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STAFF REPORT

New Solar Homes Partnership Program Quarterly Progress Report

(April 1, 2017 – June 30, 2017)

California Energy Commission

Edmund G. Brown Jr., Governor



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ABSTRACT

The New Solar Homes Partnership (NSHP) Program is integral to California's continuing efforts to promote and develop clean, renewable electricity generation. This report provides a quarterly update on key NSHP Program statistics, including program status and activity for market-rate and affordable housing projects, geographical and income distribution of NSHP incentives, and available funds for incentives. This report is produced in response to the June 9, 2016, California Public Utilities Commission (CPUC) Decision 16-06-006, "Decision Funding Authorizations and Related Measures for Continuation of the New Solar Homes Partnership Program."

Keywords: New Solar Homes Partnership, NSHP, Energy Commission, California Public Utilities Commission, CPUC, Decision 16-06-006, market-rate, affordable housing

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CHAPTER 1:

Introduction and Background

Senate Bill 1 (Murray, Chapter 132, Statutes of 2006) established the California Solar Initiative (CSI) with three goals: (1) installing solar energy systems with a generating capacity equivalent to 3,000 megawatts (MW), (2) establishing a self-sufficient solar industry within 10 years, and (3) placing solar energy systems on 50 percent of new California homes by 2020. The CSI is being implemented by the California Energy Commission, the California Public Utilities Commission (CPUC), and the state's local publicly owned electric utilities in different programs that share the same broad goals.¹

The NSHP Program is the Energy Commission's component of the CSI and is limited to new home construction in investor-owned utility (IOU) service territories. Launched in January 2007, the program provides financial incentives for homeowners, builders, and developers to include solar energy systems on new, energy-efficient homes that will contribute to the CSI goals. The NSHP goal under the CSI is 360 MW of installed solar capacity.

SB 1 established the NSHP as a \$400 million program under the CSI, and the initial monies allocated to the Program totaled about \$282 million through 2011. The CPUC approved Decision 16-06-006, on June 9, 2016, requiring the IOUs to collect funds from ratepayers totaling \$111.78 million to continue the NSHP Program. This decision also directs the Energy Commission to submit quarterly and annual reports to the CPUC, and this quarterly report fulfills the requirement for the period of April 1, 2017, to June 30, 2017.

¹ As of July 12, 2016, the residential CSI Program for solar photovoltaic systems has closed for residential customers of all investor-owned utilities and is no longer accepting applications. The CSI program has also closed for nonresidential customers of Pacific Gas and Electric Company and San Diego Gas & Electric Company.

CHAPTER 2: Program Status and Activity for All Project Types

Reservation Applications

Participation in the NSHP Program is a two-step process in which applicants 1) reserve funding for a project in advance and 2) receive an incentive payment upon completion of the project. Funding is secured through reservation applications that applicants submit to the Energy Commission. Once the reservation application is approved, applicants have the reservation period to complete their project, which includes finishing construction of the home, installing the solar energy system and interconnecting with the utility grid, completing third-party field verifications, and submitting a payment claim package to the Energy Commission.

Reservation applications are approved based on the date they were submitted, and funding is reserved for either an 18- or 36-month reservation period, depending on the project type. *Solar as Standard* projects (formerly referred to as Large Development) are developments of six or more residential units with solar on 50 percent or more of the dwelling units and receive a 36-month reservation period. Affordable housing projects, which include residential unit projects and common area projects in which at least 20 percent of the units are subject to income restrictions by a qualifying regulatory agreement, also receive a 36-month reservation period. Other projects include small developments of fewer than six residential units, projects where solar will be installed on less than 50 percent of the residential units (“solar not as a standard”), and market-rate common areas of multifamily projects. Other projects and custom home projects receive an 18-month reservation period. Depending on the project type, reservation applications may cover a single system (for example, a custom home) or multiple systems (such as Solar as Standard projects).

