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Date: 8/29/2007 5:00 PM
Subject: CPUC Energy Division Comments on Senate Bill 1 Eligibility Requirements Staff Report.
Attachments: CEC Eligibility Criteria Report CPUC ED Comment Aug 29.pdf; CEC Eligibility Criteria Report CPUC ED Comment Aug 29 Cover Letter.pdf

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August 29, 2007

California Energy Commission

Dockets Office

Re: Docket No. 07-SB-1

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

SUBECT: Comments on Staff Report on Senate Bill 1 Eligibility Requirements

The California Public Utilities Commission (CPUC) Energy Division staff is pleased to submit the attached comments on the August 10 draft California Energy Commission staff report, Eligibility Criteria and Conditions for Incentives for Solar Energy Systems Senate Bill 1. The CPUC manages solar incentives for all existing homes and new and existing non-residential properties including commercial, government and non-profit, industrial, and agricultural properties.

We commend the Energy Commission staff for their efforts on a thorough first draft set of guidelines for conditions to receive state solar incentives. Moreover, we are heartened by the Energy Commission staff's interest to work with CPUC staff to use "lessons learned" from the CPUC experience as the market begins to transform under the CPUC's initial performance requirements.

In our comments, the Energy Division offers three main suggestions, followed by a chart that compares the Energy Commission draft staff recommendations with the existing CPUC CSI program requirements. Our main suggestions are:

1. Ensure the CSI achieves its market transformation goals of achieving megawatt targets and reducing solar costs, by scrutinizing the need for new or changed program requirements beyond the energy efficiency requirements.

2. The State Should Have One Joint Philosophy on Leveraging Solar and Energy Efficiency.

3. Consider Starting With Prescriptive Energy Efficiency Steps towards Long-term State Goals.

We look forward to continued collaboration with the Energy Commission staff on these guidelines.

Submitted By;

Sean Gallagher

Director, Energy Division

California Public Utilities Commission

STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
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We commend the Energy Commission staff for their efforts on a thorough first draft set of guidelines for conditions to receive state solar incentives. Moreover, we are heartened by the Energy Commission staff's interest to work with CPUC staff to use "lessons learned" from the CPUC experience as the market begins to transform under the CPUC's initial performance requirements.

However, we are concerned that proposed administrative changes in this draft report could conflict with or jeopardize actions taken by the CPUC as it strives to achieve its CSI goals of achieving megawatt targets and reducing solar costs. In our comments, CPUC Staff offers three main suggestions, followed by a chart that compares the Energy Commission draft staff recommendations with the existing CPUC CSI program requirements. Our main suggestions are:

1. *Minimize new or changed program requirements beyond the energy efficiency requirements, in order to ensure the CSI achieves its market transformation goals of achieving megawatt targets and reducing solar costs.* The Energy Commission draft recommends changing from the current CPUC adopted incentive calculator to the Energy Commission's incentive calculation methodology, and possibly the incentive calculator, and introducing new post-audit inspections and a mandatory maintenance plan beyond those currently required by the CPUC. Each proposed change could affect solar installers' cost structure, impact personnel skills, add transaction costs, and require business model changes.

2. *Energy efficiency requirements for receiving a solar incentive should help achieve both solar and efficiency targets without hindering either* The report's energy efficiency recommendations could defeat the goals of CSI, i.e. to install 3000 MW and lower solar costs (including installer costs), through energy efficiency requirements that might inhibit the market transformation effects of solar incentives at this early stage of the program.

3. *Consider Starting With Prescriptive Energy Efficiency Steps towards Long-term State Goals.* Instead of the intensive benchmarking process recommended in the draft report, the Energy Commission should consider starting with a set of prescriptive measures that are tailored to each customer class, easily defined, marketable, and have very short paybacks, but which also help advance the facilities closer to the Energy Commission's recommended building efficiency targets.

We look forward to continued collaboration with the Energy Commission staff on these guidelines.

Submitted By;

Sean Gallagher
Director, Energy Division
California Public Utilities Commission

California Public Utility Commission Energy Division Staff Comments
on
California Energy Commission's Draft Staff Report:
"Eligibility Criteria and Conditions for Incentives for Solar Energy Systems Senate Bill 1"

August 29, 2007

Introduction

The California Public Utility Commission (CPUC) Energy Division staff appreciates the opportunity to provide comments on the August 2007 California Energy Commission (CEC) Draft Staff Report, *Eligibility Criteria and Conditions for Incentives for Solar Energy Systems Senate Bill 1*. We commend the Energy Commission staff for their efforts to produce a thorough first draft set of guidelines for conditions to receive solar incentives under any program statewide, including under the CPUC-administered California Solar Initiative (CSI) program.

