LEAD COMMISSIONER DRAFT GUIDEBOOK

NEW SOLAR HOMES PARTNERSHIP GUIDEBOOK

Seventh Edition

Lead Commissioner Draft Guidebook

CALIFORNIA
ENERGY COMMISSION

Edmund G. Brown, Jr., Governor

~~APRIL~~ DECEMBER 2013
CEC-300-2013-009-ED7-LCD~~6-CMF~~

CALIFORNIA
ENERGY
COMMISSION

Andrew McAllister
Lead Commissioner, New Solar Homes Partnership Program

Farakh Nasim
Le-Quyen Nguyen
Primary Authors

Craig Hoellwarth
Payam Narvand
Supervisors

Kate Zocchetti
Office Manager
Renewable Energy Office

Eurlyne Geiszler
Office Manager
Buildings Standards Development Office

Suzanne Korosec
Deputy Director
Renewable Energy Division

Dave Ashuckian, P.E.
Deputy Director
Efficiency Division

Robert P. Oglesby
Executive Director

These guidelines were formally adopted by the California Energy Commission on December 13, 2006, pursuant to Public Resources Code Sections 25744, 25747, and 25780 through 25784, and subsequently revised pursuant to this authority on July 11, 2007, August 21, 2008, January 27, 2010, April 7, 2010, January 12, 2012, September 12, 2012, ~~and~~ April 10, 2013, and December 11, 2013.

ABSTRACT

This guidebook details the eligibility requirements, rules, and process for reserving and claiming an incentive under the New Solar Homes Partnership Program. The New Solar Homes Partnership -Program is part of a statewide solar program known as the California Solar Initiative and. The New Solar Homes Partnership provides financial incentives for installing solar energy systems on new residential buildings. Incentives from the New Solar Homes Partnership Program are intended to help create a self-sustaining market for solar homes that incorporate high levels of energy efficiency and high-performing solar energy systems. The buildingsApplicants are encouraged tomust achieve energy efficiency levels greater than the requirements of the California Building Energy Efficiency Standards, Title 24, Part 6. Incentives are The final incentive amount will be determined based onby the expected performance of the solar energy system and the level of documented building energy efficiency.

This guidebook details the eligibility requirements, rules, and process for reserving and claiming an incentive under the NSHP.

Keywords: New Solar Homes Partnership, NSHP, Energy Commission, PV, solar energy system, energy efficiency, standards, Title 24 Part 6, tier, incentive, CECPV Calculator, HERS Rater, field verification, Program Administrator, shading, module, inverter, plan check

Nguyen, Le-Quyen, Farakh Nasim. -2013. -*New Solar Homes Partnership Guidebook (Sixth Seventh Edition)*. California Energy Commission. CEC-300-2013-009-ED7-SD6 CMF.

TABLE OF CONTENTS

What's New in This Guidebook? ..... **viii**

Market-Rate Housing viii
Energy Efficiency viii
PV System Verification ix
General Program Changes ix

CHAPTER I: INTRODUCTION **1**

A. Purpose 1
B. Program Overview 1
C. Summary of New Solar Homes Partnership Guidebook Requirements 4
D. Flow Charts of the NSHP Application and Payment Process 6
E. Renewable Energy Credits/Certificates 10
F. Applicability of Guidebook Changes to Existing Applications 10

CHAPTER II: Program Eligibility Requirements **12**

A. Technology and System Ownership 13
B. NSHP Energy Efficiency Requirements 13
   1. *Compliance Documentation Author Requirements* *19*
   2. *Code-Compliant Energy Efficiency and Third-Party Field Verification Requirements* *20*
   3. *Tier I and Tier II Third-Party Field Verification Requirements* *22*
   4. *NSHP Plan Check Requirements* *22*
   5. *2013 Building Energy Efficiency Standards Solar Compliance Credit* *23*
C. Utility New Construction Energy Efficiency Program Participation 25
D. Permanent Foundation 27
E. Transient Housing 27
F. Grid Interconnection 28
G. System Components 28
H. System Performance Meter 29
I. System Sized to Offset On-Site Electricity Load 29
J. System Performance 30
K. System Installation 30
L. Solar Energy System Field Verification 31
M. Warranty Requirements 31
N. Equipment Sellers/Installers 31
O. Leases and Power Purchase Agreements 32

CHAPTER III: Incentive Levels and Structure **36**

A. Incentive Levels and Decline Schedule 36
   1. *Incentive Levels for Market-Rate Housing, Affordable Housing Common Areas, and Affordable Housing Systems owned by Non-Tax-Exempt Entities* *36*
   2. *Incentive Levels for Affordable Housing Residential Unit Projects* *38*
   3. *Change in Incentive Level* *39*

B. Expected Performance-Based Incentive Calculation 39
1. California Flexible Installation *41*
C. Project Funding 42
D. NSHP Incentive Amount Cap 42
E. Incentives Affecting the NSHP Incentive Amount 43

CHAPTER IV: Reservation Process 44

A. Types of Reservations 44
1. 36-Month Reservation *44*
2. 18-Month Reservation *45*
B. Forms and Documentation 48
1. Reservation Application Form *48*
2. Proof of Newly Constructed Residential Building *48*
3. Expected Performance-Based Incentive (EPBI) Documentation *48*
4. Energy Efficiency Documentation *51*
5. Installation Contract *52*
C. Affordable Housing Projects 53
1. Regulatory Agreement *54*
2. Individual Meter Requirement *54*
3. Maintenance and Monitoring Plan *56*
D. Large Developments 56
1. Reservation Funding Decrease Schedule *56*
E. Additional Information for All Reservation Applications 58
F. Where to Send Reservations 60

CHAPTER V: Payment Process 61

A. Forms and Documentation 61
1. Payment Claim Form (NSHP-2) *61*
2. Final Building Permit *62*
3. Documentation Confirming the Total System Cost *62*
4. Expected Performance-Based Incentive (EPBI) Documentation *62*
5. Energy Efficiency Documentation *63*
6. Ten-Year Warranty (NSHP-3) *64*
7. System Interconnection With Utility Grid *64*
8. Payee Data Record (STD-204) *64*
9. IRS W-9 Form/Form 590/Form 587 ..... *65*
10. Lease Agreement or Power Purchase Agreement *65*
B. Partial Payment Option 66
C. Additional Information on Payment Claims 67
D. Claiming an Incentive Payment Without a Prior Reservation 68

CHAPTER VI: Administration 69

A. Authority 69
B. Interpretation 69
C. Effective Date 69
D. Substantive Changes 69

E. Cancellation of NSHP Reservations 70
F. Funding Award Payments 70
G. Audits 71
H. Record Retention 71
I. Use and Disclosure of Information and Records 71
J. Tax Consequences 72
K. Reconsideration of Funding Awards, Reservation Cancellations 73
1. Executive Director Reconsideration of a Reservation Application 73
2. Energy Commission Appeals 73
L. Disputes of Incentive Payments 74
1. Accounting Office Review 74
2. Executive Director Review 75
3. Energy Commission Appeals 75
M. Enforcement Action 76
1. Recovery of Overpayment 67
2. Fraud and Misrepresentation 76
N. Arbitration 76

APPENDIX A: FREQUENTLY ASKED QUESTIONS A-1

A. Can My Installed System Be Different Than My Reservation? A-1
B. Can Applicants Add Solar Energy System Sites to Their Existing Reservation? A-2
C. Can Applicants Add to Their Existing Systems? A-2
D. Time Extensions A-2
E. Can the Equipment Seller/Installer Be Different From the Equipment Seller/Installer in the Reservation Application? A-3
F. Reservation Cancellations A-3

APPENDIX B: FIELD VERIFICATION AND DIAGNOSTIC TESTING OF SYSTEMS B-1

A. Background B-1
B. Responsibilities B-2
C. Field Verification and Diagnostic Testing Process B-3
D. Relationship to Other Codes, Standards, and Verification B-4
E. Field Verification Visual Inspection B-5
1. PV Modules B-5
2. Inverters B-5
3. System Performance Meters B-5
i. Tilt and Azimuth B-5
F. Shading Verification B-12
1. Minimal Shading Criterion B-12
2. Accounting for Actual Shading B-14
3. Measuring Heights and Distances or Altitude Angles B-15
4. Mature Tree Height B-19
G. Verification of System Performance B-21
1. Measuring Solar Irradiance B-23
2. Measuring Ambient Air Temperature B-23
3. Observing AC Power Output at the System Performance Meter B-23

4. Multiple Orientation Arrays *B-23*

APPENDIX C: ENERGY EFFICIENCY DOCUMENTATION REQUIREMENTS C-1

A. Plan Check Checklist C-1
B. Additional Energy Features Checklist Verification Guidelines C-2
C. NSHP Tier I and Tier II Requirements for Different Eligible Building Types C-4

APPENDIX D: NSHP FORMS D-1

LIST OF TABLES

Table 1-1: Summary of Program Eligibility Requirements 4
Table 2-1: Energy Efficiency Requirements and the Corresponding Documents and Processes . 26
Table 3-1: EPBI Incentive Levels and Related Reservation Volumes 37
Table 3-2: EPBI Incentive Levels for Affordable Housing Residential Unit Projects 38
Table 3-3: Reference Solar Energy System and Installation 41
Table 4-1: Project Types and Required Reservation Application Documentation 49
Table B-1: Conversion of Roof Pitch to Tilt B-7
Table B-2: Example NSHP PV-1 Format for PV Shading B-14
Table B-3: Appropriate Tree Guide to Use for Each California Climate Zone B-19
Table B-4: Horizontal Distance Trees Would Need to Be Located From the Closest Point of a PV Array to Qualify for Minimal Shading B-21
Table B-5: Example Table of Expected AC Power Output From CECPV Calculator (Watts)... B-22
Table C-1: NSHP Energy Efficiency Requirements for Eligible Building Types, Excluding Mixed-Use Buildings C-5
Table C-2: NSHP Energy Efficiency Requirements for Eligible Mixed-Use Buildings C-7

LIST OF FIGURES

Figure 1-1: Application Process Flow Chart for NSHP Code-Compliant Projects 7
Figure 1-2: Application Process Flow Chart for NSHP Tier I or Tier II Projects With the NSHP Energy Efficiency Plan Check 8
Figure 1-3: Alternate Application Process Flow Chart for NSHP Tier I or Tier II Projects Participating in a Utility New Construction Program 9
Figure B-1: Digital Protractor B-7
Figure B-2: Azimuth of the PV Array B-8
Figure B-3: Example Plot Plan B-10
Figure B-4: Compass With a Sighting Feature B-11
Figure B-5: The Minimal Shading Criterion Artistic Depiction of “H” and “D” B-13
Figure B-6. Conversion of Results to CECPV Calculator Input B-17
Figure B-7. Example of Points Where Measurement Shall Be Made Using a Solar Assessment Tool (overall array dimensions 76 feet by 50 feet) B-18

What's New in This Guidebook?

Below are the major changes in this edition of the *New Solar Homes Partnership Guidebook* (*NSHP Guidebook*) as compared with the ~~September 2012~~April 2013 ~~5th~~sixth edition. ~~of the NSHP Guidebook:~~ These changes will become effective on January 1, 2014.

Market-Rate Housing

- Removes the "Solar as an Option" project type.
- Modifies the requirements for the "Solar as Standard" project type and it is now referred to as "Large Developments."
- Removes the requirements for a build-out schedule and a progress report.

  Implements a reservation decrease schedule for "Large Developments" projects. If the program administrator, in consultation with the Energy Commission, concludes that a project is not progressing as expected, the project funding reservation may be reduced or completely disencumbered according to a predetermined schedule.
-

Energy Efficiency

- Incorporates the *2013 Building Energy Efficiency Standards, Title 24 Part 6* (*2013 Standards*).
- Updates the Tier I and Tier II New Solar Homes Partnership (NSHP) energy efficiency requirements for buildings that comply with the *2013 Standards*. Qualified buildings that comply with the *2013 Standards* prior to claiming the solar compliance credit of the *2013 Standards* may receive an incentive under a new "Code-Compliant" incentive level.
- Applicants applying for Tier I and Tier II NSHP incentives with buildings that comply with the *2013 Standards* will be allowed to claim the solar compliance credit of the *2013 Standards* as part of meeting the *2013 Standards*.
- Compliance documents for Code-Compliant projects may be signed by any party legally authorized to sign Title 24 compliance documents.
- Tier I and Tier II projects that comply with the *2013 Standards* and provide compliance documents signed by a Certified Energy Analyst (CEA) certified for the *2013 Standards* will have the NSHP plan check requirement waived.
- Revises the names for the NSHP forms associated with the verification of the energy efficiency features of the project.

	Previous Name	New Name

CF-4R-EE NSHP Certificate of Field Verification	NSHP EE-3 Additional Energy Features Checklist
CF-6R Installation Certificate	CF-2R Certificate of Installation
CF-4R Certificate of Field Verification and Diagnostic Testing	CF-3R Certificate of Verification

PV System Verification

- Revises the names for the NSHP forms associated with the verification of the solar energy system.

Previous Name	New Name
CF-1R-PV Energy Commission CECPV Calculator Output Form	NSHP PV-1 Energy Commission CECPV Calculator Output Form
CF-6R-PV Installation Certificate Form	NSHP PV-2 PV Installation Form
CF-4R-PV Field Verification and Diagnostic Testing Form	NSHP PV-3 PV Field Verification and Diagnostic Testing Form

- Clarifies the requirements for PV system verification by a HERS Rater when the group sampling field verification method is used. Systems that will be sampled must follow the sample testing requirements described in the *Building Energy Efficiency Standards* that the project was permitted under, with certain exceptions. Those exceptions include not requiring that the PV Installation Form (NSHP PV-2) results be uploaded to a HERS Provider Registry, open group sampling as defined in the *Building Energy Efficiency Standards* is not allowed for PV systems, and providing applicants with the option to resubmit a revised CECPV Calculator Output Form (NSHP PV-1) for every system in the sample group when the tested system fails to comply with the PV verification requirements.

General Program Changes

- ~~A builder/developer may be an interim lessee or interim signatory of a PPA for the purpose of obtaining an NSHP incentive reservation. However, prior to submitting a payment claim package, the lease or PPA must be transferred from the builder/developer to the homeowner. For reservation applications with the builder/developer as an interim lessee or interim signatory to a PPA, a completed lease or PPA transfer document, as well as the referenced lease or PPA, must be submitted to the program administrator prior to expiration of the reservation. The program administrator will verify that these documents meet the document requirements outlined in Chapter II, Section O. An applicant that obtains a reservation based on the~~

~~builder/developer as an interim lessee or interim signatory of a PPA assumes the risk of having to complete the system installation, transfer the lease or PPA to the homeowner, and submit a payment claim prior to the expiration date of the reservation. Any such applicant that fails to satisfy these requirements prior the expiration date of the reservation must reapply for NSHP funding pursuant to the rules in place at the time of reapplication and that reapplication is subject to funding availability. Applicants are therefore encouraged to plan accordingly when applying for NSHP reservations.~~

- Reduces the amount of time that the solar permit may be issued after the issue date of a certificate of occupancy from 180 days to 60 days.

- Changes the requirement that equipment may not be purchased or installed more than 24 months before applying for a reservation to require that equipment may not be installed more than 6 months before submitting an initial reservation application.

- Allows the NSHP incentive amount requested when claiming payment to exceed the NSHP funding amount identified in the lease agreement or power purchase agreement (PPA) by up to 10 percent of the amount listed in the lease agreement or PPA.

- Modifies the incentive decline schedule for market rate housing and affordable housing.
    - Adds a new incentive level, "Code-Compliant," to the market rate housing and affordable housing incentive schedules. To be eligible for the Code-Compliant incentive, the building must comply with the *2013 Standards* prior to claiming the solar compliance credit of the *2013 Standards*.
    - Affordable housing projects with solar energy systems owned by non-tax-exempt entities will no longer qualify for the affordable housing incentive levels, but may qualify for the market rate housing incentive, and will be subject to the market rate housing incentive level decline schedule.

- Modifies the incentive decline process. An incentive level decline will occur when the cumulative megawatt (MW) capacity of reservation applications submitted for an incentive level equals the MW reserved volume target of that incentive level.

- Modifies the requirements for leases and power purchase agreements.

- Eliminates the requirement for companies that sell and/or install solar energy system equipment to be registered in the Energy Commission's Contractors, Installers, and Sellers Database on the GoSolar website.

- Allows a tentative subdivision map to be provided in place of a final subdivision map.

- Removes the requirement for all projects, except "self-installs," to provide an equipment purchase agreement. "Self-installs" must provide an equipment purchase agreement.

- Extends the reservation period for all virtual net-metered projects to 36 months.

- Calculates the revised incentive amount for a solar energy system upon submittal of the complete NSHP-2 Payment Claim Form and complete documentation supporting the changes to the project.

- For projects with multiple solar energy system sites, the funding for the project will be reserved at the project level, not at an individual site level. Changes to a solar energy system resulting in a revised site incentive will result in a change in the total project funding available for other sites within the project.

- If a project with multiple solar energy system sites has 10 percent or less of its original reservation funding remaining, the applicant may request additional funding be reserved for the project prior to submittal of the complete NSHP-2 Payment Claim Form for those sites.

- Applicants may add solar energy system sites to a project with a valid, unexpired reservation.

- Complete reservation applications and payment claim packages found to contain minor errors or discrepancies will be provided with 10 business days to provide clarifying information to the program administrator.

- Requires a complete NSHP-2 Payment Claim Form to be submitted on or prior to the reservation expiration date. If this submittal occurs, the applicant will be given 90 calendar days after the reservation expiration date to submit the required supporting documentation for a complete payment claim package.

- Allows applicants with an NSHP reservation who are approved for a utility new construction energy efficiency program to request a partial incentive payment prior to meeting all of their NSHP energy efficiency requirements.

- Removes the signature requirement for the NSHP PV-1.

- Adds a list of acronyms and abbreviations to the *NSHP Guidebook*.

- Revises the NSHP-1 Reservation Application Form and the NSHP-2 Payment Claim Form.

- A new Section, Administration, is added to incorporate information provided in the *Overall Program Guidebook for the Renewable Energy Program* that is relevant to the NSHP. The NSHP program will no longer reference the *Overall Program Guidebook*, which the Energy Commission plans to phase out by the end of 2013.

- The glossary of terms is transferred from the *Overall Program Guidebook*, but only definitions relevant to the NSHP are transferred to the *NSHP Guidebook*.

CHAPTER I:

Introduction

The New Solar Homes Partnership (NSHP) provides financial incentives and other support for installing eligible solar energy systems on new residential buildings[1] that receive electricity from specified investor-owned utilities (IOUs).[2] The California Energy Commission implements the NSHP in coordination with the California Public Utilities Commission (CPUC) as part of the overall California Solar Initiative (CSI). This guidebook describes the requirements to receive incentives for constructing energy efficient, solar homes under the NSHP. This Guidebook becomes effective on January 1, 2014.

A. Purpose

The goal of the NSHP is to create a self-sustaining market for solar homes where builders incorporate high levels of energy efficiency and high-performing solar energy systems. The NSHP provides financial incentives and nonfinancial assistance in the form of builder and market support to accomplish this goal.

B. Program Overview

The NSHP is part of a comprehensive statewide solar program known as the ~~California Solar Initiative (~~CSI.~~).~~ Senate Bill 1~~ (SB 1)~~[3] establishes three goals for~~of~~ the CSI: 1)~~ to~~ install 3,000 megawatts (MW) of distributed solar electric capacity in California by the end of 2016; 2) ~~to~~ establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option in 10 years, and 3) ~~to~~ place solar energy systems on 50 percent of new homes in 13 years. The NSHP goal is~~seeks~~ to add ~~achieve 400~~ 360 MW[4] of installed solar electric capacity in California by the end of 2016.

The Energy Commission and the CPUC each administer separate but coordinated elements of the CSI.

The NSHP is administered by the ~~investor-owned utilities, (~~IOUs ~~—),~~ Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), and San Diego Gas & Electric Company (SDG&E) ~~—),~~ for their respective service areas. These entities administer the NSHP on the Energy Commission's behalf in accordance with their respective agreements with the

---

1 See Chapter II, Program Eligibility Requirements, for the definition of new residential buildings.

2 Eligible electric utilities are Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Golden State Water Company (doing business as Bear Valley Electric Service).

3 SB 1 (Murray), Chapter 132, Statutes of 2006, § 4, as codified in Public Resources Code sections 25780 – 25784.

4 This number is calculated by dividing the NSHP budget identified in Senate Bill 1 by the overall CSI budget and multiplying that number by the overall CSI MW goal.

Energy Commission.- The Energy Commission provides oversight ofoversees the program and program administration for eligible customers of Bear Valley Electric Service (BVES).

The NSHP program provides two incentive structures, one for conventional or market-rate housing, and affordable housing common area projects, and affordable housing residential projects with systems owned by non-tax-exempt-entities, and another for qualified affordable housing residential projects with systems owned by tax-exempt entities. For market-rate housing, and affordable housing common area projects, and affordable housing residential projects with systems owned by non-tax-exempt entities, the incentive rate is determined by the energy efficiency level of the residential building. The NSHP offers a higher incentive to affordable housing residential projects with systems owned by tax-exempt entities because the affordable housing industry often faces more difficulties in the financing and incorporation of solar energy systems in its developments than do conventional housing developments.[5]

To qualify for an incentive, both the residential building and the installed solar energy system must meet specific program requirements included in this guidebook.

The residential buildingsApplicants mustare encouraged to achieve energy efficiency levels substantially greater than the requirements of the current *Building Energy Efficiency Standards*, Title 24, Part 6. Energy efficiency requirements may be satisfied either through code compliance ("Code-Compliant level") with the *2013 Building Energy Efficiency Standards*, Title 24, Part 6 (*2013 Standards*) or by reaching increased Tier I or Tier II levels of energy efficiency measures. Please see Chapter II, Section B, for additional information.

The Energy Commission places great importance on ensuring that residential buildings that qualify for an incentive under the NSHP are as energy-efficient as possible. The Code-Compliant level is the minimum requirement for participation in the NSHP for projects that comply with the *2013 Standards* and is not available to buildings complying with previous updates of the *Building Energy Efficiency Standards*. The Tier I level is a minimum condition of participation in the NSHP and is consistent with the energy efficiency savings needed to qualify for incentives from current residential new construction energy efficiency programs offered by the IOUs. The Tier II level is expected to achieve an immediate positive cash flow for homeowners and encourages builders to move toward constructing zero-net-energy residential buildings,[6] reflecting what is regularly being accomplished in California by builders that are participating in the national *Building America* program. For both tTiers I and II, incentives to builders for delivering the required energy efficiency levels are expected to be made available through coordinated utility energy efficiency programs overseen by the CPUC, such as the residential new construction programs.

---

4 5 These higher incentives are provided consistent with Public Resources Code section 25401.6.
6 The U.S. Department of Energy (DOE) Building Technologies Program defines a zero-net-energy building as "a residential or commercial building with greatly reduced needs for energy through efficiency gains, with the balance of energy needs supplied by renewable technologies." Source: NREL – NAHB Research Center, February 2006.

Applicants are strongly encouraged to participate in their utilities' new construction energy efficiency program to obtain the financial incentives that may be available for meeting either Tier I or Tier II energy efficiency requirements and to streamline the NSHP energy efficiency verification process. See Chapter II, Section C, for additional information.

The expected performance of the solar energy system (anticipated annual electrical generation), which depends on specific key factors regarding equipment efficiency and the design and installation of the system, will determine the incentive amount at the Code-Compliant, Tier I, and Tier II incentive levels. The incentive is paid once the system is installed and operational and has met all program requirements.

Along with the financial incentive, the NSHP will provide nonfinancial support services, such as offering marketing and technical assistance to builders, as well as training to building officials and salespeople. The Energy Commission may provide more~~greater~~ assistance to~~for~~ builders choosing to build to Tier II energy efficiency levels. The Energy Commission's goal is to ~~assist~~ help the building and solar industries to the maximum extent feasible ~~to~~ construct and sell new energy-efficient, solar ~~residential buildings~~homes.

By participating in the NSHP, applicants authorize the Energy Commission and/or the program administrators[6] during the term of the NSHP to obtain information from the utility serving the project to verify compliance with program requirements, including requirements for system interconnection to the utility grid. In addition, the applicant must provide ~~to~~ the Energy Commission with new homeowner contact information when requested by the Energy Commission and/or the program administrators.

The NSHP may be periodically evaluated and modified to ensure progress toward program goals. The evaluation may include comparing the expected energy generation of systems to the actual output over time; determining the cost-benefit profile of systems; and~~/or,~~ assessing overall program progress toward meeting installed capacity targets. In addition, an evaluation could include investigating risks to long-term achievement of expected performance levels, such as the effects of unforeseen shading or poor system maintenance, and identifying potential actions that would reduce those risks. Lastly, the NSHP may be modified in the future to address the eligibility of solar thermal electric systems, which are potentially eligible for funding under the CSI as a result of~~(SB 1) pursuant to~~ Senate Bill 107[7] ~~and Senate Bill 1250~~.[8]

Funding for the NSHP is provided through the Energy Commission's Renewable Resource Trust Fund in accordance with Public Resources Code Section 25744.5 and 25751, which authorizes the allocation and use of funding available for emerging renewable technologies in the Renewable Resource Trust Fund to fund photovoltaic and solar thermal electric systems in

---

6 The term "program administrators" refers to PG&E, SCE, and SGD&E, for their respective service territories.

7 SB 107 (Simitian), Chapter 464, Statutes of 2006, § 7, as codified in Public Resources Code section 25744.5.

~~8 SB 1250 (Perata), Chapter 512, Statutes of 2006, § 11, as codified in Public Resources Code section 25744, subd. (d).~~

accordance with the eligibility requirements established under SB 1. Because of this, the NSHP is considered an element within the Energy Commission's Renewable Energy Program umbrella and is subject to the general administrative requirements in the Energy Commission's *Overall Program Guidebook for the Renewable Energy Program (Overall Program Guidebook).*

The *Overall Program Guidebook* describes how the Renewable Energy Program is administered. It includes information and requirements that apply overall to the Renewable Energy Program and the program elements, including information dealing with appeals, record retention, audits, and enforcement actions. To qualify for funding under the NSHP, applicants must satisfy the requirements specified in this *NSHP Guidebook*. and the *Overall Program Guidebook.* The energy efficiency requirementsrequisites inof the NSHP are subject to the requirements of the *Building Energy Efficiency Standards* (Title 24, Part 6). **Applicants are strongly encouraged to read and understand their responsibilities as described inunder these documents.**

C. Summary of New Solar Homes Partnership Guidebook Requirements

The following table is a brief summary summarizes of program eligibility requirements. The applicant
should refer to Chapter II for more detailed descriptions of the requirements.

Table 1-1: Summary of Program Eligibility Requirements

Program Element	NSHP Requirement
Eligible Technologies	Flat-plate photovoltaics only
Eligible Electric Service Territories	PG&E, SCE, SDG&E, and BVES
Eligible housing types	New residential construction, including total building renovations, common areas of housing developments, and qualifying mixed-use projects.
Eligible Equipment	New and not previously placed in service, and on the Energy Commission's eligible equipment website.
Reservation Period	36 months for qualifying Solar as Standard and Solar as an Optionlarge developments, and all affordable housing projects (includes projects with a non-tax-exempt system owner), and virtual net metered projects. 18 months for all other projects.
Initial Incentive Level	Expected Performance-Based Incentive (EPBI) for Incentive Level 6 based on the reference system receiving: • $1.50/watt for affordable housing residential units with tax-exempt system owners meeting Code-Compliant energy efficiency requirements, • $2.901.85/watt for affordable housing residentialdwelling units with tax-exempt system owners meeting Tier I or Tier II energy efficiency requirements, • $1.00/watt for market-rate housing projects, affordable housing common areas, or affordable housing projects with a non-tax-exempt system owner meeting Code-Compliant energy efficiency requirements,

	• $~~2.00~~1.25/watt for market-rate housing projects, affordable housing common areas, or affordable housing projects with non-tax-exempt system owners meeting Tier I energy efficiency requirements, or • $1.50/$1.75~~2.25~~/watt for market-rate housing projects, affordable housing common areas, or affordable housing projects with non-tax-exempt system owners meeting Tier II energy efficiency requirements. The exact amount depends on whether the project complies with the *2008* or *2013 Standards.* Additional funding may be available from the utilities for meeting Tier I and Tier II energy efficiency requirements.
Incentive Level Adjustment	Volumetric trigger. Declines as prespecified target MW volumes are reached.
Incentive Adjustments	Depends on geographic location, orientation, tilt, shading, and equipment efficiency.
Energy Efficiency Requirements	Code-Compliant: The building complies with the *2013 Standards.* Tier I: Residential buildings that ~~E~~exceed~~s~~ the *Building Energy Efficiency Standards* ~~(Title 24, Part 6)~~ in effect on the date the building permit is applied for by at least 15%. Tier II: Residential buildings that ~~E~~exceed~~s~~ the *Building Energy Efficiency Standards* in effect on the date the building permit is applied for by at least 30%. An ENERGY STAR® label is required for appliances provided by the builder for ~~both Tier I and Tier II projects, if applicable~~all projects.
Interconnection	Grid connected with eligible utility required.
Solar Energy System Installation Field Verification Checkpoints	Solar energy system installation, equipment, and performance shall be verified by the installing contractor and a certified HERS Rater.
Program Element~~Energy Efficiency Measures Installation Field Verification~~	**NSHP Requirement** ~~**Energy efficiency measures used to meet the NSHP energy efficiency requirements**~~ **for Tier I or Tier II** ~~shall be field verified by a certified HERS Rater. Verification of some energy efficiency measures may be required to be completed as early in the construction process as the foundation or rough-in construction work.~~
Energy Efficiency Measures Installation Field Verification	Energy efficiency measures used to meet the ~~NSHP energy system installation, equipment and~~Tier I or Tier II performance level shall be field verified by the installing contractor and a certified HERS Rater.
~~Solar Energy System Installation Field VerificationCheckpoints~~	~~Solar energy system installation, equipment and performance shall be verified by the installing contractor and a certified HERS Rater. Solar as an Option projects only.~~
~~Interconnection~~	~~Grid connected with eligible utility required.~~

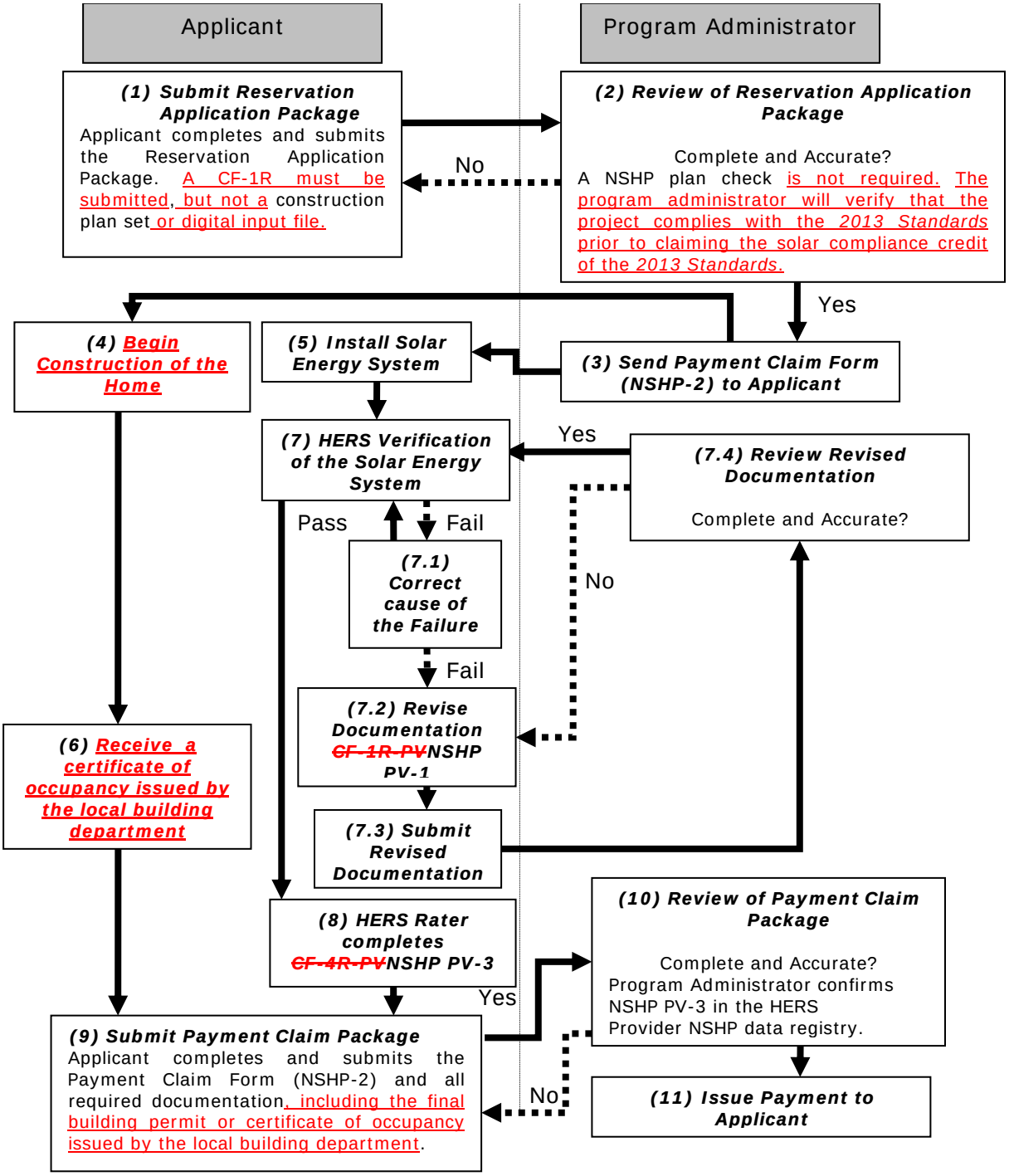
Source: California Energy Commission

D. Flow Charts of the NSHP Application and Payment Process

The following flow charts summarize~~provides a summary~~ ~~of~~ the application and payment processes~~processing~~ of the NSHP program. Figure 1-1 shows the process for Code-Compliant projects (those complying with the *2013 Standards*). Figure 1-~~1~~2 shows the process for Tier I or Tier II projects with the NSHP energy efficiency plan check, and Figure 1-~~2~~3 shows the process for Tier I or Tier II projects participating in their utility's~~utilities~~ new construction energy efficiency program. Applicants using the partial payment option should refer to Chapter V, Section B., because certain aspects of the process are not shown on Figure 1-3.