During the second quarter of 2017, reservation applications for 3,315 systems were approved, corresponding to roughly 14.7 MW of capacity and just over \$8.6 million in funding. Table 1 below shows the breakdown of reservation applications that were approved in the second quarter of 2017 (April 1 – June 30). Solar as Standard accounted for roughly 94.2 percent of reserved systems, 88.4 percent of reserved capacity, and 69.8 percent of reserved funding. Affordable housing systems accounted for less than 2.9 percent of reserved systems, 7.82 percent of reserved capacity, and 26.5 percent of reserved funding over the second quarter. These systems are often virtual net-energy-metered² and serve multiple units or common areas or both, so the total number of

² *Virtual net energy metering* is a tariff arrangement that allows a property owner to allocate credits from a single solar energy system to multiple units, in which each has an electric meter.

systems is lower than the number of residential units served directly or indirectly (in the case of common area projects) by the solar energy system.

Table 1: Reservation Applications Approved from April 2017 through June 2017

Project Type	# of Systems	Encumbrances	Capacity (kW AC)
Solar as Standard	3,122	\$ 6,044,107	13,069
Affordable Housing	96	\$ 2,293,148	1,156
Custom Homes	36	\$ 170,863	327
Other	61	\$ 150,422	227
Totals	3,315	\$ 8,658,540	14,779

Source: California Energy Commission

Payment Claims

For a project to receive an incentive payment, the solar energy system must be completely installed, grid-connected, and operating satisfactorily, and the building must comply with the energy efficiency specifications proposed in the applicant’s reservation.

The current *New Solar Homes Partnership Guidebook (NSHP Guidebook), Tenth Edition (Revised)*, was adopted at the Energy Commission’s May 10, 2017, Business Meeting. The *NSHP Guidebook, Tenth Edition (Revised)* describes the NSHP Program incentive levels available depending on the version of the *Title 24 Building Energy Efficiency Standards (Energy Standards)* under which a project is covered.

For projects permitted under the *2016 Energy Standards*, only a code-compliant incentive level is offered.

For projects permitted under the *2013 Energy Standards*, there are three incentive levels offered: “code-compliant,” where the structure is between 0 and 14.9 percent above the current energy standards; “Tier I,” where the structure exceeds the energy standards between 15 and 29.9 percent; and “Tier II,” where the structure exceeds the energy standards by 30 percent or more.

Projects permitted under the *2008 Energy Standards* are not eligible for a code-compliant efficiency tier; only Tier I and Tier II levels are available.

Table 2 displays the number of payment claims approved in the second quarter of 2017. Similar to approved reservations, the bulk of approved payment applications were for Solar as Standard project systems (92.9 percent), corresponding to 83.8 percent of installed capacity and 78.6 percent of paid incentives. Affordable housing payments accounted for less than 1 percent of approved payment claims, 6.8 percent of installed capacity, and 12 percent of paid incentives. In total, payment claims were approved for

2,088 systems, corresponding to more than 6.7 MW of installed capacity and nearly \$5.2 million in incentives.

Table 3 shows the number of payment claims approved in the second quarter further broken down by their energy efficiency level. Code-compliant was the most common energy efficiency tier, accounting for 1,651 systems, over \$3 million in incentives, and 4.8 MW of capacity. 350 systems were paid at the Tier I level amounting to \$1.6 million and 1.6 MW of capacity. Lastly, only 87 systems were paid at the Tier II level for just under \$370,000 and 278 kW of capacity.

Table 2: Payment Claims Approved from April 2017 through June 2017

Project Type	# of Systems	Incentive Amount	Capacity (kW AC)
Solar as Standard	1,940	\$ 4,112,786	5,696
Affordable Housing	19	\$ 633,018	468
Custom Homes	55	\$ 269,640	368
Other	74	\$ 216,522	260
Totals	2,088	\$ 5,231,966	6,792

Source: California Energy Commission

Table 3: Energy Efficiency Levels of Payment Claims Approved from April 2017 through June 2017

Energy Efficiency Level	# of Systems	Incentive Amount	Capacity (kW)
Code Compliant	1,651	\$ 3,210,141	4,856
Tier I	350	\$ 1,652,101	1,658
Tier II	87	\$ 369,724	278
Totals	2,088	\$ 5,231,966	6,792

Source: California Energy Commission

Reservation Applications and Payment Claims Processed

Table 4 shows the total number of reservation applications and payment claims submitted and reviewed during the second quarter of 2017. In a given quarter, the number of reservations and payments reviewed may be higher than the number of reservations and payments submitted by applicants due to the time required to complete staff review.

The 118 reservation applications submitted during the second quarter accounted for 4,887 systems, totaling 21.4 MW. All figures are an increase from the first quarter.