However, we are concerned that proposed administrative changes in this draft report could conflict with or jeopardize actions taken by the CPUC as it strives to achieve its CSI goals of achieving megawatt targets and reducing solar costs. We look forward to continuing the coordination between the CEC and CPUC staff. The CPUC staff offers key suggestions below, followed by a chart that compares the CEC draft staff recommendations with the existing CPUC CSI program requirements.

Background

Since January 1, 2007, the CPUC has managed the solar incentive program for all existing homes and new and existing non-residential properties, including commercial, government and non-profit, industrial, and agricultural facilities. The CPUC program has three Program Administrators (or PAs); they are: Pacific Gas & Electric, Southern California Edison, and California Center for Sustainable Energy.

During the development of the CPUC program in the past two years, parties extensively deliberated all aspects of the CPUC's incentive structure and administrative requirements in the CPUC proceeding. For example, nearly 100 stakeholders debated proposed language for the CSI program handbook throughout Autumn 2006.

Now that CSI has launched, the CPUC-developed CSI program handbook revision process allows stakeholders to provide ongoing input on detailed implementation and program refinement issues. For example, approximately 70 metering experts and stakeholders are currently assisting CPUC program administrators in development of metering protocols for data streams that feed incentive payment and customer reporting. Additionally, stakeholders are engaged currently in providing program implementation and refinement suggestions in the areas of new metering requirements for non-photovoltaic CSI incentives and review of shading calculation methodologies.

The goal of the CSI program is to drive the installation of 3,000 MW of high-quality, high-performing solar installations across the state over the next 10 years. Unlike previous solar programs, the CSI focuses to a far greater degree on system performance. In designing and refining the CSI program requirements, the CPUC strives for a balance between fulfilling our consumer protection and high-performance goals, while not adding unnecessary bureaucracy nor unnecessarily raising installer costs. To that end, CPUC staff has worked closely with industry to recalibrate from "lessons learned" and streamline early administrative processes since the new program launched.

Demand is skyrocketing for the CPUC-managed CSI incentives. Since January, installers submitted 2,790 rebate applications worth an estimated 131 MW, or $406 million in rebates. In July, PG&E processed 50-90 solar rebate applications *per day*. Over 400 applicants have completed their paperwork and have been paid or are awaiting payment. Moreover, CPUC administrators inspected most of the solar installations in the first six months in order to gauge how the new requirements were faring in the market. We offer these comments based on our experience thus far with managing performance requirements on a wide spectrum of facilities and applicants.

Key Suggestions

1. *Minimize new or changed program requirements beyond the energy efficiency requirements, in order to ensure the CSI achieves its market transformation goals of achieving megawatt targets and reducing solar costs.*

The market will need a smooth transition for any additional requirements to prevent installed costs from rising and a dampening of customer interest for solar energy. The CSI is a true "market transformation" program seeking to push higher performance solar systems, and our new performance requirements are still being understood in the field. It is clear that some installers have been challenged by the new program, and there have been a number of media reports recently that the new requirements are difficult for solar installers. In some cases, installers are challenged by the new program requirements. In other cases, installers have merely had trouble adjusting to the new program requirements.

The Energy Commission draft recommendations change administrative elements, decisions, and processes in the current incentive program. The report recommends switching from the current CPUC adopted incentive calculator to the Energy Commission's incentive calculation methodology, and possibly the incentive calculator, and introducing new post-audit inspections and a mandatory maintenance plan beyond those currently required by the CPUC. Each proposed change could affect solar installers' cost structure, impact personnel skills, add transaction costs, and require business model changes.

