

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

Order Instituting Rulemaking Regarding Polices,)	
Procedures and Incentives for Distributed)	Rulemaking 04-03-017
Generation and Distributed Energy Resources.)	(Filed March 16, 2004)
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PRE-WORKSHOP COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY
(U 338-E) ON PERFORMANCE-BASED INCENTIVES FOR THE CALIFORNIA
SOLAR INITIATIVE PROGRAM

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I. INTRODUCTION

Pursuant to Administrative Law Judge Malcolm’s February 3, 2006 Ruling Scheduling Workshop on Performance-Based Incentives for the California Solar Initiative Program, Southern California Edison Company (SCE) submits the following pre-workshop comments and proposal for a Performance-Based Incentive (PBI) mechanism.

A well-conceived PBI framework is critical to realizing a California Solar Initiative (CSI) that achieves the California Public Utilities Commission’s (Commission) PV market development and greenhouse gas reduction goals without ratepayers being required to pay subsidies any larger than necessary to achieve these goals. As the Commission noted in D.06-01-024, current capacity-based incentives do not recognize the amount of energy actually produced from a facility or motivate good project management or maintenance.¹ “Performance-based incentives, on the other hand, recognize good project performance by paying the project owner on the basis of energy production levels . . . and promote not only installation of solar projects but also their efficient operation.”² For these reasons, SCE has consistently supported using a PBI mechanism to try to assure that ratepayers pay no more than necessary to achieve the

¹ D.06-01-024, p. 21.

² *Id.*

Commission's PV market development goals. SCE offers the following PBI proposal for implementation in the CSI:

- Residential customers would be paid a capacity-based incentive, with 50% of that incentive paid upfront, and 50% paid in equal annual installments over 5 years following annual inspections to confirm that the solar electric generating system is still operating.
- Non-residential customers would also be eligible to receive incentives based on the solar electric generating system's installed capacity, but they would receive these incentives in the form of performance payments over the first 5 years of their operations. Customers would receive their incentive payments in the form of per-kWh payments in amounts that would convey to them the full incentive payment if they successfully achieve an average capacity factor of 20% over the first 5 years of operations.
- All CSI generating facilities would be required to install an additional meter socket so that SCE could install metering for evaluation, monitoring, and distribution system planning and operations. For non-residential customers, this metering would also be used to determine the incentive payments conveyed to the customer pursuant to the per-kWh production incentive.
- In view of the substantial Federal tax credit for businesses recently adopted under the Energy Policy Act of 2005, the Commission should consider adjusting California ratepayer-funded incentives to account for the additional incentive provided by the Federal tax credit and to assure the maximum penetration of solar generation within the funding limits of the CSI program. By attempting to assure that total incentives available to businesses do not needlessly exceed the levels necessary to achieve good market penetration of solar facilities, the Commission will be able to use California ratepayer funds in the most cost-effective manner to achieve the maximum penetration of solar generating facilities within the funding limits of the CSI program.

II. PROPOSAL

A. CSI Incentive Structure

SCE proposes to implement different incentive mechanisms for residential and non-residential customers. Parties have commented that residential customers may have difficulty securing financing for the full upfront costs of their solar system. Also, as discussed more fully below, business customers can take advantage of a sizeable federal investment tax credit to substantially reduce their initial financial burden. Therefore, SCE proposes that the Commission adopt somewhat different incentive mechanisms for residential and business customers as described below. As a starting point, SCE will discuss its PBI proposal using the incentive levels described in Table 5 of Attachment A to D.06-01-024, which are summarized in Table 1 below:

Table 1:

Current CSI Rebate Levels

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
\$2.50	\$2.25	\$2.00	\$1.75	\$1.50	\$1.25	\$1.00	\$0.75	\$0.50	\$0.25

To the extent that the Commission, after further consideration, chooses to reduce these incentive levels generally or have them decline more quickly after reaching certain megawatt “triggers” as described in D.06-01-024, the PBI incentives that SCE proposes below should be adjusted accordingly.