Figure 1-1:

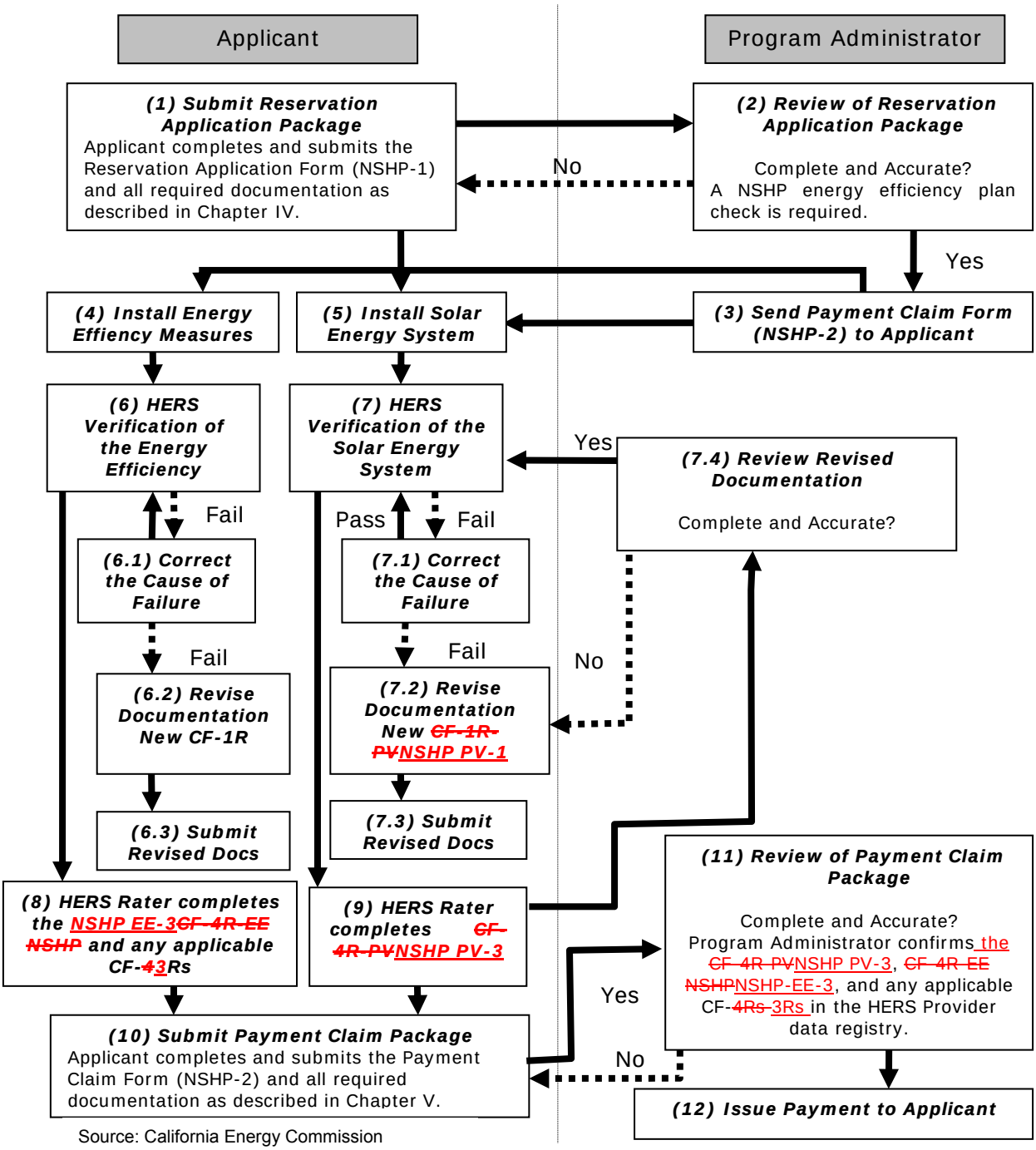
Application Process Flow Chart for NSHP Code-Compliant Projects



Source: California Energy Commission

Figure 1-2: ~~1:~~

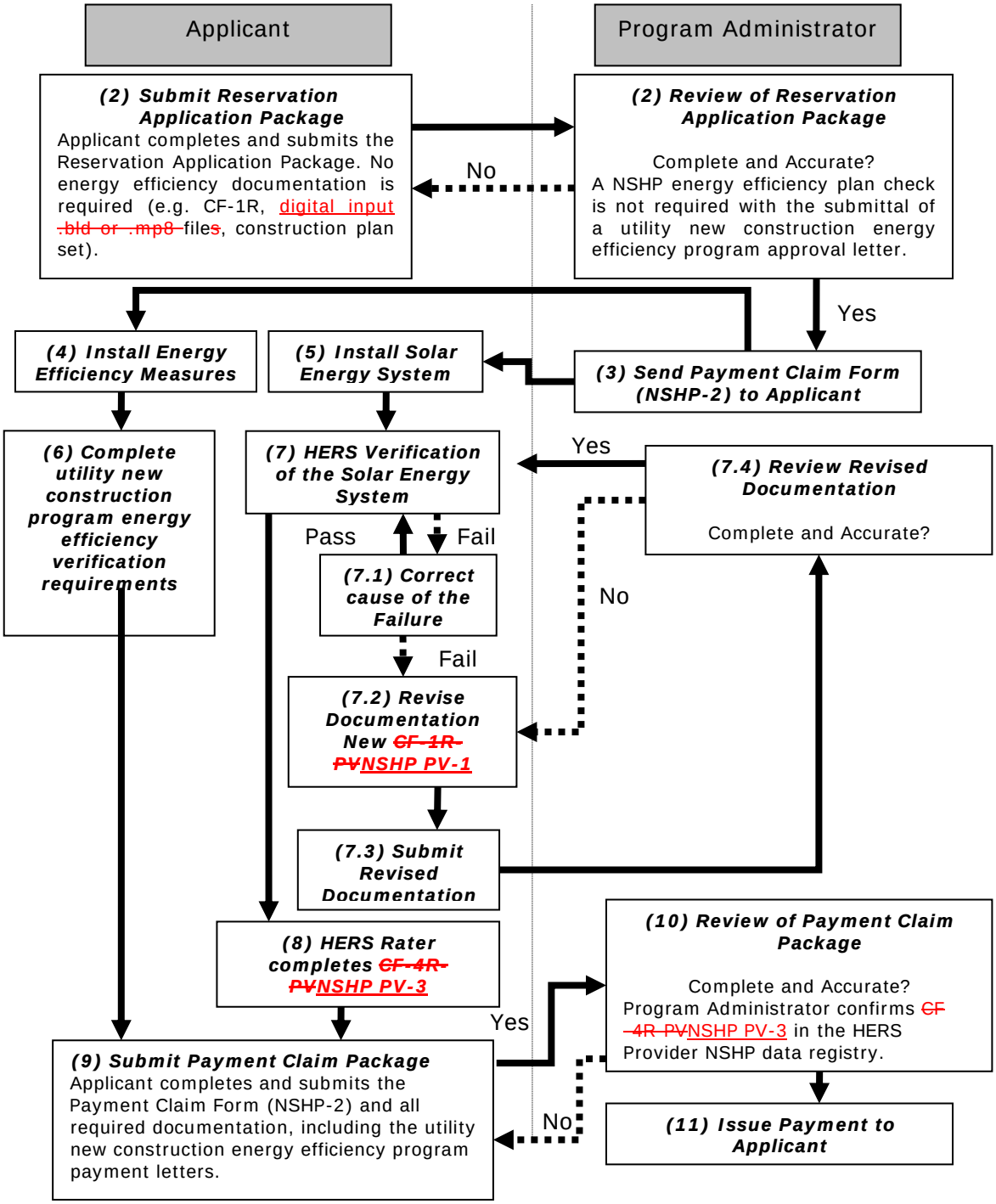
Application Process Flow Chart for NSHP Tier I or Tier II Projects With the NSHP Energy Efficiency Plan Check



Source: California Energy Commission

Figure 1-3: ~~2:~~

Alternate Application Process Flow Chart for NSHP Tier I or Tier II Projects Participating in a Utility New Construction Program



Source: California Energy Commission

E. Renewable Energy Credits/Certificates

When electricity is generated using an eligible renewable energy resource, two commodities are created:~~. The first commodity is the~~ electricity~~,~~ and ~~the second is the~~ renewable energy credits (also referred to as renewable energy certificates, or RECs) representing the nonenergy, environmental attributes associated with the electricity.~~-~~ For purposes of the state's Renewables Portfolio Standard, a renewable energy credit is defined to include "…all renewable and environmental attributes associated with the production of electricity from ~~the~~ an eligible renewable energy resource..."[8]

The Energy Commission recognizes that owners of solar energy systems, including those participating in the NSHP, may assert claims concerning renewable energy credits attributed to their solar energy systems. However, the Energy Commission has established no rules or policies governing the creation, ownership, or disposition of any such renewable energy credits. The Energy Commission does not require participants of the NSHP to relinquish their claims for~~of~~ renewable energy credits, or to transfer ownership of any such credits to the Energy Commission or any other entity, as a condition of receiving NSHP funding.

F. Applicability of Guidebook Changes to Existing Applications

The rules below explain the applicability of this ~~sixth~~ seventh edition of the *NSHP Guidebook* to existing project reservations~~ applications~~. For purposes of this ~~section~~Section, ~~"adoption date" means the date the Energy Commission adopts this edition of the guidebook, and an~~ "approved ~~application~~project" means ~~one~~ a reservation application that the Commission approved before the ~~adoption~~ date the *NSHP Guidebook* becomes effective and that has a valid, unexpired reservation.

1. An approved ~~application~~ project that has not received an approved payment claim for all solar energy system sites within the project will continue to be governed by the previous edition of the guidebook except as follows:
    a) ~~A lease agreement or PPA with the homeowner must be submitted to the program administrator prior to claiming an incentive.~~In projects with multiple solar energy system sites:
        1. The funding reserved for the remaining solar energy system sites that have not received an approved payment claim will be reserved at the project level, not at the individual solar energy system site level.
        2. The applicant may add additional solar energy system sites to the reservation. Please see Appendix A, Section B, for additional information.

8 Refer to definition in the ~~*Overall Program*~~*Renewables Portfolio Standard Eligibility* *Guidebook*, ~~*January 2011*~~*Seventh~~ edition~~Edition*, pages ~~28~~123-125.

b) Applicants who submit a complete NSHP-2 Payment Claim Form on or before the reservation expiration date will be given 90 calendar days after the reservation expiration date to submit the required supporting documentation for a complete payment claim package.

c) Applicants that submit complete payment claim packages found to contain minor errors or discrepancies during the payment claim review will be provided ~~within~~ 10 business days to provide clarifying information to the program administrator.

d) Any qualified newly constructed building complying with the *2013 Standards* is eligible for the Code-Compliant Incentive identified in Chapter III, Section A, Table 3-1, and Table 3-2.

e) The revised incentive amount for a solar energy system will be calculated upon submittal of the Payment Claim Form (NSHP-2) and complete documentation supporting the changes to the project.

f) May use the partial payment option identified in Chapter V, Section B as long as those eligibility requirements are met.

g) May use an equipment seller/installer not registered in the Energy Commission's Contractors, Installers, and Sellers Database.

~~1.~~2. Approved applications that have been paid or that have approved payment claims are not eligible for additional compensation, or to claim additional compensation for past reservation applications previously disapproved and required to re-apply.

~~2.~~3. An applicant who submitted an application prior to the ~~adoption~~ effective date of this ~~sixth~~ seventh edition of the guidebook and did not receive approval of the application by the ~~adoption~~ effective date may opt to follow either the previous guidebook edition or this ~~sixth~~ seventh edition. The applicant must provide written or e-mail notice to be subject to this ~~sixth~~ seventh edition of this guidebook. If no notice is received by the program administrators or the Commission prior to the reservation approval of the application by the program administrator, the application will be governed by the previous edition of the guidebook.

~~3.~~4. All applications submitted on or after the ~~adoption~~ effective date will be governed by this ~~sixth~~ seventh edition of the guidebook.

CHAPTER II:

Program Eligibility Requirements

This chapter covers the eligibility requirements necessary to receive incentives. Applicants may be either building owners or builders/developers. Eligible solar energy systems are limited to systems that use flat-plate photovoltaic technology installed on new residential buildings that have achieved an Energy Commission-specified level of energy efficiency that meets or exceeds~~beyond~~ that required by the *Building Energy Efficiency Standards*, Title 24, Part 6.

~~Qualifying s~~Solar energy systems ~~must~~that service the following newly constructed residential buildings where the entire building meets the energy efficiency requirements described in Chapter II, Section B qualify for NSHP incentives:

- Single-family homes
- Duplexes
- Triplexes
- Condominiums
- Multifamily buildings (including market-rate and affordable housing projects)
- Mixed-use[9] buildings
-
- Common areas in single and multifamily developments that are shown to be for the primary benefit of the residential occupants

~~that are single-family homes, duplexes, triplexes, condominiums, and other multifamily buildings, including both market-rate and affordable housing projects. Mixed-use[10] buildings with both residential and nonresidential occupancies may also qualify for funding provided that they meet the energy efficiency requirements described in Chapter II, Section B. Solar energy systems serving the common areas of new residential and mixed-use buildings or developments are also eligible for incentives as long as the common areas are for the primary benefit of the residential occupants. A common area that is part of a mixed-use building or development must be shown to be for the primary benefit of the residential occupants to be eligible. Solar energy systems installed on additions or alterations to existing buildings do not qualify for NSHP incentives unless the entire building complies with the NSHP energy efficiency requirements described in Chapter II, Section B.~~

NSHP incentives will not be provided to any solar energy system serving electrical loads in the nonresidential~~non-residential~~ portions of a development, except in cases of mixed-use buildings or the common areas of residential developments that meet the requirements of Chapter II,

---

9 A mixed-use building has both residential and nonresidential occupancies (for example, first floor retail, upper floors multifamily residential).

~~10 A mixed-use building has both residential and nonresidential occupancies (for example, first floor retail, upper floors multifamily residential).~~

Section B. NSHP incentives will not be provided to any solar energy systems installed on transient residences (for example, motels and~~,~~ hotels). (See Chapter II, Section E, for additional information on transient residences.)

To be eligible for NSHP incentives, a solar energy system must be installed in conjunction with the construction of a new residential building that is permanently fixed to its foundation. In addition, the building permit for the solar energy system should be approved by the building code enforcement agency prior to the original occupancy of the newly constructed building but no later than ~~180~~ 60 days after the issuance of the occupancy permit, with original occupancy occurring on or after January 1, 2007.

A. Technology and System Ownership

Flat-plate photovoltaic technology is the only technology eligible to receive NSHP incentives. Eligible solar energy systems shall be 1.00 kilowatt (kW) AC (alternating current) or larger in size, measured after the inverter. The solar energy system must be located on the same site where the end-use customer's own electricity demand is located. It is the intent of the program that eligible systems remain interconnected to the utility distribution grid and be operated at the original location for at least the 10-year warranty period. ~~-~~If the system is removed from the building on which it was originally installed within the 10-year warranty period, the Energy Commission may request repayment of all or a portion of the NSHP funding provided for that system.

Solar energy systems that are leased by the end-use customer or that supply electricity to the end-use customer through a power purchase agreement (PPA) may qualify for NSHP funding, provided the applicant and system satisfy the additional requirements in Chapter II, Section O.

B. NSHP Energy Efficiency Requirements

~~To be eligible for NSHP incentives, buildings~~ Buildings must ~~either~~ comply with ~~are required to meet one of two tiers of~~ the *2008 Building Energy Efficiency Standards* (*2008 Standards*) or the *2013 Standards*, depending on which update of the *Building Energy Efficiency Standards* were~~energy efficiency by exceeding the energy efficiency requirements of the edition of Title 24, Part 6,~~ in effect~~11~~ on the date of application for the building permit.[10]

~~11 The 2013 Building Energy Efficiency Standards (Title 24, Part 6) will become effective on January 1, 2014. The 2008 Building Energy Efficiency Standards (Title 24, Part 6) became effective on January 1, 2010.~~

10 Please refer to www.energy.ca.gov/title24/2013standards/ for the effective date of the *2013 Building Energy Efficiency Standards* (Title 24, Part 6). The *2008 Building Energy Efficiency Standards* (Title 24, Part 6) became effective on January 1, 2010.

~~is applied for[12].~~
Buildings that comply with the *2013 Standards* are required to meet one of the following three tiers of energy efficiency:

- Code-Compliant: The building must comply with the *2013 Standards* prior to claiming the solar compliance credit for the *2013 Standards*.
- Tier I: For residential buildings, a total compliance margin of 15 percent better than standard as indicated on the CF-1R. For qualifying nonresidential buildings, a total compliance margin of 10 percent better than standard as indicated on the Performance Certificate of Compliance (PERF-1).
- Tier II: For residential buildings, a total compliance margin of 30 percent better than standard as indicated on the CF-1R and a space-cooling compliance margin of at least 30 percent better than standard. For qualifying nonresidential buildings, a total compliance margin of 15 percent better than standard as indicated on the PERF-1 and a space-cooling compliance margin of at least 15 percent better than standard.

Buildings that comply with the *2008 Standards* are required to meet one of the following two tiers of energy efficiency:

- Tier I: For residential buildings, a total compliance margin of 15 percent better than standard as indicated on the CF-1R. For qualifying nonresidential buildings, a total compliance margin of 15 percent better than standard as indicated on the PERF-1.
- Tier II: For residential buildings, a total compliance margin of 30 percent better than standard as indicated on the CF-1R and a space-cooling compliance margin of at least 30 percent better than standard. For qualifying nonresidential buildings, a total compliance margin of 30 percent better than standard as indicated on the PERF-1 and a space-cooling compliance margin of at least 30 percent better than standard.

Please see Appendix B, Section C for more information about ~~Table 2-1 and Table 2-2 show~~ the Tier I and Tier II efficiency requirements for different eligible building types.

Each building where a portion of the electrical load is served by the solar energy system shall meet the energy efficiency requirements. Energy efficiency compliance shall be demonstrated for a building as a whole and cannot combine unrelated or detached buildings.

Solar energy systems installed on additions or alterations to existing buildings do not qualify for NSHP incentives except in the case of residential buildings where the energy efficiency requirements are met for the entire structure by using the whole building compliance approach[11] in the *2008* or *2013 Standards*. Meeting the energy efficiency requirements by using

---

~~12 The NSHP energy efficiency requirements are based on Title 24, Part 6, and not any local ordinance requiring energy efficiency exceeding Title 24, Part 6.~~
11 The whole building approach is defined in Section 8.7.1 of the *2008 Building Energy Efficiency Standards Residential Compliance Manual*, www.energy.ca.gov/2008publications/CEC-400-2008-016/CEC-400-2008-

the addition alone compliance approach or the existing+addition+alteration compliance approach will not be accepted. Refer to Chapter 9 of the *2013 Title 24, Part 6, Residential Compliance Manual*[12] or Chapter 8 of the *2008 Title 24, Part 6, Residential Compliance Manual*.[13]

NSHP incentives will not be provided to any solar energy system serving electrical loads in the nonresidential portions of a development, except in cases of mixed-use buildings or the common areas[14] of single-family residential developments (subdivisions) or multifamily developments. Solar energy systems serving electrical loads only in the common areas of multifamily developments are eligible for NSHP incentives if the entire multifamily residential building associated with the common area meets the energy efficiency requirements. Solar energy systems serving electrical loads only in the common areas of a single-family residential development (subdivision) are eligible for NSHP incentives if all homes in the residential development meet the energy efficiency requirements. Any additional buildings where electrical loads are served by the solar energy system must also meet the energy efficiency requirements. If the solar energy system does not serve any electrical loads in a building or serves electrical loads in a building that does not have any conditioned space[15], then for multifamily developments at least one residential building must meet the energy efficiency requirements, and for single-family residential developments (subdivisions), all homes in the residential development must meet the energy efficiency requirements.

When there is a new update of the *Building Energy Effiiciency Standards*, buildings for which a building permit has been applied for before the effective date of that new update shall meet or exceed the NSHP energy efficiency requirements based on the prior update of the *Building Energy Efficiency Standards*. Buildings for which a building permit has been applied for on or after the effective date of the new update of the *Building Energy EfficiencyStandards* shall meet the NSHP energy efficiency requirements based on the new update of the *Building Energy Efficiency Standards*.

016-CMF-REV1.PDF, and Section 9.5.2 of the *2013 Building Energy Efficiency Standards Residential Compliance Manual*, www.energy.ca.gov/2013publications/CEC-400-2013-001/CEC-400-2013-001-CMF.pdf.

12 www.energy.ca.gov/2013publications/CEC-400-2013-001/CEC-400-2013-001-CMF.pdf.

13 www.energy.ca.gov/2008publications/CEC-400-2008-016/CEC-400-2008-016-CMF-REV1.PDF.

14 *Common areas* are defined as those nondwelling portions of a building that are intended for the primary benefit of the residential occupants of the building. Examples include, but are not limited to hallways, laundry rooms, recreation rooms, manager unit, and tenant parking.

15 Conditioned space may be directly conditioned or indirectly conditioned. *Directly conditioned space* is an enclosed space that is provided with wood heating, is provided with mechanical heating that has a heating capacity exceeding 10 Btu/hr-ft², or is provided with mechanical cooling that has a cooling capacity exceeding 5 Btu/hr-ft², unless the space-conditioning system is designed for a process space. *Indirectly conditioned space* is enclosed space, including, but not limited to, an unconditioned volume in atria of a building, that (1) is not directly conditioned space; and (2) either (a) has a thermal transmittance area product (UA) to directly conditioned space exceeding that to the outdoors or to unconditioned space, and does not have fixed vents or openings to the outdoors or to unconditioned space, or (b) is a space through which air from directly conditioned spaces is transferred at a rate exceeding three air changes per hour. See the *2013 Building Energy Efficiency Standards*. www.energy.ca.gov/2012publications/CEC-400-2012-004/CEC-400-2012-004-CMF.pdf.

Projects with an existing NSHP reservation that include buildings that must meet the NSHP energy efficiency requirements based on the new update of the *Building Energy Efficiency Standards*, shall be subject to a new NSHP energy efficiency plan check, with the exception of Code-Compliant incentive projects.

EXCEPTION: If the NSHP applicant provides a building permit for the buildings associated with the solar energy system, or other documentation from the authority having jurisdiction, indicating that the building permit was applied for prior to the effective date of the new update of the *Building Energy Efficiency Standards*, the NSHP energy efficiency requirements shall be met based on the prior update of the *Building Energy Efficiency Standards*.

Questions concerning energy efficiency requirements should be directed to the Energy Standards Hotline at title24@energy.ca.gov or 1-800-772-3300. Questions concerning HERS documentation delays should be directed to the HERS Provider prior to contacting the Energy Standards Hotline. Additional information can be found on the Building Energy Efficiency Standards webpage at [www.energy.ca.gov/title24/].

~~Table 2-1: NSHP Energy Efficiency Requirements for Eligible Building Types, Excluding Mixed-Use Buildings~~

~~Building Type~~	~~Tier I Energy Efficiency Requirements[13]~~	~~Tier II Energy Efficiency Requirements (2008 Title 24, Part 6)[13,14]~~
~~Low-Rise Residential[15]~~	~~Total compliance margin of at least 15 percent better than standard as indicated on the Certificate of Compliance (CF-1R).~~	~~Total compliance margin of at least 30 percent better than standard as indicated on the CF-1R AND space cooling compliance margin of at least 30 percent better than standard.~~
~~High-Rise Residential[16]~~	~~Compliance margin, excluding receptacle, process[17], process lighting energy, of at least 15 percent better than standard as indicated on the Performance Certificate of Compliance (PERF-1).~~	~~Compliance margin, excluding receptacle, process, process lighting, of at least 30 percent better than standard as indicated on the PERF-1 AND space cooling compliance margin of at least 30 percent better than standard.~~
~~Detached nonresidential building that is solely for the use and benefit of the residential occupants.[18]~~	~~Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1.~~	~~Compliance margin, excluding receptacle, process, process lighting, of at least 30 percent better than standard as indicated on the PERF-1.~~

~~Source: California Energy Commission~~

~~13 The entire building must meet the energy efficiency requirements. Each appliance provided by the builder must be ENERGY STAR-labeled if ENERGY STAR is applicable to that appliance. This applies to Base Tier, Tier I and Tier II projects.~~

~~14 For the 2008 Title 24, Part 6, Tier II energy efficiency requirements were total compliance margin of at least 30 percent better than standard AND space cooling compliance margin of at least 30 percent better than standard. For the 2005 Title 24, Part 6, Tier II energy efficiency requirements were total compliance margin of at least 35 percent better than standard AND space cooling compliance margin of at least 40 percent better than standard.~~

~~15 A building, other than a hotel/motel that is of Occupancy Group R, Division 1, and is multifamily with three stories or less, or a single-family residence of Occupancy Group R, Division 3, or an Occupancy Group U building located on a residential site. Refer to Title 24, Part 2, for building occupancy groups.~~

~~16 A building, other than a hotel/motel, of Occupancy Group R, Division 1 with four or more habitable stories. High-rise residential buildings are subject to the provisions of Title 24, Part 6, for nonresidential buildings. Refer to Title 24, Part 2, for building occupancy groups.~~

~~17 Process is an activity or treatment that is not related to the space conditioning, lighting, service water heating, or ventilating of a building as it relates to human occupancy. Refer to the *200813 Building Energy Efficiency Standards for Residential and Nonresidential Buildings* for additional information.~~

~~18 Additional energy efficiency requirements: For multifamily developments, at least one residential building must meet the energy efficiency requirements. For single-family residential developments (subdivisions), all homes in the residential development must meet the energy efficiency requirements.~~

~~Table 2-2: NSHP Energy Efficiency Requirements for Eligible Mixed-Use Buildings~~

~~Building Type~~	~~Tier I Energy Efficiency Requirements[13]~~	~~Tier II Energy Efficiency Requirements (2008 Title 24, Part 6)[13,14]~~
~~Low-rise mixed-use where the CFA[19] of the nonresidential occupancy comprises no more than 20 percent of the CFA of the building[20]~~	~~Total compliance margin of at least 15 percent better than standard as indicated on the CF-1R.~~	~~Total compliance margin of at least 30 percent better than standard as indicated on the CF-1R AND space cooling compliance margin of at least 30 percent better than standard.~~
~~Low-rise mixed-use where the CFA of the nonresidential occupancy comprises more than 20 percent of the CFA of the building[21]~~	~~Residential Occupancy: Total compliance margin of at least 15 percent better than standard as indicated on the CF-1R. AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least~~	~~Residential Occupancy: Total compliance margin of at least 30 percent better than standard as indicated on the CF-1R AND space cooling compliance margin of at least 30 percent better than standard. AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 30 percent better than standard as indicated on the PERF-1.~~
~~High-rise mixed-use where the CFA of the nonresidential occupancy comprises no more than 20 percent of the CFA of the building[22]~~	~~Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1.~~	~~Compliance Margin, excluding receptacle, process, process lighting, of at least 30 percent better than standard as indicated on the PERF-1 AND space cooling compliance margin of at least 30 percent better than standard.~~

~~19 Conditioned floor area (CFA) is the floor area (in square feet) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space.~~

~~20 A solar energy system serving electrical loads in the entire mixed-use building shall be eligible for NSHP. The entire building is subject to the provisions of Title 24, Part 6, for low-rise residential buildings.~~

~~21 Only the portion of a solar energy system serving electrical loads in the low-rise residential occupancy shall be eligible for NSHP. Each occupancy shall meet the provisions of Title 24, Part 6, applicable to that occupancy.~~

~~22 A solar energy system serving electrical loads in the entire mixed-use building shall be eligible for NSHP. The entire building is subject to the provisions of Title 24, Part 6 for high-rise residential buildings.~~

~~High-rise mixed-use where the CFA of the nonresidential occupancy comprises more than 20 percent of the CFA of the building[23]~~	~~High-rise residential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1~~ ~~AND~~ ~~Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1.~~	~~High-rise residential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 30 percent better than standard as indicated on the PERF-1 AND space cooling compliance margin of at least 30 percent better than standard~~ ~~AND~~ ~~Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 30 percent better than standard as indicated on the PERF-1.~~

~~1.~~

~~2. Source: California Energy Commission~~

~~3.~~ Compliance Documentation Author Requirements

1.

Compliance with the NSHP Tier I or Tier II energy efficiency requirements shall be determined using the performance compliance approach using software approved by the Energy Commission. ~~Compliance with the NSHP energy efficiency requirements shall be determined using the performance compliance approach using software approved by the Energy Commission.~~ A signed Certificate of Compliance (CF-1R) or Performance Certificate of Compliance (PERF-1) must be submitted as part of the reservation application, with the exception of projects participating in a utility new construction program. The compliance documentation must be signed by a Certified Energy Plans Examiner (CEPE) or a Certified Energy Analyst (CEA) who is approved by the California Association of Building Energy Consultants (CABEC). CABEC requires CEPEs and CEAs to have separate certifications for residential and nonresidential standards, as well as separate certifications for each of the different ~~edition~~updates of Title 24, Part 6. At the time the compliance documentation is signed, the CEPE or CEA must have a valid CABEC certification for the building type (residential or nonresidential) and for the ~~edition~~update of Title 24, Part 6, in effect on the date the building permit is applied for. The CEPE or CEA can help determine which energy efficiency measures

~~23 Only the portion of a solar energy system serving electrical loads in the high-rise residential occupancy shall be eligible for NSHP. Each occupancy shall meet the provisions of Title 24, Part 6, applicable to that occupancy.~~

are needed to meet NSHP energy efficiency requirements and prepare the necessary documentation that must be submitted as part of the NSHP application. For a list of CEPEs and CEAs, visit the CABEC website at: [www.cabec.org/]. If there are no CEPEs or CEAs listed on the CABEC website for the update of Title 24, Part 6, in effect on the date the building permit is applied for, then an NSHP applicant may use a CEPE or CEA certified for the previous update of the Title 24, Part 6. Once CEPEs or CEAs are listed on the CABEC website for the update of Title 24, Part 6, in effect on the date the building permit is applied for, then an NSHP applicant must use a CEPE or CEA certified for that update of Title 24, Part 6, unless otherwise excused by the Energy Commission because the number or availability of CEPEs or CEAs listed on the CABEC website are inadequate to accommodate program demand and may delay the processing of reservation applications or payment claims.

For projects applying for the Code-Compliant incentive, the project compliance documentation may be signed by any person legally authorized to sign 2013 Title 24 compliance documentation, including the CF-1R. Please refer to Chapter 2 of the *2013 Title 24, Part 6, Residential Compliance Manual*[16] for additional information about who is legally authorized to sign Title 24 compliance documentation.

2. Code-Compliant Energy Efficiency and Third-Party Field Verification Requirements

The Code-Compliant incentive option is available only to applicants whose building(s) comply with the *2013 Standards*. Buildings applying for the Code-Compliant incentive must comply with the *2013 Standards* prior to claiming the solar compliance credit of the *2013 Standards*. This will be verified by the program administrators during their review of the reservation application. Reservation applications submitted for the Code-Compliant incentive shall include a copy of the Title 24 compliance documentation (CF-1R or PERF-1) run using the 2013 compliance software. The Title 24 compliance documentation submitted to the NSHP should be the same Title 24 compliance documentation that was or will be submitted to the building department to obtain a building permit. The documentation author for the Title 24 compliance documentation may be any person legally authorized to sign these forms. Applicants will not be required to submit a construction plan set with their reservation application nor have a NSHP plan check completed prior to receiving a reservation.