Stakeholders engaged in an extensive process at the CPUC to develop CSI handbook, calculation tools, and methodologies, and the CSI program has spent resources on consultants and vendors to develop program tools. We are open to the concept of more uniform statewide methodologies and calculation tools where these meet the following criteria or objectives:

1) The solar industry agrees that such changes can be easily accommodated by the solar industry sales and installation entities, taking into consideration first cost of tools or transitions, training, and ongoing costs;
2) The methodology and/or calculation tools are reasonable, practical, and cost-effective to apply to the relevant situations (e.g. existing homes, existing non-residential buildings and other facilities), and by the types of sellers/installers serving those target audiences;
3) The way the methodological/calculation approaches are applied are consistent with principles adopted in CPUC decisions (e.g. that we accept as equally beneficial systems installed anywhere between due south and due west, relative to optimum production at those orientations, since system electrical peaks can occur anywhere between summertime noon and 6 p.m.);
4) The incentive calculations will stay within the overall MW and budget cap imposed on the CPUC by SB1, and adhere to the adopted "steps" for declining incentives (e.g. there is no risk of over-shooting the budget if incentives are uncapped); and
5) The proposed change(s) offer sufficient gains in benefits to offset the sunk costs of ratepayer funds and stakeholder time and funds committed to achieving the current CSI program handbook rules, methods, and calculation tools.

We urge the CEC to consider how any proposed changes and new requirements may affect the overall CSI goal of market transformation. The report would benefit from analysis to clarify the additional value that will be offered to ratepayers from changing existing tools and practices. In addition, it would be helpful for the staff to include a description of the necessary technical changes to the existing CSI program tools to clarify for readers the potential costs of switching from the existing program to the CEC staff recommendations. The report should clarify whether it recommends or requires certain program changes. In some cases the CEC "recommends" new program elements, and in other parts of the report, the CEC staff "requires" new program element.

Moreover, the programs should consider the recommendations' effect on program budgets. Currently, the Energy Commission program has an uncapped, up-front incentive, where higher-performing systems can earn a higher incentive than the reference location. The CPUC program has two incentive paths: the upfront Expected Performance Based Buydown (EPBB) incentive and the monthly five-year Performance Based Incentive (PBI) payout. The CPUC calculator "caps" the upfront EPBB incentive at an amount per incentive "step" by CPUC decision to ensure we stay within budget limits for the CPUC's assigned portion of the statewide MW target. Capping the amount also defines a clearer, more marketable incentive based on expected performance. Any CPUC CSI applicant can opt into the PBI payment in the expectation of a higher payment. Moreover, the CPUC directed IOUs to collect CSI program funds through rates until 2016 based on their Senate Bill 1-prescribed MW targets, expenditure limits, and program incentive levels. The Energy Commission report should include more analysis of how its recommendations to uncap incentive payments will affect CSI program budgets.

Finally, the report should address how the conditions and eligibility requirements apply to non-PV technologies. The CPUC is tasked with managing $100.8 million in incentives for electric-displacing non-pv solar technologies within the main CSI incentive program, per Senate Bill 1.

CSI administrators are resolving final metering requirements and size estimation methodologies for a range of related technologies. A subsequent draft should address these incentives.

2. *Energy efficiency requirements for receiving a solar incentive should help achieve both solar and efficiency targets without hindering either.*

We share the Energy Commission aims to develop reasonable and cost-effective energy efficiency requirements as a condition of CSI incentives. However, the energy efficiency requirements for receiving a solar incentive should help achieve both solar and efficiency targets without hindering either. CPUC Staff is concerned that the report's energy efficiency recommendations could defeat the goals of CSI, i.e. to install 3000 MW[1] and lower solar costs (including installer costs), through energy efficiency requirements that might inhibit the market transformation effects of solar incentives at this early stage of the program. We suggest that the CEC should aim for a balance of energy efficiency requirements with CSI goals, so as to avoid impeding market interest in solar. In addition to solar incentives, the CPUC is spending $2 billion on Investor-Owned Utility (IOU) efficiency programs for 2006-2008, and these programs have their own goals and process of reaching them. The CPUC is considering billions more for additional IOU energy efficiency programs through 2009-2011. Both the efficiency and CSI programs should achieve their individual targets and goals, for a net energy and carbon reduction for the state. The solar market will need a careful consideration of approaches that will maximize both solar and efficiency savings in order to achieve the combined planned energy or greenhouse gas emissions savings goals—without losing either.

The CSI energy efficiency-related requirements for solar incentives should help develop new integrated service options in the market. CPUC staff agrees with the interest to maximize energy efficiency potential due to its prioritization in the state loading order and value to energy and greenhouse gas policies. Like the Energy Commission, we seek to leverage funds from the energy efficiency and solar programs to the extent allowed by Senate Bill 1. CPUC staff and policymakers have aimed to integrate energy efficiency goals into the CSI program since its inception. The Energy Division believes that solar and efficiency should be integrated in a way that combines experts and markets (rather than competes), and that leverages both funding resources (not using one to attain the other). In both efficiency and solar programs, the CPUC engages stakeholders towards far-reaching goals, relying on market demand to pull efficiency and solar into established common practices.

