 180 days before the end of year 5 before announcing that it will own less than 115 MW of UOG and/or IPP**

Given the short development lifecycle for these projects and the multiple auctions expected to occur, we can see no reason why SCE should be allowed to wait until nearly the end of the program before filing a Tier 2 advice letter seeking authorization for less UOG and/or IPP. We recommend that SCE should have to file an advice letter no later than 545 days before the end of year 5 if it has not implemented 75 MW of UOG and 75 MW of IPP by that point in time.

- f. We encourage the Commission to evaluate the technology, project sizes and pricing from the November 2011 RAM solicitation prior to ruling on this proposed decision.**

As is apparent from our comments above, there is a great deal of uncertainty and lack of information surrounding the various assumptions made by SCE and the Commission about pricing, transmission and upgrade costs, timelines and key issues in this proposed decision. As such, the extra data points from the November 2011 RAM solicitation should be considered in hopes that they will reduce some of this uncertainty.

Respectfully submitted,

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VERIFICATION

I am authorized to make this verification on its behalf of Clean Coalition. I am informed and believe that the matters stated in the foregoing pleading are true.

I declare under penalty of perjury that the foregoing is true and correct.
Executed this 1st day of February, 2012, at Santa Cruz, California.

Kenneth Sahm White



Clean Coalition