A Code-Compliant NSHP application must identify a Home Energy Rating System (HERS) Rater for their solar energy system. The HERS Rater will verify the installation of the solar energy system for compliance with the NSHP PV requirements described in Appendix B. ~~An NSHP application must identify a Home Energy Rating System (HERS) Rater for both the energy efficiency measures and for the solar energy system. Applicants may select a different HERS Rater for the verification of energy efficiency measures and the solar energy system, but the documentation must be submitted to the same HERS Provider. A HERS Rater will verify the installation of both the energy efficiency measures and the solar energy system for compliance with NSHP requirements. There may be energy efficiency inspections that need to take place~~

16 www.energy.ca.gov/2013publications/CEC-400-2013-001/CEC-400-2013-001-CMF.pdf

~~early in the construction process; therefore, it is critical that there be good communication between the NSHP applicant, builder, solar installer, and HERS Rater to coordinate when during the construction process a HERS verification is needed.~~

~~4.~~

~~5. Solar energy systems installed on additions or alterations to existing buildings do not qualify for NSHP incentives except in the case of residential buildings where the energy efficiency requirements are met for the entire structure by utilizing the whole building compliance approach[24]. Meeting the energy efficiency requirements by using the addition alone compliance approach or the existing+addition+alteration compliance approach will not be accepted. Refer to Chapter 8 of the *2008 Title 24, Part 6, Residential Compliance Manual*[25].~~

~~6. NSHP incentives will not be provided to any solar energy system serving electrical loads in the nonresidential portions of a development, except in cases of mixed-use buildings or the common areas[26] of single-family residential developments (subdivisions) or multifamily developments. Solar energy systems serving electrical loads only in the common areas of multifamily developments are eligible for NSHP incentives if the entire multifamily residential building associated with the common area meets the energy efficiency requirements. Solar energy systems serving electrical loads only in the common areas of a single-family residential development (subdivision) are eligible for NSHP incentives if all homes in the residential development meet the energy efficiency requirements. Any additional buildings where electrical loads are served by the solar energy system must also meet the energy efficiency requirements. If the solar energy system does not serve any electrical loads in a building or serves electrical loads in a building that does not have any conditioned space[27], then for multifamily developments at least one residential building must meet the energy efficiency requirements and for single-family residential developments (subdivisions) all homes in the residential development must meet the energy efficiency requirements.~~

~~24 The whole building approach is defined in Section 8.7.1 of the *2008 Building Energy Efficiency Standards Residential Compliance Manual*, http://www.energy.ca.gov/2008publications/CEC-400-2008-016/CEC-400-2008-016-CMF-REV1.PDF.~~

~~25 www.energy.ca.gov/title24/2008standards/residential_manual.html~~

~~26 Common areas are defined as those nondwelling portions of a building that are intended for the primary benefit of the residential occupants of the building. Examples include, but are not limited to: hallways, laundry rooms, recreation rooms, manager unit, and tenant parking.~~

~~27 Conditioned space may be directly conditioned or indirectly conditioned. Directly conditioned space is an enclosed space that is provided with wood heating, is provided with mechanical heating that has a heating capacity exceeding 10 Btu/hr-ft², or is provided with mechanical cooling that has a cooling capacity exceeding 5 Btu/hr-ft², unless the space-conditioning system is designed for a process space. Indirectly conditioned space is enclosed space, including, but not limited to, an unconditioned volume in atria of a building, that (1) is not directly conditioned space; and (2) either (a) has a thermal transmittance area product (UA) to directly conditioned space exceeding that to the outdoors or to unconditioned space, and does not have fixed vents or openings to the outdoors or to unconditioned space, or (b) is a space through which air from directly conditioned spaces is transferred at a rate exceeding three air changes per hour. See the *2008 Building Energy Efficiency Standards.* (www.energy.ca.gov/2008publications/CEC-400-2008-001/CEC-400-2008-001-CMF.PDF)~~

~~7.~~

~~8. When there is a new edition of Title 24, Part 6, buildings for which a building permit has been applied for prior to the effective date of the new edition shall meet the NSHP energy efficiency requirements based on the prior edition of Title 24, Part 6; buildings for which a building permit has been applied for on or after the effective date of the new edition of Title 24, Part 6, shall meet the NSHP energy efficiency requirements based on the new edition of Title 24, Part 6. For all NSHP applications, including those submitted, under review, and approved, any buildings associated with a solar energy system which does not have an approved payment claim prior to the effective date of the new edition, shall meet the NSHP energy efficiency requirements based on the new edition of Title 24, Part 6. Buildings, which must meet the NSHP energy efficiency requirements based on the new edition of Title 24, Part 6, shall be subject to a new NSHP energy efficiency plan check.~~

~~9.~~

~~10. EXCEPTION: If the NSHP applicant provides a building permit for the buildings associated with the solar energy system, or other documentation from the authority having jurisdiction, indicating that the building permit was applied for prior to the effective date of the new edition of Title 24, Part 6, the NSHP energy efficiency requirements shall be met based on the prior edition of Title 24, Part 6.~~

~~11.~~

~~12. Questions on energy efficiency requirements should be directed to the Energy Standards Hotline at title24@energy.ca.gov or 1-800-772-3300. Additional information can be found on the Building Energy Efficiency Standards webpage at www.energy.ca.gov/title24/2008standards/index.html.~~

~~**13.**~~

3. Tier I and Tier II Third-Party Field Verification Requirements

A Tier I or Tier II NSHP application must identify a HERS Rater for both the energy efficiency measures and for the solar energy system. A HERS Rater will verify the installation of both the energy efficiency measures and the solar energy system for compliance with NSHP requirements. The energy efficiency measures include all applicable Title 24 HERS measures and the NSHP-specific Additional Energy Features Checklist (NSHP EE-3). Applicants may select a different HERS Rater for the verification of Title 24 HERS measures, NSHP energy efficiency requirements, and the solar energy system, but the documentation must be submitted to the same HERS Provider. There may be energy efficiency inspections that need to take place early in the construction process; therefore, it is critical that there be good communication among the NSHP applicant, builder, solar installer, and HERS Rater to coordinate Title 24 or NSHP energy efficiency requirement verification.

4. NSHP Plan Check Requirements

All NSHP projects will be required to have a NSHP plan check conducted unless they fall into one of the following categories:

- The project is applying for the Code-Compliant incentive.

- The project meets the Tier I or Tier II NSHP energy efficiency requirements under the *2013 Standards* and has compliance documentation completed by a CEA certified for the *2013 Standards*.
- The project is participating in a utility new construction energy efficiency program.

If the project is not required to complete a NSHP plan check, then the construction plan set will not be required as part of the reservation application. The Energy Commission reserves the right to request the energy efficiency documentation, including the construction plan set, and complete a quality assurance plan check for a project that falls into one of the categories listed above. The plan check may occur at any time during the reservation or payment review process. The plan check results will be used by the Energy Commission to evaluate the projects that are not required to complete a plan check as part of the NSHP reservation review process, as listed above. In all cases, a project must meet the NSHP energy efficiency requirements prior to issuance of a NSHP incentive.

5. *2013 Building Energy Efficiency Standards* Solar Compliance Credit

The *2013 Standards* allow solar energy systems to claim a compliance credit when using the performance compliance approach. Refer to Section 2.2.3 of the *2013 Title 24, Part 6, Residential Alternative Calculation Method*.

Projects that request the Code-Compliant incentive must comply with the *2013 Standards* prior to claiming the solar compliance credit of the *2013 Standards*. Projects complying with either the Tier I or Tier II energy efficiency requirements under the *2013 Standards* will be allowed to claim this credit in their Title 24 compliance documentation as part of meeting the *2013 Standards*.

~~C. Utility New Construction Energy Efficiency Program Participation~~

~~Energy Efficiency Documentation Submittal Process~~

~~Applicants are strongly encouraged to participate in their utilities' new construction energy efficiency program to obtain the financial incentives that may be available for meeting either Tier I or Tier II energy efficiency requirements and to streamline the NSHP energy efficiency verification process. See Chapter II, Section C, for additional information.~~

~~*Energy Efficiency Documentation Requirements During Reservation Phase*~~

1. ~~The applicant selects a CEPE or CEA to prepare the Title 24, Part 6, documentation. The applicant identifies a HERS Rater for both the energy efficiency measures and the solar energy system, and identifies the HERS Provider that has certified the HERS Rater. Applicants do not have to select the same HERS Rater for verification of both the energy efficiency measures and the solar energy system, but the documentation must be submitted to the same HERS Provider.~~

2. ~~Once the CEPE or CEA completes the energy efficiency documentation (CF-1R or PERF-1), the applicant must include a signed copy of the energy efficiency documentation and the associated electronic input file(s)[28] as part of the NSHP application. The electronic input file must be generated directly by one of the Energy Commission-approved Title 24, Part 6, compliance software programs, showing all of the measures used to meet the energy savings requirements. The CF-1R (or PERF-1 when applicable) and other energy efficiency documentation forms must be consistent with the construction plan set. These documents will be used for the subsequent NSHP energy efficiency plan check.~~

   ~~The associated digital input files (e.g. *.bld or *.mp8) will be uploaded into the HERS Provider data registry of an Energy Commission approved HERS Provider. This step is usually completed by the program administrator.~~

   ~~The energy efficiency documentation will be submitted to the NSHP program administrators with the NSHP Reservation Application (NSHP-1). A copy of the construction plan set that is used for building permit purposes must be submitted by the applicant. The construction plan set is used during the plan-check process to verify the energy efficiency measures to be installed on the project. For a list of energy efficiency documents required for the NSHP plan-check, see the Plan Check Checklist in Appendix C. Applicants are encouraged to provide the construction plan set in electronic format, preferably portable document format (PDF). Upon completion of the NSHP plan check and review and approval of all other NSHP reservation application documents, the applicant will receive a Payment Claim Form (NSHP-2). The NSHP-2 form must be completed and submitted once the solar energy system and all energy efficiency measures have been installed and verified.~~

   ~~Projects partipating in a utility new constuction program, are not required to submit these documents to the NSHP program administrator but shall submit the utility new construction energy efficiency program approval letter in their NSHP application. Please see Chapter II, Section C for additional information.~~

~~*Energy Efficiency Documentation Requirements During Field Verification Phase*~~

3. ~~The applicant begins construction and installation of energy efficiency measures. If required, the installing contractor performs diagnostic testing or inspections and completes Installation Certificates (CF-6R) to verify that energy efficiency compliance was achieved. A HERS Rater will need to be provided a signed CF-6R from the installing contractor or the forms must be left at the site.~~

   ~~The applicant must make arrangements with a HERS Rater to complete energy efficiency verification of measures that require the HERS Rater to be on-site early in the construction process (for example, Quality Installation of Insulation [QII], Housewrap/Air-retarding wrap).~~

~~28 Electronic files may be submitted via e-mail or on electronic media. For 2008 Title 24, Part 6, the file extension for EnergyPro files will be .bld and for MICROPAS files will be .mp8.~~

~~A HERS Rater will be required to perform an inspection to verify all measures listed on the Field Inspection Energy Checklist (CF-4R-EE NSHP) for all projects, except those using a PERF-1. The HERS Rater will verify these energy efficiency measures by completing a CF-4R-EE NSHP. For further details on the CF-4R-EE NSHP, please see Appendix C, Section B. For projects using a PERF-1 to show compliance with the NSHP energy efficiency requirements, the HERS Rater will not complete the CF-4R-EE NSHP. In lieu of the CF-4R-EE NSHP, the applicant is required to complete all acceptance tests that are required in the PERF-1.~~

~~In addition, any measures listed in the HERS Required Verification Section of the CF-1R, require a HERS Rater field test and/or verification and the applicable CF-4R shall be completed by the HERS Rater.~~

~~Projects partipating in a utility new constuction program, are not required to complete NSHP energy efficiency field verification requirements, but must complete the energy efficiency field verification requirements of the utility new construction energy efficiency program. Please see Chapter II, Section C for additional information.~~

~~*Energy Efficiency Documentation Requirements During Payment Phase*~~

~~4. NSHP Program Administrators will confirm, in the HERS Provider data registry, that the following documents have been completed:~~

- ~~All applicable (Certificate of Field Verification and Diagnostic Testing (CF-4R) forms~~
- ~~CF-4R-EE NSHP.~~

~~Projects using a PERF-1 must submit copies of the applicable acceptance test forms to the program administrator for compliance verification.~~

~~For projects partipating in a utility new constuction program, completion of the above documents will not need to be confirmed; instead, the applicant shall submit the utility new construction energy efficiency payment letter in the NSHP payment claim. Please see Chapter II, Section C, for additional information.~~

C. Utility New Construction Energy Efficiency Program Participation

Applicants are strongly encouraged to participate in their ~~utilities~~ utility's new construction energy efficiency program to obtain the financial incentives that may be available for meeting either Tier I or Tier II energy efficiency requirements and to streamline the NSHP energy efficiency verification process.

When a project is~~projects are~~ participating in both the NSHP and a utility new construction energy efficiency program, the project shall meet the energy efficiency requirements of the utility new construction program in lieu of the NSHP energy efficiency requirements as long as

the Energy Commission determines that the utility new construction energy efficiency requirements are equivalent to or exceed the NSHP energy efficiency requirements. The utility new construction energy efficiency program is meant to provide a separate, alternate path for NSHP energy efficiency compliance.

For projects participating in a utility new construction energy efficiency program, the following applies:

- For NSHP projects where a utility new construction energy efficiency program approval letter is submitted with the NSHP reservation application, or the approval is otherwise confirmed by the utility program administrator, the applicant is not required to provide the building permit/subdivision map or energy efficiency documentation (for example, CF-1R form, electronic input files, plan set, and checklist items) with the NSHP reservation application. ~~Additionally~~Furthermore, the project is not required to complete a NSHP plan check.

- For NSHP projects where a utility new construction energy efficiency program payment letter is submitted, or the payment is otherwise confirmed by the utility program administrator, the applicant is not required to ~~have~~ provide the Additional Energy Features Checklist (NSHP EE-3) ~~CF-4R-EE-NSHP~~ or any CF-~~4~~3Rs during the NSHP payment process. The energy efficiency field verification documentation for that project will be confirmed to be in a HERS Provider data registry by the utility new construction energy efficiency program administrator during the ~~NSHP~~ utility new construction energy efficiency program payment process.

Once an NSHP applicant chooses to have its~~their~~ project participate in a utility new construction energy efficiency program, it is expected that the project will successfully complete the utility new construction energy efficiency program. If, for some reason, the project is not able to successfully complete the utility new construction energy efficiency program, then all the NSHP energy efficiency requirements shall be met ~~in their entirety~~.

The energy efficiency requirements, and the document requirements and processes for these requirements, are summarized below in Table 2-1. For additional information on the documents listed in Table 2-1, please see Chapter IV, Section B, and Chapter V, Section A. For additional information on the processes identified in Table 2-1, please see Chapter II, Section B, and Appendix B.

Table 2-1: Energy Efficiency Requirements and the Corresponding Documents and Processes

	Energy Efficiency Requirements

	Code-Compliant*	Tier I	Tier II	Approval for Utility New Construction Energy Efficiency Program
Documents				
CF-1R Form	X	X	X	**
Electronic Input Files (.bld/.mp7, .mp8, .ribd)		X	X	**
Construction Plan Set and Checklist Items		X***	X***	**
Final Building Permit Sign-Off	X			
Processes				
Plan-Check		X***	X***	
Energy Efficiency Verification (CF-3R and NSHP EE-3)		X	X	****
PV Verification	X	X	X	X

*The Code-Compliant incentive is available only for projects complying with the *2013 Standards*.

** If the project is approved for the utility new construction energy efficiency program, then the applicant may submit the program approval letter in place of the CF-1R, corresponding electronic input file, and construction plan set.

***Buildings complying with the *2013 Standards*, with compliance documentation completed by a CEA certified for the *2013 Standards*, will bypass the construction plan set document requirement and plan check process. Please refer to Chapter II, Section B.4, for additional information on the NSHP plan check requirements.

**** If the project is approved for the utility new construction energy efficiency program, then the applicant may submit the program payment approval letter in place of the energy efficiency verification documentation.

Source: California Energy Commission

~~C.~~D. Permanent Foundation

Eligible solar energy systems must be installed on newly constructed buildings permanently fixed to their foundation. Permanent foundation is defined in the "Permanent Foundations Guide for Manufactured Housing" (HUD-7584).[17]

Manufactured housing seeking eligibility for the NSHP must provide a "Notice of Manufactured Home or Commercial Modular Installation on a Foundation System" (HCD~~HDC~~ 433A) or a Certificate of Occupancy (HCD 513C) prior to approval of a payment claim.

~~D.~~E. Transient Housing

17 U.S. Department of Housing and Urban Development, *Permanent Foundations Guide for Manufactured Housing*, HUD 7584, Issued September 1996.

Solar energy systems installed on transient residences are not eligible to receive NSHP incentives. Only buildings where 50 percent or more of the residential units are occupied for 30 days or more and are one of the following occupancy groups listed in the California Building Code, Title 24, Part 2[18] are eligible for NSHP funding.

- Occupancy Group R, Division 2
- Occupancy Group R, Division 2.1
- Occupancy Group R, Division 3
- Occupancy Group R, Division 3.1
- Occupancy Group R, Division 4

The Energy Commission or its program administrators reserve the right to request applicants provide documentation verifying that the project meets the transient housing requirements listed above.

E.F. Grid Interconnection

Eligible solar energy systems must be permanently interconnected to the electrical distribution grid of the utility serving the customer's electrical load. The site where the system is installed must receive electrical distribution service from an existing in-state electrical corporation collecting funds to support the program as stated in Chapter I. These in-state electrical corporations are PG&E, SCE, SDG&E, and BVES. The system interconnection to the utility distribution grid must also comply with applicable electrical codes, utility interconnection requirements, and metering requirements. The solar energy system shall not be interconnected to the utility distribution grid until the applicant has received a formal approval letter from the interconnection department of applicant's electric utility.

Multifamily housing projects, both market rate and affordable, using virtual net metering[19] are eligible for NSHP incentives. For multifamily housing projects using virtual net metering, the residential dwelling units must meet the energy efficiency requirements in Chapter II, Section B.

F.G. System Components

18 http://publicecodes.cyberregs.com/st/ca/st/b200v10/st_ca_st_b200v10_3_par046.htm.
19 Virtual net metering allows the electricity produced by a single solar energy system installation to be credited to the benefit of multiple tenants in a multifamily building without requiring the solar energy system to be physically connected to each tenant's meter. Virtual net metering was adopted in the California Public Utilities Commission Decision 08-10-036 and modified in Decision 11-07-031. [docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/139683.htm].

Major solar energy system components are defined as flat-plate photovoltaic modules, inverters, and meters.

All major system components must be new and must not have been previously placed in service in any other location or for any other application. **Equipment ~~purchased or~~ installed more than ~~24~~ six months ~~before applying for a~~ prior to submitting an initial reservation application is not eligible.~~.~~** System components must satisfy the eligibility requirements specified in the most recent approved edition of *Guidelines for California's Solar Electric Incentive Programs (Senate Bill 1)* [www.energy.ca.gov/sb1/meetings/index.html]. Approved major components will be posted on the Energy Commission's eligible equipment website available at~~:~~ [www.gosolarcalifornia.ca.gov/equipment/index.php].

The applicant must confirm that the components purchased for a system are eligible when applying for NSHP funding.~~.~~ The Energy Commission or the program administrators will confirm that the equipment identified in a reservation package meets eligibility requirements prior to a reservation being granted.

Because equipment is regularly added and removed from the eligible equipment list~~regularly~~, the Energy Commission recommends the applicant wait for an approved reservation before installation commences. If the applicant begins or completes ~~the~~ installation before the Energy Commission has approved the reservation, changes to the eligible equipment may create a situation where significant and costly system modifications are required to comply with program guidelines.

~~G.~~H. System Performance Meter

All solar energy systems must be installed with a stand-alone performance meter or an inverter with a built-in performance meter so that the customer can determine the amount of energy produced by the system.

~~H.~~I. System Sized to Offset On-Site Electricity Load

Eligible solar energy systems shall be a minimum size of 1.00 kW AC measured after the inverter and shall be sized so that the amount of electricity that is produced offsets part or all of the end-use customer's electrical needs at the installation site ~~of installation~~. Systems 7.5 kW AC or less are considered to be sized to serve the on-site electric load of the end-use customer. The maximum incentive paid for a system serving a single-family residential unit is limited to the first 7.5 kW AC of the system. For systems larger~~greater~~ than 7.5 kW, see "Calculator Examples" at [www.gosolarcalifornia.ca.gov/tools/nshpcalculator/download_calculator.php~~[www.gosolarcalifornia.ca.gov/tools/nshpcalculator/Calculator_Examples.pdf~~] for further details on how to determine the maximum incentive. While common areas are not subject to the 7.5 kW AC cap, program administrators may request additional documentation justifying the system size. See Chapter III, Section C, for additional information on maximum incentives.

~~I.~~J. System Performance

The incentive amount will be based on the estimated performance of the solar energy system, calculated using the ~~California~~ Energy Commission's PV Calculator (CECPV Calculator).[20] The estimated performance of the system will be the basis for qualifying for a reservation and for the final incentive amount. System installation shall be consistent with the characteristics used to determine estimated performance to receive the reserved incentive amount. The final incentive amount is subject to available funds. The characteristics that are addressed by the CECPV Calculator include shading by any obstruction of the modules.

The CECPV Calculator will include "California Flexible Installation" criteria (as detailed in Chapter III, Section B) to estimate performance for a range of module orientations and tilts. The California Flexible Installation is intended for use only by new single-family residential developments (subdivisions) and is not allowable for applications consisting of only one single-family dwelling or only the common area of a multifamily development. Systems installed within the allowable range of orientations and tilts and meeting the "minimal shading criteria" can use the California Flexible Installation criteria as the basis for the reservation application and incentive request without providing more specific orientations and tilts. Third-party field verification will be conducted to assess whether systems have been installed consistent with the characteristics used to determine estimated performance.

~~J.~~K. System Installation

Solar energy systems must be installed in conformance with the manufacturer's specifications and installation instructions; all applicable electrical, fire, and building codes and standards; all utility interconnection requirements; and any local codes and ordinances.

If installed under contract, systems must be installed by an appropriately licensed contractor, in accordance with rules and regulations adopted by the California Contractors State License Board. Installation contractors must have an active A, B, C-10, or a C-46 license[21]. Contractors with roofing~~-~~-specific licenses may install~~place~~ photovoltaic modules in accordance with limitations of their specific licenses; however, electrical connections must be made by an above-mentioned contractor. Owner-builders are allowed under the NSHP to install their own systems.~~-~~[22]

---

20 Solar energy systems using flat-plate photovoltaic technology are the only systems eligible to receive NSHP incentives.

21 Contractors State License Board Check a Contractor License Registration [www2.cslb.ca.gov/OnlineServices/CheckLicenseII/CheckLicense.aspx].

22 For information on restrictions placed on owner-builders, contact the Contractors State License Board at (800) 321-CSLB to obtain a current edition of the *Contractor's License Law and Handbook.*

The Energy Commission encourages installation contractors to become certified by the North American Board of Certified Energy Practitioners (NABCEP). See [www.nabcep.org] for additional information.

~~K.~~L. Solar Energy System Field Verification

All installed solar energy systems shall be third-party field-verified as described in Appendix B to ensure that installations are consistent with the information used to determine the estimated performance, reservations, and ultimately the final incentive amount. Field verification procedures shall be consistent with the current *Building Energy Efficiency Standards* [www.energy.ca.gov/title24]. Field verification of solar energy systems in~~for~~ new housing developments may employ the sampling approach ~~as~~described in Appendix B, Section A. ~~allowed in the current *Building Energy Efficiency* Standards.[29]~~

Field verification will determine if the installed solar energy system is consistent with the "California Flexible Installation" criteria (including the minimal shading criteria) or the uniquely specified orientation, tilt, and shading characteristics of the system, as appropriate. When field verification indicates that the installation is not consistent with the parameters used to calculate the estimated performance submitted in the NSHP application, the deficiencies must be corrected or the estimated performance must be recalculated based on the actual installation parameters. When field verification indicates that the installation will achieve an estimated performance greater than that used for the reservation, the estimated performance may be recalculated at the applicant's option to reflect the higher performance. Any revised estimated performance documentation must be resubmitted to NSHP.

~~L.~~M. Warranty Requirements

All solar energy systems must have a minimum 10-year warranty provided in combination by the manufacturer and equipment ~~/~~seller/~~-~~installer. During the 10-year period, the warranty must protect against:

1) Defects in materials and workmanship.
2) System or component breakdown.
3) Degradation in electrical output of more than 15 percent from the originally rated electrical output.

The warranty must cover the solar generating system, including the flat~~flate~~-plate photovoltaic modules, 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.

~~M.~~N. Equipment Sellers/Installers

~~29 For the 2005 Building Energy Efficiency Standards see Chapter 7 of the Residential Alternative Calculation Method (ACM) Approval Manual. For the *2008 Building Efficiency Standards*, see Appendix RA2 of the 2008 Reference Appendices.~~

CompaniesTo participate in the NSHP, companies that sell and/or install solar energy system equipment must be self- do not need to be registered on in the Energy Commission's Contractors, Installers, and Sellers Database, (database)located on the Go Solar California website, to participate in the NSHP. Contractors, installers, and sellers listed in the online database are self-registeredm and it is their responsibility to provide accurate, up-to-date information. The Energy Commission does not verify or update any of the information in this database. Please see Chapter II, Section K, for licensing requirements for installation contactors.Equipment sellers/installers should have the following information available prior to self-registration:

Business name, address, phone, fax, and e-mail address

Owner or principal contact

Business license number

Contractor license number (if applicable)

Proof of good standing on record with the California Secretary of State, as required for corporate and limited liability entities

Reseller's license number

This information must be submitted to the Energy Commission through the self-registration process before a company can become eligible to participate in the NSHP.

Self-registration can be done online at:

www.gosolarcalifornia.ca.gov/database/addcompany.php.

Sellers, contractors, or installers that are listed in the online database should maintain their information on a regular basis. This can be done using the log-on account name and password provided when the company has initially self-registered. Updates can be completed online at:

www.gosolarcalifornia.ca.gov/database/update.php

The Energy Commission will send out e-mails periodically to remind companies to update their online information, contacts, and other data.

It is the responsibility of each company to maintain its online information. If the Energy Commission's e-mails are returned as undeliverable, and the Energy Commission cannot reach that company by phone or by regular U.S. mail, the Energy Commission reserves the right to remove the company from the online database after a three-month period.

N.O. Leases and Power Purchase Agreements

Solar energy systems that are leased by an end-use customer or provide electricity to an end-use customer under a power purchase agreement (PPA) are eligible for NSHP funding if the lease agreement or PPA is executed and has a start date on or after July 1, 2009.- Lease agreements and PPAs that are executed or have a start date before July 1, 2009, are not eligible for funding even though the system may have been installed after this date.- Lease agreements and PPAs must have an initial term of no less than 10 years and must provide the lessee or customer the following options at the end of the initial term of the agreement:

1) Renew the agreement.

2) Purchase the system.

3) Remove the system at no cost to the lessee or customer.

In addition, lease agreements and PPAs must demonstrate that the NSHP funding benefits the end-use customer by directly and exclusively reducing the lease payments for the system or the cost of electricity produced by the system. For applications in which a lease agreementreservation is obtained based on the builder/developer as an interim lessee or PPA to interim signatory of a PPA, as described below, this benefit must be shown once the lease agreement or PPA is transferred to the homeowner. In order for a lease agreement, or PPA, or transfer document to show the NSHP funding benefits the end-use customer, the lease agreement, or PPA, or transfer document must include express provisions showing the cost to the end-use customer without the NSHP funding and the reduced cost to the end-use customer with the NSHP funding.

A builder/developer may sign a lease agreement or PPA as an interim lessee or interim signatory of a PPA for the purpose of obtaining a reservation. However, prior to submitting a payment claim package, the lease agreement or PPA must be transferred from the builder/developer to the homeowner as the end-use customer. For applications in which a reservation is obtained based on the builder/developer as an interim lessee or interim signatory to a PPA, a completed transfer document, as well as the referenced lease agreement or PPA, must be submitted to the program administrator prior to expiration of the reservation. The program administrator will verify that these documents meet the document requirements outlined in this section.The NSHP incentive amount requested when claiming payment (as estimated by the CECPV Calculator) may exceed the NSHP funding amount identified in the lease agreement or PPA by up to 10 percent of the amount listed in the lease agreement or PPA. If the NSHP incentive amount requested when claiming payment exceeds the NSHP funding amount identified in the lease agreement or PPA by more than 10 percent of the amount listed in the lease agreement or PPA, a revised lease agreement, PPA, or addendum to the lease agreement or PPA listing the correct incentive amount must be provided to the program administrator to claim the higher NSHP incentive amount.

For the first five years of the lease or PPA, the lessor (in the case of a lease) or owner of the solar energy system, (in the case of a PPA), shall provide an annual status report to the program administrator on the operation of the NSHP-funded solar energy system. The annual status report shall address agreements executed through December 31 of each year, be submitted to the program administrator no later than January 31 of each year, and shall include the following information for each system:

1) Date that the agreement was fully executed and the start date of the agreement

2) Operational status of the system

3) Status of the agreement~~,~~ and, if status has changed, date of change and reason for the change. (Status changes ~~would~~ primarily include~~,~~ change in lessee or customer, system purchase, termination of agreement, and system removal.)

The annual status report shall be submitted to the Energy Commission if the NSHP is not administered by a program administrator.

If any lease agreement or PPA for a system that received funding from the NSHP is terminated and the system is removed from the building on which it was originally installed within the 10-year warranty period, the Energy Commission **may** request repayment of all or a portion of the NSHP funding provided for that system~~, the NSHP funding received by the applicant shall be repaid by the lessor or system owner~~. ~~to the Energy Commission in the amounts specified below:~~

~~If the agreement is terminated within one year of the system's installation or the start date of the agreement, whichever is later, 100 percent of the funding received shall be repaid.~~

~~If the agreement is terminated within two years of the system's installation or the start date of the agreement, whichever is later, 80 percent of the funding received shall be repaid.~~

~~If the agreement is terminated within three years of the system's installation or the start date of the agreement, whichever is later, 60 percent of the funding received shall be repaid.~~

~~If the agreement is terminated within four years of the system's installation or the start date of the agreement, whichever is later, 40 percent of the funding received shall be repaid.~~

~~If the agreement is terminated within five years of the system's installation or the start date of the agreement, whichever is later, 20 percent of the funding received shall be repaid.~~

~~Repayment shall not be required if the agreement is terminated more than five years after the system's installation or the start date of the agreement, whichever is later.~~

Repayment will not be required if a system is destroyed by natural disaster or fire at no fault of the lessor/owner or lessee/customer.

The lessor or system owner is responsible for repayment of NSHP funding and is required to inform the lessee or end-use customer of this requirement. The lease agreement~~,~~ or PPA~~, or transfer document~~ ~~should~~ shall include provisions that specifically discuss repayment obligations of the NSHP funding when there is early termination of the lease agreement or PPA, and identify that the party responsible for ~~the~~ repayment of the NSHP funding to the Energy Commission is the lessor or system owner.

~~An applicant that obtains a reservation based on the builder/developer as an interim lessee or interim signatory of a PPA assumes the risk of having to complete the system installation, transfer the lease agreement or PPA to the homeowner, and submit a payment claim prior to the expiration date of the reservation. Any such applicant that fails to satisfy these requirements prior to the expiration date of the reservation must reapply for NSHP funding pursuant to the rules in place at the time of reapplication and that reapplication is subject to funding availability. Applicants are therefore encouraged to plan accordingly when applying for NSHP reservations.~~

Nothing in this section precludes an applicant from using an otherwise valid reservation to request a rebate for a system that is leased or provides electricity through a PPA~~power purchase agreement~~.

CHAPTER III:

Incentive Levels and Structure

This chapter describes the incentives offered by the NSHP program. The NSHP provides an Expected Performance-Based Incentive (EPBI) using a specific dollar~~dollars~~-per-watt amount applied to the Energy Commission-specified reference solar energy system. The incentive amount for each ~~applicant~~ solar energy system is determined by analysis using the CECPV Calculator and is paid when the solar energy system has been installed and~~,~~ approved by the local building authority~~,~~ and all program requirements have been met. Detailed information on how the incentive amount is determined can be found in Section B of this chapter.

Incentives will decline over the life of the program, with the program's application process closing no later than the end of 2016. Incentive levels and reserved volume are subject to funding availability.

A. Incentive Levels and Decline Schedule

1. Incentive Levels for ~~Market~~ Market-Rate Housing, Affordable Housing Common Areas, and Affordable Housing ~~Common Area Projects~~Systems owned by Non-Tax-Exempt Entities

There are two available incentive levels for projects complying with the *2008 Standards* and three available incentive levels for projects complying with the *2013 Standards*:

- **Code-Compliant Incentive (applies only to projects complying with the *2013 Standards*):** Beginning on January 1, 2014, the EPBI amount for Incentive Level 6 is based on the reference solar energy system receiving $1.00/watt. The EPBI amount for previous incentive levels is listed in Table 3-1 on the following page. The Code-Compliant incentive applies to projects that have met all requirements of the *2013 Standards*, as specified in Chapter II, Section B.

-

- **Tier I Incentive:** Beginning on January 1~~2, 2012~~, 2014, the EPBI amount for Incentive Level 6 is based on the reference solar energy system receiving $~~2.00~~1.25/watt. The Tier I incentive applies to projects that have met all of the *Building Energy Efficiency Standards* requirements for Tier I projects,~~an energy efficiency compliance margin of at least 15 percent better than the Building Energy Efficiency Standards~~ as specified in Chapter II, Section B.

- **Tier II Incentive:** Beginning on January 1~~2, 2012~~, 2014, the EPBI amount for Incentive Level 6 is based on the reference solar energy system receiving $~~2.25~~1.50/watt for projects complying with the *2008 Standards*. For projects complying with the *2013 Standards*, the EPBI amount for Incentive Level 6 is based on the reference solar energy

system receiving $1.75/watt. The Tier II incentive applies to projects that have met all of the *Building Energy Efficiency Standards* requirements for Tier II projects,~~an energy efficiency compliance margin of at least 30 percent better than the Building Energy Efficiency Standards and a space cooling compliance margin of at least 30 percent better than the *Building Energy Efficiency Standards*~~ as specified in Chapter II, Section B.