The CSI program requirements on energy efficiency should acknowledge the differences between the retrofit and new construction markets, and between solar and efficiency markets. Among new and retrofit situations, the variety of construction and appliance elements in buildings varies, and therefore the range of energy efficiency options available to policymakers. Supporting analysis and tools even differ. The solar and energy efficiency contracting industries and professionals have different skill sets, different degrees of analytical abilities, different "ages," and different target buyers and buyer motivations.

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[1] *Of that MW goal, the CPUC target is 1,940 MW by 2016.*

3. *Consider Starting With Prescriptive Energy Efficiency Steps towards Long-term State Goals.*

Instead of the intensive benchmarking process, the Energy Commission should consider starting with a set of prescriptive measures that are tailored to each customer class, easily defined, marketable, and have very short paybacks, but which also help advance the facilities closer to the Energy Commission's recommended building efficiency targets. Simpler, marketable prescriptive measures may increase demand for the solar incentives—and energy efficiency—beyond the current, most dedicated consumers who will do both. Doing so would also help the market determine where and how to combine services to the customer. For example, current HERS services may not help the market combine services in a way that will achieve the solar program's goal of reducing installation costs, because current HERS providers do not install solar. The energy efficiency requirements could mirror other market or policy conditions, such as local ordinances on sales that require a set of prescriptive retrofits before resale. The energy efficiency requirements should leverage the solar industry's expertise in selling capital expenditures based on Return on Investment, rather than the building's benchmarked performance. The current draft recommendations could remain in the guidelines but serve as voluntary measures as a signal to the market of long-term goals.

The report should state the audience and process of determining "cost-effectiveness" as part of the Energy Commission's deliberative process. The CPUC's energy efficiency program cost-effectiveness is based on CPUC avoided costs adopted and applied to all programs. We suggest that "cost-effectiveness" should consider costs to ratepayers, business and home-owning consumers, solar market, and program administrators. It would be beneficial for the Energy Commission's next report to cost out these draft proposals and diagram the transaction steps necessary to achieve them. The analysis should include all likely costs, who would bear these, timing, provider, and impact on the solar market for each step in these recommendations, from development of the benchmarks and its supporting analysis, to audit, to post-installation inspections. More clarity on the potential duration of payback is also useful to evaluate the potential effects of these requirements on demand for the CSI program.

For residential energy efficiency in particular, staff appreciates the Energy Commission's caution towards proposing additional measures beyond the current audit requirements. We agree with the recommendation to review the results of the current, required online (or phone-in) energy efficiency audit under CSI incentives. The CPUC had already planned to conduct a review of initial audit requirements to review what measures had been undertaken by solar customers. CPUC staff and administrators could help the Energy Commission by surveying CSI recipients to determine what measures have been recommended to be installed and which have actually been installed by the applicants. This information could provide a basis for the development of future program requirements. The Energy Commission might consider applying the requirements only for larger system sizes or solar systems that are sized to meet more than 50-75% of load. This would prioritize energy reductions and require measures where the owner could more easily see the difference between adding solar capacity versus reducing total demand.

We think more discussion is needed of the CEC's plans to dovetail with CPUC planning for the "Big Bold" efficiency program strategy for 2009-2011. The draft CEC requirements would

impose obligations on utilities to develop programs and/or offer new or expanded efficiency services and analysis (for benchmarking, on-site audits, commissioning, etc.) that would need to be incorporated into utility efficiency portfolios in the form of savings, funding, and implementation plans, and be consistent with applicable oversight authority of the IOUs and publicly-owned utilities. For the IOUs, all such programs and activities would need to be cost-effective and consistent with meeting overall energy efficiency target goals.

The CPUC will consider those utility programs as follows: (1) October 2007 policy and rule framework decision; (2) Spring 2008 utility portfolio filing, containing details of all programs proposed for 2009 – 2011; (3) Summer 2008 CPUC approval of IOU portfolios and authorization of funds and implementation.