1. Incentive Structure for Residential Customers

Customers seeking to install solar generation at a location taking service from SCE under a residential rate schedule would receive 50% of the capacity-based incentive upfront, and the remaining 50% over the following 5 years after annual inspections confirm that the solar generating system is still operating. Such a structure would provide residential customers a significant portion of the overall incentive upfront to help offset the initial capital investment, and still allow the program administrator to ensure that the residential systems continue to

operate for at least 5 years following installation.³ Consistent with the Commission’s provisional incentive proposal shown in Table 1, the upfront capacity-based payments made to residential customers would be as shown in Table 2 below:

**Table 2:
Upfront Capacity Payment Equal to 50% of CSI Capacity-Based Incentive**

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
\$1.25	\$1.13	\$1.00	\$0.88	\$0.75	\$0.63	\$0.50	\$0.38	\$0.25	\$0.13

On or about the anniversary of project installation, and upon inspection of the generating facility, residential customers would receive 1/5 of the remaining capacity-based incentive annually for each of the five years following project installation as shown in Table 3 below:

**Table 3:
Yearly Payments Totaling the Remaining Capacity-Based Incentive**

Pay-out Year	Initial Year of Operation									
	\$/Watt Installed									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	0.25	0.23	0.20	0.18	0.15	0.13	0.10	0.08	0.05	0.03
2	0.25	0.23	0.20	0.18	0.15	0.13	0.10	0.08	0.05	0.03
3	0.25	0.23	0.20	0.18	0.15	0.13	0.10	0.08	0.05	0.03
4	0.25	0.23	0.20	0.18	0.15	0.13	0.10	0.08	0.05	0.03
5	0.25	0.23	0.20	0.18	0.15	0.13	0.10	0.08	0.05	0.03

In D.06-01-024, the Commission contemplates that every generating facility would be required to contain internal output metering. SCE strongly supports requiring such internal metering.⁴ The entity responsible for the annual inspection of the generating facility could then examine the meter as one of a number of potential tests to assure that the facility has been operating. As discussed more fully below, SCE also proposes that each generating facility be required to install a meter socket so that SCE could, at its discretion (or on behalf of a third party

³ For the sake of simplicity, SCE has not incorporated adjustments for the time-value of these incentive payments. SCE nevertheless recognizes that some adjustment for time-value is appropriate and will incorporate such an adjustment when a final incentive mechanism is adopted.

⁴ D.06-01-024, p. 31.

retained to conduct program evaluation studies), install metering for evaluation, monitoring, and distribution system planning and operations.⁵

2. Incentive Structure for Non-Residential Customers

Customers seeking to install solar generation at a location taking service from SCE under a non-residential rate schedule would be eligible to receive incentive payments based on the size of their solar electric generating facility, but these payments would be conveyed to them in the form of per-kWh payments based on the actual performance of their solar generating systems. The per-kWh rate would be calculated so as to pay eligible customers their full capacity-based incentive over a 5-year period to the extent that they are successful in achieving an average capacity factor of at least 20%.⁶ For example, because there are 8,760 hours in a year, a solar facility operating at a 20% capacity factor would produce 1,752 kilowatt-hours per installed kilowatt per year. This would result in production of 8,760 kilowatt-hours per installed kilowatt over the first five years. Spreading the 2007 capacity-based incentive of \$2.50 per watt over five years of production at this 20% capacity factor equates to a performance payment of \$.29 per kWh.⁷ Thus, as long as a generating facility produced at a minimum average capacity factor of 20% over the first five years, the customer would receive its full incentive payment. Payment rates pursuant to this proposed incentive structure are detailed in Table 4 below:

⁵ SCE would require the meter socket to be installed next to the utility service panel for ease of reading and evaluation.