The actual incentive amount for a particular solar energy system and installation depends on the EPBI calculation of the expected performance of the system~~'s expected performance~~ compared to the reference solar energy system. Incentive levels will decline when the cumulative MW capacity of ~~plan-check-ready~~ applications submitted under an incentive level[30] equals the MW reserved volume target- specified in Table 3-1.[23]
~~, below. An application deemed complete by the program administrator does not indicate reservation approval and should not be considered a reservation approval. The program administrator's review for completeness is used merely for determining incentive level declines.~~

~~Funds reserved for solar energy systems not installed within the allowed reservation period will be reallocated to the incentive level in effect at the time those approved reservations expire or are cancelled, and the reserved volume targets from that point forward will be adjusted to reflect the funds from the expired or cancelled reservations. Unused funds from reservations for solar energy systems that reduce their size will be added to the incentive level in effect at the time the program administrator receives notification of that change and supporting documentation.~~

Table 3-1: EPBI Incentive Levels and Related Reservation Volumes

Code-Compliant Incentive* (per watt, reference system)	**Tier I Incentive** (per watt, reference system)	**Tier II Incentive** (per watt, reference system)	**Reserved Volume Target**** (MW-AC)
$2.25	$2.50	$2.60	55.3
$2.00	$2.25	$2.35	N/A

~~30 Plan-check-ready applications are complete reservation applications where the supporting documentation has been reviewed and deemed correct by the program administrator.~~
23 For example, when the cumulative MW capacity of Code-Compliant, Tier I, Tier II, and affordable housing applications submitted and approved under the specific incentive level equals 35 MW, the Code-Compliant incentives will drop from $1.00/watt to $0.75/watt, the Tier I incentives will drop from $1.25/watt to $1.00/watt, and the Tier II incentives will drop from $1.50/watt and $1.75/watt to $1.25/watt and $1.50/watt. At that time, the incentive level for affordable housing projects will drop from $1.85/watt to $1.50/ watt, unless the incentive level had already dropped to $1.50/watt because the 3.5 MW reserved volume target for affordable housing projects had already been reached.

$1.75	$2.00	$2.25	5
$1.50	$1.75	$2.00	10
$1.25	$1.50	$1.75	15
$1.00	$1.25	$1.50/$1.75***	~~20~~35
$0.75	$1.00	$1.50~~1.25~~	~~35~~50
$0.50	$0.75	$1.25~~00~~	~~50~~60
$0.35	$0.50	$~~0.75~~1.00	~~65~~65
$0.25	$0.35~~25~~	$0.75~~50~~	~~85~~72

For the original incentive levels, please refer to the ~~previous~~ fourth edition of the *NSHP Guidebook*.
* The Code-Compliant incentive is available only for projects complying with the *2013 Standards*.
**Reserved volume includes reserved affordable housing residential unit volume, discussed later in this guidebook.
***The Incentive Level 6 rate of $1.75/watt will be available only for Tier II projects complying with the *2013 Standards*. Tier II projects complying with the *2008 Standards* will receive an Incentive Level 6 rate of $1.50/watt.

Source: California Energy Commission

2. Incentive Levels for Affordable Housing Residential Unit Projects with Tax-Exempt System Owners

Beginning on January 1~~2~~, 2014~~2~~, the EPBI amount for Incentive Level 6 affordable housing residential unit projects with tax-exempt system owners complying with the *2013 Standards* is based on the reference solar energy system receiving $1.50/watt. The Code-Compliant incentive for previous incentive levels is listed below in Table 3-2. For projects meeting the Tier I or Tier II energy efficiency requirements described in Chapter II, Section B, the EPBI amount is based on the reference solar energy system receiving $~~2.90~~1.85/watt. The following incentive levels apply to eligible affordable housing residential unit projects with tax-exempt system owners. Eligibility requirements for affordable housing can be found in Chapter IV, Section C~~A~~. The design of the incentive levels and decline structure for affordable housing projects with tax-exempt system owners is the same as the design for ~~market~~ market-rate housing, as discussed earlier.

Table 3-2: EPBI Incentive Levels for Affordable Housing Residential Unit Projects with Tax-Exempt System Owners

Code-Compliant Incentive* (per watt, reference system)	**Residential Dwelling Unit Incentive** (per watt, reference system)	**Common Area Incentive*** (per watt, reference system)	**Reserved Volume Target**** (MW-AC)

	$3.25	$3.50	$3.30	5.5
	$2.90	$3.15	$2.97	N/A
	$2.55	$2.90		0.25
	$2.20	$2.55		0.5
	$1.85	$2.20		0.75
	$1.50	$1.85		~~1.0~~3.5
	$1.15	$1.50		~~1.75~~5.0
	$0.80	$1.~~15~~25		~~2.5~~6.0
	$0.55	$~~0.80~~1.00		~~3.25~~6.5
	$0.35	$0.~~45~~75		~~4.25~~7.2
For the original incentive levels, please refer to the fourth edition of the *NSHP Guidebook.*				
* The Code-Compliant incentive is available only for projects complying with the *2013 Standards.*				

Source: California Energy Commission

Multifamily affordable housing projects using virtual net metering are eligible for the affordable housing residential dwelling unit incentive for the portion of the -solar energy system that is allocated to the tenants. For multifamily affordable housing projects using virtual net metering, the residential dwelling units must meet the energy efficiency requirements in Chapter II, Section B.

3. Change in Incentive Level

When the cumulative MW capacity of applications submitted under an incentive level ~~(deemed complete by program administrators) reaches~~ equals the MW reserved volume target for that incentive level, the incentive level will drop to the next incentive level. If the capacity for an application exceeds the remaining capacity in the current incentive level, the reservation for that application will be split between the current incentive level and the next incentive level. **The Energy Commission will not provide advance notice to ~~inform~~ program participants of a drop in the incentive levels as shown in the above tables. However, information on the current incentive level, the MW capacity approved for the current incentive level, and the MW currently under review will be available on the NSHP Application Web Tool, [www.newsolarhomes.org/WebPages/Public/RebateLevelView.aspx],~~https://www.newsolarhomes.org/WebPages/Public/RebateLevelView.aspx,~~ to help applicants make an informed decision on program incentives.** It is the applicant's responsibility to be aware of the current incentive level and the MW capacity remaining in the current incentive level. Projects may be reserved at a lower incentive level than the incentive level in effect at the time the reservation application is submitted, if there has been a drop in the incentive level.

B. Expected Performance-Based Incentive Calculation

The NSHP provides an incentive based on the expected performance (that is, expected annual electrical generation) of a solar energy system installed in a specific location. The EPBI is

determined by analysis using the CECPV Calculator. The analysis accounts for the tested and certified performance of the specific module and inverter, the mounting type and cell temperature, the orientation and tilt of the modules, and the extent to which the system is shaded. The CECPV Calculator accounts for these parameters that are under the control of the builder/installer, as well as the solar and climatic conditions for the locale of the building to determine the hourly estimated performance over a year. This is then weighted to account for the time-of-use value of the electric generation to the utility system (referred to as ~~time~~ time-dependent valuation [TDV[24]]).

The weighted TDV annual kilowatt-hour (kWh) production of an applicant system is compared to the weighted TDV annual kWh production of the~~a~~ reference system shown in Table 3-3. The CECPV Calculator converts the available $/watt AC incentive level into the equivalent incentive amount for the TDV-weighted kWh of annual production for the reference system. This equivalent incentive per TDV-weighted kWh rate is applied to the expected annual TDV performance determined by the CECPV Calculator for the applicant system to determine the incentive for the specific equipment and installation characteristics of that system.

24 The TDV and weather data used for the *Building Energy Efficiency Standards* were revised for the *2013 Standards* update. The CECPV calculator will use the revised TDV and weather data from the *2013 Standards* for all future updates of the CECPV calculator.

~~The Energy Commission uses the reference system shown in the following table:~~

Table 3-3: Reference Solar Energy System and Installation

Parameters	Reference System and Installation
Location	San Jose (latitude, longitude, Climate Zone 4, weather file, TDV values)
Azimuth	180 degrees (south orientation)
Tilt	22.6 degrees (5:12 pitch)
Mounting	Building Integrated Photovoltaics (BIPV)
Photovoltaic Modules	Matches Systems Installed at Premier Gardens, Sacramento[25]
Number of Modules	
Strings (series and parallel)	
Inverter	
Shading	None
Default Losses	0.88 for dirt, dust and mismatched wiring

Source: California Energy Commission

1. California Flexible Installation

In lieu of site-specific EPBI analysis as described above, the NSHP program permits applicants to use the California Flexible Installation criteria as an alternative approach to estimate the EPBI. The California Flexible Installation is intended for use only by new single-family residential developments (subdivisions) and is not allowable for applications consisting of only one single-family ~~dwelling~~ home or only the common area of a residential development. The California Flexible Installation criteria offer a simplified approach to estimating the incentives for those solar energy systems in a development that are designed and installed to meet the criteria. One EPBI calculation can be made for all solar energy systems in a subdivision that meet all of the following criteria: 1) have an azimuth ranging from 150 to 270 degrees, 2) have a tilt corresponding to a roof pitch between 0:12 and 7:12, 3) meet the "minimal shading criteria," 4) use the same make, model, and quantity of major system components, and 5) have fixed, nontracking mounting. The minimal shading criteria ~~implies~~ imply no existing, planned, or potential shading obstructions that are closer than a distance of twice the height that the obstruction extends above the nearest point on the array.

California Flexible Installation incentives will be calculated using the following default parameters: azimuth of 170 degrees, tilt of 5:12, two-story mounting height, fixed nontracking mounting, and minimal shading.~~-~~ User input will be used for photovoltaic module and inverter make, model and quantity, array standoff height from roof, location, and incentive type.

25 The modules and inverter performance characteristics for the reference system are those that are specific to the installation in the Premier Gardens subdivision in Sacramento and include 42 building-integrated photovoltaic (BIPV) modules connected in a single series string to a 2.5 kW inverter.

C. Project Level Funding

The estimated incentive amount for each solar energy system site identified within a reservation application package will be determined using the CECPV Calculator. The funds reserved for a project will be the sum of those estimated incentive amounts. However, the reserved funding for projects with multiple system sites will be reserved at the project level, not the individual solar energy system site level. Once the solar energy system has been installed and the payment claim package submitted, the incentive for the solar energy system will come from the overall project funding. If a solar energy system site uses more or less funding than originally estimated by the CECPV Calculator, that funding difference will be reflected in the overall project funding. Please see Appendix A, Section A, for additional information on calculating the incentive amount when there has been a change to a solar energy system.

Funds reserved for projects with solar energy systems not installed within the allowed reservation period will be reallocated to the incentive level in effect at the time those approved reservations expire or are cancelled, and the reserved volume targets from that point forward will be adjusted to reflect the funds from the expired or cancelled reservations.

~~C.~~D. NSHP Incentive Amount Cap

Incentives for affordable housing projects (residential dwelling unit and common areas) will be limited to 75 percent of the total system cost. Incentives for all other projects will be limited to 50 percent of the total system cost. For projects subject to the 7.5 kW AC system size cap referenced in Chapter II, Section I, the incentive will be equal to whichever amount is less. For projects where the incentive has been limited to the first 7.5 kW AC of the system:

- If this project is an affordable housing residential dwelling unit project and the 7.5 kW AC capped incentive is greater than 75 percent of the total system cost, then the total incentive will be 75 percent of the total system cost.

- If this project is a market-rate housing project and the 7.5 kW AC capped incentive is greater than 50 percent of the total system cost, then the total incentive will be 50 percent of the total system cost.

- If this project is an affordable housing residential dwelling unit project and the 7.5 kW AC capped incentive is less than 75 percent of the total system cost, then the total incentive will be the 7.5 kW AC capped incentive.

- If this project is a market-rate housing project and the 7.5 kW AC capped incentive is less than 50 percent of the total system cost, then the total incentive will be the 7.5 kW AC capped incentive.

"

Total system cost" consists of the cost of the equipment and materials incurred by the system owner for the solar energy system, including sales tax, labor to install the solar energy system, and costs of solar energy system permits issued by the authority having jurisdiction. All other costs, including financing fees, origination fees, processing fees, or administrative fees, incurred by any party are not considered part of the total system cost. The cost of any equipment used to store the electricity produced by the solar energy system is not considered part of the total system cost. The total amount of incentives or discounts received from a source, other than the sources identified below in Section D, may be subtracted from the total system cost before applying the incentive amount cap.

D.E. Other Incentives AffectingMay Affect the NSHP Incentive Amount

Incentives received from sources other than the NSHP that lower the cost of the solar energy system may affect the incentive amount applicants receive from the Energy Commission. If incentives are from other utility incentive programs, a State of California-sponsored incentive program, or a federal government-sponsored incentive program (other than tax credits), a minimum of 5 percent of the total incentives received or expected from other sources will be subtracted from the NSHP incentive amount. The percentage reduction will be increased as necessary to ensure the sum of all incentives received or expected from all sources, including the NSHP, does not exceed the total cost of the system.

The NSHP will not issue a reservation or make a payment for any system or portion of a system that has received payment from, or is eligible for and participating in, the California Public Utilities Commission-approved California Solar Initiative program, or any other incentive program for solar energy systems using electric utility ratepayer funds.

CHAPTER IV: Reservation Process

~~Reservation Process~~

This chapter describes the types of reservations and the documentation required to reserve funding from the NSHP.

Please read the following descriptions carefully to determine which reservation the~~your~~ project may qualify for and the necessary documentation. ~~you will need to provide.~~ Once the required information has been submitted and confirmed to meet the~~-~~ requirements of the NSHP, the reservation application will be approved, and funding will be reserved for the~~your~~ project.

A. Types of Reservations

Projects will receive an 18-month or 36-month reservation, depending on the project type.

1. 36-Month Reservation

The following projects are eligible for a 36-month reservation period:

- ~~Solar as Standard~~Large Developments: Developments/buildout phases[26] of six~~6~~ or more residential ~~dwelling~~ units where the builder/developer has committed to installing solar energy systems on 50 percent or more of the dwelling units and that meet ~~at minimum,~~ the California Flexible Installation criteria~~,~~ are eligible for a ~~Solar as Standard~~Large Development reservation. This includes single-family and multifamily projects. Please see Chapter IV, Section D, for additional information.

- ~~Solar as an Option: The builder/developer offers solar energy systems as an option to residential home buyers. Please see Chapter IV, Section E, for additional information.~~

- Affordable Housing Projects:~~–~~This includes affordable housing residential dwelling unit projects and affordable housing common area projects. Please see Chapter IV, Section C, for additional information.

- Virtual Net Metered Projects: This includes affordable housing and nonaffordable housing projects. Please see Chapter IV, Section C, for additional information.

26 A buildout phase is part or all of a development that an applicant plans to build within the reservation period.

2. 18-Month Reservation

The following projects are eligible for an 18-month reservation period:

- Custom homes
- Small developments (fewer than six~~/phases (under 6~~ residential dwelling units)
- Projects where solar will be installed on less than 50 percent of the residential dwelling units
- Common areas of market-rate residential developments

Table 4-1~~, shown below,~~ lists the project types and ~~their~~ required documentation for the reservation application package.

Table 4-1: Project Types and Required Reservation Application Documentation

	Project Type								
on	Solar as Standard	Solar as an Option	Affordable Housing Residential Dwelling Unit	Affordable Housing Common Area	Custom Home	Large Developments	Small Developments /Phases	Projects w/ Solar on Less Than 50% of Residential Units	Market Rate Common Areas
m:	X	X	X	X	X	X	X	X	X
	X	X				X	X	X	
			X	X	X				X
	X	X	X	X	X	X	X	X	X
nf,	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X	X
ms	X	X	X	X	X	X	X	X	X
ergy l									
nent	X	X	X	X	X		X	X	X
**									
	X	X	X	X	X	X	X	X	X
			X	X					
	X	X							

nal subdivision map or building permit as proof of residential new construction.

~~***In the case of lease or PPA projects, a lease agreement/PPA is not required until payment claim, however a lease agreement or PPA with equipment listed may replace the equipment purchase agreement. For projects where the builder/developer is the interim lessee or interim signatory of a PPA, the completed transfer document, as well as the referenced lease agreement or PPA, must be submitted to the program administrator as part of the payment claim package prior to the expiration of the reservation.~~

~~Source: California Energy Commission~~

B. Forms and Documentation

1. Reservation Application Form

The Reservation Application Form (NSHP-1) provides general information about the proposed project~~,~~ and the electric utility service area in which the project will be located, and must be signed by the homeowner or builder/developer. The form also identifies what information must be submitted with the application and requires applicants to provide the contact information of the HERS Rater. The NSHP-1 provides the homeowner or builder/developer an opportunity to assign his/her administrative rights.

2. Proof of Newly Constructed Residential Building

Applicants must submit either a copy of the tentative or final subdivision map or building permits for newly constructed buildings. ~~If a final subdivision map is submitted, each site included in the reservation must be indicated as preplotted locations on the map.~~ Grading permits and expired permits are not acceptable and may not be submitted to support an application. Total rehabilitations of residential dwelling units must provide adequate proof that the entire unit(s) are to be renovated and will meet or exceed the energy efficiency requirements for the entire structure. Please refer to Chapter II, Section B, for information on the energy efficiency requirements and additional building permit requirements when there is a new ~~edition~~update of Title 24, Part 6.

3. Expected Performance-Based Incentive (EPBI) Documentation

The Expected Performance-Based Incentive (EPBI) documentation specifies the expected performance of the solar energy system(s) to be installed and the eligible funding amount to the applicant. To complete this documentation, the applicant must use the CECPV Calculator for each unique solar energy system.[27] The CECPV Calculator will produce the NSHP PV-1[28] ~~CF-1R-PV~~ compliance form. A development may use the California Flexible Installation criteria to calculate the incentives for all systems that meet the criteria.[29] In cases where there is more than one solar energy system design that results in different levels of expected performance, a ~~CF-1R-PV~~NSHP PV-1 for each system design that results in a unique expected performance calculation must be submitted.

---

27 For the purpose of providing information to the CECPV Calculator, a photovoltaic solar energy system is defined as one or more modules connected to one inverter.

28 The NSHP PV-1 Compliance Form was formerly called the CF-1R-PV.

29 The California Flexible Installation criteria offer a simplified approach to estimating the incentives for those solar energy systems in a single-family housing development (subdivision) that are designed and installed to meet the criteria, as outlined in Chapter III, Section B.

Table 4-1: Project Types and Required Reservation Application Documentation

Reservation Application Documents	Project Type						
	Affordable Housing Residential Dwelling Unit	Affordable Housing Common Area	Custom Home	Large Developments	Small Developments	Projects w/ Solar on Fewer Than 50% of Residential Units	Market-Rate Common Areas
Reservation Application Form: NSHP-1	X	X	X	X	X	X	X
Subdivision Map*, ***				X	X	X	
Building Permit**	X	X	X				X
EPBI Documentation							
NSHP PV-1 Compliance Form	X	X	X	X	X	X	X
Electronic Input Files (.emf, .her)	X	X	X	X	X	X	X
Energy Efficiency Documentation							
CF-1R Form	X	X	X	X	X	X	X
Electronic Input Files (.bld/.mp7, .mp8, .ribd)**	X	X	X	X	X	X	X
Plan Set and Checklist Items**	X	X	X	X	X	X	X
Utility New Construction Energy Efficiency Program Approval Letter***							
Lease Agreement/Power Purchase Agreement (PPA)							
Installation Contract****	X	X	X	X	X	X	X
Regulatory Agreement	X	X					

*Applicants may provide either a tentative or final subdivision map or building permit as proof of residential new construction.

**For projects complying with the *2013 Standards* and applying for the Code-Compliant incentive, the electronic in put file, plan set, and checklist items are not required to be submitted.

***If the project is participating in the utility new construction energy efficiency program, then the applicant may submit the program approval letter in place of the building permit/subdivision map and energy efficiency documentation.

****For systems that are self-installed, an equipment purchase agreement must be submitted in place of an installation contract.

Source: California Energy Commission

Applicants must submit each ~~CF-1R-PV~~NSHP PV-1 form and the associated .emf digital input file and .her digital output file for review by the program administrator. The ~~program administrator will upload the~~ .her digital output file shall be uploaded into the HERS Provider data registry of an Energy Commission-approved NSHP HERS Provider[30]. Applicants must identify the HERS Rater and HERS Provider during the application process.

4. Energy Efficiency Documentation

To participate in the NSHP, ~~the~~ buildings associated with the solar energy system(s) must ~~also~~ be highly energy-efficient. Compliance documentation (CF-1R or PERF-1) run using the 2013 compliance software is required for the Code-Compliant incentive level. The compliance documentation submitted to the NSHP should be the same compliance documentation that was or will be submitted to the building department to obtain a building permit. Documentation showing efficiency levels that exceed~~at least 15 percent greater energy efficiency than~~ the *Building Energy Efficiency Standards* in effect at the time the building permit was applied for, by at least 15%, is required for the Tier I and Tier II incentives. ~~Either of the two tier levels described in Chapter II, Section B, can be used to meet this requirement.~~ All projects must provide documentation that appliances provided by the builder are ENERGY STAR®-labeled if ENERGY STAR ~~is applicable~~applies to that appliance. Solar water heating may be used to assist in meeting the energy efficiency requirements for any of the three incentive levels (Code-Compliant, Tier I, and Tier II).~~either Tier I or Tier II.~~

~~Energy efficiency documentation must be completed by a CEPE or CEA.~~ Applicants must submit a~~the~~ CF-1R (or PERF-1 when applicable) and the associated digital input files. For Tier I and Tier II projects, applicants must also submit a~~. A~~ copy of the construction plan set ~~must also be submitted by the applicant~~. For additional details about energy efficiency documentation submittal, please see Chapter II, Section B, and Appendix C.

Applicants are strongly encouraged to participate in their utility's new construction energy efficiency program to obtain the financial incentives that may be available for meeting either Tier I or Tier II energy efficiency requirements and to streamline the NSHP energy efficiency verification. Please see Chapter II, Section C, for additional information.

For affordable housing projects, projects~~*For Affordable Housing Projects*~~

~~**Projects**~~ requesting funding from the California Tax Credit Allocation Committee (TCAC) are given up to 60 days after the approval from TCAC to provide finalized energy efficiency documentation as described in Chapter II, Section B.

30 HERS Providers that provide services for NSHP applicants must be approved by the Energy Commission to be HERS Providers for the *Building Energy Efficiency Standards*.

5. ~~Equipment Purchase Agreement and~~ Installation Contract

The ~~equipment purchase agreement and~~ installation contract indicates the applicant's commitment to ~~the purchase and installation~~ installing ~~of~~ solar energy systems. The applicant must submit ~~one master equipment purchase and~~an installation agreement for all the residential dwelling units in the reservation. ~~or one agreement for the system equipment and a second agreement for the installation. In cases where the installation is performed by the builder's employees, installation labor cost must be listed separately.~~

~~The master purchase agreement(s) for the equipment and installation labor must contain language indicating the applicant's commitment to purchase eligible solar energy systems for all of the residential dwelling units in the reservation and include the following information:~~

- ~~List of the physical addresses for the system installations.~~

~~Quantity, make, and model of the photovoltaic modules, inverters, and meters to be installed at each address.~~

- ~~Total system cost of the eligible equipment and/or labor.~~

~~The master purchase agreement(s) must be signed by the applicant or the applicant's representative, the seller of the systems, and the installer. (An installer's signature on the equipment purchase agreement is not required if the applicant is hiring a separate company for the installation of the equipment.) The seller and installer of the system(s) must be self-registered with the Energy Commission as specified in Chapter II, Section N.~~

~~In cases where there is no signed purchase agreement, the applicant may provide invoices or receipts showing that at least 10 percent of the system equipment purchase price (photovoltaic modules, inverters, and performance meter[s]) or $1,000 per residential unit has been paid to the seller(s).~~

~~In situations where the applicant is purchasing the system from one company and hiring a separate company for installation, the applicant must provide proof of his or her commitment to purchase and install the system in separate documents.~~

An installation contract must specify~~state~~ the price charged for the installation of equipment and the estimated NSHP incentive amount for all ~~of~~ the residential dwelling units in the reservation. Installation contracts must comply with the ~~California Contractors State License Board (~~CSLB~~)~~ requirements. In general, proper contracts will contain the following information:

- Name, address, and contractor's license number of the company performing the system installation.

- Site address for the system installation.

- Description of the work to be performed.
- Quantity, make, and model of the photovoltaic modules, inverters, and meters to be installed at each address.
- Total agreed price to install the system.
- Payment terms (payment dates and dollar amounts).
- Printed names and signatures of the ~~builder~~ applicant or the applicant's representative and the installation company's authorized representative.

For more information on CSLB guidelines, please refer to its website at~~:~~ [www.cslb.ca.gov/]

A master equipment purchase and installation agreement for all the residential dwelling units in the reservation may be submitted.

For systems that are self-installed, instead of providing an installation contract, applicants must provide an equipment purchase agreement. In cases where there is no signed purchase agreement, the applicant may provide invoices or receipts showing that at least 10 percent of the system equipment purchase price (photovoltaic modules, inverters, and performance meter[s]) or $1,000 per residential unit has been paid to the seller(s).

~~For systems that are leased or provide electricity under a PPA, instead of providing both an equipment purchase agreement and installation contract, applicants must provide the lease agreement or PPA, and an installation contract that lists the proposed equipment to be installed.~~

C. Affordable Housing Projects

The NSHP offers higher incentives for qualifying systems owned by tax-exempt entities and installed on affordable housing residential ~~dwelling~~ unit projects. Affordable housing projects with qualifying systems owned by non-tax-exempt entities are eligible for the lower, market-rate housing incentive level. The program administrator will verify the system owner's tax status using the State of California Franchise Tax Board's "Exempt Organization List" located at [www.ftb.ca.gov/businesses/Exempt_organizations/Entity_list.shtml].

Affordable housing projects of all sizes are eligible for a 36-month reservation period.

Eligible projects include multifamily and single-family developments where at least 20 percent of the project units are reserved for extremely low, very low, lower, or moderate income households for a period of at least 10 years. Qualifying systems must be connected to and serving the energy needs of 1) residential dwelling units subject to affordability requirements, 2)

the office and residential ~~dwelling~~ unit of the manager, provided all other residential units in the project are subject to affordability requirements, or 3) the common areas of the project, where all of the ~~project's dwelling~~ residential units of the project are reserved for extremely low, very low, lower, or moderate income households, except for the manager's unit. Examples of common areas include~~,~~ but are not limited to~~:~~ hallways, recreation rooms, manager's unit, and tenant parking.

~~Below are~~ Additional requirements~~Requirements~~ for affordable housing projects are described below.~~Affordable Housing Projects:~~

1. Regulatory Agreement

The affordable housing project must be undertaken pursuant to Section 50052.5, 50053, or 50199.4 of the Health and Safety Code, or other affordable housing laws or regulations adopted by the California Department of Housing and Community Development. An applicant~~Applicants~~ must demonstrate this by providing documentation that identifies the statutory basis under which the project was undertaken. In addition, the applicant must provide a copy of the regulatory agreement or approval for the project's development that identifies 1) the project, 2) the number of residential units in the project subject to the affordability requirements, and 3) the applicable affordability requirements for these residential units. The regulatory agreement or approval must expressly limit residency in the affordable residential units to persons with extremely low, very low, lower, or moderate income ~~persons~~ as defined by the Health and Safety Code Sections 50079.5, 50105, 50106, and 50093 et seq. or regulations adopted by the California Department of Housing and Community Development. The regulatory agreement shall reserve at least 20 percent of the project units for extremely low, very low, lower, or moderate income households for a period of at least 10 years.

2. Individual Meter Requirement

Each residential dwelling unit for which a solar energy system is being installed must have an ~~individual~~ electricity consumption meter capable of monitoring and reporting the utility electricity consumption of that unit. The solar energy system for each residential dwelling unit shall be separately net-metered through that ~~individual~~ electricity consumption meter. ~~If the meter is an electric utility meter, applicants must provide documentation from the electric utility confirming service and meter number at payment claim time. If the meter is supplied by an entity other than the utility, documentation must be provided explaining how the meter monitors and reports individual unit consumption.~~ Meters supplied by an entity other than a utility must be utility-grade and have the same reporting accuracy levels of utility-supplied meters.

EXCEPTION: Projects that qualify for virtual net metering (VNM), as adopted by the California Public Utilities Commission (CPUC) in Decision 08-10-036 and modified in Decision 11-07-031,

are not required to separately net-meter each residential dwelling unit that will be allocated electricity from the solar system.

3. Maintenance and Monitoring Plan

Affordable housing applicants shall develop a maintenance and monitoring plan for NSHP-funded systems and shall retain a copy of such plan for inspection by the Energy Commission or the program administrator. This plan shall be provided to the system owner and the building or property manager and shall identify specific maintenance, monitoring, and inspections the building or property manager will need to undertake, or have contracted for, to ensure that the system produces maximum output over the expected life of the system's expected life. The plan should include activities such as: 1a) cleaning schedule for the removal of any dirt and dust build-up on the solar energy system; 2b) periodic checking of all electrical connections for corrosion and looseness; 3c) checking the inverter for instantaneous power and long-term energy output and diagnosing and taking corrective action needed if production is significantly lower than expected; and 4d) checking for any tree/plant growth or other obstructions that are causing shading on the array and take action to eliminate that shading. The Energy Commission or its program administrators reserve the right to request applicants to provide a copy of the maintenance and monitoring plan at anytime during the course of the NSHP.

D. Solar as Standard ProjectsLarge Developments

For projects where the builder/developer has committed to installing solar on 50 percent or more of the dwelling units and that meet, at minimum, the California Flexible Installation criteria, a reservation application may be submitted for a build-out phase of six6 or more residential dwelling units. In addition to the reservation forms listed in Chapter IV, Section B, the NSHP requires the following document for reservation approval:

1. Build-out schedule for the project, including a projected timeline for completing the construction of dwelling units that will have solar energy systems.

1. Reservation Funding Decrease Schedule

1.

The applicant shall provide the program administrator an update on the project's construction and system installation progress 18 months after the reservation has been approved. The update shall include an evaluation of the probability of how many of the remaining residential dwelling units will have solar energy systems installed, stating the projected timeline. The program administrator will evaluate the progress on of the project beginning 12 months after the project is approved for an NSHP reservation, and at subsequent 6-month intervals. to determine if the reserved funding is deemed greater than the projected payout in the remaining months of the reservation. This evaluation will consider the number of payment claims that have been submitted and the number of residential dwelling units indicated to have solar in the reservation application. buildout schedule the applicant included with its reservation application. If the program administrator, in consultation with the Energy Commission staff,

concludes that the project is not progressing as expected, the project's funding reservation may be reduced or completely disencumbered, according to the following schedule:.

- Twelve months after the project reservation is approved, if the sum of the incentive amounts for sites with submitted incentive payment claim forms (NSHP-2) and PV Field Verification and Diagnostic Testing Forms (NSHP PV-3) totals less than 15 percent of the original project funding amount, the remaining project funding may be reduced up to a level equal to 85 percent of the original project funding amount.

- Eighteen months after the project reservation is approved, if the sum of the incentive amounts for sites with submitted incentive payment claim forms (NSHP-2) and PV Field Verification and Diagnostic Testing Forms (NSHP PV-3) totals less than 35 percent of the original project funding amount, the remaining project funding may be reduced up to a level equal to 65 percent of the original project funding amount.

- Twenty-four months after the project reservation is approved, if the sum of the incentive amounts for sites with submitted incentive payment claim forms (NSHP-2) and PV Field Verification and Diagnostic Testing Forms (NSHP PV-3) totals less than 55 percent of the original project funding amount, the remaining project funding may be reduced up to a level equal to 45 percent of the original project funding amount.

- Thirty months after the project reservation is approved, if the sum of the incentive amounts for sites with submitted incentive payment claim forms (NSHP-2) and PV Field Verification and Diagnostic Testing Forms (NSHP PV-3) totals less than 75 percent of the original project funding amount, the remaining project funding may be reduced up to a level equal to 25 percent of the original project funding amount.

A. Projects Where Solar Is Offered as an Option to Homebuyers

For projects where the builder/developer offers solar energy systems as an option to residential homebuyers, the NSHP will reserve funding for up to 50 percent of the residential dwelling units in the project. Funding will be reserved assuming a 3 kW AC system size at the , Tier I or Tier II incentive available at the time of reservation[31]. In addition to the reservation forms listed in Chapter IV, Section B, the NSHP requires the following document for reservation approval: Build-out schedule for the project, including a projected timeline for completing the construction of dwelling units that will have solar energy systems.

31The Tier I incentive level will be used to calculate funding if the applicant's energy efficiency documents identify the project meets the Tier I energy efficiency requirements. The Tier II incentive level will be used to calculate funding if the applicant's energy efficiency documents identify the project meets the Tier II energy efficiency requirements.

~~Upon reservation approval, the NSHP-2 form will be available for up to 50 percent of the residential dwelling units identified in the application. The applicant will then fill out the NSHP-2 with a specific address, sign, and submit the NSHP-2 and supporting documentation for payment claim.~~

~~The applicant shall provide the program administrator an update on the project's construction and system installation progress 18 months after the reservation has been approved. The update shall include an evaluation of the probability of how many of the remaining residential dwelling units will have solar energy systems installed, stating the projected timeline. The program administrator will evaluate the progress on the project to determine if the reserved funding is deemed greater than the projected payout in the remaining months of the reservation. This evaluation will consider the buildout schedule the applicant included with its reservation application. If the program administrator, in consultation with Energy Commission staff, concludes that the project is not progressing as expected, the project's funding reservation may be reduced or completely disencumbered.~~

E. Additional Information for All Reservation Applications

Funding is available on a first-come, first-served basis~~,~~ until available program funds are exhausted and subject to any waiting list criteria established by the Energy Commission for applicants who submit complete and accurate applications. Complete applications will be reviewed in the order in which they are submitted to the program administrator. To ensure timely receipt of an application, it is recommended that applications be submitted electronically via the NSHP Application Web Tool, [~~https://~~www.newsolarhomes.org~~/RebateLevels.aspx~~]. Applications submitted via the NSHP Application Web Tool will be given priority over mailed-in applications received on the same date. Only one reservation and one incentive payment will be allowed for each residential dwelling unit during the reservation period.[31] Applicants will not be allowed to submit multiple reservation applications for the same residential dwelling unit.

Only applicants or designated payees who submit complete and accurate reservation applications and provide all supporting documentation will receive reservation approval. ~~In~~ For complete reservation applications found to have ~~with~~ only minor ~~omissions~~ errors or discrepancies during the reservation review ~~that do not affect eligibility or the requested amount to be reserved~~, the Energy Commission or ~~its agents~~the program administrators ~~*may*~~

31 An applicant may ~~only~~ cancel his or her reservation and reapply for a new reservation within the original reservation period only if the incentive has dropped at least one level from the incentive level in the original reservation. A letter explaining the request must be submitted with a new Reservation Application Form signed by the applicant. This is designed to discourage applicants from applying too early in the construction process for a system to be installed within the reservation period.

will request clarification of information. If the additional information is not supplied within ~~the stated timeframe~~10 business days, the applicant may be ~~notified~~ required to reapply.