In these programs, the CPUC gives utilities direction on overall energy efficiency savings performance goals and broad policy direction, but does not otherwise direct the specific program content of utility energy efficiency portfolios. The portfolios must balance achieving goals, contributing to long-term energy resource requirements and seasonal/daily load shape profiles, cost-effectiveness to ratepayers, and optimization for earning pending shareholder risk/reward payments. The Energy Commission should consider monitoring these ambitious programs and their results for future, not early, application to the solar incentive recipients.

Moreover, the report should discuss whether certain energy efficiency measures are apt to displace gas, and if so, whether that finding could prohibit particular energy efficiency measures under the CSI program due to Senate Bill 1's focus on displacing electrical purchases from the grid.

Finally, the Energy Commission report should clarify the measures and supporting analysis that are needed for all potential customer classes. The CPUC CSI program provides incentives for government, schools, industrial facilities, and agricultural properties. Many vineyards and other agricultural properties are eagerly applying for solar incentives. These customers may need different energy efficiency requirements from standard commercial buildings.

Conclusion

The CPUC Energy Division appreciates the chance to comment on the Energy Commission draft report, based on our experience managing performance- based solar incentives for a range of applicants and facilities. We attach a table characterizing the differences between the Energy Commission recommendations and existing CPUC CSI requirements.

Table 1: Comparison of Proposed CEC Eligibility Requirements and CPUC Current Eligibility Requirements for Solar Incentives

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
GENERAL	
Requirements would become effective on January 1, 2009.	Program is currently in operation.
Focuses on photovoltaics (PV) incentives only	CPUC program includes solar incentives for electric-displacing non-PV technologies.
COMPONENT STDS	
National Testing of PV modules and inverters	Same (CPUC relies on CEC process)

Metering requirements for all:
• "± 2 % accuracy for all PBI applicants
• All ± 2 % accuracy meters be tested according to all applicable ANSI C-12 testing protocols
• ± 5 % accuracy meters (these are primarily inverter integrated) are allowed for expected performance incentive applicants
• All meters must measure and display, both instantaneous (kW or W) and cumulative energy produced (kWh or Wh)
• All meters must retain production data during power outages
• All meters must be easy to read for the customer's benefit
• All meters must have a communication port capable of enabling connection to remote performance monitoring and reporting service (PMRS)."
	All same except:
	• CPUC is still deliberating a Petition to Modify the CPUC PMRS requirement.
	  • Such services can be provided by Performance Data Providers (PDP) or by PMRS providers, who add additional energy consulting services in the contract.
	  • The CSI metering subcommittee is moving to identify the two data streams, data transfer protocols, and minimum service requirements for each.
	• The CSI metering subcommittee is also developing metering requirements for non-PV incentives.
	• CPUC staff is monitoring the future interaction between solar production meters, RECs, AMI, TOU meters, and other metering applications.

INSTALLATION STANDARDS	
• Recommends PBI for large systems with phase-down. • "similar to the provisions under CSI, the Performance Based incentive approach should be required for systems that are larger than 100 kW (AC), which is proposed to be changed to 50 kW (AC) by 2008 and 30 kW (AC) by 2010. The payments are made over 5 years on a monthly	Same.

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
basis and the incentive is paid on a $/kWh basis. All systems which are smaller than 100 kW can be either under PBI or opt to use an expected performance based – incentive calculation approach."	
Use CEC Expected Performance Based Incentive (EPBI) approach: "the EPBI approach be used for SB 1 programs to ensure all interactive component performance characteristics, determined by independent testing, are used for establishing time-of-use (TDV) weighted kWh performance based incentives that affect the performance of an installation."	The CPUC has an EPBB approach with many (but not all) of the CEC characteristics. The CEC EPBI incentive calculation is very similar to the CPUC EPBB calculation. Both use system capacity, incentive rate (based on capacity) and a Design Factor. Other common factors are shading, tilt, orientation, peak focus, and geography. The difference is the performance values used to calculate the Design Factor. The CEC report's characterization of the EPBB calculator contains some inaccuracies. CPUC staff can work with CEC staff to clarify for the next draft.
Unclear whether report recommends using CEC calculator: For further consideration: "Both the CPUC's CSI and the Energy Commission's NSHP have independent calculators and approaches for incentive calculations. It is recognized that there has been considerable time and effort invested in the development of these approaches. SB1, however, points to a unified calculation approach for statewide use to avoid confusion in the marketplace. This staff report recommends a calculation method, but further discussions are necessary to compare both methodologies and narrow and reconcile the points of differences. In particular there are differences about the approach used for handling performance characteristics of components and installations at an hourly level, shade estimation and incentive calculations that adequately address expected performance."	• Rather than inputting each factor into the program database, installation characteristics are inputted into the CPUC EPBB incentive calculator. • CPUC calculator is available on the web.
• Use CEC shading methodology: "the shading methodology developed and used by the	• The CPUC EPBB calculator has a shading calculation methodology, being

