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October 12, 2007

ELECTRONIC DELIVERY

California Energy Commission
Docket Office, MS-4
Attn: Docket No. 07-SB-1
1516 Ninth Street
Sacramento, CA 95814

Re: Docket No. 07-SB-1

Docket Office:

Please find attached PG&E's comments to the CEC SB1 Recommendations Contained in the CEC Staff Report, "Guidelines for California Solar Electric Incentive Programs Pursuant to Senate Bill 1"

Please contact me should you have any questions. I can be reached at 415/973-6463.

Sincerely,



Les Guliasi

Attachment

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07-SB-1	
DATE	OCT 12 2007
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PG&E Comments to the CEC SB1 Recommendations Contained in the CEC Staff Report, "Guidelines for California's Solar Electric Incentive Programs Pursuant to Senate Bill 1"

Introduction

Pacific Gas and Electric Company (PG&E) appreciates this opportunity to provide comments on the draft California Energy Commission (CEC) Staff Report, *Guidelines for California's Solar Electric Incentive Programs Pursuant to Senate Bill 1* (Guidelines). PG&E appreciates many of the changes made to the earlier draft in order to ensure that the modifications to the existing CSI program can be implemented successfully. PG&E's comments herein provide additional suggestions to ensure that the linkages of solar to energy efficiency and the performance requirements for systems installed under the CSI, do not present the risk of compromising PG&E's ability to contribute to meeting the statewide goal of 3,000 MW of installed solar systems.

PG&E's comments can be summarized as follows:

1. The CSI energy efficiency requirements should not be so prescriptive as to discourage participation in the CSI.
2. The CSI energy efficiency requirements should be consistent with the investor-owned utilities' (IOU) energy efficiency programs; and any energy savings associated with CSI participation should count against the IOUs' energy efficiency savings goals.
3. The NSHP Energy Commission PV calculator (NSHP calculator) should not be adopted until it can be determined that the benefits of replacing the existing CSI calculator outweigh the costs associated with the disruption to the California solar industry that will likely ensue.
4. Non-PV solar technologies should be eligible to receive a CSI incentive payment; the Guidelines should reflect the work being done by the CSI Non-PV Subcommittee and the Metering Subcommittee toward making these technologies eligible for CSI incentives.
5. The recommendations made by the CSI Shading Subcommittee should be incorporated into the proposed shading study methodology.

Energy Efficiency

PG&E commends the CEC for its significant commitment to strengthening the integration of the CSI program requirements with the Energy Action Plan. PG&E is a strong proponent of energy efficiency and supports the goal of ensuring that the State's Energy Action Plan is incorporated to the extent feasible.

PG&E also supports linking energy efficiency with solar market transformation as embodied in Senate Bill 1 (Murray, 2006) (SB 1). PG&E understands that including energy efficiency in SB 1 implementation must be balanced with the

goal of installing 3,000 MW of solar in California. Accordingly, PG&E offers the following comments:

New Residential and Commercial

PG&E supports the CEC's recommendations regarding energy efficiency requirements for new residential buildings. Projects which are in the construction process must already employ energy efficiency experts in order to meet Title 24. Requiring them to go beyond Title 24 by 15% for Tier I and establishing a preference for a Tier II level of 30% beyond Title 24 is appropriate in terms of its goals and design and is consistent with the existing IOU energy efficiency program design. The recommendations will achieve the goal of ensuring that solar energy systems of an appropriate size are installed on highly efficient, newly constructed homes. However, the proposed tiered approach for new commercial buildings is not consistent with the existing IOU energy efficiency program design. PG&E believes that maintaining consistency between the CSI energy efficiency requirements and the IOU energy efficiency programs would increase the likelihood that new commercial buildings will participate in the CSI program.

Existing Buildings

In the Guidelines, the CEC recommends that the Program Administrator or applicable IOU provide the customer with their most recent 12 months of energy consumption data. While this information is critical to assessing the proper system size, it is typically provided as part of the system sizing analysis for a solar bid and is easily obtained on the IOUs' web sites. By requiring this data with the incentive application, it adds a redundant step without adding additional value to the process.

