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California Energy Commission  
**STAFF REPORT**

# **New Solar Homes Partnership Program Quarterly Progress Report**

(October 1-December 31, 2017)

**California Energy Commission**

Edmund G. Brown Jr., Governor

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# California Energy Commission

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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

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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.<sup>1</sup>

The NSHP Program is the Energy Commission's component of the CSI and is limited to new home construction located 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 this requirement for the period covering October 1, 2017, to December 31, 2017.

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<sup>1</sup> 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

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## 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 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 multi-family 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).

During the fourth quarter of 2017, reservation applications for 8,560 systems were approved, corresponding to more than 35 MW of capacity and more than \$18 million in funding. Table 1 shows the breakdown of reservation applications that were approved in the fourth quarter of 2017 (October 1-December 31). Solar as standard accounted for roughly 99 percent of reserved systems, 98 percent of reserved capacity, and 96 percent of reserved funding. Affordable housing systems accounted for less than 1 percent of reserved systems, 1 percent of reserved capacity, and 3 percent of reserved funding over the fourth quarter. These systems are often virtual net energy-metered<sup>2</sup> and serve multiple units and/or common areas, so the total number of 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.

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<sup>2</sup> *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.

**Table 1: Reservation Applications Approved From October 2017 Through December 2017**

Project Type	# of Systems	Encumbrances	Capacity (kW AC)
<b>Solar as Standard</b>	8,483	\$17,423,749	34,343
<b>Affordable Housing</b>	10	\$575,594	424
<b>Custom Homes</b>	33	\$123,881	203
<b>Other</b>	34	\$64,493	101
<b>Totals</b>	<b>8,560</b>	<b>\$18,187,717</b>	<b>35,071</b>

Source: California Energy Commission

## Payment Claims

For a project to receive an incentive payment, the solar energy system must be completely installed, grid-connected, 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), Eleventh Edition*, was adopted at the Energy Commission’s October 11, 2017, Business Meeting. The *NSHP Guidebook, Eleventh Edition* 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 by 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 fourth quarter of 2017. Similar to approved reservations, the bulk of approved payment claims were for systems in solar as standard (95 percent), corresponding to 83 percent of installed capacity and 79 percent of paid incentives. Affordable housing accounted for 1 percent of approved payment claims, 7 percent of installed capacity, and 14 percent of paid incentives. In total, payment claims were approved for 1,914 systems, corresponding to more than 5.8 MW of installed capacity and \$4.4 million in incentives.

Table 3 shows the number of payment claims approved in the third quarter, further broken down by their energy efficiency level. Code-compliant was the most common tier, followed by tier I, and lastly, tier II.

**Table 2: Payment Claims Approved From October 2017 Through December 2017**

<b>Project Type</b>	<b># of Systems</b>	<b>Incentive Amount</b>	<b>Capacity (kW AC)</b>
<b>Solar as Standard</b>	1,815	\$3,514,887	4,875
<b>Affordable Housing</b>	10	\$613,057	382
<b>Custom Homes</b>	50	\$219,489	449
<b>Other</b>	39	\$113,770	161
<b>Totals</b>	<b>1,914</b>	<b>\$4,461,203</b>	<b>5,867</b>

Source: California Energy Commission

**Table 3: Energy Efficiency Levels of Payment Claims Approved From October 2017 Through December 2017**

<b>Energy Efficiency Level</b>	<b># of Systems</b>	<b>Incentive Amount</b>	<b>Capacity (kW)</b>
<b>Code Compliant</b>	1,371	\$2,695,714	4,200
<b>Tier I</b>	469	\$1,344,022	1,345
<b>Tier II</b>	74	\$421,467	322
<b>Totals</b>	<b>1,914</b>	<b>\$4,461,203</b>	<b>5,867</b>

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 fourth 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 due to the time required to complete staff review.

The 185 reservation applications submitted accounted for 8,850 systems totaling 46 MW. All figures are a significant increase from the third quarter.

**Table 4: Number of Reservation Applications and Payment Claims Submitted from Applicants and Reviewed From October 2017 Through December 2017**