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
NSHP program (NSHP Guidebook, Appendix 4) be used for systems installed on newly constructed buildings (residential and non residential) and on systems installed on existing buildings… • For further consideration: "Both the NSHP and CSI use a similar 'minimal shading criteria' at this time, which is consistent with the recommendations. However, the CSI Shading subcommittee is considering ways to improve the effectiveness of how the CSI handles shading. Conclusions of this group should be reviewed for merit relative to the NSHP shading approaches with consideration for how the proposed NSHP guidelines can be improved further."	refined by PAs through shading subcommittee. • The CPUC shading committee may soon recommend moving away from the NSHP definition of "minimal shading" due to implementation challenges.
Shading education: "solar contractor or builder should be required to provide the actual owner/facility operator with a guide on their solar electric system with detailed information about future shading avoidance to ensure long term performance. "	The CPUC administrators are developing shading methodology education for installers/applicants.
Peak Load: • "Energy Commission staff recommends that the TDV multiplier weighted production be used to incent systems to address time-of-use peak performance." • For further consideration: "While the NSHP approach has been to recognize the peak load at the hour it occurs, the CSI approach uses just the six summer and near-summer months without recognition of time of day. It is important to consider in the calculation of the expected performance the weighting of production based on time of day and year. This is enabled by the detailed hourly calculation approach that has been suggested."	• CPUC differs on the use of one statewide peak period. The CPUC's is one period that is computed in the Design Factor calculation of the EPBB calculator. Summer peak hours are defined largely by retail tariff structures. • Time of Use rates, when they go into effect, will also incent systems to address time-of-use peak performance.
"Energy Commission staff recommends that systems be required to have third party field	• CSI has sampled inspections, but only for systems on <30kW and over 100 kW.

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
verification on a sampling basis for visually checking components, installation characteristics, shading, and verifying performance. The protocol developed for field verification under NSHP (NSHP Guidebook, Appendix 4) is appropriate for most residential installations on both new and existing construction. The protocol can be modified to address the nonresidential scale of systems, which include for example, tracking (1 and 2 axis) and concentrating type installations."	• 30- 100 kW= all systems have mandatory inspection • CPUC PAs have in place an inspection protocol and training program for their contracted inspectors.
Installer license: valid license A, B, C-10 or C-46 license, and that NABCEP certification be encouraged, though not required.	Same
Installer self-certifies all aspects of the installation that are being verified during field verification.	Same
Energy Efficiency	
New Res'l: NSHP Tier I and Tier II. "Staff recommends investor owned and publicly owned utility be strongly encouraged to provide PGC funded energy efficiency incentives for each tier."	Same.
New Comm'l: develop ratepayer funded efficiency incentives for reaching Tier I or II. • T1= 15% above T24; • T2 = 30% above "Staff recommends that investor owned and publicly owned utilities provide PGC funded energy efficiency incentives for each Tier."	The CPUC allows the IOUs to determine cost-effectiveness across the entire mix of programs/measures in the efficiency portfolio; the CPUC must approve the plans in three-year cycles.
Existing Res'l: • "Staff recommend that the CPUC's current requirement for an online audit be continued at this point in time. • Staff recommends that the CPUC sponsor an investigation to determine the results of the CSI-required audit and determine what measures have been installed by the	• CPUC requires an online or phone audit, and gives exemptions for T24 compliance within past 3 years. • There is no current benchmark for existing homes in California.

