



SOUTHERN CALIFORNIA
EDISON

An EDISON INTERNATIONAL Company

Christine Sanchez
Project Analyst
Christine.Sanchez@SCE.com

June 16, 2006

VIA OVERNIGHT DELIVERY

Docket Office
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

DOCKET
06-NSHP-1

DATE JUN 16 2006

RECD. JUN 16 2006

Re: **Docket 06-NSHP-1: SCE's Comments**

Dear Mr. Docket Office:

Attached is an original and eleven copies of the **"Comments of Southern California Edison Concerning the California Energy Commission Renewables Committee's June 12, 2006 Workshop on the Design of the New Solar Homes Partnership"** in the above referenced docket that was served and submitted electronically for filing today, June 16, 2006. We request that a copy of this document be filed stamped and returned for our records. A self addressed, envelope is enclosed for your convenience.

Please do not hesitate to contact me at (626) 302-6699, if you have any questions.

Sincerely,

Christine M. Sanchez
Project Analyst

cc: Amber Dean

CS:cs:Letter4.doc

Enclosure(s)

P.O. Box 800 2244 Walnut Grove Ave.
Fax (626) 302-1048

Rosemead, California 91770 (626) 302-6699

Comments of Southern California Edison Concerning the California Energy Commission Renewables Committee's June 12, 2006 Workshop on the Design of the New Solar Homes Partnership

I. Introduction

SCE commends the Renewables Committee for its leadership in sponsoring this workshop regarding the CEC's New Solar Homes Partnership (NSHP). SCE supports the CEC's NSHP Draft Proposal. In particular, SCE is encouraged by the Staff's recommendation to require substantially higher levels of energy efficiency to increase the cost effectiveness of solar projects. SCE is also pleased to see that the Staff proposed an expected performance-based incentive payment, and has included the project's location within the performance attributes to be considered for purposes of incentive payment. These and other Staff Recommendations are positive steps toward developing a successful solar photovoltaic program for new homes.

SCE has provided answers to the questions posed in the Notice of Renewables Committee Workshop on the Design of the New Solar Homes Partnership in Attachment A to these comments. Additionally, SCE will provide brief comments on the issue of program administration.

II. Program Administration

The NSHP Staff Proposal indicates that administrative duties of the NSHP could be contracted out to the utilities. SCE wholeheartedly supports utility administration of the NSHP. SCE has extensive experience in handling large numbers of applications and incentive administration. In addition to the SGIP program administration, SCE currently administers energy efficiency, demand response, and CARE programs. In 2005 alone, SCE administered energy efficiency rebate and audit programs for more than 340,000 participating customers, and provided energy efficiency incentives totaling more than \$150 Million. SCE also received and processed more than 474,000 CARE applications. In addition, SCE currently manages more than 164,000 customers in the Summer Discount Plan and enrolled more than 44,000 customers in 2005 alone. Thus, SCE has both the infrastructure and experience to process large numbers of project applications, complete system inspections and verifications, and process incentive payments.

Additionally, the utilities are in the best position to leverage existing delivery infrastructure to coordinate program administration with energy efficiency program requirements, marketing and outreach, system inspection and approval for interconnection to the utility grid, and Net Energy Metering (NEM) billing. While there could be other outside agents able to provide some of these resources, efficiencies will be lost with a third party administrator. Utilities also have strong relationships with the

developer and builder communities, as well as the CEC. For these reasons, SCE believes that the utilities are in the best position to administer the NSHP.¹

If the CEC does opt to contract administration to the utilities, that contract must facilitate the flow of monies to administer the program and disburse incentives. Under current rules concerning Public Goods Charge (PGC) funds, SCE transfers all PGC funds collected from customers to the CEC's trust fund account on a quarterly basis. If SCE is contracted to administer the NSHP in its territory, policymakers must determine whether utilities will be permitted to retain PGC funds for the NSHP, or address how program funds will be disbursed to SCE for program administration and incentive payment.

IV. Conclusion

SCE appreciates the opportunity to comment on the NSHP Draft Staff Proposal and issues raised at the June 12, 2006 workshop and looks forward to continued participation in the NSHP.

