

**STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION**

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Guidebook of California) Docket No. 06-NSHP-1
New Solar Homes Partnership)

Draft

**COMMENTS OF CONSOL ON THE
DRAFT NEW SOLAR HOME PARTNERHSIP GUIDEBOOK**

NSHP Guidebook Comments

CONSOL BACKGROUND

ConSol has been providing energy solutions to production builders since 1983. Services include Title 24 code compliance, mechanical design, above-code programs including ComfortWise[®], and consulting on resource-efficient building. As a Building America team lead, ConSol has assisted builders to build more near-zero energy communities than any other consultant in the U.S. Based on its experience, ConSol principal, Rob Hammon serves as Co-Chair for the NSHP Advisory Committee. ConSol also serves as technical advisor to CBIA on energy-, and resource-related issues.

INTRODUCTION

ConSol appreciates the opportunity to participate in the development of the Solar New Homes partnership, both through co-chairing the NSHP Advisory Committee and through the normal public process. We believe that the NSHP has the opportunity to dramatically increase both the use of PVs and the level of energy efficiency in new homes.

ConSol has seven recommendations that we believe will significantly strengthen the NSHP, as well as minor comments on the guidebook and the procedures described therein. First, the recommendations that we consider major. ConSol will provide comments regarding program administration in another letter.

MAJOR RECOMMENDATIONS

Initial PV incentive level. The Guidebook specifies a starting incentive of \$2.50/watt. We believe that this should be at least \$2.60/watt. The reason for this recommendation is that it is imperative that the program get off to a strong start and this is more likely at a higher incentive level. The reasons to reduce the incentive from its current \$2.60 would be strong PV and home markets and/or a reduction in PV costs. The costs of PV systems have not gone down, due to silicon shortages and are not likely to go down for at least another year. The new home market is undergoing an adjustment down, which is causing builders to be much more cautious of additional first-costs, and the PV market is still very small.

Energy efficiency incentives. To maximize the consumer and societal value of this program, it is important that the solar systems be accompanied by energy efficiency. The best method to do this is to coordinate IOU residential energy efficiency programs with the NSHP. The IOUs have indicated their willingness to do this and have suggested a \$500 Tier I incentive and \$1,200 for Tier II. However, to achieve the desired positive cash-flow for the consumer, the Tier II incentive should be \$2,000, rather than the proposed \$1,200. The IOU-proposed \$1,200 Tier II incentive is based on their programmatic TRC calculations using the annual kWh and kW produced by the Tier II efficiency measures. ConSol recommends that the CEC, IOUs and CPUC work together to develop a mutually agreeable method to use the energy and demand reduction benefits of the entire solar and efficiency elements achieved in Tier II to increase the incentive for Tier II from the current IOU-proposed \$1,200 to \$2,000.

[®] ConSol, 1995

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Tier II requires a combination of a 35% reduction in the total Title 24 budget and a 40% reduction in the cooling budget. The guidebook states that Tier I requires a 15% reduction in the total budget. Because a goal of this program is to reduce electricity demand, ConSol recommends that the CEC explore adding a cooling budget requirement to Tier I as well. ConSol is willing and able to work with the CEC and IOUs to develop this strategy, as it has already with Tier II.

MW volume buckets. The NSHP Advisory Committee suggested somewhat different volume buckets that correspond to incentive levels (see table below). ConSol submits that those suggested by the Advisory Committee are likely to produce a stronger program start and would therefore be more likely to produce the desired goals. The total funds expended are essentially the same.

| NSHP Committee Proposal | | CEC Staff Proposal | | |
|-------------------------|-----------|--------------------|------------|-----------|
| Reserved | | Reserved | | |
| MW | Incentive | MW | 80% MW | Incentive |
| 15 | \$2.60 | 10 | 8 | \$2.50 |
| 18 | \$2.30 | 13 | 10 | \$2.25 |
| 22 | \$2.00 | 18 | 14 | \$2.00 |
| 25 | \$1.75 | 24 | 19 | \$1.75 |
| 30 | \$1.50 | 31 | 25 | \$1.50 |
| 35 | \$1.25 | 41 | 33 | \$1.25 |
| 40 | \$1.00 | 56 | 45 | \$1.00 |
| 50 | \$0.75 | 75 | 60 | \$0.75 |
| 75 | \$0.50 | 100 | 80 | \$0.50 |
| 100 | \$0.25 | 134 | 107 | \$0.25 |
| 410 | | 500 | 400 | |

California Flexible Installation. The handbook mentions that the California Flexible Installation employs a conservative estimate of energy production, and therefore a conservative incentive. ConSol recommends that this approach, which is meant to provide a simple application procedure for production builders, should provide an average or median estimate rather than conservative. The conservative approach is based on essentially worst-case orientation and tilt for the panels. Over the course of the program the actual panels are likely to be evenly distributed across allowable orientation and tilt. The incentive should reflect this, because it will provide the proper incentive for the application. In addition, if the conservative approach is employed, the builders will likely want to resubmit their applications at final with the actual orientation and tilt so as to optimize their incentive (which should provide the average across the subdivision). Using the average at the application will alleviate substantial additional effort and paperwork at the end of the process. We recommend keeping it simple.