No funding will be reserved if an application is incomplete or illegible, has conflicting information, or does not otherwise comply with the program requirements. Incomplete applications will not be approved and will require reapplication. If an applicant reapplies, the complete reservation application and all supporting documentation must be submitted as one package and will be subject to the program requirements and funding availability in effect at the time of reapplication.

While information sent in after the initial application may be matched to the application, it is not guaranteed.

Information provided in the application and supporting documentation must be consistent throughout. Applicants should ensure all names, addresses, and equipment are the same throughout all documentation or provide an explanation if they are different. Failure to do so may result in delays or application rejection.

A~~An~~ complete application will be approved for a reservation based on the date ~~it is deemed complete, not the date~~ it was ~~first~~ submitted. The ~~incentive level and other~~ program criteria applicable on the date the application ~~is deemed complete~~was submitted will apply. However, because a drop in the incentive level may occur without advance notice, projects may be reserved at a lower incentive level than the incentive level initially in effect on the date the reservation application is submitted. **Applicants are strongly encouraged to keep copies of all applications and supporting documentation submitted to the Energy Commission or ~~its agents~~the program administrators.**

Because program funding will decrease over the term of the program and ultimately be exhausted, the Energy Commission recommends that applicants not start construction on residential buildings and system installations until they receive a reservation confirming the availability and amount of funding approved for their application. The Energy Commission intends to provide regular updates on program funding through the Go Solar California website at ~~NSHP Application Web Tool,~~ [www.gosolarcalifornia.org/about/nshp.php~~https://www.newsolarhomes.org~~]. Applicants are encouraged to check the Go Solar California website ~~NSHP Application Web Tool~~ to determine available funding before applying for reservations.

Once program funding is exhausted, the Energy Commission may suspend the NSHP and/or establish a waiting list for complete applications that are not funded. Applications on a waiting list may be funded if additional program funding becomes available. The Energy Commission may establish additional conditions for applications on the waiting list, including, but not

limited to, conditions that limit the total dollar amount of applications on the waiting list and the duration of time applications may remain on the waiting list.[32]

F. Where to Send Reservations

Applicants are strongly encouraged to send applications electronically through the NSHP Application Web Tool [www.newsolarhomes.org]. Please visit the Go Solar California website for tutorials on how to use and navigate the NSHP Application Web Tool before submitting applications electronically.

Alternatively, ~~The~~ the complete reservation application must be delivered to the appropriate program administrator. For mailing address, fax and contact information, please visit [~~http://~~www.gosolarcalifornia.ca.gov/contacts/consumers.php].

~~Alternatively, applicants are strongly encouraged to electronically send applications through the NSHP Application Web Tool [https://www.newsolarhomes.org]. Please visit the Go Solar California website for tutorials on how to use and navigate through the NSHP Application Web Tool before submitting applications electronically.~~

32 On November 16, 2011, the Energy Commission established waiting list criteria for the NSHP. These criteria are described in a November 4, 2011, notice, which is available at [www.energy.ca.gov/renewables/06-NSHP-1/notices/2011-11-04_NSHP_Waiting_List_Notice.pdf].

CHAPTER V: Payment Process

~~Payment Process~~

This chapter identifies the information and steps necessary to receive the incentive payment. To be eligible, all applications must first have followed the instructions outlined in Chapter IV in securing a reservation. In addition, the solar energy system must be completely installed, grid-connected~~,~~ and operating satisfactorily, and the building must be in compliance with the energy efficiency specifications proposed in the applicant's reservation. The applicant must complete the Payment Claim Form (NSHP-2), which the applicant should have received when the reservation was approved, and ~~provide all supporting documentation listed below in Section A. Forms and Documentation~~submit it to the appropriate program administrator on or before the reservation expiration date.~~ However, if the applicant submits a complete interconnection package to its utility interconnection department on or before the reservation expiration date, the~~ If the complete NSHP-2 is submitted to the program administrator on or before the reservation expiration, the applicant is provided an additional 90 calendar days after the reservation expiration date to complete ~~the Expected Performance Based Incentive (EPBI) Documentation, Energy Efficiency Documentation, and System Interconnection with Utility Grid,~~ and submit ~~all necessary information~~the remaining required supporting documentation that make up the payment claim package to the program administrator.~~ Please see Chapter V, Section A. 6. System Interconnection With Utility Grid for additional information.~~

If the reservation expires on or before the completed ~~payment claim~~ NSHP-2~~and required supporting documentation have~~ has been submitted to the program administrator, or the ~~EPBI Documentation, Energy Efficiency Documentation, and System Interconnection with Utility Grid~~required supporting documentation are not completed and submitted to the program administrator within the ~~90~~ 90-calendar-day period provided as described above, the applicant will be required to reapply under the program eligibility requirements and incentive levels in effect at the time of the reapplication. **No time extensions or exceptions will be granted under any circumstances. Applicants are strongly encouraged to complete their project three to six months prior to the reservation expiration date to provide time for unexpected delays.**

A. Forms and Documentation

1. Payment Claim Form (NSHP-2)

Upon reservation approval, the~~The~~ applicant will receive a Payment Claim Form (NSHP-2) for each residential dwelling unit~~ upon reservation approval~~. When the system has been installed, the applicant may submit the completed NSHP-2 to request payment. The completed NSHP-2 must identify any changes (for example, changed equipment, installer, or equipment seller) that have been made to the information submitted since the reservation was approved. Additional

pages may be attached if needed. Please see Appendix A for information on how reservation changes may affect application eligibility or the incentive amount.

The NSHP-2 requests applicants to submit information on solar energy equipment and installation costs. If the HERS rating cost can be ~~broken down~~identified by unit, the HERS rating cost shall also be reported.

Assignment and reassignment of incentive payment. The designated payee may use the NSHP-2 to assign his or her right to receive the incentive payment to another party. If a designated payee assigns his or her rights to receive the incentive payment to one party and then cancels that assignment, the designated payee may subsequently reassign his or her right to receive payment to another party. Designated payees that assign their incentive payment to another party will still be reported as the recipients of the incentive payments for tax purposes.

The NSHP-2 with original signatures (copies are not accepted) must be submitted to the program administrator by mail. The Energy Commission encourages applicants to sign with blue or other ink that is clearly distinguishable as original. Stamped signatures will not be accepted.

2.

Final Building Permit

Applicants requesting the Code-Compliant incentive must submit a copy of the final building permit signoff or occupancy permit. The address on the final building permit or occupancy permit must match the address on the Payment Claim Form (NSHP-2). Please see Chapter II, Section B, for information on the Code-Compliant incentive.

3. Documentation Confirming the Total System Cost

Prior to issuing payment, program administrators will verify that the amount of the NSHP incentive does not exceed the funding cap based on total system cost as described in Chapter III, Section C. Upon request of the program administrator, the applicant must provide final system cost documentation, clearly identifying the final amount paid or legally incurred by the applicant for the purchase and installation of the solar energy system.

4. Expected Performance-Based Incentive (EPBI) Documentation

A HERS Rater must complete a PV ~~Certificate of~~ Field Verification and Diagnostic Testing Form[33] (~~CF-4R-PV~~NSHP PV-3) for each solar energy system consistent with the procedures

33 The NSHP PV-3 was formerly called the "CF-4R-PV Certificate of Field Verification and Diagnostic Testing."

found in Appendix B.[34] HERS Raters must be certified and work under the oversight of an Energy Commission-approved NSHP HERS Provider. Web links to these HERS Providers can be found on the Energy Commission Website: [www.energy.ca.gov/HERS]. The ~~CF-4R-PV~~NSHP PV-3 must be generated through the HERS Provider data registry. The applicant must provide ~~the HERS Rater with~~ the solar energy system information specified in Appendix B, Section C2, to the HERS Rater for each solar energy system being tested. In cases where the ~~CF-4R-PV~~NSHP PV-3 shows that the installed solar energy system is not consistent with the ~~CF-1R-PV~~NSHP PV-1 that has been previously submitted to the Energy Commission or the program administrator, a revised ~~CF-1R-PV~~NSHP-PV-1 that reflects the actual installation shall be prepared and submitted. When such an inconsistency is found when the sampling approach is used, a revised ~~CF-1R-PV~~NSHP PV-1 shall be prepared for all systems in the group that was sampled, consistent with the ~~Energy Commission's~~ resampling and corrective action procedures described in Appendix B, Section A. Applicants may be required to submit PV Installation Forms ~~Certificates (CF-6R-PV~~(NSHP PV-2~~s~~) to the Energy Commission or the program administrator upon request.

5.

Energy Efficiency Documentation

For Tier I and Tier II projects, NSHP program administrators will confirm, in the HERS Provider data registry, that the following documents have been completed:

- Certificate of Field Verification and Diagnostic Testing (CF-3R~~4~~) as applicable
- ~~Field Inspection Energy Checklist (CF-4R-EE NSHP)~~ Additional Energy Features Checklist (NSHP EE-3)

A complete description of the energy efficiency documentation requirements can be found in Chapter II, Section B. For projects using a PERF-1 to show compliance with the NSHP energy efficiency requirements, the applicant must submit all required acceptance test documents to the program administrator.

Applicants are strongly encouraged to participate in their ~~utilities~~ utility's new construction energy efficiency program to obtain the financial incentives that may be available for meeting either Tier I or Tier II energy efficiency requirements and to streamline the NSHP energy efficiency verification process. Please see Chapter II, Section C, for additional information.

Code-Compliant projects must submit the final building permit signoff or occupancy permit in lieu of the CF-3R or NSHP EE-3. Please see Chapter V, Section A2, for additional information.

---

34 The field verification procedures found in Appendix B are applicable only for solar energy systems using flat-plate photovoltaic modules.

6. Ten-Year Warranty (NSHP-3)

A Ten-Year Warranty Form (NSHP-3) must be completed and signed by the appropriate party(ies).

For owner-builder installed systems, please submit copies of the manufacturers' 10-year warranties for the inverter(s) and solar electric generating equipment. Please see Chapter II, Section M, for additional information on warranties.

7. System Interconnection With Utility Grid

The solar energy system must be interconnected prior to, or within, the 90-calendar-day period after the reservation expiration date. Program administrators will verify that the system has been approved for interconnection by the utility within 90 calendar days of the reservation expiration date. This verification will occur prior to approval of a payment claim. ~~A complete interconnection package must be submitted to the utility interconnection department on or before the reservation expiration date. Approval by the utility to interconnect must occur no later than 90 days after the reservation expiration date. The program administrator will verify that a complete interconnection package was submitted to the utility interconnection department prior to the reservation expiration date. If so, the program administrator will verify the system has been interconnected within 90 days of the reservation expiration date prior to issuing payment.~~ Each utility may have different requirements for a complete interconnection package. Applicants are strongly encouraged to contact their utility interconnection department for the specific requirements. Upon request of the program administrator, the applicant must provide proof from the electric utility that the solar energy system is interconnected to the utility distribution grid and that the utility has approved the interconnection of the system~~'s interconnection~~. ~~Approval by the utility to interconnect reflects that the appropriate building inspectors have approved the installation of the solar system.~~

If the system is virtual net-metered, the program administrator will verify that the system generation allocation percentages provided in the NSHP Reservation Application Form (NSHP-1) match the system generation allocation percentages provided to the utility interconnection department. If the system generation allocation percentages do not match, the system generation allocation percentages provided to the utility interconnection department will be used to recalculate the correct incentive payment amount.

8. Payee Data Record (STD-204)

The Payee Data Record must be completed by the party identified as the designated payee in the NSHP-1 Reservation Application Form. If the designated payee has already submitted a complete STD-204 form with a prior application and has already received an incentive payment

within the past year from the program administrator or the Energy Commission, a new STD-204 is not needed.- In these cases the program administrators and Energy Commission will use data from the previously submitted STD-204 form.- If the data provided in a previously submitted STD-204 has have changed, the designated payee must submit a new STD-204. The STD-204 is available at [www.gosolarcalifornia.ca.gov/documents/STD-204.pdf].

When the payee is a corporation or limited liability entity, the payee must also submit proof of good standing with the California Secretary of State.

9. IRS W-9 Form/Form 590/Form 587

Payees for projects located in the SDG&E territory- must provide a copy of the following forms if requested by the program administrators:

- Request for Taxpayer Identification Number and Certification (IRS W-9 form)
- Withholding Exemption Certificate (Form 590)
- Nonadmitted Insurance Tax Return (Form 570).

10.
11.

12.10. Lease Agreement or Power Purchase Agreement

For systems using third-party ownership structures, the lease agreement or power purchase agreement, and transfer document, where applicable, shall be submitted to the program administrator. See Chapter II, Section O, for requirements.

B. Partial Payment Option

Applicants with a Tier I or Tier II NSHP reservation who are approved for a utility new construction energy efficiency program may claim a partial incentive payment prior to meeting all of their NSHP energy efficiency requirements. This includes projects with approved reservations that are subject to previous editions of the *NSHP Guidebook.*

To receive a partial payment for a site, the NSHP PV-3 form must be completed by a HERS Rater and the results uploaded to the HERS Provider registry. Once the NSHP PV-3 is uploaded to the registry, the applicant must submit a complete payment claim package, with the exception of the CF-3R(s) and NSHP EE-3 forms, to the program administrator. The program administrator will verify that the payment claim package is complete, minus the CF-3R and NSHP EE-3 forms, prior to issuing the partial incentive payment. A payment claim package consists of the forms and documentation identified in Chapter V, Section A. The partial incentive payment will be determined using the following formula:

Partial Incentive = Code-Compliant Incentive Rate ($/watt) x CEC AC System Size (watts)

The Code-Compliant Incentive Rate used in the formula above will come from the incentive level under which the project originally received a NSHP reservation.

Applicants may claim the balance of their incentive for a site once they have notified the Program Administrator in writing that all required energy efficiency documents (CF-3R[s] and NSHP EE-3) have been completed by a HERS Rater and the results have been entered into a HERS Provider registry.

The deadline for an applicant to complete the NSHP energy efficiency requirements and submit the CF-3R and NSHP EE-3 for the balance of the incentive is 90 calendar days after the reservation expiration date. If an applicant fails to submit the complete, required documentation prior to the 90-calendar-day deadline, the balance of the incentive will be lost and returned to the program fund at the incentive level in effect at that time.

Projects are expected to complete the energy efficiency requirements committed to by the applicant. The Energy Commission will monitor the completion rates of projects participating in the partial payment option. If there are repetitive, systematic, or high rates of noncompletion for projects using the partial payment option, the Energy Commission will take corrective action. This corrective action may include, but is not limited to, disallowing current and future participation in the partial payment option.

Questions concerning HERS documentation delays should be directed to the HERS Provider. For additional assistance, the applicant can contact the Energy Standards Hotline at title24@energy.ca.gov or 1-800-772-3300.

~~B.~~ Additional Information on Payment Claims

~~**C. Applicants must ensure that all program requirements as stated in Chapter II have been met prior to the submission of a payment claim package.**~~

~~D.~~C.

Applicants must submit the complete NSHP-2 ~~Formpayment claim package~~ to the appropriate program administrator on or before the reservation expiration date specified on the ~~Payment Claim Form~~NSHP-2. ~~(~~If the applicant submits a complete NSHP-2~~interconnection package~~ to ~~its utility interconnection department~~the program administrator on or before the reservation expiration date, the applicant is provided an additional 90 calendar days after the reservation expiration date to complete and submit the remaining required supporting documentation that make up the payment claim package to the program administrator.

Applicants must ensure that all program requirements as stated in Chapter II have been met prior to the submission of a complete payment claim package. A payment claim package consists of the forms and documentation identified in Chapter V, Section A.

~~Expected Performance Based Incentive (EPBI) Documentation, Energy Efficiency Documentation, and System Interconnection with Utility Grid may be completed at a later date under the conditions specified in the beginning of this chapter.)~~ A payment claim package is for one residential dwelling unit.~~-~~ Multiple payment claim packages for multiple residential dwelling units may be submitted at the same time. Applicants who reserve more than one residential dwelling unit in the program are not required to have completely installed all systems in their reservations before submitting a payment claim package. **Applicants are strongly encouraged to keep copies of all documents included in the payment claim package submitted to the program administrator.**

If, during the program administrator review, the complete payment claim package is ~~incomplete~~found to contain minor errors or discrepancies, the program administrator will request clarification from the applicant. ~~to provide all missing or unclear information.~~ The applicant will be responsible for obtaining ~~missing or~~ revised information from the equipment seller, installer, or HERS Rater to process the request. The program administrator will allow the applicant up to ~~60~~ 10 business days to respond with corrections to all the ~~missing or~~ unclear information to approve payment.

If the complete NSHP-2 ~~claim~~ is ~~made~~ submitted to the program administrator after the expiration date of the reservation, or the payment claim package is otherwise ineligible, the program administrator will not process the payment claim package, and the reserved incentive will be returned to the NSHP program. The applicant may reapply for an incentive reservation but will be subject to the program eligibility requirements, incentive levels, and funding

available at the time of the reapplication. **Applicants are strongly encouraged to complete their project three to six months prior to the reservation expiration date to provide time for unexpected delays.**

The complete payment claim package must be delivered to the appropriate program administrator. For mailing address, fax, and contact information, please visit [www.gosolarcalifornia.ca.gov/contacts/consumers.php]. Alternatively, if the applicant had previously submitted the application via the NSHP Application Web Tool, the applicant may choose to submit all of the documents in the payment claim package, except the NSHP-2, through the Web Tool as well. **Applicants are strongly encouraged to use the Web Tool for submitting payment claim documents**.

The Energy Commission and the program administrators intend to make payments within six to eight weeks of receipt of a complete payment claim package. Payment will be made to the payee and mailed to the address on the NSHP-2 and/or Payee Data Record (STD-204).

~~E.~~D. Claiming an Incentive Payment Without a Prior Reservation

If a solar energy system has been installed without a prior incentive reservation, and the applicant subsequently wishes to receive an incentive from the NSHP program, the reservation process in Chapter IV must still be followed. However, applicants should be aware that program eligibility requirements and incentive levels at the time of application/payment claim submission may have changed since the system installation, resulting in necessary system modifications, lower incentives, or ineligibility for incentives.

CHAPTER VI: Administration

Note: This section has been imported from the Renewable Energy Program: Overall Program Guidebook, Sixth Edition and is entirely new to this Guidebook. Only the subsections necessary for the administration of the NSHP program were migrated from the Overall Program Guidebook. Changes marked in this section are revisions made to the language printed in the Overall Program Guidebook, Sixth Edition. The original section numbers from the Overall Program Guidebook have been re-formatted for this Guidebook.

A. Authority

~~These Guidelines are~~This *NSHP Guidebook* is adopted pursuant to Public Resources Code Section 25747, Subdivision (a), and Section 25784, which direct~~s~~ the Energy Commission to adopt ~~Guidelines~~ guidelines governing the ~~funding programs~~New Solar Homes Partnership program authorized by Public Resources Code Sections 25740 through 25751. ~~The~~ This ~~Guidelines~~ *Guidebook* adopted pursuant to this authority ~~are~~ is exempt from the rulemaking requirements of the Administrative Procedures Act, as specified in Chapter 3.5 (commencing with Section 11340) of Division 3 of Title 2 of the Government Code. ~~These Guidelines~~This *Guidebook* may be revised pursuant to Public Resources Code Section 25747, Subdivision (a), and Section 25784.

B. Interpretation

Nothing in ~~these Guidelines~~this *Guidebook* shall be construed to abridge the powers or authority of the Energy Commission or any Energy Commission-designated committee as specified in Division 15 of the Public Resources Code, commencing with Section 25000, or Division 2 of Title 20 of the California Code of Regulations, commencing with Section 1001.

C. Effective Date

~~These Guidelines~~New editions of the *Guidebook* shall take effect once adopted by the Energy Commission at a publicly noticed business meeting pursuant to Public Resources Code Section 25747, Subdivision (a), and Section 25784, unless otherwise stated in the *Guidebook*. The ~~Guidelines~~ *Guidebook* may be given retroactive effect as specified by the Energy Commission and according to its statutory authority.

D. Substantive Changes

The Energy Commission may make substantive changes to these Guidelinesthis *Guidebook* pursuant to Public Resources Code Section 25747, Subdivision (a), and Section 25784. Substantive changes shall take effect once adopted by the Energy Commission at a publicly noticed business meeting with no fewer than 10 days public notice. Substantive changes include, but are not limited to, the following:

- Changes in the eligibility or evaluation criteria.
- Changes to funding or incentives levels.
- Reallocation of funds between program elements.

E. Cancellation of Funding Awards NSHP Reservations

The Energy Commission, through its Executive Director, may cancel the reservation of for any awardee project that changes its basis for fundingprogram eligibility under these Guidelinesthis Guidebook and no longer satisfies the requisite eligibility criteria. The Executive Director shall notify the awardee applicant in writing of the basis for cancelling the awardee's funding awardapplicant's reservation, the effective date of the cancellation, and the terms and conditions for the repayment of any portion of the funding awardNSHP incentive the awardeeapplicant was not otherwise entitled to receive. The written notice required herein shall be given at least 15 days before the effective date of the cancellation to provide the awardee applicant an opportunity to file a petition for reconsideration under Section VChapter VI, Section J.

F. Funding Award Payments

Funding award payment shall be made to awardeesapplicants as specified in the program element guidebooksthis *Guidebook*. However, funding award payments shall not be made under any of the following conditions:

- The Executive Director determines, under Subsection D of Section IVChapter VI, Section D, that the awardeeapplicant is no longer eligible to receive a funding award.
- The awardeeapplicant fails to properly invoicerequest payment from the Energy Commission, as specified in Subsection E of Section IVthis *Guidebook*.
- An audit conducted pursuant to Subsection H of Section IV Chapter VI, Section F, reveals an awardee's invoiceapplicant's request for payment, submitted under Subsection E of Section IVthe requirements of this *Guidebook*, is overstated, inaccurate, or unsupported.
- The awardeeapplicant fails to repay the Energy Commission for any overpayment the awardeeapplicant received as specified in the written notice issued under Subsection H of Section IVChapter VI, Section F.
- Based on an investigation conducted under Section VII, Subsection BChapter VI, Section L.2, the Executive Director determines that the awardeeapplicant has misstated,

falsified, or misrepresented information in applying for a funding award, in invoicing for a funding award payment, or in reporting any information required by ~~these Guidelines~~this *Guidebook*.

G. Audits

The Energy Commission or its authorized agents may audit any ~~awardee~~applicant to verify the accuracy of any information included as part of ~~an application for funding, invoice for funding award payment,~~ a reservation application, payment claim, or report required under ~~these Guidelines~~this *Guidebook*. As part of an audit, an ~~awardee~~applicant may be required to provide the Energy Commission or its authorized agents with all information and records necessary to verify the accuracy of any information included in the ~~awardee's~~applicant's reservation application~~s, invoices~~payment claims, or reports. An ~~awardee~~applicant may also be required to open its business records for on-site inspection and audit by the Energy Commission or its authorized agents to verify the accuracy of any information included in the ~~awardee's~~applicant's reservation application~~s, invoices~~payment claims, and reports.

If an audit finds that an ~~awardee~~applicant has incorrectly stated or falsified information included on the ~~awardee's~~applicant's reservation application~~s~~, ~~invoices~~payment claims, or reports, the Energy Commission shall notify the ~~awardee~~applicant of its findings in writing within 30 days of completing the audit. Based on the audit results, an ~~awardee~~applicant may be required to refund all or a portion of the ~~funding award~~NSHP incentive payments it has received. In addition, the ~~awardee's~~applicant's reservation ~~funding award~~may be cancelled pursuant to ~~Subsection D of Section IV~~Chapter VI, Section D and enforcement actions initiated pursuant to ~~Section VII~~Chapter VI, Section L.

H. Record Retention

~~Awardees~~Applicants shall keep all records relating to and verifying the accuracy of any information included ~~in an~~as part of a reservation application~~, for funding, invoice for funding award~~payment claim, or report submitted pursuant to ~~these Guidelines~~this *Guidebook*. These records shall be kept for no fewer than three years after the end of the calendar year in which the ~~awardee's final funding award~~reservation application is approved or the final payment claim is made, whichever is longer. These records shall be made available to the Energy Commission or its authorized agents as part of any audit conducted pursuant to ~~these Guidelines~~this *Guidebook*.

I. Use and Disclosure of Information and Records

The Energy Commission or its authorized agents may use any information or records submitted to the Energy Commission or obtained as part of any audit pursuant to ~~these Guidelines~~this *Guidebook* to determine eligibility and compliance with ~~the Guidelines~~this *Guidebook*, evaluate

the ~~Renewable Energy Program~~NSHP program or related Energy Commission program, and prepare necessary reports as required by law. The information and records include, but are not limited to, reservation applications~~ for funding~~, ~~invoices for funding award~~ payment~~s~~ claims, and any documentation submitted in support of said reservation applications or ~~invoices~~payment claims.

Information and records submitted pursuant to ~~these Guidelines~~this *Guidebook* will be disclosed to other governmental entities and policing authorities for civil and criminal investigation and enforcement purposes. This information and records may also be disclosed to the public pursuant to the California Public Records Act (Government Code Section 6250, et seq.). Personal information, such as taxpayer identification or social security numbers, will not be disclosed to the public.

Information concerning the identity of ~~awardees~~applicants and the amount or payment of ~~funding awards~~reservations is public information and will be disclosed pursuant to the California Public Records Act. This information, along with other public information describing program participants, may be disclosed to members of the public to educate them and encourage further program participation. The information may be disclosed through the Energy Commission's website or other means, as the Energy Commission deems appropriate.

If, as part of any reservation application~~ for funding~~, ~~invoice for~~payment claim, required report, or audit, the Energy Commission requires the ~~awardee~~applicant to provide copies of records that the ~~awardee~~applicant believes contain proprietary information entitled to protection under the California Public Records Act or other law, the ~~awardee~~applicant may request that such records be designated confidential pursuant to the Energy Commission's regulations for confidential designation, Title 20, California Code of Regulations, Section 2505.

J. Tax Consequences

~~Awardees~~Applicants are responsible for any federal and state tax associated with the receipt of ~~funding award~~incentive payments. The Energy Commission will report ~~funding award~~incentive payments to the Internal Revenue Service and issue the ~~awardee~~applicant an informational form (for example, 1099-Misc) when required to do so by law. To process ~~funding award~~payment~~s~~ claims for tax purposes, ~~awardees~~applicants must complete a Payee Data Record form to provide the Energy Commission taxpayer information. The taxpayer identified in this form must be the ~~awardee~~payee as identified in the ~~funding award~~reservation application. ~~Awardees~~Applicants who assign their ~~funding award payments~~NSHP incentive(s) to third parties~~ under Subsection G~~will be reported as the recipient of said payment and issued the informational form when required by law. Applicants should carefully consider the tax consequences of receiving ~~funding award payments~~an NSHP incentive when applying ~~for funding awards under any of the program elements~~to the NSHP.

K. Reconsideration of Funding Awards, ~~Funding Award~~Reservation Cancellations

Pursuant to Public Resources Code Section 25747, Subdivision (c), applicants ~~and awardees~~ of funding may appeal the Energy Commission's denial, reduction, cancellation, or revocation of ~~funding~~ a reservation or payment claim under ~~these Guidelines~~this *Guidebook*. Appeals will be considered as provided in this section only upon a showing that factors other than those described in ~~these Guidelines~~this *Guidebook* were applied by the Energy Commission in denying, reducing, canceling, or revoking ~~funding~~a reservation or payment claim.

1. Executive Director Reconsideration of a Reservation Application

An applicant ~~or awardee~~ may petition the Executive Director for reconsideration if the reservation application ~~for funding~~ was denied or ~~their funding award~~the reservation amount was reduced or cancelled. The petition for reconsideration shall be in writing and shall be submitted, together with any supporting documentation, to the Office of the Executive Director at the following address within 30 days of the date of the notice of ~~funding award,~~the reservation cancellation, reduction, or revocation.

California Energy Commission
Office of the Executive Director
1516 9th Street, MS-39
Sacramento, CA 95814-5512

The petition shall specify the basis for the appeal~~,~~; state why the petitioner believes the ~~funding award~~reservation application or payment claim denial, cancellation, reduction, or revocation is improper given the eligibility criteria for the ~~funding award~~reservation or payment claim~~,~~; explain any supporting documentation filed with the petition~~,~~; identify any legal authority or other basis supporting the petitioner's position~~,~~; and identify the remedy sought.

Within 30 days of receiving a complete petition, the Office of the Executive Director shall issue a decision based on the petition and the written response of Energy Commission staff.

If petitioner disagrees with the decision of the Office of the Executive Director, the petitioner may appeal the decision to the Energy Commission in accordance with ~~Subsection B of this section~~Chapter VI, Section J.2.

2. Energy Commission Appeals

Within 30 days of the date of the decision of the Office of the Executive Director, the appealing party may file a letter of appeal to the Energy Commission. The letter of appeal shall be submitted to the Energy Commission and processed as a request for investigation pursuant to the Energy Commission's regulations for complaints and investigations, Title 20, California

Code of Regulations, Section 1230, et seq. The letter of appeal shall include the information specified in Title 20, California Code of Regulations, Section 1231 (b). In place of the information specified in Section 1231 (b)(2), (b)(4), and (b)(6), the letter of appeal shall identify the eligibility criteria in ~~the Guidelines~~this *Guidebook* that the appealing party believes were applied incorrectly in denying, reducing, canceling, or revoking the funding. Energy Commission staff shall be designated the respondent in the letter of appeal.

In addition to the information required by Title 20, California Code of Regulations, Section 1231, the letter of appeal shall include a copy of the petition for reconsideration and all supporting documentation, and a copy of the written decision of the Office of the Executive Director.

An applicant~~ or awardee~~ seeking to file a petition for reconsideration or appeal pursuant to this section may contact the Public Adviser's Office for information on the filing process. The contact information for the Public Adviser's Office is:

California Energy Commission
Public Adviser's Office
1516 9th Street, MS-12
Sacramento, CA 95814-5512
E-mail: PublicAdviser@energy.ca.gov

L. Disputes of ~~Funding Award~~Incentive Payments

Pursuant to Public Resources Code Section 25747, Subdivision (c), ~~awardees~~an applicant may appeal the Energy Commission's payment of an incentive under ~~these Guidelines~~this *Guidebook*. Appeals will be considered only as provided in this section and upon a showing that factors other than those described in ~~these *Guidelines*~~this *Guidebook* were applied by the Energy Commission in making, reducing, or denying ~~a funding award~~an incentive payment.

1. Accounting Office Review

~~Awardees~~Applicants may dispute the amount of ~~a funding award~~an incentive payment by filing a written claim with the Energy Commission's Accounting Office. ~~Awardees~~Applicants shall file the claim within 30 days of the date of the payment, the amount of which is disputed, or a notice from the Energy Commission's Accounting Office indicating no payment will be made. The claim must be filed, together with any evidence supporting the ~~awardee's~~applicant's position, with the Energy Commission's Accounting Office at the following address~~.~~:

California Energy Commission
Accounting Office
1516 9th Street, MS-2
Sacramento, CA 95814-5512

The claim shall identify the payment in dispute, the date on which payment was received or expected, an explanation of the evidence supporting the ~~awardee's~~applicant's position, any legal authority or other basis supporting the ~~awardee's~~applicant's position, and the amount of repayment sought. The Accounting Office will review the claim within 30 days of its receipt, determine its validity, and provide the ~~awardee~~applicant with a written decision supported by reasons. The written decision shall specify that portion of the claim, if any, determined to be valid and the amount and date when payment will be made. If the ~~awardee~~applicant disagrees with the decision of the Accounting Office, the ~~awardee~~applicant may seek reconsideration with the Office of the Executive Director in accordance with ~~Subsection B of this section~~Chapter VI, Section K.2.

2. Executive Director Review

Within 30 days of the date of the written decision of the Accounting Office, the ~~awardee~~applicant may file a letter of reconsideration stating why ~~they~~ he or she believes the written decision to be unacceptable. The letter shall be filed with the Office of the Executive Director, along with a copy of the original dispute claim, supporting documents, and the written decision of the Accounting Office, at the following address:

California Energy Commission
Office of the Executive Director
1516 9th Street, MS-39
Sacramento, CA 95814-5512

The Office of the Executive Director will review the letter of reconsideration within 30 days of its receipt, assess the Accounting Office's written decision, and provide the ~~awardee~~applicant with a written decision. The written decision shall specify whether the Accounting Office's determination shall be upheld, whether any portion of the ~~awardee'~~applicant's original dispute claim is deemed valid, and the amount and date that any repayment will be made. If the ~~awardee~~applicant disagrees with the decision of the Office of the Executive Director, the ~~awardee~~applicant may appeal to the Energy Commission in accordance with ~~Subsection C of this section~~Chapter VI, Section K.3.

3. Energy Commission Appeals

Within 30 days of the date of the decision of the Office of the Executive Director, the ~~awardee~~applicant may file a letter of appeal with the Energy Commission. The letter of appeal shall be submitted to the Energy Commission and processed as a request for investigation pursuant to the Energy Commission's regulations for complaints and investigations, Title 20, California Code of Regulations, Section 1230, et seq. The letter of appeal shall include the information specified in Title 20, California Code of Regulations, Section 1231 (b). In place of the information specified in Section 1231 (b)(2), (b)(4), and (b)(6), the letter of appeal shall identify the criteria in ~~the *Guidelines*~~this *Guidebook* ~~and the funding award~~that ~~awardee~~the applicant

believes were applied incorrectly in making, reducing, or denying the ~~funding award~~incentive payment. Energy Commission staff shall be designated the respondent in the letter of appeal.