Respectfully submitted,

Manuel Alvarez

¹ In the context of the CSI, SCE also raised concerns regarding potential legal and regulatory hurdles that the Public Utilities Commission identified concerning third party administration in the context of energy efficiency, as well as the tax implications of third party administration. See SCE's Comments on Staff Proposal for California Solar Initiative Design and Administration 2007-2016 (May 16, 2006).

Attachment A

SCE Responses to Questions Posed in Notice of NSHP Workshop

Eligible Participants

1. Who should be eligible to receive the incentives, whatever those incentives might be?

Incentives should go to the purchaser of the PV system or their designee which could include the developer, builder, financing entity or building owner. Given that the builder has the most influence to incorporate the EE measures and the PV system, the incentive should typically go directly to the builder. SCE does not support providing incentives to municipal utilities to administer and/or provide incentives to solar home builders or developers. As noted in the New Solar Homes Partnership (NSHP) Draft Proposal, funds collected for the Emerging Renewables Program are from the electricity distribution areas of the investor-owned utilities. As such, participation in the NSHP and use of these funds should be limited to installations in IOU territories.

Eligible Systems and Specifications

2. What level of energy efficiency beyond the current Building Standards should be required to be eligible for a solar incentive?

As noted in the Staff Proposal, combining high energy efficiency with photovoltaics results in increasing the overall cost effectiveness of the entire project. SCE thus supports the CEC staff's recommendation that energy efficiency levels substantially beyond the California Energy Star Homes level (similar to those achieved by Building America) be expected for the NSHP.

3. Would certification of system components promote high-performance systems? If so, what are the standards that would meet the needs of a California Solar Program?

It is reasonable to require that solar system components be certified to meet standards for performance, efficiency and quality to improve the experience of system users, further the aims of the NSHP and, more generally, support the wider deployment of solar systems throughout the State. However, given the desire of the CEC to move ahead rapidly on this program, and also the possibility that optimum solar system performance may constitute a "moving target" due to hoped-for technological improvements, an effort to wait for new performance standards and certifications to be developed and accepted is probably not compatible with the desired schedule.

However, a number of existing industry requirements and/or standards are available for immediate incorporation into this program. They primarily (but not exclusively) address installation quality; indirectly, they should enhance system performance. In the spirit of encouraging thoughtful discussion of the design for this program, SCE therefore recommends that the CEC incorporate the following standards: For solar panels, the Commission should consider requiring panels to be UL listed for fire safety and weather resistance. Inverters should meet UL standards for hardware safety (UL 1741) and software/firmware anti-tampering (UL 1998), as well as IEEE

standards for power quality (IEEE 519) and anti-islanding (IEEE 929).² These recommendations are not exhaustive, but do provide a good starting point for developing component certification requirements.

4. What level of certification and warranty should be required of eligible solar systems for use in this solar program?

As a condition for interconnection with the utility electric system, eligible solar systems should meet all applicable safety and performance standards established by the National Electric Code, the Institute of Electrical and Electronic Engineers (IEEE) and accredited testing laboratories such as Underwriters Laboratories (UL) and, where applicable, rules of the California Public Utilities Commission regarding safety and reliability. This requirement must include, but not be limited to, the provisions of IEEE Standard 929, UL Standard 1741, and the utility's Rule 21. This is currently required for solar systems eligible for interconnection under SCE's Net Energy Metering tariff, and should be extended to this solar program.

Warranties are critical to addressing homeowner concerns about long term reliability and should be provided by the manufacturer and installer. SCE recommends requiring warranties on equipment in order to protect the consumer as well as the ratepayers. The current warranty required for solar PV systems participating in the Self Generation Incentive Program (SGIP) is five years, and covers all of the major components of the generating system. The warranty protects against system breakdown or degradation in electrical output of more than ten percent of the original rated electrical output. The warranty covers the full cost of repair or replacement of defective components or systems, including labor costs. SCE supports this warranty as reasonable, but would not oppose a longer warranty period for the entire installation and/or specific system components. Further, to the extent the NSHP requires manufacturers and/or installers to provide warranties to the builders, these warranties should be fully transferable to the homeowner.