PG&E supports the proposed requirement that existing commercial and residential customers to undergo an energy efficiency audit as part of their acceptance of CSI incentives, consistent with what is available in the applicable IOU energy efficiency program. PG&E also supports the proposed exception for buildings that have complied with Title 24 requirements for newly constructed buildings in the last three years

PG&E also agrees that building owners should be provided with most of the information regarding energy efficiency as specified in the Guidelines (the exception being the redundant provision of the past 12 months of energy consumption data), but believes that one step of the process can be eliminated if the Program Administrators provide this information to PV installers for them to distribute to their clients. Under this scenario, the solar installer would pass on customer information to the appropriate Program Administrator with their CSI incentive application, and also pass on information to the customer regarding the utility programs and energy services providers provided by the Program Administrator for that territory. The materials should cover both the financial and environmental benefits of pursuing energy efficiency prior to installing a solar

energy system, as well as information regarding the specific incentives offered by their utility and who to contact to take advantage of the incentives. In addition, the materials could provide information on where to find third-party onsite energy auditors, HERS raters, building performance contractors, etc.

PG&E believes that it may not be practical for building owners to commit to an installation date simply because doing so with any degree of accuracy will be difficult. In addition, PG&E recommends that "cost effective energy efficiency measures" be defined consistent with the energy efficiency rules under which the IOUs currently operate.

PG&E is concerned with the recommendation in the Guidelines regarding the requirement that all commercial buildings larger than 50,000 square feet be required to undergo retro-commissioning, and that a building owner must sign a Commitment Agreement to make the repairs, adjustments and energy efficiency improvements by a specified date as a condition to receiving a CSI incentive payment. While retro-commissioning can be useful for commercial buildings, it is not a solution for all facilities. In addition, this recommendation is more stringent than the retro-commissioning standards for existing energy efficiency programs offered through the IOUs. Under the current energy efficiency program requirements, facilities must contain at least 100,000 square feet of conditioned space (grocery stores should be at least 30,000 square feet) in order to be eligible to participate in existing IOU retro-commissioning programs. Similarly, benchmarking buildings smaller than 100,000 square feet is not done in the existing IOU energy efficiency programs and should not be required in the CSI. If the energy efficiency measures within the CSI include a threshold of 50,000 square feet for retro-commissioning, this will reduce the cost effectiveness of the IOUs' energy efficiency programs and constrain the ability of the IOUs to meet their savings goals. Furthermore, PG&E respectfully notes that the retro-commissioning community is limited and therefore they should be focused where there is a larger potential for energy efficiency savings.

Incentives for specific energy efficiency measures and retro-commissioning services will, of course, be dependent upon future portfolio design and their approval by the CPUC. PG&E notes that the IOUs' 2009 – 2011 Energy Efficiency Applications will likely not be approved by the CPUC until the later months of 2008, which may prevent updated energy efficiency program information from being available by January 1, 2009.

Free Ridership

PG&E respectfully notes that the CSI energy efficiency requirements for new and existing buildings as presented in the Guidelines creates the appearance of free ridership. PG&E strongly supports the participation in its energy efficiency programs by customers seeking to participate in the CSI program. Such customers should be eligible to participate in IOU energy efficiency programs, and the savings from their actions should count fully towards achieving the IOUs'

energy efficiency savings targets. However, PG&E is concerned that under current CPUC Energy Efficiency Policy Rules, the CPUC would not count such savings, leaving the IOU with energy efficiency program costs but no associated savings. This would render the energy efficiency measures not cost effective and therefore would be inconsistent with the legislative mandates under which the CPUC authorizes its energy efficiency activities.

In its Comments to the "Commissioner Grueneich's Proposed Decision on Issues Relating to Future Savings Goals and Program Planning for 2009 - 2011 Energy Efficiency and Beyond" issued September 17, 2007, PG&E requested that the CPUC not classify CSI participants who participate in energy efficiency as free-riders. The CPUC may address this issue in the final decision expected in October. Should the CPUC specifically state that CSI participants would not be free riders, then PG&E could include CSI participants in its energy efficiency portfolio, and it would seek to do so in the most-cost effective manner. If it appears that prospective CSI could be considered free riders, PG&E may choose to not include them in its energy efficiency portfolio, but would consider a separate application to the CPUC for the resources to be able to support the CSI energy efficiency requirements.

Another consideration is whether the activities described in the Guidelines are in fact cost effective under the CPUC's Energy Efficiency Policy Rules. While not every component in PG&E's Energy Efficiency portfolio must be cost effective (the portfolio as a whole must be cost-effective), PG&E must carefully consider the prospective magnitude of CSI energy efficiency activities, and what contribution to the overall portfolio such activities will make. PG&E plans to work to develop the most cost-effective delivery of these activities possible. If they prove to be cost-effective, it will include them in its energy efficiency portfolio. If not, PG&E will carefully consider whether they can be included, or whether it is preferable to seek the necessary funding through a separate application to the CPUC.