In addition to the information required by Title 20, California Code of Regulations, Section 1231, the letter of appeal shall include a copy of the original dispute claim and supporting documents, and copies of the Accounting Office and Office of the Executive Director written decisions.

An ~~awardee~~applicant seeking to file a letter of reconsideration or appeal pursuant to this section may contact the Public Adviser's Office for information on the filing process. The contact information for the Public Adviser's Office is:

California Energy Commission
Public Adviser's Office
1516 9th Street, MS-12
Sacramento, CA 95814-5512
E-mail: PublicAdviser@energy.ca.gov

~~L.~~M. Enforcement Action

1. Recovery of Overpayment

The Energy Commission may direct the Energy Commission's Office of Chief Counsel to commence formal legal action against any ~~awardee~~ applicant or former ~~awardee~~ applicant to recover any portion of an incentive payment that the Executive Director determines the ~~awardee~~ applicant or former ~~awardee~~ applicant was not otherwise entitled to receive.

2. Fraud and Misrepresentation

The Executive Director may initiate an investigation of any ~~awardee~~applicant that the Executive Director has reason to believe may have misstated, falsified, or misrepresented information in ~~applying for funding, invoicing for a funding award payment~~submitting a reservation application, payment claim, or reporting any information required by ~~these Guidelines~~this *Guidebook*. Based on the results of the investigation, the Executive Director may take any action deemed appropriate, including, but not limited to, cancellation of the ~~funding award~~reservation, recovery of any overpayment, and, with the concurrence of the Energy Commission, recommending the Attorney General initiate an investigation and prosecution pursuant to Government Code Section 12650, et seq., or other provisions of law.

N. Arbitration

If an ~~awardee's~~applicant's dispute of the incentive payment is not resolved to the satisfaction of the ~~awardee~~applicant through the appeal process specified in Section ~~VI~~K, the

~~awardee~~applicant and the Energy Commission may mutually agree to have the dispute resolved through binding arbitration. The arbitration proceeding shall take place in Sacramento County, California, and shall be governed by the commercial arbitration rules of the American Arbitration Association (AAA) in effect on the date the arbitration is initiated. One arbitrator who is an expert in the particular field of the dispute shall resolve the dispute. The arbitrator shall be selected in accordance with the aforementioned commercial arbitration rules. The decision rendered by the arbitrator shall be final, and judgment may be entered upon it in accordance with the applicable law in any court having jurisdiction thereof. The demand for arbitration shall be made no later than six months after the date the Energy Commission renders a decision through the appeal process specified in Section ~~VI~~K, irrespective of when the dispute arose and irrespective of the applicable statute of limitations for a suit based on the dispute. If the applicant and the Energy Commission do not mutually agree to arbitration, the sole forum to resolve the dispute is State court.

The cost of arbitration shall be borne by the ~~awardee~~applicant and Energy Commission as follows:

- The AAA's administrative fees shall be borne equally by the parties.
- The expense of a stenographer shall be borne by the party requesting a stenographic record.
- Witness expenses for either side shall be paid by the party producing the witness.
- Each party shall bear the cost of its own travel expenses.
- All other expenses shall be borne equally by the parties, unless the arbitrator apportions or assesses the expenses otherwise as part of his or her award.

List of Acronyms and Abbreviations

2005 Standards	-	*2005 California Building Energy Efficiency Standards,* Title 24, Part 6
2008 Standards	-	*2008 California Building Energy Efficiency Standards,* Title 24, Part 6
2013 Standards	-	*2013 -California Building Energy Efficiency-Standards,* Title 24, Part 6
AC	-	Alternating current
AHRI	-	Air-Conditioning, Heating and Refrigeration Institute
AAA	-	American Arbitration Association
BIPV	-	Building-Integrated Photovoltaic
BVES	-	Bear Valley Electric Service
CABEC	-	California Association of Building Energy Consultants
CAHP	-	California Advanced Homes Program
CEA	-	Certified Energy Analyst
CECPV Calculator	-	California Energy Commission's PV Calculator
CEPE	-	Certified Energy Plans Examiner
CF-1R	-	Certificate of Compliance
CF-2R/CF-6R	-	Certificate of Installation
CF-3R/CF-4R	-	Certificate of Verification
CPUC	-	California Public Utilities Commission
CSI	-	California Solar Initiative
CSLB	-	Contractors State License Board
DOE	-	Department of Energy
EER	-	Energy efficiency ratio
EPBI	-	Expected Performance Based Incentive
Guidebook	-	*New Solar Homes Partnership Guidebook*
HERS	-	Home Energy Rating System
HCD	-	Housing and Community Development
HUD	-	Housing and Urban Development
IOU	-	Investor-owned Utility
kW	-	Kilowatt
kWh	-	Kilowatt-hour
MW	-	Megawatt
NABCEP	-	North American Board of Certified Energy Practitioners
NSHP	-	New Solar Homes Partnership
NSHP EE-3	-	Additional Energy Efficiency Features Checklist
PERF-1	-	Performance Certificate of Compliance

PG&E	-	Pacific Gas and Electric
PPA	-	Power Purchase Agreement
PV	-	Photovoltaic
REC	-	Renewable Energy Certificate
SB	-	Senate Bill
SCE	-	Southern California Edison Company
SDG&E	-	San Diego Gas & Electric Company
SEER	-	Seasonal energy efficiency ratio
SHGC	-	Solar heat gain coefficient
Building Energy Efficiency Standards	-	*California Building Energy Efficiency Standards*, Title 24, Part 6
TCAC	-	Tax Credit Allocation Committee
TDV	-	Time-dependent Valuation
VNM	-	Virtual Net Metering

Glossary of Terms

Note: The Glossary of Terms has been imported from the Renewable Energy Program: Overall Program Guidebook, Sixth Edition and is entirely new to this Guidebook. Only terms and definitions necessary for the administration of the NSHP program were migrated from the Overall Program Guidebook. Changes marked in this section are revisions made to the text in the Overall Program Guidebook, Sixth Edition.

Capacity — the maximum amount of electricity that a generating unit, power facility, or utility can produce under specified conditions. Capacity is measured in kilowatts or megawatts.

Distributed generation facility — a small-scale electricity generation facility that is interconnected to a distribution network and is generally 20 MW or smaller. Distributed generation facilities may serve on-site load or off-site load or both.

Electrical corporations — Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, PacifiCorp, Liberty Energy-California Pacific Electric Company (formerly Sierra Pacific Power Company), Bear Valley Electric Service (a division of Golden State Water Company), or other electrical corporations as defined by Public Utilities Code Section 218. Also referred to as "investor-owned utilities."

End-use customer (end user) — a residential~~,~~ or commercial~~, agricultural, or industrial~~ electric customer who buys electricity to be consumed as a final product (not for resale).

Grid — the electrical transmission and distribution system linking power plants to customers through high power transmission line service.

Investor-owned utility (IOU) — synonymous with "electrical corporations" as defined herein.

~~For the *Existing Renewable Facilities Program Guidebook, New Solar Homes Partnership Guidebook,* and the *Emerging Renewables Program Guidebook,* refers~~ Refers collectively to Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas & Electric Company, and Bear Valley Electric Service (a division of Golden State Water Company), the four electrical corporations whose ratepayers ~~are~~ were subject to a surcharge for funding various public goods programs, including the Energy Commission's ~~Renewable Energy Program~~New Solar Homes Partnership program.

Kilowatt (kW) — 1,000 watts. A unit of measure for the amount of electricity needed to operate given equipment. A typical home using central air conditioning and other equipment might have a demand of 4-6 kW on a hot summer afternoon.

Kilowatt hour (kWh) — the most commonly used unit of measure telling the amount of electricity consumed over time. It means one kilowatt of electricity supplied for one hour. A typical California household consumes about 500 kWh in an average month.

Megawatt (MW) — 1,000 kilowatts. One megawatt is about the amount of power to meet the peak demand of a large hotel.

Metered — the independent measurement with a standard meter of the electricity generated by a project or facility.

Net metering — contractual agreement or tariff wherein the system owner/generator produces more electricity than is needed to serve the on-site electrical load, and the surplus electricity is supplied to the electrical distribution grid. The owner/generator's utility meter records the difference, or net, between what the utility supplies to the owner/generator and what the owner/generator supplies to the grid.

On-site generation — See "Distributed Generation."

PG&E — Pacific Gas and Electric Company

Photovoltaic (PV) — a technology that uses a semiconductor to convert sunlight directly into electricity.

Placed in service — ~~for the Emerging Renewables Program,~~ refers to a generating system that has been installed, is operational, and is capable of producing electricity.

Project — ~~For the Emerging Renewables Program, "project" refers to all otherwise eligible generating systems installed during the term of this program at one physical location and serving the electrical needs of all real and personal property at this location, as evidenced by the electric utility meter for this location.~~

~~For the New Solar Homes Partnership,~~ "project" refers to all otherwise eligible generating systems installed during the term of this program at one physical location, and may include multiple system sites within a project, ~~and~~ serving the electrical needs of all real and personal property at this location, as evidenced by the electric utility meter for this location.

~~For the Existing Renewable Facilities Program, "project" refers to a group of one or more pieces of electrical generating equipment, and ancillary equipment necessary to attach to the transmission grid, that is unequivocally separable from any other electrical generating equipment or components. Two or more sets of electrical generating equipment that are contiguous or that share common control or maintenance facilities and schedules and are located within a one-mile radius shall constitute a single project.~~

PTC — PVUSA Test Conditions, which were developed to test and compare PV systems as part of the PVUSA (Photovoltaics for Utility Scale Applications) project. PTCs are 1,000 Watts per square meter solar irradiance, 20 degrees C air temperature, and wind speed of 1 meter per second at 10 meters above ground level. PV manufacturers use Standard Test Conditions, or STC, to rate their PV products. STC are 1,000 Watts per square meter solar irradiance, 25 degrees C cell temperature, air mass equal to 1.5, and ASTM G173-03 standard spectrum. The PTC rating, which is lower than the STC rating, is generally recognized as a more realistic measure of PV output because the test conditions better reflect "real-world" solar and climatic conditions, compared to the STC rating.

Public Goods Charge (PGC) — a surcharge applied to the electric bills of IOU ratepayers used to support energy efficiency, public interest research, development, and demonstration, and low-income and renewable energy programs and collected pursuant to Public Utilities Code Section 399 et seq. The Public Goods Charge expired on December 31, 2011, and was not reauthorized by the Legislature.

Public information — any information in the Energy Commission's possession that is not subject to a request or determination of confidential designation pursuant to Title 20 of the California Code of Regulations, Section 2505 et seq., and may be disclosed pursuant to the California Public Records Act (Government Code Section 6250, et seq.) and the Information Practices Act (Civil Code Section 1798, et seq.).

Renewable — a power source other than a conventional power source within the meaning of Section 2805 of the Public Utilities Code. Section 2805 states: " 'Conventional power source' means power derived from nuclear energy or the operation of a hydropower facility greater than 30 megawatts or the combustion of fossil fuels, unless cogeneration technology, as defined in Section 25134 of the Public Resources Code, is employed in the production of such power."

Renewable energy public goods charge — as defined in Public Resources Code Section 25741, Subdivision(c), to mean that portion of the nonbypassable system benefits charge required to be collected to fund renewable energy and to be transferred to the Renewable Resource Trust Fund

pursuant to the Reliable Electric Service Investments Act (Article 15 [commencing with Section 399] of Chapter 2.3 of Part 1 of Division 1 of the Public Utilities Code).

Renewables Portfolio Standard (RPS) — ~~refers to California's Renewables Portfolio Standard as established in Public Utilities Code Section 399.11, et seq.~~ "Renewables portfolio standard" is defined in Public Utilities Code Section 399.12, Subdivision (i), to mean the specified percentage of electricity generated by eligible renewable energy resources that a retail seller or local publicly owned electric utility is required to procure pursuant to Public Utilities Code Section 399.11 et seq. Under the RPS, a retail seller or local publicly owned electric utility must increase its total procurement of eligible renewable energy resources so that 33 percent of its retail sales are procured from eligible energy resources no later than December 31, 2020.

Residential building – ~~for the New Solar Homes Partnership~~ includes a house, condominium, apartment, or other residential unit.

SCE — Southern California Edison Company

SDG&E — San Diego Gas & Electric Company

Self-generation — See "Distributed g~~G~~eneration facility."

Solar thermal electric — the conversion of sunlight to heat and its concentration and use to power a generator to produce electricity.

Watt — a unit of electrical power, equal to the power developed in a circuit by a current of one ampere flowing through a potential difference of one volt.

APPENDIX A:

FREQUENTLY ASKED QUESTIONS

A. Can My Installed System Be Different Than My Reservation?

The California Energy Commission expects a solar energy system to be installed as described in the Expected Performance Based Incentive Documentation (~~CF-1R-PV~~NSHP PV-1) but recognizes that changes may occur during installation. Any change in the solar energy system specifications or the expected performance of the system as determined through field verification must be documented by rerunning the CECPV Calculator.

If the applicant uses the California Flexible Installation criteria, the payment claim package may be completed using the expected performance calculated for the reservation as long as the orientation, tilt, and minimal shading criteria are confirmed to be met by the field verification. The applicant also has the option of recalculating the incentive based on the actual orientation and tilt of the system, as determined by the field verification. If the field verification determines that the California Flexible Installation criteria are not met, the expected performance shall be recalculated based on the actual orientation, tilt, and shading.

The revised incentive amount for a solar energy system will be calculated when the complete Payment Claim Form (NSHP-2) and complete documentation supporting the changes to the project are submitted to the program administrator.

In the case of projects with a single solar energy system site, when a change in the expected performance of the system results in a decrease in the incentive, the monetary difference between the original estimated incentive amount and the actual incentive amount will be reallocated to the incentive level in effect at the time the NSHP-2 and documents supporting the changes to the system are submitted to the program administrator. When a change increases the expected performance of the system, the incremental increase in expected performance will be funded at the incentive level in effect at the time the NSHP-2 and documents supporting the changes to the system are submitted to the program administrator.

In the case of projects with multiple solar energy system sites, when a change in the expected performance of a site's system results in a decrease in the incentive for that site, the monetary difference between the original estimated incentive amount for that site and the actual incentive amount for that site will remain as part of the project funding. When a change increases the expected performance of ~~the~~ a system, the incremental increase in expected performance will be funded at the incentive level under which the project was reserved~~in effect at the time the change request, with supporting documentation, is submitted to the program administrator and deemed complete~~, provided project ~~program~~ funding is available. The supporting documentation for these changes must be submitted to the program administrator ~~before the~~

~~submission~~with ~~of the payment claim package. Changes must also be documented in~~ the ~~Payment Claim Form (~~NSHP-2~~)~~.

If a project with multiple solar energy system sites has 10 percent or less of its original reservation funding remaining and the applicant anticipates needing additional funding for the remaining solar energy system sites in the project for which a payment claim package has not been submitted, the applicant may submit supporting documentation requesting additional funding be reserved for the project. The additional funding will be funded at the incentive level in effect at the time the supporting documentation for the change is submitted to the program administrator.

B. Can Applicants Add Solar Energy System Sites to Their Existing Reservation?

An applicant may add additional solar energy system sites to a project with a valid, unexpired reservation. A project for which all solar energy system sites have received an approved payment claim is considered to have finished the NSHP program and will no longer have a valid reservation. The applicant must notify the program administrator of this request and provide the relevant supporting documentation described in Chapter IV for the additional solar energy system sites prior to the project finishing the NSHP program and/or the reservation expiration.

The additional solar energy system sites will be subject to the program eligibility requirements of the *NSHP Guidebook* edition under which the existing project received a reservation. However, these additional solar energy system sites will be funded at the incentive level in effect at the time the request and supporting documentation are submitted to the program administrator. The additional solar energy system sites will be subject to the reservation expiration date of the existing project.

~~B.~~C. Can Applicants Add to Their Existing Systems?

Once incentives are paid, changes to expand or otherwise improve the expected performance of a system(s) are not eligible for NSHP funding.~~–~~ Homeowners otherwise ineligible for NSHP funding may apply to the California Solar Initiative Program administered by the California Public Utilities Commission. See [~~http://~~www.gosolarcalifornia.ca.gov/csi/index.php] for additional information and requirements.

~~C.~~D. Time Extensions

Projects with valid, unexpired reservations as of January 1, 2010, were automatically granted a one-time time extension as follows: Solar as Standard and affordable housing projects, both as defined by previous editions of the guidebook, ~~have~~had an additional 12 months from the expiration date of the~~ir~~ reservations as stated on the NSHP-2 to submit a payment claim package. Base incentive projects (as defined by previous editions of the guidebook) ~~have~~ had an

additional six months from the expiration date of the~~ir~~ reservation as stated on the NSHP-2 to submit payment claim packages.

No other time extensions will be granted to any other projects under any circumstances.

~~D.~~E. Can the Equipment Seller/Installer Be Different From the Equipment Seller/Installer in the Reservation Application?

Applicants wishing to use a different equipment seller/installer ~~from~~ than the equipment seller/installer selected in their reservation application must notify the program administrator and provide the following supporting documentation verifying this change. The supporting documentation consists of:

- An ~~equipment purchase agreement and~~ installation contract.
- An equipment purchase agreement (for self-installs).
- A revised ~~CF-1R-PV~~NSHP PV-1.
- If the original equipment seller/installer is the rebate payee, as indicated on the NSHP-1, they must provide written confirmation acknowledging that they are no longer the equipment seller/installer for the specific project and will no longer receive the NSHP incentive.

Before approving the change in equipment seller/installer, the program administrator will verify that the new equipment seller/installer meets the program eligibility requirements outlined in Chapter II, Section ~~N~~K, and the supporting documentation meets the document requirements outlined in Chapter IV, Section B.

~~E.~~F. Reservation Cancellations

Project reservations may ~~only~~ be cancelled only by the applicant. Applicants wishing to cancel their project reservation must provide written notification to the program administrator. The written notification must include ~~the following items~~:

- Date of the notification.
- The name of the project.
- The site address(es).
- Statement that the applicant would like to cancel the project reservation.
- Acknowledgement that if the applicant cancels his or her reservation on or before the reservation expiration date, he or she may not reapply for a new reservation for the project until the incentive level has dropped at least one level from the incentive level in the original reservation.

- Printed name and signature of the applicant.

APPENDIX B:

FIELD VERIFICATION AND DIAGNOSTIC TESTING OF SYSTEMS

A. Background

The NSHP provides incentives for installing high-performance solar energy systems on energy-efficient newly constructed residential buildings.~~homes.~~ The incentive amount is determined by the expected performance of the solar energy system. The expected performance calculation accounts for the tested and certified performance of the specific photovoltaic (PV) modules and inverter, mounting type, cell temperature, module orientation~~,~~ and tilt ~~of the modules~~, and the extent to which the system is shaded. The CECPV Calculator, developed by the Energy Commission, accounts for these parameters as well as the solar and climatic conditions for the location of the system to determine hourly estimated performance, which is weighted to account for the time-dependent valuation (TDV) of the electricity that is produced. Third-party field verification[35] must be conducted to ensure that the components of the PV system and its installation are consistent with the characteristics used to determine the estimated performance. Field verification is a value-added service paid for by the applicant that provides quality control and can protect the applicant, builder, installer, supplier, and homeowner. Field verification is completed consistent with the procedures found in the current *Building Energy Efficiency Standards* [www.energy.ca.gov/title24].

Field verification of solar~~for new housing developments~~ energy systems may employ a~~the~~ sampling approach as allowed in the current *Building Energy Efficiency Standards*[36] with the following exceptions:

- Open group sampling as defined in the *Building Energy Efficiency Standards* is not allowed for PV systems.
- The results of the PV Installation Form (NSHP PV-2) form do not need to be uploaded to a HERS Provider Registry; however, these records must be retained by the applicant, installer, and HERS Rater for a minimum of three years after the NSHP reservation expiration date. The installer is required to provide copies of NSHP PV-2 forms for all homes in the sample group to the HERS Rater. Applicants, installers, or HERS Raters may be required to submit NSHP PV-2 forms to the Energy Commission or the program administrators upon request.

35 The field verification procedures found in Appendix B are applicable only for solar energy systems using flat-plate photovoltaic modules.

36 For the *2013 Building Efficiency Standards*, see Appendix RA2 of the *2013 Reference Appendices*. For the *2008 Building Efficiency Standards*, see Appendix RA2 of the *2008 Reference Appendices*.

- When a failure is encountered during the sample testing, one of two options are possible:
    - An installer can follow the resampling procedures described in the *Building Energy Efficiency Standards*; however, ~~they~~he or she will not be required to report the failure or the corrective measures taken to a HERS Provider.
    - A revised Compliance Form (NSHP PV-1) must be generated and submitted to the program administrator for all systems in the sample group.

  After one of these two steps is taken and the HERS Rater passes the tested solar energy system, the NSHP PV-3 will be made available for all homes in the sample group.

When ~~allowed in the current Building Energy Efficiency Standards.[32] When PV~~ solar energy systems are grouped for sampling, all ~~PV~~ solar energy systems that meet the minimal shading criterion may be included in the grouping, regardless of the actual azimuth, tilt, array capacity, and so forth. Solar energy systems included in a sample group must be installed by the same installer. The solar energy systems must also be located on buildings constructed by the same builder and located in the same subdivision or multifamily development.

The field verification and diagnostic testing procedures described in this appendix are intended to ensure that the:

- PV modules and inverters used in the expected performance calculations are actually installed at the applicable site.

- PV modules are minimally shaded, or if shaded, that the actual shading does not exceed the shading characteristics that were included in the expected performance calculations.

- Measured AC power output from the PV system is equal to or exceeds that calculated by the CECPV Calculator within the specified margin at the prevailing conditions at the time of field verification and diagnostic testing.

B. Responsibilities

Field verification and diagnostic testing are the responsibility of both the PV system installer and the HERS Rater who completes the third-party field verification. The PV installer must perform the field verification and diagnostic testing procedures in this document for every system that he or she installs. The HERS Rater, working under the oversight of an Energy Commission-approved ~~NSHP~~ HERS Provider, then performs independent third-party field verification and diagnostic testing of the systems.

~~32 For the 2005 *Building Energy Efficiency Standards*, see Chapter 7 of the *Residential Alternative Calculation Method (ACM) Approval Manual*. For the 2008 *Building Efficiency Standards*, see Appendix RA2 of the 2008 Reference Appendices.~~

The field verification and diagnostic testing protocol is the same for both the PV installer and the HERS Rater. The protocol anticipates that the PV installer will have access to the roof to make measurements, but that the HERS Rater may not. The measurements required by this protocol are not required to be completed on the roof, but more accurate measurement techniques are possible with roof access. The measurements required by the protocol may be performed in multiple ways as described in the subsections below.

C. Field Verification and Diagnostic Testing Process

The NSHP field verification and diagnostic testing of PV systems follow the process described below. ~~Note, f~~For NSHP purposes, a PV system is one or more PV modules connected to one inverter.~~-~~ Documentation of the process uses three forms that are counterparts to the compliance forms used for the *Building Energy Efficiency Standards*.

1. The applicant enters the necessary input data into the CECPV Calculator, which produces an Certificate of Compliance Form (~~CF-1R-PV~~NSHP PV-1) that documents the specific modules, inverter(s), and meter(s) that are used in each PV system~~,~~; the anticipated shading of each system (either the intent for the system to meet the minimal shading requirements or the actual shading that is anticipated~~),~~); and a table of predicted electrical generation for each system for a range of solar irradiance and ambient air temperature.~~-~~ The ~~CF-1R-PV~~NSHP PV-1 is provided to the program administrator with the NSHP reservation application and to the HERS Provider.
2. Once each PV system is installed, the PV installer completes the field verification and diagnostic testing protocol for each PV system and documents the results on the PV Installation Form[37]~~Certificate (CF-6R-PV~~(NSHP PV-2), verifying that the installation is consistent with the ~~CF-1R-PV~~NSHP PV-1. The PV installer documents and certifies that the PV system meets the requirements of this appendix and provides copies of the ~~CF-6R-PV~~NSHP PV-2 to the builder/homeowner, applicant, and HERS Rater. The ~~CF-6R-PV~~NSHP PV-2 shall indicate the actual azimuth and tilt for all PV systems where the California Flexible Installation was used on the ~~CF-1R-PV~~NSHP PV-1. The ~~CF-6R-PV~~NSHP PV-2 shall be completed by the PV system installer in all cases.

   EXCEPTION: If 100 percent of the PV systems in an NSHP application are being tested by a HERS Rater (sampling is not being used), the HERS Rater can complete the testing required for the ~~CF-6R-PV~~NSHP PV-2; however, the PV installer is still required to sign the ~~CF-6R-PV~~NSHP PV-2.

   The applicant shall provide the ~~CF-6R-PV~~NSHP PV-2 to the HERS Rater. In conjunction with the ~~CF-6R-PV~~NSHP PV-2, the applicant shall provide to the HERS Rater a site plan for each lot:

37 The PV Installation Form (NSHP PV-2) was formerly called the Installation Certificate (CF-6R-PV).

a) Identifying the height category (small, medium, or large) of all pre-existing, planted, and planned trees and the location and height of any structures that will be built on the lot and neighboring lots of the building with the PV system

b) Showing the bearing of the property lines and the azimuth and tilt or roof pitch of each PV system.

The applicant shall also provide the HERS Rater a product specification (cut sheet) for the PV modules, inverter, and meter for the specific system, attached to the ~~CF-6R-PV~~NSHP PV-2, along with an invoice or purchase document that lists the make and model of the PV modules installed.

The NSHP PV-2 forms do not need to be uploaded to the HERS Provider Registry, however, these records must be retained by the applicant, installer, and HERS Rater in accordance with the record retention requirements in Chapter VI, Section H. Applicants, installers, or HERS Raters may be required to submit NSHP PV-2 forms to the Energy Commission or the program administrators upon request.

3. The HERS Rater completes independent third-party field verification and diagnostic testing of each PV system and documents the results on the PV~~Certificate of~~ Field Verification and Diagnostic Testing Form (~~CF-4R-PV~~NSHP PV-3), independently verifying that the installation is consistent with the ~~CF-1R-PV~~NSHP PV-1 and the ~~CF-6R-PV~~NSHP PV-2. The HERS Rater provides a copy of the ~~CF-4R-PV~~NSHP PV-3 to the applicant and uploads the results to a HERS Provider data registry. The ~~CF-4R-PV~~NSHP PV-3 shall indicate the actual azimuth and tilt for all PV systems where the California Flexible Installation was used on the ~~CF-1R-PV~~NSHP PV-1. In cases where the ~~CF-6R-PV~~NSHP PV-2 or the ~~CF-4R-PV~~NSHP PV-3 show that the installed PV system is not consistent with the previously submitted ~~CF-1R-PV~~NSHP PV-1, a revised ~~CF-1R-PV~~NSHP PV-1 must be prepared and submitted with the associated electronic files to the program administrator, that is consistent with the as-installed conditions. When such an inconsistency is found when the sampling approach is used, revised ~~CF-1R-PV~~NSHP PV-1s must be prepared and submitted to the program administrator for all systems in the sampling group.

4. As part of the payment process, the program administrator will confirm, in the HERS Provider data registry, that the ~~Certificate of~~ PV Field Verification and Diagnostic Testing Form (~~CF-4R-PV~~NSHP PV-3) has been completed for each PV system in the NSHP application.

D. Relationship to Other Codes, Standards, and Verification

The local jurisdiction must issue a building permit for the qualifying PV system, either as a separate permit or as part of the new residential building permit. The PV system must meet all applicable electrical code, structural code, building code, fire code, and local electric utility interconnection requirements.

The field verification and diagnostic testing procedures described in this document do not substitute for normal electrical, structural, or building plan check or field inspection. Nor do they substitute for field verification by the local utility regarding interconnection to the electric grid.

E. Field Verification Visual Inspection

The visual inspection, as described in this protocol, verifies the installation of the proper equipment and the installation conditions specified on the ~~CF-1R-PV~~NSHP PV-1. The HERS Rater shall use binoculars or another means to view the installation without being required to have access to the roof. The HERS Rater may rely on photographic evidence provided by the installer on the make, model, and quantity of PV modules~~,~~; standoff distance~~,~~; and shading, but in the absence of such evidence, must rely on a conservative determination based solely on his or her own observation.

1. PV Modules

The PV installer and the HERS Rater shall verify that the make, model, and quantity of PV modules specified on the ~~CF-1R-PV~~NSHP PV-1 are installed in the field. The PV installer and HERS Rater shall verify the module mounting type (BIPV or rack-mounted) and, in the case of rack-mounted modules, the standoff distance of the modules above the mounting surface. The PV installer and the HERS Rater shall verify the mounting height of the modules above the ground (either one-story, two-story, or applicant-specified height).

2. Inverters

The PV installer and the HERS Rater shall verify that the make, model, and quantity of inverters specified on the ~~CF-1R-PV~~NSHP PV-1 are installed in the field.

3. System Performance Meters

The PV installer and the HERS Rater shall verify that either a standalone system performance meter or an inverter with a built-in system performance meter is installed that is the same make and model specified on the ~~CF-1R-PV~~NSHP PV-1 and that the meter meets all guidebook requirements for system performance meters.

i. Tilt and Azimuth

The PV installer and the HERS Rater shall verify that the tilt and azimuth of the PV modules installed in the field match the values specified on the ~~CF-1R-PV~~NSHP PV-1, within ± 5 degrees. In some systems, PV modules may be installed in multiple orientations with different tilts and azimuths. In these cases the tilt and azimuth of each array must be verified. The tilt and

azimuth measurement tolerance also applies to~~Note that for~~ systems using the California Flexible Installation criteria. ~~, the tilt and azimuth of each system must be shown to fall within the range of tilt and azimuth that is allowable under that criteria (see Section E. 4. c) below).~~

a. Determining Tilt

The tilt angle of the PV modules is measured in degrees from the horizontal (horizontal PV modules will have a tilt of zero, and vertically mounted PV modules will have a tilt of 90 degrees). The tilt of the PV modules may be determined in the following ways:

i. Using the Building Plans

The as-built or construction drawings for the residential building will state the slope of the roof, usually as the ratio of rise to run. If the PV modules are mounted in the plane of the roof, then the slope of the PV modules is the same as the slope of the roof. Table B-1 may be used to convert rise to run ratios to degrees of tilt.

Table B-1: Conversion of Roof Pitch to Tilt

Roof Pitch (Rise:Run)	Tilt (degrees)
1:12	4.8
2:12	9.5
3:12	14.0
4:12	18.4
5:12	22.6
6:12	26.6
7:12	30.3
8:12	33.7
9:12	36.9
10:12	39.8
11:12	42.5
12:12	45.0

Source: California Energy Commission

ii. Using a Digital Protractor

A digital protractor may be used to measure either horizontal or vertical angles (see Figure B-1). These devices when sighted up the slope of the PV modules from the ground will display the slope, relative to the horizontal.

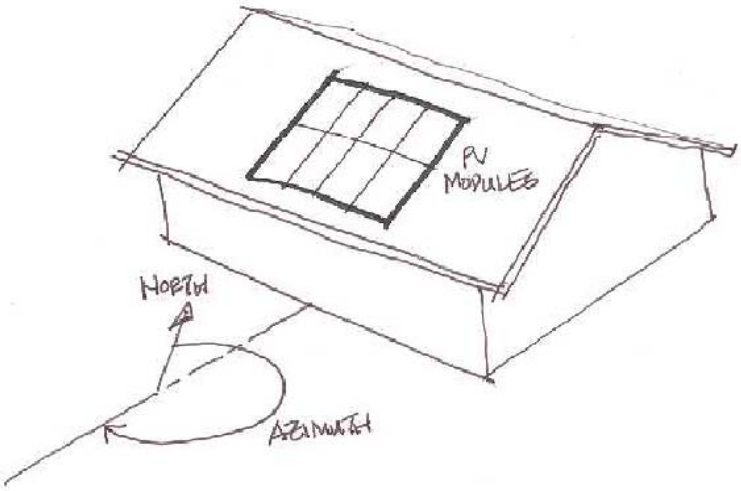
Figure B-1: Digital Protractor

Source: http://www.digitalmeasuringtools.com/z509-9606.shtml

b. Determining Azimuth

The PV installer and the HERS Rater must determine the azimuth of the PV modules and verify that the azimuth is the same as that used to determine the expected performance of each PV system. The convention that is used for measuring azimuth is to determine the degrees of angle clockwise from north: north azimuth is zero degrees, east is 90 degrees, south is 180 degrees, and west is 270 degrees. (See Figure B-2.)

Figure B-2: Azimuth of the PV Array



Source: California Energy Commission

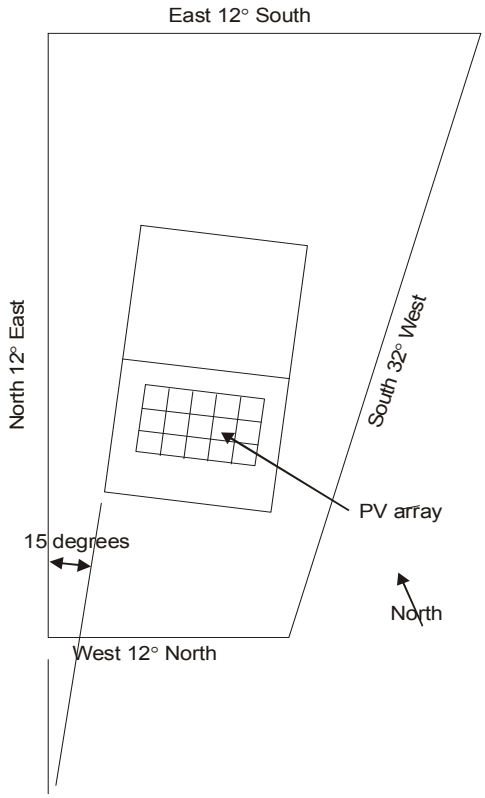
The following methods may be used to determine the azimuth.

i. Using the Site Plans

In new subdivisions, the house plans will often not show the property lines since the plans are used on multiple lots. However, the subdivision plot plan will show the property lines of the lots. The plot plan will show the bearing of the property lines, and from this information the azimuth of the roof surfaces where the PV modules are mounted may be determined from the position of the house on the lot relative to the bearings of the property lines.