5. What system size limits or other program parameters should be included?

As reflected in the CEC Staff Proposal, the NSHP is a program designed to provide incentives to new residential construction. As such, system size should be informed by typical residential demand and load factors for the size of the home(s) on which the solar will be installed.

Geographic Scope

6. How should areas of the state that experience hot summers (e.g. central valley) and areas with high population growth rates be targeted?

SCE supports the use of a calculation program which will account for climatic variations in the performance of solar PV systems. According to presentations at the June 12, 2006 Workshop on the Staff Proposal, the Staff has recommended a calculator that includes location as a performance attribute. SCE supports inclusion

² As addressed in response to Question 4, UL standard 1741 and IEEE 929 are already required for interconnection under the utilities' Rule 21 and therefore must be adhered to by projects participating in the NSHP.

of locational factors to encourage installations in areas of high insolation. The CEC's calculation program could also be used to provide some priority of incentive funding to hot, inland climate zones, areas of congestion, and areas of higher system growth that drive growth in peak demand.

7. How can the Energy Commission encourage customer-owned utilities to participate in the design of a solar program that they would want to implement?

SCE is unclear as to what the Commission considers a "customer-owned utility." In general, SCE supports Commission efforts to encourage small multi-jurisdictional utilities, municipalities, and municipal utilities to adopt their own solar programs. SCE supports Commission-sponsored marketing and outreach efforts, as well as public workshops, to encourage awareness of the NSHP and the opportunities these entities have to adopt similar programs.

Procedures

8. What should be included in a photovoltaic performance calculation to encourage builders to address all factors under their control to achieve high-performance solar systems?

The performance calculation should begin with a verifiable system rating³ and provide an estimate of performance that is as realistic as possible, taking into account factors such as:

- Location
- Orientation and tilt
- Shading at the time of installation and future shading from trees
- Module temperature
- Whether there are solar access restrictions or conditions which prevent future shading from adjacent buildings
- Wiring losses
- Inverter losses

9. How can third-party verifications be made most effective to ensure high-performing, reliable photovoltaic installations?

All systems should be inspected post-installation to ensure ratepayer dollars are spent on confirmed installations that are operating consistent with the size and design characteristics attested to during the application process. Based on SCE's experience with the SGIP, it is not uncommon to find a significant percentage of the systems are not functioning at the time of inspection. In most cases, the inverters have tripped and need to be reset or there are problems with other system components. There have been fires, faulty wiring, and defective equipment. During the first half of this year,

³ In comments on the CPUC's CSI proposal, SCE recommended that system rating methodology should begin with the Standard Test Conditions (STC) Power maximum peak rating. Once the STC power DC rating is known, a simple rule of thumb can be used to determine the system AC rating. The CEC's Guide to Photovoltaic Design and Installation recommends a rule-of-thumb value of 67%.

approximately five sites had to be inspected twice because installations were not working. In addition, there are a number of systems that, once inspected, are found to be different (configuration and /or components) than described in the SGIP application documentation. To the extent that system inspections and verifications are not performed by utility personnel, inspectors should receive training and certification to perform inspections. In addition to post-installation inspections, SCE recommends that M&E activities be conducted on an ongoing basis to track trends in performance and optimize program design.

10. Would monitoring equipment for the homeowner encourage better system maintenance? What equipment would be most useful to the homeowners?

The Commission should require all systems receiving an incentive to install a meter socket, which would give utilities flexibility to choose an appropriate metering system compatible with program data collection needs and the utilities' existing business processes. This will minimize the cost of metering, and allow utilities to better integrate metering requirements with the Advanced Metering Infrastructure (AMI) roll-outs expected to occur in the next few years. SCE does not believe there is an urgent need for a mandatory real time communication package that would justify an increase in program expenses and the risk of installing incompatible metering technologies and creating stranded costs. SCE therefore recommends that any web-based reporting and internet communication features be purely optional for customers at this time. Further, SCE does not believe the inverter meter should be relied on for monitoring purposes because some inverters only retain metering information for short periods of time, and inverters can trip off, thereby losing any data recorded. Should customers request more advanced metering, SCE will work with customers to install a meter that meets the customer's communication and information needs.