⁶ Parties to this proceeding have stated in comments and testimony that solar PV installations typically perform at an 18%-22% capacity factor, and may even be as high as 65%. *See, e.g.*, ASPv Prepared Testimony on the Itron Report, Exh. LSS-8 (assuming a 20%-22% capacity factor based on a midpoint between the weighted capacity factor for the CPUC's Self Generation Incentive Program (18%) and the annual capacity factor for PV estimated by Wenger, et al. (22%)); ASPv Motion for Adoption of Performance Based Incentives (11/10/05) (assuming 21% capacity factor); Vote Solar Comments on Staff Solar Report (7/7/05), p. 15 (assuming an 18% capacity factor); ASPv & PV Now Joint Comments on Staff Solar Report (7/7/05), Att. A (assuming 65% capacity factor).

⁷ $(\$2.50/\text{Watt} \times 1000 \text{ Watts}) / (8760 \text{ hrs} \times 20\% \text{ capacity factor} \times 5 \text{ years}) = \$0.29/\text{kWh}$.

Table 4:
Non-Residential Performance Payments

Pay-out Year	Initial Year of Operation (\$/kWh)									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1	0.29	0.26	0.23	0.20	0.17	0.14	0.11	0.09	0.06	0.03
2	0.29	0.26	0.23	0.20	0.17	0.14	0.11	0.09	0.06	0.03
3	0.29	0.26	0.23	0.20	0.17	0.14	0.11	0.09	0.06	0.03
4	0.29	0.26	0.23	0.20	0.17	0.14	0.11	0.09	0.06	0.03
5	0.29	0.26	0.23	0.20	0.17	0.14	0.11	0.09	0.06	0.03

Thus, if a customer’s generating system produces at or above the incentive target capacity factor of 20%, the customer will receive the equivalent of a capacity-based incentive payment over the 5-year payment term.⁸ However, if a customer’s generating system produces at an average capacity factor of less than 20% based on its rated capacity, the customer will appropriately receive reduced total incentive payments consistent with its lower actual metered production. As the Commission stated in D.06-01-024, this incentive mechanism will recognize good project performance and encourage the efficient operation of solar installations.⁹ Further, it will place the risk of non-performing systems where it should be – on CSI participants and installers, rather than on all other ratepayers.

As described more fully below, generating facilities would be required to include a meter socket so that the utilities could install metering for calculation of the incentive payment, as well as evaluation, monitoring, and distribution system planning and operations. Each quarter, SCE would send participating customers a statement of their system’s performance and a check with the corresponding incentive payment based on their recorded kWh production.¹⁰

⁸ A superior-performing installation would be able to earn its full incentive payment in less than five years. However, performance payments should be capped at the equivalent of a capacity-based incentive payment. The Commission should endeavor to use limited CSI funds to provide incentives for the greatest number of high-performing solar installations. The CSI need not provide a greater level of subsidy than is currently provided under the capacity-based incentive structure.

⁹ D.06-01-024, p. 21.

¹⁰ These statements and payments will be independent of customers’ regular electric bills.

B. Metering Requirements for Proposed Incentive Mechanisms

In Decision 06-01-024, the Commission recognized “the need for good metering in order to manage and monitor CSI installations and the CSI program generally.”¹¹ The Commission also stated its intent to conduct biennial assessments of the CSI and “make adjustments where necessary to promote cost-effective and otherwise responsible use of program funds.”¹² SCE agrees, and strongly advocates the continuation of active monitoring and measurement capability to assess the success of the CSI program and to assure that ratepayers are getting value in return for the subsidies they provide. As described above, SCE proposes that all CSI generating facilities be required to install an additional meter socket so that SCE could install net generation output metering for evaluation, monitoring, and distribution system planning and operations. For non-residential customers, this metering would also be used to determine the incentive payments conveyed to the customer pursuant to the per-kWh production incentive. Because metering technology is likely to undergo substantial change over the next few years, it is appropriate for the utilities to take responsibility for determining the most appropriate type of meter to install in the socket.

C. Treatment of Federal Tax Credits

The Energy Policy Act of 2005 created a 30% investment tax credit for both residential customers and business customers who install solar generating facilities.¹³ The residential investment tax credit is capped at \$2,000, but the business tax credit has no such cap. For example, for a residential customer installing a 3 kW PV system for \$10.00 per watt, the uncapped tax credit would have been \$9,000 in the absence of the cap, but the tax credit is limited to \$2,000 by the cap. Due to this tightly constraining cap, SCE does not find sufficiently good reason for considering an adjustment in the level of the ratepayer-funded subsidies for the

¹¹ D.06-01-024, p. 31.