Figure B-3 shows an example plot plan with a house located on it. In this case, the house does not align with any of the property lines but is rotated 15 degrees from the westerly property line, as shown. Property lines on plot plans are typically labeled in terms of their bearing, which is the direction of the line. The westerly property line is labeled "North 12° East." If the house was aligned with this property line, the southerly exposure of the house would have an azimuth of 192° (180° plus the 12° bearing of the property line). Since the house is rotated an additional 15°, the azimuth of the southerly face of the house and the azimuth of the PV array ~~is~~ are 207° (192° plus 15°). Usually, the house will be aligned with one of the property lines, and the calculation described above will be simplified.

Figure B-3: Example Plot Plan



Source: California Energy Commission

ii. Using a Compass With a Sighting Feature and an Adjustment for Magnetic Declination.

Make sure that the compass has a sighting feature. The compass may have an adjustment built in for magnetic declination so that the reading on the compass is true north or the installer and the HERS Rater shall determine the magnetic declination using the tool available at [http://www.ngdc.noaa.gov/geomagmodels/Declination.jsp] and adjust the compass reading to account for the magnetic declination. Position the compass and determine the angle between compass north and the direction that the PV modules face. It's usually convenient and most accurate to align the compass along the edge of the array using the sighting feature. (See Figure B-4.)

Figure B-4: Compass With a Sighting Feature

Source: *http://www.rei.com/product/638694/brunton-eclipse-8099-compass* , http://www.opticsplanet.net/silva-olive-drab-compass-15118.html

c. Verifying Tilt and Azimuth for Systems Meeting the California Flexible Installation Criteria

For new single-family ~~residential developments (~~subdivisions~~)~~, NSHP allows determination of expected performance using the California Flexible Installation criteria. The California Flexible Installation criteria allow all PV systems that are installed with an azimuth ranging from 150 to 270 degrees, with a tilt ranging from 0:12 and 7:12, and meeting the minimal shading criterion to use a single expected performance calculation. The CECPV Calculator allows the user to choose the California Flexible Installation criteria for easy input and easy compliance when there are multiple systems at various azimuths and tilts. For each system on each building that has the expected performance based on the California Flexible Installation criteria, the HERS Rater must verify that the array is installed with both an azimuth and with a tilt within the acceptable range. The ± 5 degree measurement tolerance for tilts and azimuths described in Section E.4 of this Appendix also apply to California Flexible Installation projects. The California Flexible Installation criteria require~~s~~ each PV system to meet the minimal shading criterion discussed below.

F. Shading Verification

Shading of photovoltaic systems, even partial shading of arrays, can be the most important cause of failure to achieve high system performance. Significant shading should be avoided whenever possible. Shading can be avoided by careful location of the array at the point of installation or in some cases, particularly during the process of constructing buildings, by moving obstructions to locations where they do not cast shading on the array. Partial shading from obstructions that are relatively close to the array, particularly obstructions that are on the roof, even if they are relatively small, can be particularly problematic because they cause partial shading of the array for longer periods of the year. Shading caused in the future due to the maturing of trees that are immature at the time of installation of the PV system can also be a major cause of failure to achieve high performance over the life of the PV system.

The PV installer and the HERS Rater must verify that the shading conditions on the PV system in the field are consistent with those used in the expected performance calculations. The estimated performance calculations will be done either assuming that the minimal shading criterion is met or based on the specific shading characteristics of each system.

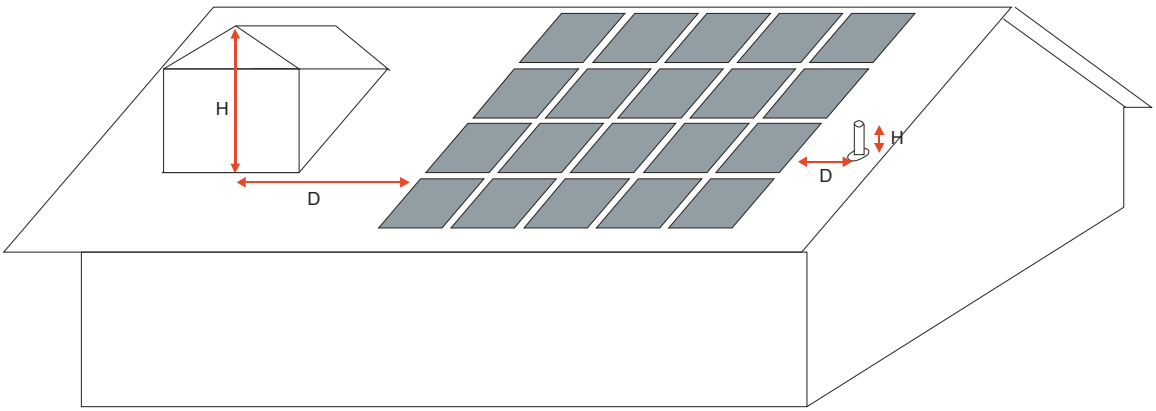
1. ~~1.~~ Minimal Shading Criterion

The minimal shading criterion is that no obstruction is closer than a distance ("D") of twice the height ("H") it extends above the PV array. (See Figure B-5 for an artistic depiction of "H" and "D.") As the figure illustrates, the distance "D" must be at least two times greater than the distance "H." All obstructions that project above the point on the array that is closest to the obstruction must meet this criterion for the array to be considered minimally shaded. Obstructions that are subject to this criterion include:

- Any vent, chimney, architectural feature, mechanical equipment, or other obstruction that is on the roof or any other part of the building.
- Any part of the neighboring terrain.
- Any tree that is mature at the time of installation of the PV system.
- Any tree that is planted on the building lot or neighboring lots or planned to be planted as part of the landscaping for the building (the expected shading must be based on the mature height of the tree).
- Any existing neighboring building or structure.
- Any planned neighboring building or structure that is known to the applicant or building owner.

- Any telephone or other utility pole that is closer than 30 feet from the nearest point of the array.

Figure B-5: The Minimal Shading Criterion Artistic Depiction of "H" and "D"



Source: California Energy Commission

To determine whether the minimal shading criterion is met, the PV installer or HERS Rater shall determine for each shading obstruction the smallest ratio of the horizontal distance from the obstruction to the array divided by the vertical height of the obstruction above that point on the array. (This is the "closest point on the array.") Often the point on the obstruction that results in the smallest ratio is the topmost point of the obstruction, but in cases where the shape of the obstruction is complex, points on the obstruction that are not the topmost but are closer to the array may actually produce the lowest ratio. "H" is the height of the shading obstruction point above the horizontal projection to the closest point on the array. "D" is the horizontal distance from the closest point on the array to the vertical projection from the point on the obstruction that results in the lowest ratio of "D" divided by "H." Any obstruction located north of all points on the array need not be considered as shading obstructions. When an obstruction is north of some parts of an array but east, south, or west of other parts of the array, the minimal shading criterion shall be determined to the closest point on the array that is west, north, or east of the obstruction.

The PV installer and the HERS Rater may verify through visual inspection that all obstructions meet the 2:1 criterion. (An altitude angle of 26.6 degrees is equivalent to the 2:1 criterion.) For obstructions that visual inspection indicates potentially do not meet the criterion, the PV installer and HERS Rater must measure the height and distance of the obstruction(s) relative to the PV array as described above to verify that the 2:1 shading criterion (or a lower than 26.6 altitude angle through the same points on the obstruction and array) is met. A tolerance of ± 5 percent will be permissible when determining the ratio (or the altitude angle).

2. ~~2.~~ Accounting for Actual Shading

When a PV installation does not meet the minimal shading criterion, it can still qualify for an incentive and participate in the NSHP program, but the shading conditions for each PV system at the site must be accounted for in the expected performance calculation as described in this section. The basic method is used when the shading condition is measured using a tape measure or using a digital protractor.~~-~~ A different method is used when measurements are made with a solar assessment tool.

For shading obstructions that are accounted for in the expected performance calculation, the CECPV Calculator will produce on the ~~CF-1R-PV~~NSHP PV-1 a table similar to Table B~~-~~-2 that shows the distance-to-height ratio and altitude angle for the closest point on the array for each obstruction, including mature trees that shade the PV array. This table divides the compass into 11 (approximately 22.5 degree) sectors, progressing clockwise around the compass from north. The table provides the distance-to-height ratio and altitude angle for each sector of the compass. When there is more than one obstruction in a sector, the information is reported for the obstruction with the lowest distance to height ratio (highest altitude angle). The distance-to-height ratio will be a number less than or equal to two, because if it is greater than two, the minimal shading criterion is satisfied in that direction and shading is not considered in the expected performance calculation for that sector. The table also shows the minimum distance to small, medium, and large trees to meet the minimal shading criterion for trees that are not at their mature heights. The data in Table B-2 ~~is~~ are specific to a particular PV system installation. In this example the minimal shading condition is not met for five sectors of the compass, ESE, SSE, S, SW, and WNW.

Table B-2: Example NSHP PV-1 Format for PV Shading

Orientation	Obstruction Type	Altitude Angle to Shading Obstruction	Distance to Height Ratio	Minimum Distance to Small Tree	Minimum Distance to Medium Tree	Minimum Distance to Large Tree
ENE (55 – 79)		Minimal Shading	2.00	16	46	76
E (79 -101)		Minimal Shading	2.00	16	46	76
ESE (101 – 124)	Neighboring structure	45 degrees	1.00			
SE (124 – 146)		Minimal Shading	2.00	16	46	76
SSE (146 – 169)	On roof obstruction	50 degrees	0.84			
S (169 – 191)	Tree (existing-mature)	70 degrees	0.36			
SSW (191 – 214)		Minimal Shading	2.00	16	46	76
SW (214 – 236)	Tree (existing-not mature)	30 degrees	1.5			
WSW (236 – 259)		Minimal Shading	2.00	16	46	76
W (259 – 281)		Minimal Shading	2.00	16	46	76
WNW (281 – 305)	Tree (planned)	65 degrees	0.49			

Source: California Energy Commission

The PV installer and the HERS Rater must verify that the shading conditions that exist (or are expected to exist in the case of the mature heights of trees that are planted on the building lot or neighboring lots or planned to be planted as part of the landscaping or planned buildings or structures on the building lot or neighboring lots that are known to the applicant or building owner) at the site will not cause greater shading of the PV array than the shading characteristics that were used in the expected performance calculations.

~~Table B-2: Example CF-1R-PV~~NSHP PV-1 ~~Format for PV Shading~~

~~Orientation~~	~~Obstruction Type~~	~~Altitude Angle to Shading Obstruction~~	~~Distance to Height Ratio~~	~~Minimum Distance to Small Tree~~	~~Minimum Distance to Medium Tree~~	~~Minimum Distance to Large Tree~~
~~ENE (55 – 79)~~	~~NA~~	~~Minimal Shading~~	~~2.00~~	~~16~~	~~46~~	~~76~~
~~E (79–101)~~	~~NA~~	~~Minimal Shading~~	~~2.00~~	~~16~~	~~46~~	~~76~~
~~ESE (101 – 124)~~	~~Neighboring structure~~	~~45 degrees~~	~~1.00~~			
~~SE (124 – 146)~~		~~Minimal Shading~~	~~2.00~~	~~16~~	~~46~~	~~76~~
~~SSE (146 – 169)~~	~~On roof obstruction~~	~~50 degrees~~	~~0.84~~			
~~S (169 – 191)~~	~~Tree (existing mature)~~	~~70 degrees~~	~~0.36~~			
~~SSW (191 – 214)~~		~~Minimal Shading~~	~~2.00~~	~~16~~	~~46~~	~~76~~
~~SW (214 – 236)~~	~~Tree (existing not mature)~~	~~30 degrees~~	~~1.5~~			
~~WSW (236 – 259)~~		~~Minimal Shading~~	~~2.00~~	~~16~~	~~46~~	~~76~~
~~W (259 – 281)~~		~~Minimal Shading~~	~~2.00~~	~~16~~	~~46~~	~~76~~
~~WNW (281 – 305)~~	~~Tree (planned)~~	~~65 degrees~~	~~0.49~~			

~~Source: California Energy Commission~~

3. ~~3.~~ Measuring Heights and Distances or Altitude Angles

One of the following procedures may be used to measure heights and distances or altitude angles to obstructions.

a) Using a Tape Measure

A tape measure or other measuring device may be used to measure the distance ("D") from the point on the PV array corresponding to the lowest ratio of distance to height ("H") for each shading obstruction for each 22.5 degree compass sector. The distance to a tree is measured to the nearest edge of the trunk of the tree. Once the height difference ("H") and distance ("D") are determined in each compass sector, the ratio is calculated and must be greater than the value used in the expected performance calculation as reported on the ~~CF-1R-PV~~NSHP PV-1. (See the fourth column in Table B-2 labeled Distance-to-Height Ratio.) This method can be employed from the ground without access to the roof, when factoring in the rooftop dimensions.

The height measurement for trees that are immature shall be based on the mature tree height discussed below. Determining the distances and heights of obstructions for buildings and

structures that are planned but have not yet been constructed shall be based on plans for those structures.

b) Using a Digital Protractor

A digital protractor (see Figure B-1) may be used to measure the highest altitude angle from the obstruction to the closest point on the array (using the same points on the array and on the obstruction that produce the lowest ration of "D" to "H" if those dimensions were measured instead of the altitude angle). The measured altitude angle for each obstruction in each compass sector must be smaller than or equal to that used in the expected performance calculation as reported on the ~~CF-1R-PV~~NSHP PV-1. (See the third column in Table B-2). To use the digital protractor measurement directly, the measurement must be made from the roof. Alternatively, the digital protractor measurement may be made from the ground. Trigonometric adjustments will be required to correct for the height difference between the ground where the measurements are made and the nearest point, on the PV array, to the shading obstruction.

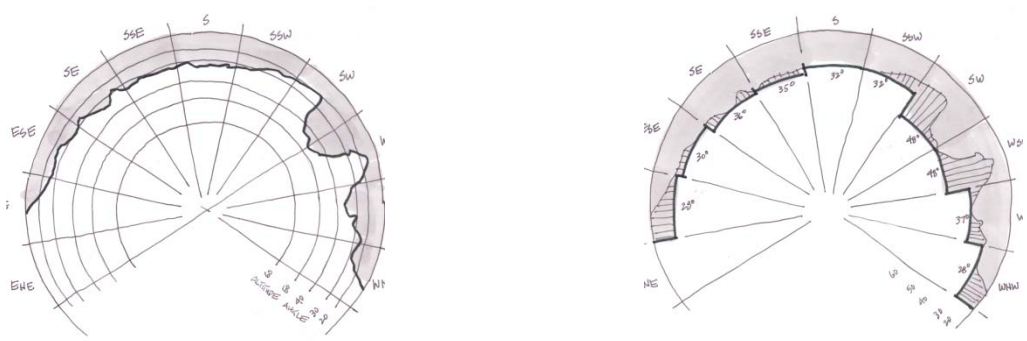
This method does not address expected shading resulting from the mature heights of planted immature trees or planned trees. To determine distances for planted immature trees a tape measure should be used. The height measurement for trees that are immature shall be based on the mature tree height discussed below. Determining the distances and heights of obstructions for buildings and structures that are planned but have not yet been constructed shall be based on plans for those structures.

1. Using a Solar Assessment Tool

For shading from existing obstructions, shading conditions may be verified using a solar assessment tool. This procedure will typically be used by the PV installer, but the HERS Rater may not have direct access to the array and, if not, would rely on the adequacy of documentation by the installer to confirm the shading conditions.

At each measurement point ~~of measurement~~, the tool is placed on the PV array, leveled and oriented consistent with the manufacturer's instructions. Once the tool is properly positioned, it will determine the obstructions that cast shade and the month and time of day when shading will occur. The tool will enable these determinations either through the use of a digital photograph or a manual tracing on an angle estimator grid overlay. These results for a ~~single~~ point of reference on the array are converted into a format that can be used by the CECPV Calculator, either through software provided by the tool manufacturer or manually, as shown in Figure B-6(b), to determine the altitude angle of an obstruction in each compass sector. The installer should keep documentation of the shading shown on the tool, the location of the tool on the array, and the shading obstructions that are indicated on the tool for the HERS Rater to verify the results.

Figure B-6. Conversion of Results to CECPV Calculator Input



(a) This diagram shows the 22.5 degree compass sectors used by the CECPV Calculator and the altitude angles determined by a Solar Assessment Tool for a single point of reference on the array.

(b) Within each compass sector, the highest altitude is selected and used for that entire sector. This data is shown for a single point of reference on the array.

Source: California Energy Commission

Measurements shall be made at all the major corners of the array with no adjacent measurement being more than 40 feet apart. (See example in Figure B-8.) The points of measurement shall be distributed evenly between two major corners if they are more than 40 feet apart such that the linear distance between any sequential points is no more than 40 feet. However, if any linear edge of the array has no obstructions that are closer than two times the height they project

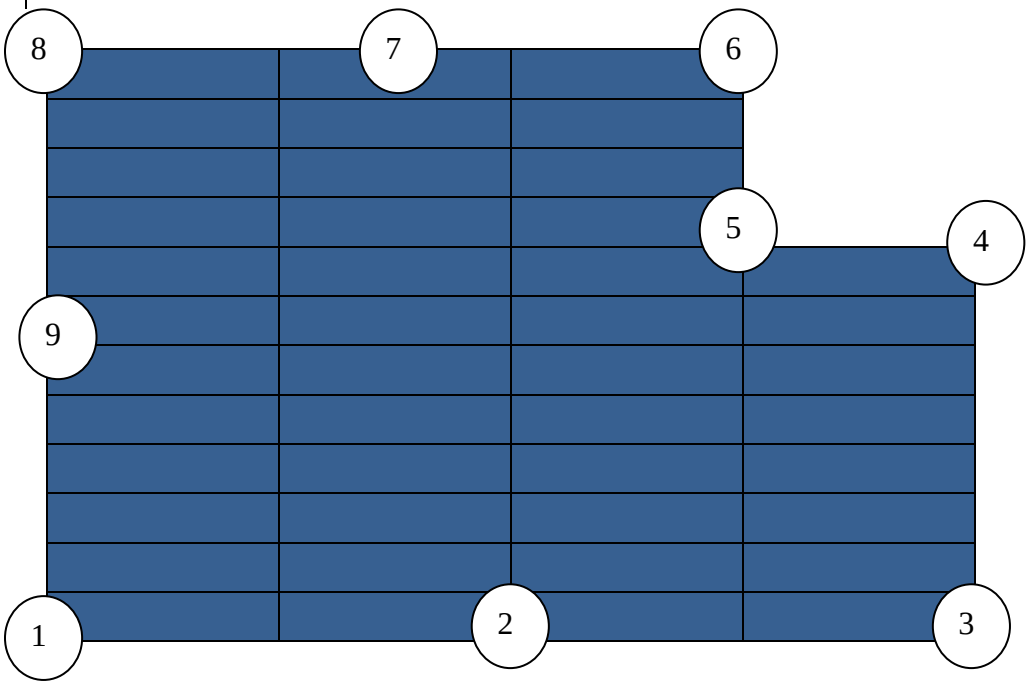
above the closest point on the array, then the intermediate measurements along that edge do not need to be made.

The altitude angles measured at each major corner shall be overlapped onto a single diagram or processed with the tool manufacturer's software. The maximum altitude angles measured at any of the major corners of the array within a given sector shall be applied to the entire sector. This creates a set of 11 values that are used in the CECPV Calculator.

This method does not address expected shading resulting from the mature heights of planted immature trees or planned trees or expected construction of buildings or other structures on neighboring lots. To determine distances for planted immature trees a tape measure should be used. To determine distances for planned trees a landscape plan provided by the applicant should be used. The height measurement for trees that are immature must be based on the mature tree height discussed below. Determining the distances and heights of obstructions for buildings and structures that are planned but have not yet been constructed shall be based on plans for those structures. Such shading shall be addressed separately.

The results determined by the tool in combination with the expected future shading described above are compared to the data that ~~was~~ were used in the expected performance calculations to ensure that there is not greater shading at the site than was used in the expected performance calculations.

Figure B-7. Example of Points Where Measurement Shall Be Made Using a Solar Assessment Tool (overall array dimensions 76 feet by 50 feet)



Source: California Energy Commission

4. ~~4.~~ Mature Tree Height

The expected performance calculations require the mature height to be used when accounting for the shading impact of planted immature trees. This section provides guidelines for determining the mature height of such trees. Applicants must identify the height category (small, medium, or large) of all planted and planned trees at the site. That information must be documented in conjunction with the ~~CF-6R-PV~~NSHP PV-2 and provided to the HERS Rater for verification. Any existing tree with a height greater than 50 feet at the time observations are made shall be recorded with ~~its~~ the actual height or altitude angle instead of the height category.

All trees are classified as small, medium, or large by species. Trees with a mature height of 20 feet or smaller are small trees. Trees with a mature height greater than 20 feet but less than 50 feet are medium trees. Trees with a mature height equal to or greater than 50 feet are large trees. If the type of tree is unknown, it must be assumed to be large. The mature heights of small, medium and large trees that must be used in the expected performance calculations are 20 feet, 35 feet, and 50 feet, respectively.

The Center for Urban Forestry Research of the U.S. Department of Agriculture's Forest Service has published tree guides for tree zones that are applicable to California. Table B-3 shows the appropriate tree guide to use for each of California's climate zones for the expected performance calculations.

Table B-3: Appropriate Tree Guide to Use for Each California Climate Zone

~~**Table B-3: Appropriate Tree Guide to Use for Each California Climate Zone**~~

CEC Climate Zones	Tree Regions	Tree Guide to Use	
1, 2, 3, 4, 5	Northern California Coast	Under Development (Use Sunset Western Garden Book)	
6, 7, 8	Southern California Coast	McPherson, E.G., et al. 2000. Tree guidelines for coastal Southern California communities. Sacramento, CA: Local Government Commission	Chapter 5, pages 57-65
9, 10	Inland Empire	McPherson, E.G., et al. 2001. Tree guidelines for Inland Empire communities. Sacramento, CA: Local Government Commission	Chapter 6, pages 65-82
11, 12, 13	Inland Valleys	McPherson, E.G., et al. 1999. Tree guidelines for San Joaquin Valley communities. Sacramento, CA: Local Government Commission	Chapter 5, pages 50-55
14, 15	Southwest Desert	McPherson, E.G., et al. 2004. Desert southwest community tree guide: benefits, costs and strategic planting. Phoenix, AZ: Arizona Community Tree Council, Inc.	Chapter 7, pages 51-53
16	Northern Mountain and Prairie	McPherson, E.G, et al. 2003. Northern mountain and prairie community tree guide: benefits, costs and strategic planting. Center for Urban Forest Research, USDA Forest Service, Pacific Southwest Research Station.	Chapter 5, pages 47-55

Source : California Energy Commission

The guides provide tree selection lists for each tree zone. The lists provide either the mature height or the size category in that tree zone for each species. These tree guides are posted at~~:~~ [http://www.fs.fed.us/psw/programs/cufr/tree_guides.php].

For trees not listed in the tree selection tables of the tree guides, the *Sunset Western Garden Book* should be consulted. This document provides the mature height range or maximum height for each species. If a range is given, the average of the maximum height range should be used to determine if the tree is large, medium, or small.

~~CEC Climate Zones~~	~~Tree Regions~~	~~Tree Guide to Use~~	
~~1, 2, 3, 4, 5~~	~~Northern California Coast~~	~~Under Development (Use Sunset Western Garden Book)~~	
~~6, 7, 8~~	~~Southern California Coast~~	~~McPherson, E.G., et al. 2000. Tree guidelines for coastal Southern California communities. Sacramento, CA: Local Government Commission~~	~~Chapter 5, pages 57-65~~
~~9, 10~~	~~Inland Empire~~	~~McPherson, E.G., et al. 2001. Tree guidelines for Inland Empire communities. Sacramento, CA: Local Government Commission~~	~~Chapter 6, pages 65-82~~
~~11, 12, 13~~	~~Inland Valleys~~	~~McPherson, E.G., et al. 1999. Tree guidelines for San Joaquin Valley communities. Sacramento, CA: Local Government Commission~~	~~Chapter 5, pages 50-55~~
~~14, 15~~	~~Southwest Desert~~	~~McPherson, E.G., et al. 2004. Desert southwest community tree guide: benefits, costs and strategic planting. Phoenix, AZ: Arizona Community Tree Council, Inc.~~	~~Chapter 7, pages 51-53~~
~~16~~	~~Northern Mountain and Prairie~~	~~McPherson, E.G, et al. 2003. Northern mountain and prairie community tree guide: benefits, costs and strategic planting. Center for Urban Forest Research, USDA Forest Service, Pacific Southwest Research Station.~~	~~Chapter 5, pages 47-55~~

~~Source : California Energy Commission~~

Table B-4 shows the horizontal distance that trees of each mature height category would need to be located from nearest point of the PV array to meet the condition of minimal shading.

Table B-4: Horizontal Distance Trees Would Need to Be Located From the Closest Point of a PV Array to Qualify for Minimal Shading

Mounting Location	Small Tree (20 ft)	Medium Tree (35 ft)	Large Tree (50 ft)
1 Story (Lowest Point of Array at 12 ft)	16	46	76
2 Story (Lowest Point of Array at 22 ft)	Any Distance	26	56
3 Story (Lowest Point of Array at 32 ft)	Any Distance	6	36

Source: California Energy Commission

G. Verification of System Performance

The PV installer and HERS Rater must verify that the AC power output from the PV system is consistent with that predicted by the expected performance calculations. The CECPV Calculator will determine an estimate of system AC power output for a range of solar irradiance and ambient air temperature conditions and print a table on the ~~CF-1R-PV~~NSHP PV-1 form. The values in the table will be 90 percent of the output estimated by the CECPV Calculator for each set of conditions in the table. (The calculations also include the default adjustment of 0.88 for losses such as dirt, dust, and mismatched wiring.) The values in the table are for an unshaded array. An example of the data that will be produced is shown in Table B-5. The data in the table ~~is~~ are specific to each PV system.

Verification of system performance must be performed after the PV system is installed and connected to the electricity grid. Measurements must be made with a minimum irradiance of 300 W/m² in a plane parallel to the array. The PV installer and/or the HERS Rater must 1) measure the solar irradiance in a plane parallel to the array, 2) measure the ambient air temperature, and 3) determine the expected AC power output for the measured field conditions from the table on the ~~CF-1R-PV~~NSHP PV-1 form. The PV installer or the HERS Rater must then observe the AC power output displayed on the system performance meter (typically an inverter with a built-in performance meter) and verify that the AC power output is equal to or greater the amount shown in the table for the field-measured conditions. To qualify for incentives under NSHP, PV systems must have a standalone performance meter or an inverter with a built-in performance meter that measures AC power output.

The PV installer and HERS Rater must observe the AC power output on the system performance meter after waiting for a period of stable conditions during which the measured solar irradiance has stayed constant within ± 5 percent.

Table B-5: Example Table of Expected AC Power Output From CECPV Calculator (Watts)

T=30	T=35	T=40	T=45	T=50	T=55	T=60	T=65	T=70	T=75	T=80	T=85	T=90	T=95	T=100	T=105	T=110	T=115	T=120
591	584	576	568	560	553	544	536	528	520	512	504	496	487	479	471	463	454	446
640	632	623	615	607	598	590	581	572	564	555	546	537	528	519	510	501	492	483
689	680	671	662	653	643	634	625	616	606	597	588	578	569	559	550	540	530	520
738	728	718	708	699	689	679	669	659	649	639	629	619	609	598	588	578	568	557
786	776	765	755	745	734	723	713	702	691	681	670	659	648	637	626	615	604	593
835	824	813	802	790	779	768	757	745	734	722	711	699	688	676	664	653	641	629
883	872	860	848	836	824	812	800	788	776	764	752	739	727	715	702	690	677	665
931	919	907	894	882	869	856	843	831	818	805	792	779	766	753	740	727	714	700
978	966	953	940	927	913	900	887	873	860	846	832	819	805	791	777	763	750	736
1025	1012	998	984	971	957	943	929	915	901	887	872	858	843	829	814	800	785	770
1071	1057	1043	1029	1014	1000	986	971	956	942	927	912	897	882	866	851	836	820	805
1117	1102	1088	1073	1058	1043	1027	1012	997	982	966	951	935	919	903	887	871	855	839
1163	1147	1132	1116	1100	1085	1069	1053	1037	1021	1005	989	972	956	940	923	906	890	873
1208	1192	1176	1159	1143	1126	1110	1093	1077	1060	1043	1026	1009	992	975	958	941	924	906
1252	1236	1219	1202	1185	1168	1150	1133	1116	1098	1081	1063	1046	1028	1010	992	974	957	939
1296	1279	1261	1244	1226	1208	1190	1172	1154	1136	1118	1100	1081	1063	1045	1026	1007	989	970
1340	1322	1304	1285	1267	1248	1230	1211	1192	1174	1155	1136	1117	1098	1078	1059	1040	1021	1001
1383	1364	1345	1326	1307	1288	1269	1249	1230	1210	1191	1171	1151	1132	1112	1092	1072	1052	1032
1425	1405	1386	1366	1346	1327	1307	1287	1267	1246	1226	1206	1185	1165	1144	1124	1103	1082	1061
1466	1446	1426	1406	1385	1365	1344	1323	1303	1282	1261	1240	1219	1198	1176	1155	1134	1112	1090
1507	1486	1466	1445	1423	1402	1381	1360	1338	1317	1295	1273	1252	1230	1208	1186	1164	1141	1119
1547	1526	1504	1483	1461	1439	1417	1395	1373	1351	1328	1306	1284	1261	1238	1216	1193	1170	1147
1587	1565	1542	1520	1498	1475	1452	1430	1407	1384	1361	1338	1315	1292	1268	1245	1221	1198	1174
1626	1603	1580	1557	1534	1510	1487	1464	1440	1417	1393	1369	1345	1322	1298	1273	1249	1225	1200
1663	1640	1616	1593	1569	1545	1521	1497	1473	1449	1424	1400	1375	1351	1326	1301	1276	1251	1226
1701	1676	1652	1628	1603	1579	1554	1529	1505	1480	1455	1430	1404	1379	1354	1328	1302	1277	1251
1737	1712	1687	1662	1637	1612	1586	1561	1536	1510	1484	1459	1433	1407	1381	1354	1328	1302	1275
1772	1747	1721	1696	1670	1644	1618	1592	1566	1540	1513	1487	1460	1434	1407	1380	1353	1326	1299
1807	1781	1755	1729	1702	1676	1649	1622	1595	1569	1542	1514	1487	1460	1432	1405	1377	1349	1322
1980	1815	1788	1761	1734	1706	1679	1652	1624	1597	1569	1541	1513	1486	1457	1429	1401	1372	1344
1980	1980	1820	1792	1765	1737	1709	1681	1653	1624	1596	1568	1539	1511	1482	1453	1424	1395	1365
1980	1980	1980	1823	1795	1767	1738	1709	1680	1652	1623	1593	1564	1535	1506	1476	1446	1417	1387
1980	1980	1980	1980	1825	1796	1766	1737	1708	1678	1648	1619	1589	1559	1529	1499	1468	1438	1407
1980	1980	1980	1980	1980	1824	1794	1764	1734	1704	1674	1643	1613	1582	1551	1520	1490	1458	1427

1. ~~1.~~ Measuring Solar Irradiance

Solar irradiance must be measured using an irradiance meter. When making this measurement, the PV installer or HERS Rater must place the irradiance meter in a plane that is parallel to the PV array. The PV installer should position the irradiance meter on top of the PV array or on the roof next to the PV array. If the HERS Rater does not have direct access to the roof, he or she must position the irradiance meter such that it is in full sun and is in a plane that is parallel to the PV array. Digital protractors or other instruments may be used to properly position the irradiance meter.

2. ~~2.~~ Measuring Ambient Air Temperature

Ambient air temperature must be measured with a digital thermometer in the shade. The instrument must have an accuracy of ± 2 degrees Celsius.

3. ~~3.~~ Observing AC Power Output at the System Performance Meter

The PV installer and the HERS Rater must observe and record the AC power output reading from the system performance meter as soon as possible after ~~making the measurements of~~measuring solar irradiance and ambient temperature. The inverter may cycle between multiple readings (total kWh, AC power output, and so forth), so the PV installer or HERS Rater will need to wait until the power is displayed and record this reading; several readings should be made to make sure that they are consistent and stable.

4. ~~4.~~ Multiple Orientation Arrays

Multiple orientation arrays are those with parallel strings, each with an equal number of modules, in different orientations (azimuth and tilt) and connected to the same inverter.[38] When parallel strings in different orientations are connected to the same inverter, separate ~~CF-1R-PV~~NSHP PV-1 forms must be prepared for each orientation, and solar irradiance must be measured separately in a plane parallel to each orientation. Field verification will require separate ~~CF-6R-PV~~NSHP PV-2 and ~~CF-4R-PV~~NSHP PV-3 forms for each orientation. The expected AC power output is determined separately for each orientation, and the sum is used for verification~~ purposes~~.