Alternative Portfolio Energy Savings:

PG&E believes that the 20% energy efficiency goal should not be in addition to the IOUs' energy efficiency goals and any savings should be counted in the IOUs' energy efficiency program.

Expected Performance Based Incentives

One of the primary goals of the CSI program is to reduce the end cost of solar energy systems to consumers. Accordingly, program changes which potentially increase costs to stakeholders should only be implemented if there is a clear benefit to doing so. Consistent with this principle, PG&E believes that the NSHP calculator should only be adopted for the CSI program if it is shown to provide

significantly more accurate results than the current CSI calculator. Participants in the CSI program are already familiar with the current CSI program calculator, the EPBB calculator, and trained in its use. In contrast, PG&E believes that the NSHP calculator requires a more detailed system analysis and more time inputting data than the EPBB calculator. Both of these factors raise costs for installers. Without knowing how much more effective the NSHP calculator is compared to the CSI calculator, PG&E does not yet see the value of switching calculators.

At the workshop held on October 4, 2007, CEC Staff showed preliminary results from a comparison of the two calculators. PG&E believes that it is premature to recommend one calculator over the other until this analysis has been completed and shared with the solar industry. If the NSHP calculator significantly improves the accuracy of expected system performance, then the increase in costs to installers, which will be passed on to consumers, could be justified due to more efficient expenditure of ratepayer funds. However, if the results provided by the NSHP calculator are not significantly more accurate than those provided by the current CSI calculator, then the costs to solar consumers will increase without any significant offsetting benefits.

Non-PV Solar Technologies

In the Minimum Program Requirements, the Guidelines provide a definition of a Solar Energy System that explicitly excludes all non-PV solar technologies. On page 5 of the Guidelines, the CEC states:

Solar technologies that do not primarily generate electricity, including, but not limited to solar systems whose primary purpose is for water heating, solar space heating and cooling, are not eligible.

PG&E understands that lacking System Component Standards for non-PV solar technologies, it may appear premature to include these technologies in the Guidelines. However, work is currently underway to make non-PV solar technologies eligible for the CSI program by the end of 2007. On June 1, 2007 SCE and PG&E jointly filed Advice Letters 2130-E and 3060-E, respectively, seeking to modify the CSI Handbook to allow non-PV solar technologies to be eligible to qualify for CSI incentive payments. This advice letter is currently suspended. The California Public Utilities Commission (CPUC) subsequently established the CSI Non-PV Subcommittee to further examine how to include non-PV solar technologies in the CSI. The Non-PV Subcommittee is expected to complete its work on this topic before the end of 2007.

The proposed definition of solar energy systems creates a conflict with the progress that has been made in this area and is inconsistent with current law that authorizes solar thermal electric systems to be eligible for incentives. Public Utilities Code Section 2851 (b) states:

Notwithstanding subdivision (a), in implementing the California Solar Initiative, the commission may authorize the award of monetary incentives for solar thermal and solar water heating devices, in a total amount up to one hundred million eight hundred thousand dollars (\$100,800,000).

Consequently, PG&E respectfully requests that the definition of a Solar Energy System be revised as follows:

Solar energy systems eligible for financial incentives are those solar energy devices that have the primary purpose of providing for the collection and distribution of solar energy for the generation of electricity and solar thermal electric technologies. ~~Solar energy systems~~ Solar photovoltaic (PV) technology must produce at least one kilowatt (kW), and not more than five megawatts, alternating current (AC) rated peak electricity, accounting for all system losses, and meet or exceed the eligibility criteria established in these guidelines. Solar thermal electric technologies that are approved by the CPUC to participate in the CSI program and listed by the CEC are eligible for CSI incentives.

Eligible solar technologies must primarily generate electricity. The statutory definition of "solar energy systems" includes other solar technologies such as solar thermal electric technologies. However, at this time, the Energy Commission's guidelines address only solar photovoltaic (PV) technology. These guidelines will be revised in the future to include other solar technologies when appropriate to do so. Manufacturers of non-PV solar energy systems are directed to work with the Energy Commission staff to define comparably rigorous and appropriate requirements for such systems.

~~Solar technologies that do not primarily generate electricity, including, but not limited to solar systems whose primary purpose is for water heating, solar space heating and cooling, are not eligible.~~

Metering Requirements

The metering requirements under the Solar Energy System Component Standards do not make mention of non-PV solar technology metering requirements, since these technologies are precluded from receiving incentives in the current version of the Guidelines. However, PG&E notes that the CSI Metering Subcommittee is expected to complete metering requirements for solar thermal technologies before the end of 2007 and requests that the CEC include these metering requirements in the Guidelines, pending approval by the CPUC.

