



To: CESA Members; Solar Program Managers
From: Mark Sinclair, Lise Dondy, and Warren Leon
Date: August 3, 2007
Re: Mainstreaming Solar Discussion

This memorandum summarizes our very preliminary thoughts for how CESA members could work together in a focused effort to drive solar PV markets.

Based on the recommendations by Topline Strategy Group in the white paper, *What the Solar Power Industry Can Learn from Google*, we identified several priority actions that appear potentially appropriate for CESA to pursue collectively to address major barriers to solar mainstream adoption.

As a next step, we propose holding an initial meeting call (on September 5th) with the major CESA solar program managers to discuss these ideas further, determine interest, and figure out a specific game plan for the concepts that are found to have merit.

Here are the identified priority areas of action:

- 1. CESA states should strive to impose standard, strong warranty requirements for solar program eligibility and to make warranties transferable to assist in creating a secondary market.**

The warranty policies of major manufacturers warrant products only to the first purchaser, providing no warranty assurances to future home buyers. Therefore, major CESA solar programs should add “transferability” as part of the warranty requirement of state solar programs for incentive eligibility.

CESA also should develop a recommendation for a robust, standard warranty requirement to be employed by CESA members to influence the industry. The California requirement appears to be the most rigorous, requiring a 10-year warranty, and may serve as the appropriate CESA-recommended standard. Here is a preliminary provision to achieve these goals:

For program eligibility, all solar PV systems must have a minimum 10-year warranty provided in combination by the manufacturer and installer to protect the purchaser against system or component breakdown. All warranties must be transferable for the life of the warranty to each and every owner during the entire warranty period.

Warranties must cover the solar generating system, including PV modules (panels), inverters, and meters, and provide for no-cost repair or replacement of the system or system components, including any associated labor during the warranty period. The warranty must cover the major components of the solar system (PV modules and inverters) against breakdown or degradation in

electrical output of more than 15 percent from their originally rated electrical output during the 10-year period.

Self-installed systems must have a minimum 10-year warranty on the equipment to be installed to protect the purchaser against breakdown or electrical output degradation of major system components. In this case, the warranty need not cover the labor costs associated with removing or replacing major components because any repairs would be done by the self-installer or at the self-installer's expense.

2. CESA states should strive to agree to set solar program requirements that include use of California Energy Commission equipment ratings and inclusion of information about product performance on manufacturers' specification sheets.

Widespread use of standards for equipment size, rating, and efficiency would increase confidence in solar power and help to eliminate consumer confusion. One of the major questions that customers have when buying solar is whether or not they will actually generate the amount of electricity promised by the vendor. Providing the consumer with information on real world conditions speaks directly to the economics of the purchase decision that is critically important.

There are significant discrepancies between nameplate rated power and actual power output. Therefore, CESA states should take actions that encourage manufacturers to label their modules performance rating based on the PUV USA testing, rather than nameplate or DC performance rating. PTC are "PV USA Test Conditions" and were developed at the PV USA test site in Davis, California and represent a more real life condition of 20 degrees C. ambient temperature (68 F.), 10 meters above ground level, and wind speed of 1 meter per second.

PTC ratings are a more realistic and useful specification for indicating performance. Through their solar programs, CESA members should influence manufacturers to use the PTC data, in conjunction with clearly labeling the square footage and providing a module PTC-watts-per-square-foot specification. This will provide a more useful comparative tool for consumers than nameplate rating. It also will highlight manufacturers whose products perform better and on those that benefit from obfuscating their product's inefficiencies.

Using PTC ratings is good for consumers and their ability to make informed choices. This also is consistent with the state policy goal of getting as much PV power generation as possible from incentive investments.

Therefore, CESA programs should set a program eligibility requirement to the effect that:

To be eligible for the state solar incentive, system components must be certified by a nationally recognized laboratory (modules meeting UL 1703, inverters meeting UL 1741), listed by the California Energy Commission as eligible equipment, and have module performance ratings labeled in watts/square foot on the equipment and on the specification sheets. All manufacturers must label their products with numbers that correspond to their performance under PTC conditions (the ratings the CEC uses). All product data sheets should display the PTC ratings prominently so the end-buyer can make an informed purchase decision. PTC/CEC watts per

square foot (total module size, frame included) should be the most prominent specification listed among the other specifications and listed on the front page.

3. CESA states collectively should consider approaching the lending community to establish favorable financing programs for solar system.

The initial investment in solar PV systems is large even with state subsidies. Most buyers must secure their own financing, costing them time to research and apply for loans.

It would be useful for CESA states to determine if consumers face a significant barrier in obtaining loans for solar systems. How are consumers today financing these systems? Is there difficulty in obtaining loans for this purpose? Is there a need for more readily-available solar-specific loan programs with favorable terms?

Several CESA members individually have solicited potential interest from financial institutions in offering solar loan programs, but with no success or interest by the lending community. Assuming there is a solar loan “need”, CESA members could consider collectively soliciting financial institutions to offer lower interest and standard loans, with potential state funding. Members should discuss the merits and nature of such a solicitation, what the terms of the prior individual solicitation efforts were, what entities to approach (manufacturers, financial institutions), and what state fund support would be offered to create an effective financing program.

4. CESA should sponsor research to address concerns about the impact of solar systems on property values.

Buyers are concerned about the impact of solar power on property values. There are no rigorous studies available on how solar power systems affect home resale value. Potential buyers are concerned about whether future prospective buyers will consider a PV system on the roof as an asset or liability from an aesthetic standpoint.

Lawrence Berkeley National Lab may be willing to perform a study with CESA on the impact of PV systems on property values, to be completed in 2008.

5. CESA should develop best practice recommendations to increase the visibility of solar projects.

There is a recognized need to increase the visibility of solar projects to dispel myths and educate consumers on its benefits. CESA should survey how its member programs are promoting solar project visibility through such activities as solar home tours and solar fairs, solar on public building, higher incentives for projects in high traffic areas, advertising, co-marketing with installers, solar branding of solar residences, etc. We should identify what is working most effectively, develop new ideas, and offer recommendations for CESA members for program efforts.