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

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

**COMMENTS OF VOTE SOLAR ON THE NEW SOLAR
HOMES PARTNERSHIP PROGRAM**

ABOUT VOTE SOLAR

The Vote Solar Initiative, a project of the Tides Center, is a 501(c)(3) non-profit organization with the mission of helping bring solar photovoltaics into the mainstream. We are pleased to have the opportunity to provide these comments on the development of the New Solar Homes Partnership (NSHP) and commend the Energy Commission for efforts to seek input from a variety of perspectives.

The NSHP is tasked with creating a program that will result in the installation of 400 Megawatts of PV on new homes by 2016. The program is targeted at the homebuilder community – a sector that heretofore has had limited experience with photovoltaic installations. Until there is a significant demand pull for solar, the NSHP will need to structure the program such that it entices homebuilders that are working in niche markets and/or are looking for market differentiation. Success in the early years will require a program that is straightforward, user-friendly, and provides enough tangible benefits to the builder. We provide these comments and suggestions in the hopes that they are of value to the Energy Commission at this stage of program development.

Reservation Period. In order to accommodate the planning window and parameters that production homebuilders already work within, Vote Solar suggests that the reservation period be extended up to 36 months and that a “Tentative Subdivision Map” be considered acceptable as opposed to a “Final Subdivision Map”, as requested by the builder representatives at the June 15th Advisory Committee meeting.

To reduce or prevent phantom applications, the CEC should implement a reservation fee that is equivalent to what is now in place for the CPUC – half of 1%.

Incentive Level & Structure. Establishing the right incentive level at the onset of the NSHP program is crucial. The incentive must take into account the economic proposition faced by the homebuilder entering the new solar home market, not just the economic value to the homeowner. The incentive must be such that homebuilders can still offer homes that are competitively priced.

Vote Solar supports the Expected Performance Based Incentive (EPBI) mechanism rather than an actual performance-based mechanism as it provides an appropriate balance – builders get upfront compensation that minimizes their financial risk, but design parameters are included to maximize PV system output.

Before settling on an incentive level, however, Vote Solar urges the Energy Commission to study available ERP data on PV installations in order to help inform what that incentive level should be. In particular, the Energy Commission should assess the rates of participation at past and current incentive levels. If the rates of participation in the ERP have slowed considerably with declining rebates, this would provide evidence that the starting point for the rebate level should be at least on par with current rebate levels (\$2.60-\$2.80/watt). Furthermore, the program should incorporate some flexibility that allows it to react to market and policy conditions. The economics of investing in PV systems are sensitive to a number of market parameters including tax credit availability (currently only assured through 2007), higher material costs as a result of supply-side constraints, and changes in utility tariffs.

PV Installation and Energy Efficiency. Vote Solar supports the NSHP inclusion of PV design guidelines and energy efficiency as parameters for setting the incentive level.

PV performance guidelines should include: 1) PV system orientation within a window from 135 degrees to 270 degrees (SE to W). This orientation window is defined enough to ensure proper performance and peak production. The Energy Commission should also consider establishing a minimum production threshold such that PV systems below a certain baseline would not be eligible for an incentive at all.

Energy efficiency ensures that the electricity produced by a PV system is used as effectively as possible. A cursory review of available literature on current Title 24 standards indicates that if energy efficiency is incorporated into the design of the building using performance software as a design tool, Title 24 can be easily exceeded at little to no extra cost. Guidelines should be widely available to homebuilders that illustrate what no-cost and low-cost measures could be incorporated in the early stages of design to obtain the higher rebate level. Regardless of the structure of the rebate level in relation to energy efficiency, the program should not entirely eliminate builders that meet but do not exceed Title 24, at least in the early years. Vote Solar supports the proposed incentive design suggested by PV NOW:

Proposed Incentive Design for January 1, 2007

Energy Design Relative to T24 Standards	Complies	Exceeds by 15%	Exceeds by 25%
Incentive Premium	0%	15%	25%
Incentive Level (per Watt)	\$2.60	\$3.00	\$3.25

Third-Party Verification. Because the rebates will be paid on an expected-performance based methodology, verification is important. As suggested by Energy Commission staff, Vote Solar supports the implementation of two components for verification: 1) system verification to ensure minimum performance is closer to actual performance, to be performed by the PV installer on each PV system and 2) field verification, performed on a random sample of installed PV systems. Vote Solar also supports the concept that the Energy Commission would develop the field verification protocols and build upon the existing Title 24 infrastructure and engage independent HERS raters to perform the field verification tests.

Marketing/Technical Support. This is a particularly important component, given that the end game is to create a market that is self-sustaining. If we are to create sufficient demand pull, then the building community needs to gain experience, the residential sector needs education, and local governments need to remove barriers and/or create incentives to smooth the road for solar installs.

Builder Support: The homebuilder will have to overcome significant entry hurdles, which include institutional and technical barriers. Builders will need support to get them past the initial learning curve. Vote Solar recommends that staff (whether CEC, utility, or 3rd party) be on-hand to provide specialized one-on-one assistance to builders. These services should include help with local building departments, dealing with utility issues such as interconnection and net metering, and training on how to educate the homebuyer on the value of a solar home.

Residential Support: In the mainstream new home market, solar is not perceived to be a motivating factor for purchase. Research on this subject maintains that only 12% of homeowners opt for PV systems when offered as an option on a new home¹. In contrast, once homeowners do opt to live in a new solar home, they overwhelmingly view their PV systems positively and feel that the systems lower energy bills and increase resale values². Given these two conditions, homeowners need to be savvy both before and after purchasing a solar home.

Vote Solar encourages that some form of monitoring equipment be available for homeowners. Not only would it encourage proper maintenance, but it is important for residents to understand how their system is performing for other reasons – to take full advantage of word-of-mouth marketing. If homeowners can articulate that their PV system works, is saving them money, and is ultimately a worthwhile investment, then they can communicate that with their neighbors, their friends, and their friend's neighbors. The monitoring program should have an easy-to-read interface and graphic or pictorial illustration of PV system output and expected output. Other useful educational displays would include avoided CO2 emissions and air pollutants and the ability for a homeowner to ascertain the effect of his/her behavior (peak shifting, conservation) on consumption of PV-produced power.

¹ Farhar, Barbara C., Timothy C. Coburn, & Megan Murphy: *Large-Production Home Builder Experience with Zero Energy Homes*. July 2004. NREL/CP-550-35913

² Del Chiaro, Bernadette. *Rave Reviews for Solar Homes: A Survey of Homeowners in California*. Environment California. March 2006

Municipal Support: Municipal building departments can serve the goals of the NSHP with mechanisms such as expedited permits, flat or low permitting fees or design review waivers. However, municipal governments can also create obstacles when they are inexperienced with solar: fees based on a percentage of material costs, additional disconnect switches not required by NEC codes, etc. The biggest barriers faced by a local government are constrained budgets and limited staff time. Support that would be useful for municipal (non-utility) governments include: boilerplate policy language that municipalities can adopt as ordinances for solar shade control and access, training on simplified guidelines for plan checking and building inspections, case studies or a best practices manual. Many of these pieces already exist, the task of the NSHP would be package the information in a comprehensive manner and get it in front of the municipalities.

In conclusion, Vote Solar appreciates the opportunity to comment on the Draft Staff Proposal and to participate in the New Solar Homes Partnership Advisory Committee meetings. We look forward to working with the Energy Commission on the creation of a robust program that will accelerate the widespread adoption of solar on new residential construction.

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