Table 4: Number of Reservation Applications and Payment Claims Submitted by Applicants and Reviewed by Staff from April through June 2017

	Submitted	Reviewed*
Reservations	118	136
Payments	1,969	1,615

Source: California Energy Commission

*In a given quarter, the number of reservations and payments reviewed may be higher than the number of reservations and payments submitted due to the lag time in staff review.

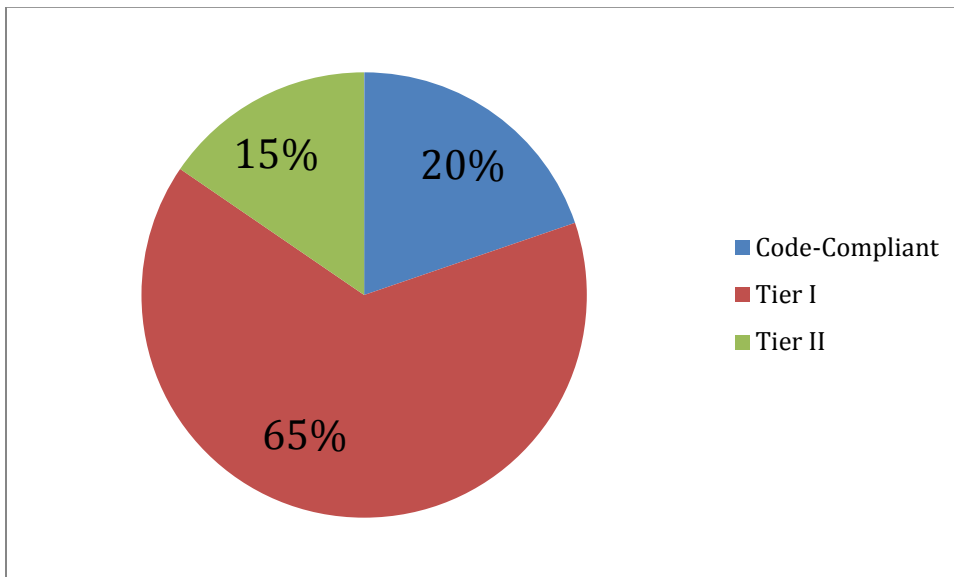
CHAPTER 3: Other Program Reporting

This chapter contains data that cover the entire life of the NSHP Program from January 2007 through June 30, 2017.

Total Installed Systems by Efficiency Levels (Code-Compliant, Tier I, Tier II)

When the NSHP Program began in 2007, incentives were available only for systems installed on new homes that exceeded the then-current Energy Standards by at least 15 percent (Tier I) or 30 percent (Tier II), with an additional 30 percent improvement in space cooling for Tier II. Due to the progressively stringent requirements of subsequent updates to the Energy Standards, the NSHP Program began offering a code-compliant incentive for homes subject to the *2013 Energy Standards*, as long as the home met code requirements before claiming any efficiency compliance credit for the solar energy system. With adoption of the *2016 Energy Standards*, the only available incentive tier offered through NSHP is code-compliant.

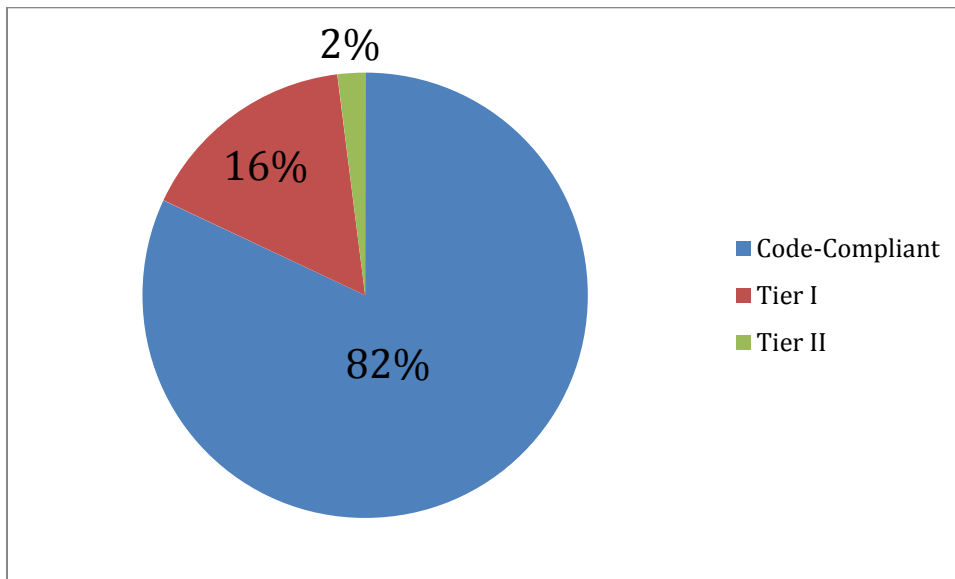
Figure 1: NSHP Installed Systems by Energy Efficiency Level, All Energy Standards