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
applicants." • The report then proposes concepts for achieving efficiency, and then recommends IOUs develop a benchmarking system, and that the homeowner should implement those cost effective ee measures identified in the audit, and that someone develops a cost-effectiveness methodology and plan for involving HERS contractors.	
Issues for further consideration: verification on a sampling basis of existing residential homes to ensure that the efficiency measures were installed properly. Suggests using a HERS rater to do it.	• None
Existing Comm'l: • "Existing commercial buildings seeking ratepayer funded incentives for PV systems should at a minimum be required to meet the Green Building Initiative directive as delineated in Section 1.1.2 of the Green Building Action Plan. All commercial buildings should be required to benchmark using *Portfolio Manager* or an equivalent system for building types that cannot receive an ENERGY STAR rating." • 75+ and the building is equal to or smaller than 50,000 sq ft: no further action should be required for the owner to receive the incentive for the PV system. • < 75: Retrocommissioning should be required for all buildings with a score that is below 75 and for all buildings larger than 50,000 square feet. Equipment repairs and adjustments identified in the building commissioning assessment and cost effective energy efficiency measures should be implemented up to those measures required to move the building's benchmarking rating up to the ENERGY STAR rating of 75. • If equipment/appliance replacement is recommended during the commissioning process, it should be replaced with ENERGY	• CPUC requires an online or phone audit, and gives exemptions for T24 compliance within past 3 years.

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
STAR equipment or equipment that qualifies for utility measure-specific incentives, whichever is more efficient.	
Issues for further consideration: "To support the recommendation of using a commissioning agent to assess energy using systems and specific equipment and identify efficiency improvements will require a continued growth in the number of engineering and/or commissioning firms that offer these services. Commissioning is no longer a new concept and it is expected that as the demand for this service grows, the engineering industry will respond and will continue to expand their services to include the commissioning task. The California Commissioning Collaborative (http://www.cacx.org/) can assist the building owner or operator in identifying a commissioning agent. Utilities will want to consider programs that support retrocommissioning for those projects seeking PV incentives."	N/A
Utilities should provide PGC funds for the retro-commissioning and for the installation of cost effective measures.	N/A
Determination of "cost-effective" by a home energy rating contractor for existing homes, and a building performance contractor for existing commercial properties	N/A
General EE issues for further consideration: • "Coordination and development of utility programs to support the energy efficiency requirements that will meet the requirements of SB 1 need to be addressed. The utilities will need to develop programs and provide incentives that meet cost effectiveness test requirements of the CPUC and POU administrators. • Consideration may also need to be given to limit the cost of required energy efficiency measures for existing buildings in comparison to the total cost of the PV	N/A

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
system. Currently, cities such as the City of San Francisco and the City of Berkeley have requirements for property owners to make energy efficiency improvements before the transfer of ownership of the property and there is a maximum limit on the funding required to be spent on these measures as a percentage of the value of the building."	
ADD'L REQ'TS	
System sizing: "Systems receiving incentives must be appropriately sized to offset no more than the actual or expected electricity use of the building they serve."	Same. However, the description lacks some detail on the CPUC determination of sizing using the design factor for the PAs to budget resources and allocate applications towards their targets.
Warranty: "All systems must have a 10 year warranty to protect against faulty equipment, workmanship and undue loss in production."	Same
"all equipment must be new and unused, and not be relocated from a previous installation except where it remains on the same site and within a prescribed period for relocation."	Same
"Eligible systems must be permanently interconnected to the electrical distribution grid of the utility serving the customer's electrical load. This utility must also be one of the in-state electrical corporations which collect funds to support the program."	Same
"Third party monitoring of system performance be required as long it is economically reasonable, by setting a cost cap on systems under EPBI, using the approach taken by CSI. All systems under PBI need to show a five year service contract with a PMRS. The approval of a PMRS should be based up on the communication protocol being developed by the metering subcommittee for CSI."	• CPUC currently requires PMRS services for all PBI incentive recipients. • Parties submitted a Petition to Modify the CPUC Decision (D.06-08-028) due to the additional costs for PMRS and lack of clarity over "independence" of providers. • Forthcoming administrator recommendations from the metering committee will help define the minimum services, data transfer protocols, and

Energy Commission Draft Staff Report Proposed Statewide Requirements for Incentives	Existing CPUC CSI Program Requirements for Incentives
	independence requirements for two data streams: (1) from system to administrator and (2) from system to owner.
Maintenance plan required for all systems installed on newly constructed affordable housing and for all other systems that are over 10 kW. The maintenance should include at a minimum the following considerations: • Cleaning schedule for the module array of any dirt and dust build up. • Periodic checking of all electrical connections for corrosion and erosion. • Checking the inverter for instantaneous power and long term energy output and diagnosing and taking corrective action if production is significantly lower than expected. • Checking for any tree/plant growth or other obstructions that are causing shading on the array and taking action to eliminate that shading.	None: Maintenance is already imbued in the PBI and PMRS concepts.