

California Energy Commission  
**DOCKETED**  
**07-SB-1**  
TN 71237  
JUN 12 2013



In the matter of: )  
)  
Cost Effectiveness of Rooftop )  
Solar Photovoltaic Systems on )  
Newly Constructed Buildings )  
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**Docket No. 07-SB-1**  
  
California Energy Commission  
Dockets Office, MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512

Comments submitted on behalf of:

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Date: June 11, 2013

**Introduction:**

The California Building Industry Association (CBIA) and the California Business Properties Association (CBPA), hereafter referred to as “Industry”, welcome the opportunity to provide these comments to the California Energy Commission.

CBIA and CBPA would like to cautiously support the CEC’s effort to investigate the cost-effectiveness of solar PV on both commercial and residential building rooftops. We recognize the difficulty of such a project and the need to select various input assumptions in order to get to some manner of usable results.

Given the methodology and numerous input assumptions, the CEC’s contractor, E3, is suggesting that solar PV may well be cost-effective under a variety of scenarios. At the same time, E3 also indicates that there are a host of issues that could become problematic down the road.

CBIA agrees and we would like to raise a few of these issues for the CEC’s consideration:

**Net-Energy Metering Assumption:**

E3 assumes that net-metering will be available to any and all solar PV owners down the road, however; on Page 6, E3 clearly and correctly acknowledges the serious gravity of a non-fix to the NEM cap.

In addition, assuming that net-metering is available to all at some point in the near future, there will most certainly be some manner of monthly fee paid to the utility by solar users that allows the utility to recover reasonable costs associated with maintenance of the existing grid.

Politically, this is a significant issue that will be hotly debated at the Capitol in the coming year(s). In Industry’s opinion, this places a significant “asterisk” on the CEC’s cost-effectiveness conclusion.

The CEC, the CPUC, Industry, manufactures and the environmental community need to work with the utilities in making sure their issues are dealt with in a fair and responsible way. Simply stated: what are the appropriate cost-impact assumptions regarding a “reasonable monthly fee” being sought by the Investor Owned Utilities to cover transmission grid maintenance, etc.?

**Utility Line-Extension Costs:**

At the present time, builders must pay a line-extension “allowance” to the utilities during initial construction of a project. This allowance assures the ratepayers will be kept financially “whole” in the event the project is not completed or does not produce a revenue stream that allows the utility to recoup any and all related costs. Once the project (or home) is occupied, a revenue stream via monthly utility billings is created which allows the utility to reimburse the builder the “allowance” fees over a 5-10 year period of time.

Clearly, if a home has 4-5 kW of solar on the roof, the utility will see a significant reduction in the revenue stream compared to that associated with the traditional, non-solar home. As such, it is highly likely that the builder will very little, if any of the “allowance charges” repaid.

This is a real and substantial up-front cost that is not accounted for in the CEC report. As the CEC moves forward with its goals for residential Zero-Net Energy by 2020, this is an issue that must be properly accounted for as part of the costs associated with solar installation.

**Using a “progress ratio” of 20% for the residential sector:**

The CEC analysis assumes a reduction of labor and installation costs (identified as a “progress ratio”) of 20% for every doubling of solar installation on a global basis.

While there may well be some economies of cost reduction down the line as the volume of global application increases, there are a few issues of concern to industry:

First of all, **the costs at time of construction** are the costs that must be used in any cost-effectiveness analysis performed by the CEC. This has been the case over the many updates to the standards and should continue to be the case for solar in any future rulemakings. Obviously, in the event there is a decrease in the cost of solar (or any other measure in the regulations), subsequent updates to the standards should reflect the real-world change in installation costs of the individual measures.

Secondly, we are very concerned with a projected 20%-40% “reduction” of labor costs within the State of California, especially for the residential sector. The fact is labor costs were at a low point in recent years as a direct result of the collapse of the housing sector economy. Residential labor costs are already on the rise as the housing economy begins to improve. While it is possible that material costs and efficiencies may improve, it is highly doubtful that labor costs will take a dive in the near future, especially at a high rate of 20%-40%.

**System material cost data:**

The CEC contractor indicates they are using cost data recovered from the CEC’s New Solar Home Partnership program database. We fully appreciate the difficulty in obtaining high volume data on such an emerging industry, however, given the business models being used by many of the NSHP’s largest customers; it is highly likely that cost data recovered will be significantly lower than that experienced by that experienced by medium and small builders.

And there is also the high degree of uncertainty created by the growing influence by China on the overall global production of solar PV panels. In addition, there is also concern over the potential demand (and its related impact on costs) created by increasing installation of solar in other states and countries.

Observation: The residential building industry did not see the PV cost reductions from 2007-2011 as indicated in the CEC report. While we were supposed to see a 6-8% reduction per year for 7 years starting in 2006, we actually saw a 25% increase in PV costs in 2007-2008 due to world-wide shortage of processed silica and demand from Germany and Japan. That price leveled off for two more years and then began to drop in 2011. **The point industry wishes to convey is that the solar market (PV unit pricing) has been anything but predictable over the past decade.** The fact that things seem to be going well right now should not be the basis for assuming long-term, steady reductions in material pricing.

### **“Market-Segmented Savings”**

With regards to the two methodologies considered within the report, the “market segmented savings” approach seems to be the easiest industry to understand and convey to the buyer. This is a critical point in that industry must be able to market the product. Regardless of whether an item is related to energy efficiency or energy production, industry must be able to show the buyer that “*It pays for itself in reduced utility billings*”. This is simple to understand and embrace from a consumer standpoint. Trying to explain the “average consumer savings” method or “time dependent valuation” to the average consumer will not be well received and will be very difficult to successfully market.

### **Smaller Issues/Questions:**

- **Size of the residential system used: 2.0kW – 3.5kW vs <10.0kW**  
The CEC report uses a system size of “less than 10kW for the residential sector. Is the entire range from 1kw to 10 kW cost effective for residential or was there a noticeable cut-off point? This is important as the average size of PV system being installed on residential dwellings is approximately 2.0kW.
- **Availability of NSHP Incentive:** The CEC rightfully assumes this program will be phased out (July 2016). However, the short-term availability of this program (present to 6/16) will have a significant and positive benefit on market transformation...providing the program is fully funded through 6/16. *The continued funding of this program through 6/16 is in jeopardy. While there has been recent success in retrieving funds that were borrowed by the Legislature (RRTF), all three IOUs are challenging the NSHP portion of the CEC’s EPIC investment plan currently pending before the PUC. The combined \$50 million in EPIC funding for NSHP (2013-14) is not something that by any means is assured.* Is the CEC assuming the availability of a fully funded NSHP program through June 2016?
- **Gas usage:** What is the assumption of gas usage in the home? This has significant implications for the potential cost-effectiveness of “zero net energy”.
- **Local permitting/code differences:** Just like residential fire sprinklers, local “add-ons” and permitting/inspection issues are significant cost-impact problems for rooftop solar PV systems and cannot be ignored at the state level. Industry, manufacturers and the California Building Officials are all very interested in working with the CEC and OPR in addressing these issues.
- **2017 RES and use of PV as compliance option.** Considering that NSHP will be gone, this will provide a strong incentive keep the momentum going and is also attractive to small and medium size builders