Source: California Energy Commission

Figure 1 shows the efficiency level of installed systems over the life of the program. About 65 percent of installed systems were Tier I projects, with 15 percent Tier II and 20 percent code-compliant.

Figure 2: NSHP Installed Systems by Energy Efficiency Level, 2013 Energy Standards Only



Source: California Energy Commission

Figure 2 shows the efficiency level of installed systems for projects subject to the *2013 Energy Standards*. This was the first update to the Energy Standards for which a code-compliant incentive was made available. In contrast to Figure 1, the majority of systems installed with three incentive levels available opt to complete NSHP incentives under the code-compliant option (82 percent), with 16 percent participating in Tier I and only 2 percent participating in Tier II.

Code-compliant homes under 2013 Energy Standards are not necessarily less efficient than earlier Tier I and Tier II projects permitted under prior Energy Standards, as the *2013 Energy Standards* are roughly 25 percent more energy-efficient relative to the *2008 Energy Standards* and 40 percent more energy-efficient relative to the *2005 Energy Standards*.

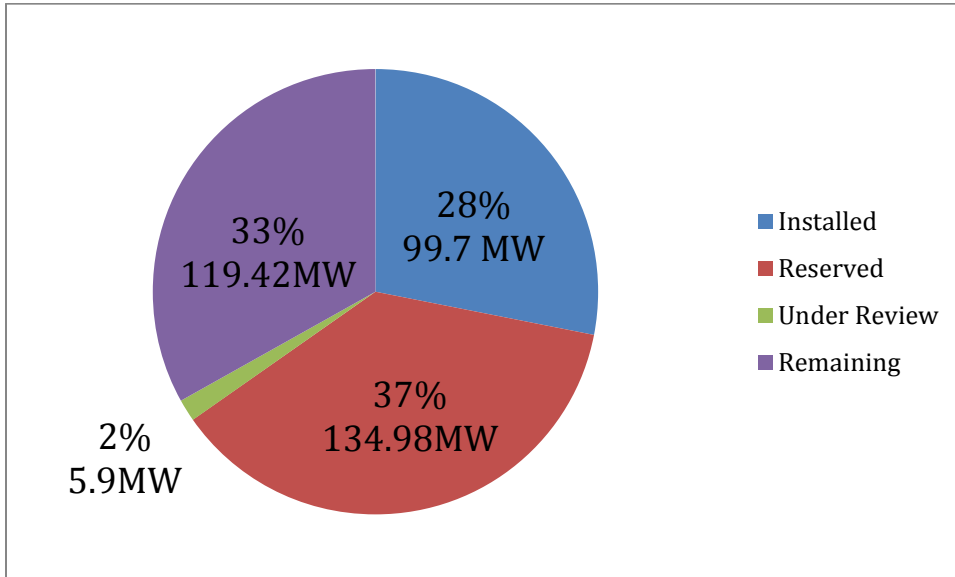
The *2016 Energy Standards* went into effect on January 1, 2017, and NSHP program guidelines for these projects were made available in the *NSHP Guidebook, Tenth Edition (Revised)*. The *2016 Energy Standards* are roughly about 57 percent more efficient relative to the *2005 Energy Standards*. Only a code-compliant option is available for projects subject to the *2016 Energy Standards*.

Overall Progress Toward Meeting Program Goals

The overall NSHP Program goal is to install 360 MW of solar energy systems by the end of the program. As of June 30, 2017, 99.7 MW have been installed, with an additional 134.9 MW reserved and 5.9 MW under review. As shown in Figure 3, NSHP has reserved funds for or installed 65 percent of the total capacity goal for the program. In addition, reservation applications for systems corresponding to 2 percent of the overall capacity

goal are under review by the Energy Commission. Assuming all capacity under review is approved and installed, 33 percent of the overall program capacity goal will remain for newly submitted applications.