	Submitted	Reviewed*
<b>Reservations</b>	185	178
<b>Payments</b>	2,217	1,694

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

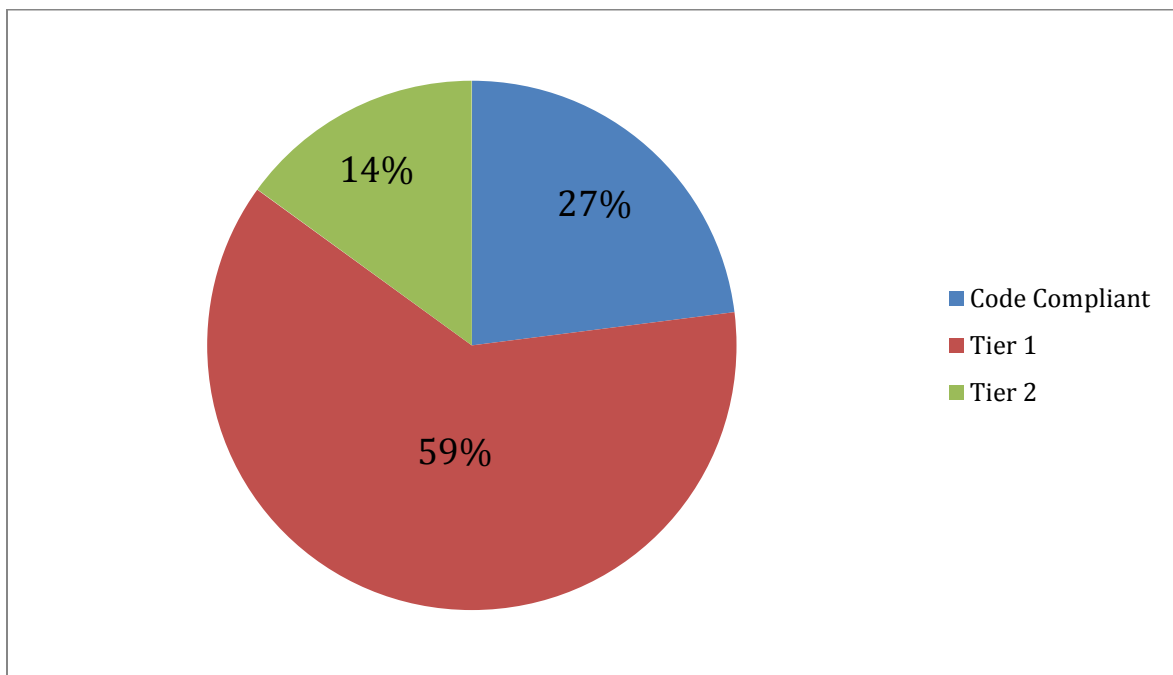
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This chapter contains data that covers the entire life of the NSHP Program through December 31, 2017.

### 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.

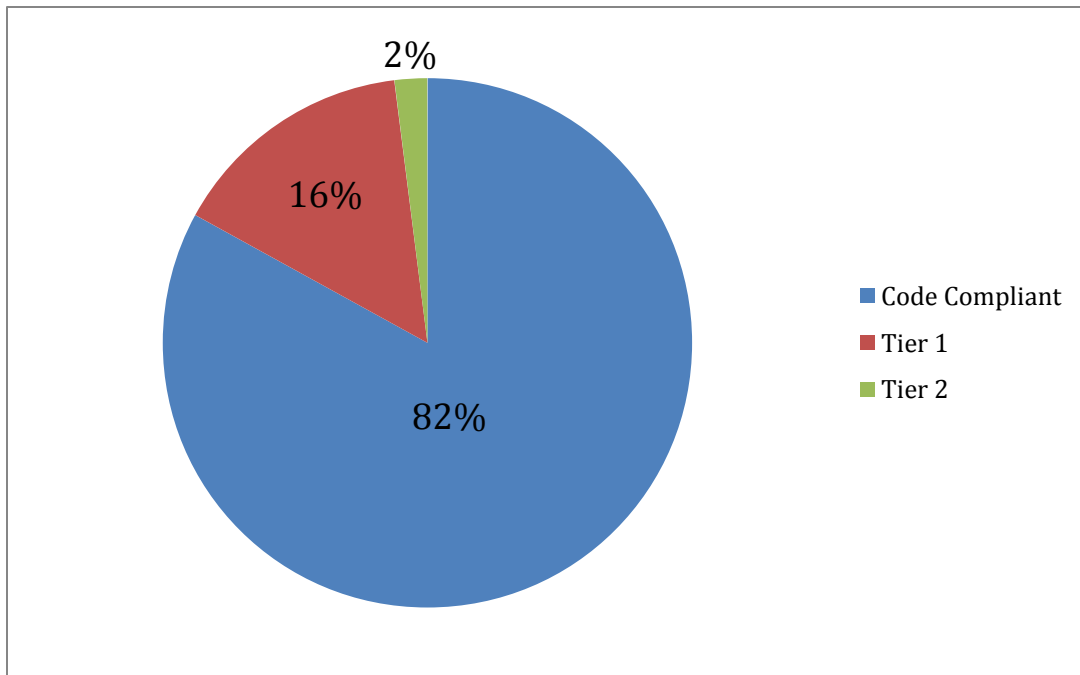
**Figure 1: Installed Systems by Energy Efficiency Level, All Energy Standards**



Source: California Energy Commission

Figure 1 shows the efficiency level of installed systems over the life of the program. About 59 percent of installed systems were Tier I projects, with 14 percent Tier II and 27 percent code-compliant.

**Figure 2: 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, for the majority of systems installed with all three incentive levels available, applicants 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*.