Performance Monitoring and Maintenance

Performance monitoring requirements do not include a provision for non-PV solar technologies. In addition, though PG&E supports the removal of the independence requirement for Performance Monitoring and Reporting Services,

PG&E would like to point out that this is not currently consistent with the CSI Handbook.

PG&E believes that all system owners would benefit from a maintenance plan. For the sake of maintaining a simplified CSI application process, establishing specifications for such a plan and requiring the installer to provide it to the system owner, facility manager and Program Administrator will needlessly complicate the CSI rebate process. Consumers who invest thousands of dollars in a solar system should have enough incentive to properly maintain these systems. As an alternative, PG&E suggests that this be considered as a part of the CSI Education & Outreach efforts. For example, brochures can be developed with information about cleaning and maintaining the solar systems, and what actions to take if solar production is not as expected.

Shading

PG&E is concerned that the field verification protocol described in Appendix 2 – Field Verification and Diagnostic Testing of Photovoltaic Systems does not contain necessary tolerances for shading verification and will result in unnecessary inspection failures, increased program administration costs, and increased overall installation costs.

The field verification protocol in the Guidelines does not include tolerances for shading study results. This implies that any discrepancy between submitted and verified shading studies results in a failed inspection requiring additional work on the part of the installer and third party verification inspector. While tolerances have been incorporated for other measured values in the field verification protocol they have not for shading because of complexities caused by the time dependent valuation (TDV) methodology of the EPBI. Specifically, because of the change in generated electricity value by time of day and time of year the sensitivity of the altitude angle (or distance-to-height ratio) varies by compass segment and the altitude angle itself. This means that a single tolerance in altitude angle (or distance-to-height ratio) can result in various levels of uncertainty in Annual kWh_{TDV}.

PG&E recommends that the proposed field verification protocol not be required in CSI until an acceptable tolerance for verifying shading can be established. Because the shading methodology in the Guidelines is integral to the functioning of the EPBI calculator it is recommended that CSI continue to use the current EPBB calculator with modifications resulting recommendations made by the CSI Shading Subcommittee until use of the EPBI and proposed field verification requirements can be tested in the field and modified to improve verifiability.

The CSI Shading Subcommittee has recommended modifications to the current CSI shading protocol to include tolerances for field verification based on estimated uncertainty in the shading measurement methodology. The need for

this recommendation became evident due to many early CSI projects requiring corrections for relatively minor discrepancies in submitted versus verified shading studies. Program applicants that submitted shading study results in some cases were required to redo and resubmit the shading results due to these minor discrepancies. Due to the accuracy of current shading measurement tools and differing results from different tools used by the solar industry, the CSI Shading Subcommittee agreed that a tolerance was needed for acceptable shading study results. This tolerance is expected to reduce unnecessary inspection failures while still requiring a purposeful avoidance of shading. Specifically, the CSI Shading Subcommittee made the following recommendations:

1. Redefine “minimal shading” to include any system with a 90%+ summertime availability. Any systems with above a 90% summertime availability receive no reduction in rebate due to shading;
2. For systems with a 89% to 85% summertime availability, use a sliding scale to reduce rebate level without having a sharp drop (chart below);
3. Allow a measurement tolerance of +/-5 percentage points. This tolerance was chosen to account for differences between the Solar Pathfinder and Solmetric Suneye tool readings (measurements commonly between 2 and 3 percentage points different) as well as for slight measurement errors due to the tool needing to be held perfectly level in the proper orientation;
4. Require a revised EPBB print out to be submitted with the claim documents if there are any differences in the shading at the claim stage versus what was originally reported in the application. This also allows the inspector to verify that the readings are within the 5 percentage point tolerance reported.

Measured % Available for Summer Period	EPBB Calculator % for Summer Period
90-100% (minimal shade)	100%
89%	97%
88%	94%
87%	91%
86%	88%
85%	85%
<85%	Measured % Available = EPBB %)

PG&E recommends that these suggestions be adopted and implemented.

Schedule

PG&E requests that the Commission clarify that the eligibility criteria in place on January 1, 2009 should only be effective for new applications that are received after that date (rather than be retroactive to applications already in the CSI pipeline).

Conclusion

PG&E appreciates the opportunity to comment on the Guidelines and believes the changes discussed above will result in eligibility requirements which meet the statutory requirements of SB 1 while recognizing the market realities of the solar industry.