Figure 3: Progress Toward NSHP 360 MW Goal



Source: California Energy Commission

CHAPTER 4:

Budget Reporting

Current data show that as of June 30, 2017, funding available for NSHP incentives from the Renewable Resource Trust Fund (RRTF) is roughly \$20.9 million, with applications under review totaling \$7.6 million, leaving about \$13.3 million available for new reservation applications. Based on past average monthly encumbrances, RRTF program funding may be exhausted in late 2017. CPUC Decision 16-06-006 authorized an additional \$111.78 million in funds for the payment of NSHP incentives and the continuation of the NSHP Program.

When reserved projects have payment claims that are disapproved or reduced from the original reserved amount, or reservations expire and are not extended, funds are returned (disencumbered) and become available for new reservations in the current incentive level. The remaining funding, as shown in Table 5, reflects changes due to new encumbrances as well as disencumbrances in the quarter.

Table 5: Remaining Funding in Renewable Resource Trust Fund

	\$ (Millions)	MW (AC)
Available Funding	20.9	
Under Review	7.6	16.0
Remaining Funding	13.3	

Source: California Energy Commission

CHAPTER 5:

Conclusion and Outlook

NSHP Program activity during the second quarter of 2017 included new reservation applications submitted for 4,887 systems totaling 21.4 MW of capacity. During this period, the program reserved \$8.6 million in funding for more than 14.7 MW of new solar capacity and paid more than \$5.2 million in incentives for nearly 6.8 MW of installed systems.

The majority of all installed projects over the program history have achieved the Tier I or Tier II energy efficiency levels. Since the *2013 Energy Standards* came into effect, more than 80 percent of payment claims for eligible projects have elected the code-compliant incentive level. The *2016 Energy Standards* went into effect on January 1, 2017, and generally apply to all new construction permits applied for after this date. Only a code-compliant option is available for NSHP projects under the *2016 Energy Standards*.

Based on installed, reserved, and under-review capacity, the program has achieved about 67 percent of the overall 360 MW target, with roughly 33 percent remaining to be installed.

During the May 10, 2017, Energy Commission Business meeting, the Commission adopted the *NSHP Guidebook, Tenth Edition (Revised)*. This guidebook update included minor revisions to the reservation application and payment claim processes to reflect changes required by the statewide transition to the Financial Information System for California (Fi\$Cal) on July 1, 2017. Changes were also made to the Established Installer Reservation Form and Incentive Disclosure Affidavit to satisfy requirements listed in the *NSHP Guidebook, Tenth Edition (Revised)*.

To provide NSHP application assistance to stakeholders, NSHP staff has recently conducted two public workshops; the first on May 3, 2017, at the Energy Commission headquarters, and the second on June 21, 2017, in Southern California. During these workshops, NSHP staff provided stakeholders with an overview of the following program areas:

- Updates to the NSHP process as a result of the *NSHP Guidebook, Tenth Edition* adoption
- Detailed walkthrough of the NSHP process from reservation to payment
- Tutorial of the new Flexible Installation Calculator
- One-on-one assistance to address stakeholder questions regarding current or proposed NSHP applications

Moreover, NSHP staff has worked closely with the Home Energy Rating Services (HERS) registries to support the verification requirements in the *NSHP Guidebook, Tenth Edition*. HERS registries are responsible for the certification of photovoltaic field verifiers and the storage of PV field verification documents. To receive NSHP certification, staff extensively reviews and works with registry providers on HERS Rater training, testing, and registry materials, ensuring that registries will meet NSHP requirements and supporting operations. As of June 20, 2017, CalCERTS and CHEERS HERS registries have been approved by the Energy Commission to serve as PV HERS registries for the NSHP program.

For additional NSHP resources, visit the Go Solar California website at www.gosolarcalifornia.org/about/nshp.php This website contains several NSHP help documents such as “Frequently Asked Questions,” “Reservation Application Examples,” “FI Calculator Manual,” and many other resources. The most current version of the NSHP Guidebook is also located at this link. For further questions, please contact the Renewables Call Center at Renewable@energy.ca.gov