¹² *Id.*, p. 12.

¹³ In 2008, this tax credit drops to 10% for businesses and 0% for residential customers.

residential portion of the CSI program. However, by contrast, the federal tax credit for businesses installing solar electric generation is unconstrained by a cap and is likely to provide substantial additional incentives to businesses. Therefore, SCE recommends that the Commission consider the appropriateness of providing ratepayer-funded subsidies to both residential and business customers at the same rate per installed kilowatt during years in which the federal tax credit continues to be available.

To illustrate, a business customer installing a 30 kW system (30,000 watts) for an installed cost of \$9.00 per watt would incur an installed investment cost of \$270,000. The federal investment tax credit would be worth \$81,000 to such a customer.¹⁴ When added to the California incentive level of \$2.50 per watt (*i.e.*, \$75,000), more than half of the cost of the installation would be subsidized by other ratepayers and taxpayers. Further, the full extent of ratepayer-funded subsidy is not simply confined to the direct incentive payment and tax credit, but also includes the ratepayer-funded subsidy embedded in the net-metering program. This additional incentive can also be very substantial. Decision 06-01-024 recognized that federal tax credits may reduce the need for some or all state-sponsored incentives.¹⁵ SCE agrees, and urges the Commission to consider reducing the current CSI incentive levels for business customers in view of the additional subsidy provided through the federal tax credit. By attempting to assure that overall incentive levels do not needlessly exceed the levels necessary to achieve the Commission's market development and greenhouse gas reduction goals, the Commission will be able to fund the installation of a larger number of solar generating facilities within the limits of the ratepayer funding provided by the CSI program.

¹⁴ SCE assumes the Federal tax credit will be taken the year the solar system is purchased and the State incentives will be paid over time based on performance. The Federal tax credit allowed in the initial year is likely to ignore the payment of future performance incentives in calculating the investment basis for the tax credit. Therefore, when performance incentive payments are later made to the customer, these incentive payments will be subject to a Federal recapture tax to recover the "overpayment" of the initial Federal tax credit. SCE does not expect that this overall tax treatment will have any significant negative effect on the customer.

¹⁵ D.06-01-024, p. 16.

III. CONCLUSION

The incentive design adopted by the Commission must ensure that the general pool of ratepayers who are funding the CSI program are getting “the most bang for their buck.” Each ratepayer-funded dollar should be conveyed to participating customers in such a way to maximize the additional penetration of solar generation per subsidy dollar spent. SCE strongly believes that this will require a PBI mechanism structured along the lines of the incentive proposal presented here. SCE appreciates the opportunity to comment on a PBI mechanism for the CSI and respectfully requests that the Commission adopt the PBI proposal offered above. SCE looks forward to providing further detail concerning its proposal at the workshop scheduled for March 16, 2006.

Respectfully submitted,

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February 24, 2006

CERTIFICATE OF SERVICE

I hereby certify that, pursuant to the Commission's Rules of Practice and Procedure, I have this day served a true copy of **PRE-WORKSHOP COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) ON PERFORMANCE-BASED INCENTIVES FOR THE CALIFORNIA SOLAR INITIATIVE PROGRAM** on all parties identified on the attached service list(s). Service was effected by one or more means indicated below:

- Transmitting the copies via e-mail to all parties who have provided an e-mail address. First class mail will be used if electronic service cannot be effectuated.
- Placing the copies in sealed envelopes and causing such envelopes to be delivered by hand or by overnight courier to the offices of the Commission or other addressee(s).
- Placing copies in properly addressed sealed envelopes and depositing such copies in the United States mail with first-class postage prepaid to all parties.
- Directing Prographics to place the copies in properly addressed sealed envelopes and to deposit such envelopes in the United States mail with first-class postage prepaid to all parties.

Executed this **24th day of February, 2006**, at Rosemead, California.

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