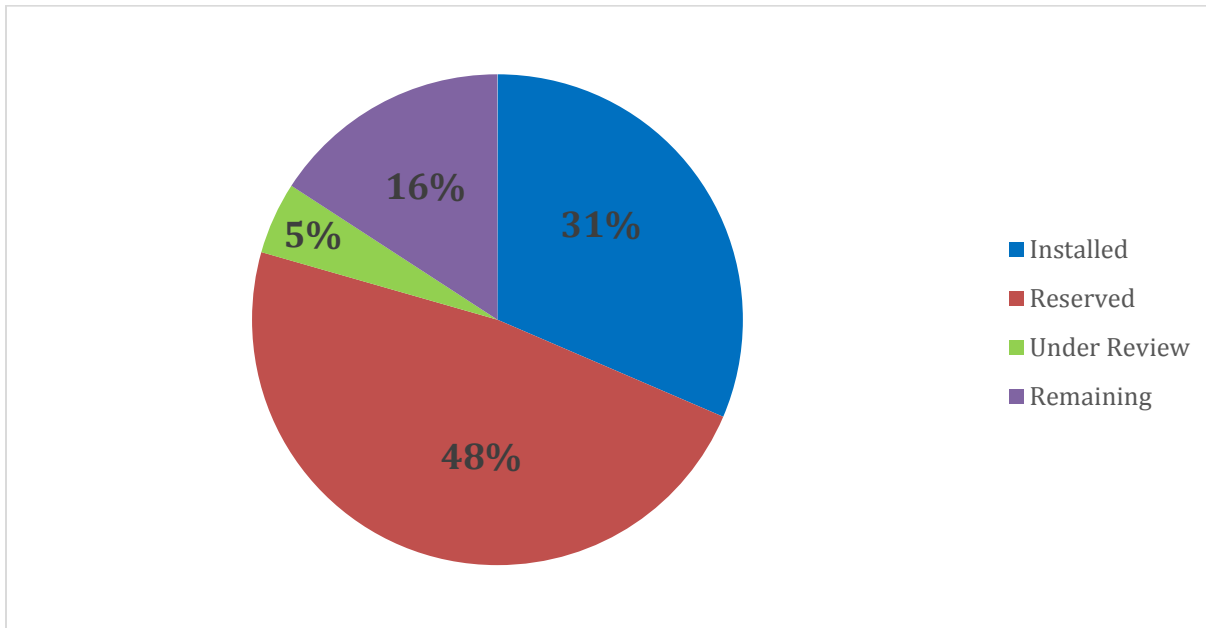
The *2016 Energy Standards* went into effect on January 1, 2017, and NSHP program guidelines for these projects were made available beginning in the *NSHP Guidebook, Tenth Edition*. The *2016 Energy Standards* are roughly 57 percent more efficient relative to the *2005 Energy Standards*. Only a code-compliant 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 December 31, 2017, 113.3 MW have been installed, with 173 additional MW

reserved and 17 MW under review. As shown in Figure 3, NSHP has reserved funds for or installed 79 percent of the total capacity goal for the program. In addition, reservation applications for systems corresponding to 5 percent of the overall capacity goal are under review by the Energy Commission. Assuming all capacity under review is approved and installed, 16 percent of the overall program capacity goal will remain for newly submitted applications.

**Figure 3: Progress Toward NSHP MW Goal**



Source: California Energy Commission

# CHAPTER 4:

## Budget Reporting

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Current data show that as of December 1, 2017, funding available for NSHP incentives from the Renewable Resource Trust Fund (RRTF) is roughly \$12.6 million, with applications totaling \$7.7 million under review, leaving about \$4.9 million available for new reservation applications. Based on past average monthly encumbrances, RRTF program funding may be exhausted in early 2018. CPUC Decision 16-06-006 authorized an additional \$111.78 million in funds for 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, shown in Table 5, reflects changes due to new encumbrances as well as disencumbrances in the quarter.

**Table 5: Total Expenditures**

	\$ (Millions)	MW (AC)
<b>Available Funding</b>	12.6	
<b>Under Review</b>	7.7	19.0
<b>Remaining Funding</b>	4.9	

Source: California Energy Commission



# CHAPTER 5:

## Conclusion and Outlook

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NSHP Program activity during the fourth quarter of 2017 included new reservation applications submitted for 8,850 systems totaling 46 MW of capacity. During this period, the program reserved just over \$18 million in funding for more than 35 MW of new solar capacity and paid over \$4.4 million in incentives for more than 5.8 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. However, 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 apply to all new construction permits applied for after this date. Only a code-compliant option is available for projects under the *2016 Energy Standards*.

Based on installed, reserved, and under review capacity, the program has achieved approximately 84 percent of the overall 360 MW target, with 16 percent remaining to be installed.

As mentioned in the previous quarterly progress report, the *NSHP Guidebook, Eleventh Edition*, was adopted at the October 11, 2017, Energy Commission Business Meeting. These changes can be found on page viii of the *NSHP Guidebook, Eleventh Edition*, located on the [www.gosolarcalifornia.org](http://www.gosolarcalifornia.org) web site. To assist NSHP participants with questions related to the changes, Energy Commission staff held an application clinic on December 5, 2017, at the Commission's headquarters. Staff provided attendees one-on-one assistance with reservation applications and payment claims. Participants that were unable to attend were able to schedule a one-on-one webinar with NSHP staff. In addition, guidance documents on NSHP eligibility requirements, including designated checklists for reservation and payment applications, were made available online.