Lighting requirements. The guidebook currently requires NSHP builders to use high-efficacy lighting fixtures rather than simply requiring Title 24-compliant fixtures or controls. This will be an additional hurdle for program participation. ConSol suggests that Title 24 compliant lighting fixtures and controls be sufficient with the additional requirement that the lighting be verified to be compliant by the third-party HERS rater.

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Registration requirements. ConSol thanks the Committee for making the reservation period 36 months! However, we are concerned that the current guidebook process may encourage builders to reserve funds even if they are not truly committed to the program. We recommend that, in addition to requiring a tentative map, they also be required to submit a construction plan-set for the homes that will have the solar – these building plans should be at least 60% complete. This additional hurdle should help limit uncommitted builders from reserving funds.

Optional solar. ConSol recommends that for subdivisions where solar is to be optional (not standard) on any production homes in the subdivision, the maximum number of lots be 10% of the subdivision, not the current 50%. In our experience, it is highly unlikely that large percentages of solar homes will result from an optional sales program. Should this change, the guidebook could be updated to increase the percentage. Limiting the number of lots to 10% of the total will encourage serious builders to make solar standard and will limit reservations for builders who are less serious.

HERS requirements. ConSol fully supports the NSHP requirement for certified third-party HERS raters performing inspections and tests as the homes are built. The guidebook sets forth some new responsibilities for HERS raters that, to ConSol's knowledge have not been fully tested to determine that they are practical and efficient in their field implementation. ConSol suggests that some additional time be spent with HERS raters (including ConSol) and solar installers to ensure that these practices are workable.

The guidebook is a living document. As Commissioner Geesman stated during the workshop, the guidebook should be considered a living document that will be updated as necessary to keep the program working well. Examples include specific HERS rating activities and documentation, as well as the current guidebook Tier II requirement for 40% cooling savings, and the ConSol-proposal to add a requirement for cooling savings in Tier I. Regarding the Tier II requirements, we currently do not have sufficient data to specify a 40% cooling savings statewide. It is likely that this will be a difficult goal to reach in mild or cold climate zones (e.g. coastal and mountain). This issue may be solved through different criteria for a few climate zones or by innovative credits – for example, if no mechanical air conditioning (A/C) is specified because the envelope is good enough to eliminate the need for A/C (as has been done in some of the Building America homes in mild climates), then the cooling budget could be zero. This is not how Title 24 or IOU energy efficiency programs currently work, and adjustments to this program may be beneficial.

MINOR COMMENTS AND ISSUES

Minor issues are corrections, clarifications, or concerns about specific issues in the guidebook. They are presented sequentially as found in the guidebook and stated tersely with page and section references where appropriate. A few require some consultation with a key industry partner and are so noted.

NSHP Guidebook Comments

1. Handbook references *2005 Title 24 Standards*. Simplify to *Current Title 24 Standards*.
2. P2, provide reference for definition of “high efficacy lighting”.
3. P7, H.: “electrical connections must be made by ... <an installer with> an active A, C, or C-10 license or a C-46 license”. Roofer (C-39) should be able to connect panels and place loose wires in J-box under roof.
4. P7, I: change “insure” to “ensure”
5. P8, K: update reference “XX form”
6. P13, 1: Modify second sentence to be: “The total number of residential units in a project and the total number of residential units that will have solar systems installed must be identified on the form.”
7. P13, 2: Needs to be clarified to clearly include California Flexible Installation.
8. P18, C: Rather than define “affordable housing” in this document, reference the state HCD definition. This definition is subject to change and the CEC and HCD definitions should be the same.
9. P15, 6: update reference “Form (XXXX)”
10. P22, 4: “submit a copy of the Installation Certificate (CF-6R) for all energy efficiency feature measures installed to meet either Tier I or Tier II and a Certificate of Field Verification and Diagnostic Testing (CF-4R) for all energy efficiency measures requiring field verification.” There are logistical and data problems with this that need to be faced. Builders and installers need to understand (be trained) that they need these forms for above code features. HERS providers need to alter their databases to differentiate between above-code and for code inspections and tests (CalCERTS has done this).
11. P33, A: change “insure” to “ensure”
12. P34, B, last paragraph, strike “probably” from “...HERS rater *probably* will not.”
13. P36, 4: Needs to be clarified to clearly include California Flexible Installation (e.g., see p40, c).
14. P45, Tree Height. This probably needs some additional consideration. How are HERS raters going to know all tree types? Perhaps builder should certify that mature trees will not shade the panels – they specify and plant the trees.
15. Form NSHP-1B: Should provide termination date for reservation.
16. Form NSHP-1C: sentence supporting second check box, need “)” at “(... and inverter_” (underscore added to show placement of parenthesis).

ConSol thanks the Committee for their hard work on this very innovative program and looks forward to working with the CEC and builders to make it a success!

Sincerely,

Robert W. Hammon, Ph.D.

Principal, ConSol
Co-chair, NSHP Advisory Committee