Administration

11. Are the current Emerging Renewables Program application-reservation-payment procedures suitable for the New Solar Homes Partnership?

SCE generally concurs with the application-reservation-payment procedures outlined in the ERP. However, for the reasons noted above in response to Question 9, SCE recommends that the NSHP include an inspection phase before any incentives are paid.

12. Are there approaches other than the application-reservation-payment approach that might be more effective?

SCE concurs with the application-reservation-payment approach and has no further recommendations at this time.

13. If a reservation process is used in a new solar program, what would be the most suitable time frame for reservations?

The SGIP currently utilizes an 18-month reservation process. SCE is not opposed to the 24-month reservation timeframe proposed in the NSHP Proposal.

14. Should allocation methods other than first-come, first-served be considered?

Generally, SCE supports providing incentives on a first-come, first-served basis. However, SCE is not opposed to an approach that gives some consideration in prioritizing incentive funding to hot, inland climate zones, areas of congestion, and areas of higher system growth that drive growth in peak demand.

15. Should a solar program be administered by an outside agent?

SCE believes that the utilities are in the best position to administer the NSHP given their extensive experience in administering the SGIP, energy efficiency, demand response, and CARE programs. The utilities are in the best position to leverage existing delivery infrastructure to coordinate program administration with energy efficiency program requirements, marketing and outreach, system inspection and approval for interconnection to the utility grid, and Net Energy Metering (NEM) billing. These efficiencies will be lost with a third party administrator. Utilities also have strong relationships with the developer and builder communities as well as the CEC. While there could be other outside agents able to provide some of these resources, the utilities can be held accountable to the success of the program by their customers and the CPUC.

16. What solar program information should be made available on the Energy Commission's Web site?

The following information would be a useful resource to NSHP stakeholders:

- Calculation tools
- Installation guidelines
- Energy efficiency guidelines – links to utility sites and other third parties
- Economic calculator
- Reservation and payment tracking

17. Should the Energy Commission contract out for program evaluation?

Yes. A qualified M&E consultant should be retained to evaluate the program.

18. How should program success be measured?

Metrics such as total installed kW, \$/kW installed, system efficiency, capacity factors and reduction in peak kW demand should be tracked. Cost benefit ratios from the participant, ratepayer, and societal perspectives should also be tracked.

Incentive Structure

19. Should a greater incentive be provided for PV as a standard feature than for PV as an option?

SCE does not support differentiating incentives for PV as a standard feature vs. PV as an option. The NSHP should provide incentives for PV actually installed on new homes, regardless of whether that PV was installed as an option or as a standard feature in the development.

20. What factors, such as solar insolation, orientation and shading, should be addressed in an expected performance-based incentive?

The performance calculation should take into account:

- Location (insolation)
- Orientation, tilt and tracking capability
- Structural/ geographic shading at the time of installation and future shading from trees
- Module efficiency as well as reduction in efficiency due to high temperatures and dust covering the module surface
- Wiring losses
- Inverter losses

21. Should an equivalent “economic impact” of an incentive be calculated for custom homes vs. production home market vs. affordable housing? That is, should different incentive levels be offered for different segments of the housing market?

At this time, SCE does not recommend that incentives be calculated based on the "economic impact" of the incentive on a particular project. In commenting on a similar question posed by the CPUC in R. 06-03-004, SCE recommended that the Commission not vary incentives for new construction projects versus retrofits to reflect the likely lower costs of installing solar as part of a new building. SCE noted that such a requirement would add a layer of complexity for a benefit that is not yet quantified. The same could be said for custom versus production homes. However, SCE is not opposed to a higher incentive for affordable housing, if it is determined that such higher incentives are necessary to encourage investment.

Builder and Market Support Activities

22. Are builder and market support activities of value to the builder? If so which ones?

SCE supports builder assistance and market support and seeks further guidance from the builder community as to what activities provide the most value.

23. Assuming that support activities have value, how does that value compare to monetary incentives? In other words, how much funding should be set aside for support activities that would have otherwise gone to financial incentives?

Additional analysis needs to be performed to assess the value of the different activities identified by the building community and NSHP stakeholders.