For example, a qualifying 3 kW PV system has 20 PV modules grouped evenly into two parallel strings of 10 modules each, one facing south with an azimuth of 170 degrees and one facing west with an azimuth of 260 degrees. The installer or HERS Rater evaluates system performance

---

38 Substantial reductions in performance will result if there are different numbers of modules in each string or if modules with different orientations are connected in series.

at 11:30 a.m. in March with an ambient temperature of 62 degrees Fahrenheit. The installer or HERS Rater measures 950 W/m² of solar irradiance in the plane parallel to the south string and 500 W/m² in a plane parallel to the west-~~-~~facing string.[39]

The total expected AC power output table on the ~~CF-1R-PV~~NSHP PV-1 indicates that the system should be producing ~~1,200~~1,561 W at 950 W/m² and ~~700~~ 887 W at 500 W/m² of solar irradiance. The expected AC power output is calculated as ~~1,900~~2,448 W by summation of each orientation's expected AC power output (~~1,200~~1,561 W + ~~700~~ 887 W = ~~1,900~~2,448 W). This calculated value must be compared to the value displayed on the system performance meter.

39 When testing systems with multiple orientation arrays, the solar irradiance levels on all arrays must remain constant within ± 5 percent as discussed in Verification of System Performance above.

APPENDIX C:

ENERGY EFFICIENCY DOCUMENTATION REQUIREMENTS

A. Plan Check Checklist

The purpose of this checklist is to expedite the required plan check process. **Applications submitted without the following documents will be returned to the Applicant. Additional documentation may be requested during the plan -check process.**

1. A complete set of construction plans[40] that contain the following:
   - Architectural, electrical, mechanical, and plumbing information (as applicable).)
   - A window and door schedule that shows sizes and includes all skylights (if not shown on the floor plan).)
   - Elevation, wall, roof, floor construction assemblies.
   - Floor finish schedule (if CF-1R shows high mass design).)
   - A list of lots and addresses (for residential developments).)
   - A site plan with a North arrow (for custom homes).)
   -
2. Compliance forms and electronic files:
   - Hard copy of the final CF-1R or PERF-1 signed by a CEPE or CEA.
   - Electronic input file(s) for the CF-1R or PERF-1.
   -
3. Equipment and materials documentation:
   - Windows, glazed doors, skylights—specification sheet with manufacturer's name that demonstrates U-factor and Solar Heat Gain Coefficient (SHGC).)
   - Space-heating equipment—specification sheet with manufacturer's name/model number and efficiency rating for each unit.

---

40 Plans may be submitted electronically either as a .pdf file or .dwf file. m Minimum plan size of 15" x 21" for printed plans.

- Air conditioner—specification sheet with manufacturer's name/model numbers for condenser/coil match or AHRI reference number for each proposed unit (~~http://~~www.Ahridirectory.org) that has an efficiency rating greater than SEER 13, EER 11.

- Water heater—specification sheet with manufacturer's name/model number and efficiency rating. If installing a solar water heater, a Solar Water Heating Calculation Form (CF-SR) from either the California F-Chart (OG 100) or Solar Fraction Calculator for Rated Systems (OG 300) is required.

- Roofing material—specification sheet that shows emissivity and reflectivity value of product.

- Specification sheets for any special features or equipment used for compliance with the energy efficiency requirements.

4. Additional requirements:
   - For appliances provided by the builder, specification sheets with manufacturer's name/model number that demonstrate the appliance is ENERGY STAR® labeled if ENERGY STAR is applicable to that appliance. Only products listed under the "Appliances" heading of the ENERGY STAR website~~,~~ need to be verified as ENERGY STAR-~~-~~labeled.[41]

B. ~~CF-4R-EE NSHP~~ Additional Energy Features Checklist Verification Guidelines

The ~~CF-4R-EE NSHP~~Additional Energy Features Checklist (NSHP EE-3) ~~form~~ is required for all Tier I and Tier II projects and is completed by a HERS Rater to verify the energy efficiency requirements of the NSHP program. This verification is in addition to any verifications required for any applicable Title 24, Part 6 HERS measures. The process to verify energy efficiency compliance involves a field inspection by a HERS Rater where the measures listed on the NSHP EE-3 ~~CF-4R-EE NSHP form~~ are checked off as having passed or failed inspection. The NSHP EE-3 ~~CF-4R-EE NSHP form~~ will be prepopulated with information from the CF-1R submitted in the NSHP application and that has been uploaded to a HERS Provider data registry. The HERS Rater will ~~only~~ need to check off only whether a measure passed or failed.

The NSHP EE-3 will verify the following features of a home:

- Opaque Surfaces

41 www.energystar.gov/index.cfm?c=products.pr_find_es_products

- Glazing (Window) Values
- HVAC Efficiency
- Water Heater Efficiency
- Radiant Barrier Installation

Items listed in the Opaque Surfaces ~~Details~~ section require the Rater to verify the R-values of insulation installed in the building. These items ~~of the CF-4R-EE NSHP (for example, wall insulation)~~ can be verified either by having a HERS Rater on-site while the item is accessible ~~(for example, prior to enclosure of walls)~~ or by providing the HERS Rater with any of the following: photographs of the installed items, invoices for materials purchased, and any relevant CF-6Rs. ~~The same allowance for photographs, invoices, and relevant CF-6Rs applies to any special feature listed in Appendix C, Section C that is not accessible to the HERS Rater.~~ Acceptance of photographs, invoices, and relevant CF-6Rs is solely at the discretion of the HERS Rater.

Note: ~~-~~The HERS verification measure, Quality Installation of Insulation (QII), cannot be verified using photographs, invoices, or CF-6Rs. A HERS Rater must be on-site and perform the required verification prior to wall enclosure, or QII may not be used to meet the NSHP energy efficiency requirements.

Items listed in the Glazing (Window) Values section require the Rater to verify the area, Solar Heat Gain Coefficient (SHGC), and U-Factor for each glazing product. Items listed in the HVAC Effieciency section will require the Rater to verify the cooling (for example, SEER) and heating efficiency (for example, AFUE) of all HVAC units in the building. Items listed in the Water Heater Efficiency section will require the Rater to verify the water heater efficiency values (for example, energy factor) of all water heaters installed in the building.

~~All other measures listed on the CF-4R-EE NSHP must be verified through visual inspection.~~

Each item listed on the NSHP EE-3 ~~CF-4R-EE NSHP~~ must be compared and verified against what was actually installed because each item is critical to the overall performance and energy savings of the building~~'s overall performance and energy savings~~.

~~Special features are items that require special attention. For example, items such as radiant barriers would require a HERS Rater to visually verify the proper installation of the radiant barrier, ensuring that it is installed between the rafters and on the gable ends of the attic. The list of special features can be found in Appendix C, Section C, of the *NSHP Guidebook*. Special features can be inspected at any time during the construction process, with the exception of the housewrap/air-retarding wrap that must be inspected prior to wall enclosure.~~

If an applicant is participating in a utility new construction energy efficiency program, such as the California Advanced Homes Program (CAHP), he or she must meet the energy efficiency requirements of that utility new construction energy efficiency program rather than the NSHP energy efficiency requirements (~~i.e.~~that is, the NSHP EE-3 ~~CF-4R-EE NSHP~~ will not be

completed). See Chapter II, Section C, for additional information on participation in a utility new construction energy efficiency program.

C. NSHP Tier I and Tier II Requirements for Different Eligible Building Types

Tables C-1 and C-2 show the compliance documentation that must be submitted and the efficiency requirements that must be met for different eligible building types to receive an NSHP incentive.

Table C-1: NSHP Energy Efficiency Requirements for Eligible Building Types, Excluding Mixed-Use Buildings

Building Type[42]	**Code-Compliant Energy Efficiency Requirements (*2013 Standards*)**[43]	**Tier I Energy Efficiency Requirements (*2013 Standards*)**	**Tier II Energy Efficiency Requirements (*2013 Standards*)**
Low-Rise Residential[44]	Compliance with the *Building Energy Efficiency Standards* as indicated on the CF-1R	Total compliance margin of at least 15 percent[45] better than standard as indicated on the Certificate of Compliance (CF-1R).	Total compliance margin of at least 30 percent[46] better than standard as indicated on the CF-1R AND space cooling compliance margin of at least 30 percent better than standard.
High-Rise Residential[47]	Compliance with the *Building Energy Efficiency Standards* as indicated on the PERF-1	Compliance margin, excluding receptacle, process,[48] process lighting, of at least 10 percent[49] better than standard as indicated on the PERF-1.	Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent[50] better than standard as indicated on the PERF-1 AND space cooling compliance margin of at least 15 percent better than standard.

42 The entire building must meet the energy efficiency requirements. Each appliance provided by the builder must be ENERGY STAR®- labeled if ENERGY STAR® is applicable to that appliance. This applies to Code-Compliant, Tier I and Tier II projects.

43 The building must comply with the *2013 Building Energy Efficiency Standards* prior to claiming the solar compliance credit for the 2013 Standards.

44-A building, other than a hotel/motel that is of Occupancy Group R, Division 1, and is multifamily with three stories or less, or a single-family residence of Occupancy Group R, Division 3, or an Occupancy Group U building located on a residential site. Refer to Title 24, Part 2, for building occupancy groups.

45 For both the *2008* and *2005 Standards*, the Tier I energy efficiency requirements for low-rise residential buildings are a total compliance margin of at least 15 percent better than standard.

46 For the *2008 Standards*, the Tier II energy efficiency requirements for low-rise residential buildings are a total compliance margin of at least 30 percent better than standard AND space cooling compliance margin of at least 30 percent better than standard. For the *2005 Standards*, theTier II energy efficiency requirements were a total compliance margin of at least 35 percent better than standard AND space cooling compliance margin of at least 40 percent better than standard.

47 A building, other than a hotel/motel, of Occupancy Group R, Division 1 with four or more habitable stories. High-rise residential buildings are subject to the provisions of the *Building Energy Efficiency Standards*, for nonresidential buildings. Refer to Title 24, Part 2, for building occupancy groups.

Detached nonresidential building that is solely for the use and benefit of the residential occupants.[51]	Compliance with the *Building Energy Efficiency Standards* as indicated on the PERF-1	Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent[52] better than standard as indicated on the PERF-1.	Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent[53] better than standard as indicated on the PERF-1.

Source: California Energy Commission

48 Process is an activity or treatment that is not related to the space conditioning, lighting, service water heating, or ventilating of a building as it relates to human occupancy. Refer to the *2008* and *2013 Standards* for additional information.

49 For both the the *2008* and *2005 Standards*, Tier I energy efficiency requirements for high-rise residential buildings are a total compliance margin of at least 15 percent better than standard.

50 For the *2008 Standards*, the Tier II energy efficiency requirements for high-rise residential buildings are a total compliance margin of at least 30 percent better than standard AND space cooling compliance margin of at least 30 percent better than standard. For the *2005 Standards*, Tier II energy efficiency requirements were a total compliance margin of at least 35 percent better than standard AND space cooling compliance margin of at least 40 percent better than standard.

51 Additional energy efficiency requirements: For multifamily developments, at least one residential building must meet the energy efficiency requirements. For single-family residential developments (subdivisions), all homes in the residential development must meet the energy efficiency requirements.

52 For both the *2008* and *2005 Standards*, the Tier I energy efficiency requirements are a total compliance margin of at least 15 percent better than standard.

53 For both the *2008* and *2005 Standards*, the Tier II energy efficiency requirements are a total compliance margin of at least 30 percent better than standard.

Table C-2: NSHP Energy Efficiency Requirements for Eligible Mixed-Use Buildings

Building Type	Code-Compliant Energy Efficiency Requirements (*2013 Standards*)[54]	Tier I Energy Efficiency Requirements (*2013 Standards*)	Tier II Energy Efficiency Requirements (*2013 Standards*)
Low-rise mixed-use where the CFA[55] of the nonresidential occupancy comprises no more than 20 percent of the CFA of the building [56]	Compliance with the *Building Energy Efficiency Standards* as indicated on the CF-1R	Total compliance margin of at least 15 percent better than standard as indicated on the CF-1R[45].	Total compliance margin of at least 30 percent better than standard as indicated on the CF-1R AND space cooling compliance margin of at least 30 percent better than standard[46].
Low-rise mixed-use where the CFA of the nonresidential occupancy comprises more than 20 percent of the CFA of the building [57]	Residential Occupancy: Compliance with the *Building Energy Efficiency Standards* as indicated on the CF-1R AND Nonresidential Occupancy: Compliance with the *Building Energy Efficiency Standards* as indicated on the PERF-1	Residential Occupancy[58]: Total compliance margin of at least 15 percent better than standard as indicated on the CF-1R. AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1.	Residential Occupancy[59]: Total compliance margin of at least 30 percent better than standard as indicated on the CF-1R AND space cooling compliance margin of at least 30 percent better than standard. AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1.

54 The building must comply with the *2013 Standards* prior to claiming the *2013 Standards*' solar compliance credit.
55 Conditioned floor area (CFA) is the floor area (in square feet) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space.
56 A solar energy system serving electrical loads in the entire mixed-use building shall be eligible for NSHP. The entire building is subject to the provisions of the *Building Energy Efficiency Standards*, for low-rise residential buildings.
57 Only the portion of a solar energy system serving electrical loads in the low-rise residential occupancy shall be eligible for NSHP. Each occupancy shall meet the provisions of the *Building Energy Efficiency Standards*, applicable to that occupancy.
58 For the *2008 Standards*, the energy efficiency requirements are a total compliance margin of at least 15 percent better than standard for the residential occupancy AND 15 percent better than standard for the nonresidential occupancy.

High-rise mixed-use where the CFA of the nonresidential occupancy comprises no more than 20 percent of the CFA of the building[60]	Compliance with the *Building Energy Efficiency Standards* as indicated on the PERF-1.	Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1.[49]	Compliance Margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1 AND space cooling compliance margin of at least 15 percent better than standard.[50]
High-rise mixed-use where the CFA of the nonresidential occupancy comprises more than 20 percent of the CFA of the building.[61]	High-rise Residential Occupancy: Compliance with the *Building Energy Efficiency Standards* as indicated on the PERF-1 AND Nonresidential Occupancy: Compliance with the *Building Energy Efficiency Standards* as indicated on the PERF-1.	High-rise residential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1 AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1.[58]	High-rise residential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1 AND space cooling compliance margin of at least 15 percent better than standard AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 15 percent better than standard as indicated on the PERF-1.[59]

Source: California Energy Commission

59 For the *2008 Standards*, the residential and nonresidential occupancy energy efficiency requirements are a total compliance margin of at least 30 percent better than standard AND space-cooling compliance margin of at least 30 percent better than standard.

60 A solar energy system serving electrical loads in the entire mixed-use building shall be eligible for NSHP. The entire building is subject to the provisions of the *Building Energy Efficiency Standards* for high-rise residential buildings.

61 Only the portion of a solar energy system serving electrical loads in the high-rise residential occupancy shall be eligible for NSHP. Each occupancy shall meet the provisions of the *Building Energy Efficiency Standards* applicable to that occupancy.

~~Table C-2: NSHP Energy Efficiency Requirements for Eligible Mixed-Use Buildings~~

~~Building Type~~	~~Base Tier Energy Efficiency Requirements (2013,~~	~~Tier I Energy Efficiency Requirements(2013 Title 24, Part 6)~~	~~Tier II Energy Efficiency Req (2013 Title 24, Part 6)~~
~~Low-rise mixed-use where the CFA[34] of the nonresidential occupancy comprises no more than 20 percent of the CFA of the building[35]~~	~~Compliance with the standards as indicated on the CF-1R~~	~~Total compliance margin of at least 15 percent better than standard as indicated on the CF-1R.~~	~~Total compliance margin of at percent better than standard a on the CF-1R AND space cooli compliance margin of at least better than standard.~~
~~Low-rise mixed-use where the CFA of the nonresidential occupancy comprises more than 20 percent of the CFA of the building[36]~~	~~Residential Occupancy: Compliance with the standards as indicated on the CF-1R AND Nonresidential Occupancy: Compliance with the standards as indicated on the PERF-1~~	~~Residential Occupancy[37]: Total compliance margin of at least 15 percent better than standard as indicated on the CF-1R. AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1.~~	~~Residential Occupancy[38]: Tota compliance margin of at least better than standard as indicat CF-1R AND space cooling com margin of at least 30 percent b standard. AND Nonresidential Occupancy: C margin, excluding receptacle, process lighting, of at least 15 better than standard as indicat PERF-1.~~

~~33 The entire building must meet the energy efficiency requirements. Each appliance provided by the builder must be ENERGY STAR-labeled if ENERGY STAR is applicable to that appliance. This applies to Base Tier, Tier I and Tier II projects.~~

~~34 Conditioned floor area (CFA) is the floor area (in square feet) of enclosed conditioned space on all floors of a building, as measured at the floor level of the exterior surfaces of exterior walls enclosing the conditioned space.~~

~~35 A solar energy system serving electrical loads in the entire mixed-use building shall be eligible for NSHP. The entire building is subject to the provisions of Title 24, Part 6, for low-rise residential buildings.~~

~~36 Only the portion of a solar energy system serving electrical loads in the low-rise residential occupancy shall be eligible for NSHP. Each occupancy shall meet the provisions of Title 24, Part 6, applicable to that occupancy.~~

~~37 For the 2008 Title 24, Part 6, the energy efficiency requirements were total compliance margin of at least 15 percent better than standard for the residential occupancy AND 15 percent better than standard for the nonresidential occupancy.~~

~~38 For the 2008 Title 24, Part 6, the energy efficiency requirements were total compliance margin of at least 30 percent better than standard for the residential occupancy AND 30 percent better than standard for the nonresidential occupancy.~~

~~High-rise mixed-use where the CFA of the nonresidential occupancy comprises no more than 20 percent of the CFA of the building[39]~~	~~Compliance with the standards as indicated on the PERF-1~~	~~Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1.~~	~~Compliance Margin, excluding process, process lighting, of at percent better than standard as on the PERF-1 AND space coo compliance margin of at least better than standard.~~
~~High-rise mixed-use where the CFA of the nonresidential occupancy comprises more than 20 percent of the CFA of the building[40]~~	~~High-rise Residential Occupancy: Compliance with the standards as indicated on the PERF-1 AND Nonresidential Occupancy: Compliance with the standards as indicated on the PERF-1~~	~~High-rise residential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1 AND Nonresidential Occupancy: Compliance margin, excluding receptacle, process, process lighting, of at least 10 percent better than standard as indicated on the PERF-1.~~	~~High-rise residential Occupan Compliance margin, excluding process, process lighting, of at percent better than standard as on the PERF-1 AND space coo compliance margin of at least better than standard AND Nonresidential Occupancy: Co margin, excluding receptacle, process lighting, of at least 15 better than standard as indicat PERF-1.~~

~~Source: California Energy Commission~~

~~A. NSHP List of Energy Efficiency Special Features~~

~~Special Feature~~	~~Special Feature Description~~
~~Housewrap/ Air-retarding wrap~~	~~This building incorporates an air retarding wrap that shall be installed to meet the requirements of Section 150 (f) of the 2008 Building Energy Efficiency Standards, Title 24, Part 6.~~
~~Metal-framed walls~~	~~This building uses metal-framed walls that shall meet mandatory insulation requirements. In many cases sheathing~~

~~39 A solar energy system serving electrical loads in the entire mixed-use building shall be eligible for NSHP. The entire building is subject to the provisions of Title 24, Part 6 for high-rise residential buildings.~~
~~40 Only the portion of a solar energy system serving electrical loads in the high-rise residential occupancy shall be eligible for NSHP. Each occupancy shall meet the provisions of Title 24, Part 6, applicable to that occupancy.~~

	~~insulation is used in addition to cavity insulation. Metal-framed walls shall be built according to the details in Reference Joint Appendix 4 of the Reference Appendices for the 2008 Building Energy Efficiency Standards for this construction type.~~
~~Controlled-ventilation Crawlspace~~	~~Controlled-ventilation Crawlspace is to be constructed in accordance with the alternative to Section 150(d) of the 2008 Building Energy Efficiency Standards, Title 24, Part 6, and Section 3.5.4 of the 2008 Residential Alternative Calculation Method Approval Manual.~~
~~High mass building features~~	~~High-mass building features are described in the THERMAL MASS FOR HIGH MASS DESIGN table of compliance form CF-1R.~~
~~Radiant Barriers installed~~	~~The radiant barriers installed in this building shall meet eligibility and installation criteria as specified in Reference Residential Appendix RA4.2.2 of the Reference Appendices for the 2008 Building Energy Efficiency Standards.~~
~~Multiple conditioned zones~~	~~This building uses multiple conditioned zones. The nonclosable area between zones cannot exceed 40 ft^2 and each zone must be controlled with a separate thermostat. In addition, the air flow requirements and fan watt-draw requirements in Reference Residential Appendix RA3.3 of the Reference Appendices for the 2008 Building Energy Efficiency Standards[41] must be met.~~
~~Cool Roofing products installed~~	~~Cool roof products installed on this building qualifying for compliance with Sections 141(a)1.B, 143(a)1 or 149(b) 1-B, 151(f)12, or 152(b)1H of the 2008 Building Energy Efficiency Standards, Title 24, Part 6, shall be rated and labeled by the Cool Roof Rating Council in accordance with Section 10-113 of the 2008 Building Energy Efficiency Standards, Title 24, Part 6.~~
~~Hydronic heating system~~	~~Table R3-50 of the 2008 Residential Alternative Calculation Method Approval Manual specifies default assumptions for hydronic systems for existing buildings. System details are in the SPECIAL SYSTEMS – HYDRONIC DISTRIBUTION SYSTEMS AND TERMINALS table of the CF-1R.~~
~~Gas Absorption equipment~~	~~Minimum efficiency for Gas Absorption equipment is specified in Table 112-D in Subchapter 2 of the 2008 Building Energy Efficiency Standards, Title 24, Part 6.~~
~~Non-NAECA large storage gas water heater~~	~~A non-NAECA large storage gas water heater is specified for this building. System specifications are shown in the~~

~~41 www.energy.ca.gov/2008publications/CEC-400-2008-004/CEC-400-2008-004-CMF.PDF.~~

	~~SPECIAL WATER HEATER/BOILER DETAILS table of compliance form CF-1R.~~
~~Water heating system does not have a single separate water heater serving each dwelling unit .~~	~~Water heating system specifications are in the SPECIAL WATER HEATER/BOILER DETAILS table of compliance form CF-1R.~~
~~Solar thermal water heating~~	~~Energy benefits of solar water heating shall be calculated using procedures described in Section 5.1.5 of the 2008 Residential Compliance Manual and Section 5.13 of the 2008 Residential Alternative Calculation Method Approval Manual. See the Reference Appendix RA4.4.10 of the Reference Appendices for the 2008 Building Energy Efficiency Standards for additional information.~~
~~Sunspace attached to building~~	~~This building has an attached sunspace with interzone surfaces, custom solar heat gain distribution, and sunspace thermal mass elements.~~

APPENDIX D:

NSHP FORMS

NSHP-1 Reservation Application Form

NSHP-2 Payment Claim Form

NSHP-3 Ten-Year Warranty Form

~~STD-204 Payee Data Record~~

The following forms are not included in the Guidebook~~,~~ and are either produced by the CECPV Calculator or provided by the solar energy system installer or HERS Rater:

~~CF-1R-PV~~NSHP PV-1 Energy Commission CECPV Calculator Output Form

NSHP PV-2 PV Installation Form

~~CF-4R-EE NSHP Certificate of Field Verification~~

~~CF-4R-PV~~NSHP PV-3 PV Field Verification and Diagnostic Testing Form

NSHP EE -3 Additional Energy Features Checklist~~CF-6R-PV Installation Certificate Form~~

NSHP-1	RESERVATION APPLICATION FORM NEW SOLAR HOMES PARTNERSHIP

1. Applicant Name and Contact Information

Homeowner or Builder/Developer Name	Phone Number	Email Address

Please check one of the following:

I am the: ☐ Homeowner ☐ Builder/Developer

Mailing Address	City:	State:	Zip Code:

Contact Name (if different from above) & Company	Address	Phone, Fax and Email Address

2. Project Description

Please give a general project description including the site address of development.

Name of project: _____

Address where the system will be installed (if this is a housing development, only the city or location to nearest city needs to be specified): _____

Please check all that apply to your project:

Occupancy type: ☐ Single Family ☐ Multifamily ☐ Mixed-Use ☐ Nonresidential

Project type: ☐~~Solar as Standard~~Large developments (More than 50 percent of the residential dwelling units in a ~~large~~ _____project (minimum of 6 residential dwelling units) will have solar energy systems installed.)

☐Custom home

☐Small housing developments with less than 6 residential units

☐Projects where solar will be installed on less than 50 percent of the residential dwelling units

☐Common area systems in residential developments

☐~~☐Solar as an Option (Please note, if solar is offered as an option, your reservation can only be for up to 50 percent of the residential dwelling units in the project)~~

Total number of residential dwelling units in the project: _____

Total number of residential dwelling units with solar energy systems installed: _____

☐ Affordable Housing

☐ Total number of common areas systems installed: _____

☐ Total number of residential dwelling units with solar energy systems installed: _____

Building Energy Efficiency Standards: ☐ 2005 ☐ 2008 ☐ 2013

Expected Energy Efficiency Level of Project: ☐ Code-Compliant (for *2013 Building Standards* Only)
☐ Tier 1 ☐ Tier 2

Will your system be Virtual Net Metered (VNM)? ☐ Yes ☐ No

If yes, please provide the system generation allocation percentages:

☐ Residential Dwelling Units: _____

☐ Affordable Housing Residential Dwelling Units: _____

☐ Common Areas: _____

Please note that only ~~Solar as Standard,~~large developments, affordable housing, and Virtual Net Metered~~solar as an option~~ projects will receive a 36-month reservation. All others will receive an 18-month reservation.

For custom home applicants to complete

Anticipated new construction permit issue date(s): _____

Anticipated solar permit issue date(s):_____ Anticipated occupancy permit issue date(s):_____

Please note that the building permit for the solar energy system should be approved by the building code enforcement agency prior to the original occupancy of the newly constructed building, but no later than ~~180~~ 60 days after the issuance of the occupancy permit.

3. Electric Utility, Participation in Utility's Energy Efficiency Program

Please select the utility providing electricity to the project: ☐ PG&E ☐ SCE ☐ SDG&E ☐ BVE

Is your project participating in the electric utility's new construction energy efficiency program? ☐ Yes ☐ No

Please note that projects participating in the electric utility's new construction energy efficiency program will not need to submit the NSHP energy efficiency documentation.

4. Home Energy Rating System (HERS) Information[42]

	HERS Rater Company	HERS Rater	Phone number	HERS Provider
Energy efficiency measures verification				
Solar energy system field verification				

5. Supporting Documentation Required for Application Submittal

All Projects:

- ☐ ~~Final~~ Subdivision Map or Building Permit*
- ☐ EPBI Documentation
  - ☐ ~~CF-1R-PV~~NSHP PV-1 form
  - ☐ Electronic input files (.emf, ~~-~~.her)

- ~~☐ Equipment Purchase Agreement*~~
- ☐ Installation Contract ~~(if separate from the equipment purchase agreement)~~**
- ☐ Energy Efficiency Documentation**
  - ☐ CF-1R form
  - ☐ Electronic input file (.bld/.mp7, .mp8, .ribd)***
  - ☐ Construction plan set***

Additional Requirements for:

Affordable Housing Projects:

- ☐ Regulatory Agreement

~~**Solar as Standard Projects:**~~

- ~~☐ Build-Out Schedule~~

~~**Solar as an Option Projects:**~~

- ~~☐ Build-Out Schedule~~

Affordable Housing Projects: ~~-~~ TCAC projects have up to 60 days after funding approval to submit the Energy Efficiency Documentation.

~~*In the case of lease or PPA projects, a lease agreement or PPA and an installation contract with equipment listed shall replace the equipment purchase agreement.~~

**Waived if participating in a utility new construction energy efficiency program that meets or exceeds the NSHP Tier 1 requirements, but must submit the program approval letter.*

***A master equipment purchase and installation agreement may be submitted. Self-installs will submit an equipment purchase agreement in place of the installation contract.*

****Waived if applying for the Code-Compliant Incentive or if the compliance documentation is signed by a 2013 CEA.*

6. Other Terms and Conditions

- ~~Builder/Developer is aware that initial energy efficiency measure verification may need to be completed early in the construction process. Energy efficiency measures requiring early verification include, but are not limited to:~~
  - ~~Quality Installation of Insulation (QII)~~
  - ~~Special Features*~~
- Builder/Developer is aware that all NSHP Energy Efficiency verification requirements must be completed for Tier I and Tier II projects in order to receive a full NSHP incentive~~s~~. Required energy efficiency verifications include~~, but are not limited to~~:
  - Envelope Assembly (Wall, Roof)
  - Fenestration Surface Details
  - HVAC System Details- Heating and Cooling
  - Water Heating.
  - ~~Special Features*~~
  - ~~*Please see Appendix C, Section C for more information on special features measures requiring verification.~~

7. Declaration

The undersigned party declares under penalty of perjury that the information in this form and the supporting documentation submitted herewith is true and correct to the best of his or her knowledge and acknowledges the following program requirements to reserve funding:

- ~~Incentives are based on the expected performance of the systems installed.~~
- ~~Buildings must achieve at a minimum Tier I Energy Efficiency to be eligible for the program.~~
- Systems that are leased or provide electricity under a PPA are subject to special reporting requirements. ~~-~~An annual status report on the operation of the solar energy system must be submitted by the lessor or owner of the solar energy system.~~-~~ If the lease agreement or PPA is terminated and the system is removed from the building upon which it was originally installed within ~~five~~ ten

[42] ~~This information is used to upload the project information to the HERS Provider data registry.~~

years of the system's installation or the start date of the agreement, whichever is later, the lessor or system owner is responsible for the funding repayment.

The undersigned party further acknowledges that he or she is aware of the requirements and conditions of receiving funding under the New Solar Homes Partnership (NSHP) and agrees to comply with all such requirements and conditions as provided in the Energy Commission's *NSHP Guidebook,* ~~*Sixth*~~ *Seventh Edition*~~, Overall Program Guidebook~~, and *Building Energy Efficiency Standards* (Title 24, Part 6) as a condition to receiving funding under the NSHP. The undersigned party authorizes the Energy Commission, during the term of the NSHP, to exchange information on this form with the applicable electric utility servicing the project to verify compliance with NSHP requirements.

Signature, Assignment of Administrative Rights and Incentive Recipient Information

(Optional)

☐ I, the applicant, designate _____ as my authorized representative for the New Solar Homes Partnership program. This party is permitted to sign the NSHP-2(s)~~ and any EPBI Documentation~~ on this project on my behalf.

Designated Payee of NSHP Incentive:	_____
Payee's Address:	_____

Homeowner or Builder/Developer Name:	_____	Date:	_____
Signature:	_____	Title:	_____

NSHP-2

PAYMENT CLAIM FORM
NEW SOLAR HOMES PARTNERSHIP

[CEC use only]

Incentive @ _____ = $_____

Payment Approval Date:_____

Reservation ID _____

Project Name _____

Address or _____

Site ID _____

1. Confirmation of Reservation Amount

_____ has been granted a reservation of $ _____ for a _____ kW solar energy system. This reservation is for a _____ project and will expire on _____. ~~-~~The system is being installed at _____. The payment will be made to _____ (designated payee).

The solar energy system must be ~~completed~~ installed ~~and the claim submitted with the appropriate documentation by the deadline~~. ~~. All energy efficiency measures must be completed and verified by a HERS Rater~~ prior to ~~payment claim submittal~~submitting the NSHP-2. Failure to meet these requirements will cause the payment of NSHP incentives to be delayed or withheld. ~~Claims~~ The NSHP-2 form must be postmarked by the expiration date and all required supporting documentation must be submitted no later than 90 calendar days after the expiration date or the reservation will expire and the incentive amount will be forfeited. This reservation is non-transferable. System must be installed at the installation address.

2. Major System Equipment of Record (Modules, Inverters, Meters)

Quantity	Manufacturer	Model	Cost
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3. System Details

Total System Price: _____ Total HERS Cost: _____ Lot Number: _____

Equipment Cost (before rebate): _____ PV HERS Cost: _____ Final Address: _____

Installation Cost: _____ EE HERS Cost: _____ Interconnection Date: _____

Solar Permit Cost: _____ New Construction Building Permit Issue Date:

Sales Arrangement: ☐ Purchased ☐ Leased ☐ PPA Annual kWh:

Final Equipment Seller Name:	Final PV HERS Rater Name and Provider:
Final System Installer Name:	Final EE HERS Rater Name and Provider:

4. PV Modifications

Have any of the equipment or installation specifications changed since the reservation was approved? ☐ Yes ☐ No
If yes, note the changes before claiming payment.

_____

_____

5. Energy Efficiency Modifications

Have any of the measures used to meet the *Building Energy Efficiency Standards* or NSHP energy efficiency requirements changed since the reservation was approved? ☐ Yes ☐ No
If yes, note the changes before claiming payment.

_____

_____

_____

6. Payment Assignment

Is payment assigned to another party?

☐ **Yes (Please fill out all the sections below.)**

☐ **No (Please skip Section ~~5~~ 6 and complete all others.)**

Assignment Request

I, _____, the applicant or authorized representative of the applicant as specified on the NSHP-1 form, hereby assign the right to receive payment for the above noted reservation under the NSHP to the following individual or entity and request that payment be forwarded to this individual or entity at the address below. A STD-204 must be submitted for the person/entity receiving the payment, if it is not already on record with the Energy Commission.

Name: _____

Address: _____

_____

Phone Number: _____

As the applicant or authorized representative of the applicant as specified on the NSHP-1 form, I understand that I remain responsible for complying with the requirements of the NSHP and will remain liable for any tax consequences associated with the reservation payment, despite the payment's assignment. I further understand that I may revoke this payment assignment at any time prior to the Energy Commission's processing of the payment by providing written notice to the Energy Commission's Renewable Energy Office.

Signature: _____ Date: _____

Name: _____ Title: _____

7. Signatures

The undersigned party declares under penalty of perjury that the information in this form and the supporting documentation submitted herewith is true and correct to the best of his or her knowledge. The party further declares under penalty of perjury that the following statements are true and correct to the best of his or her knowledge:

(1) The electrical generating system described above and in any attached documents meets the terms and conditions of the Energy Commission's NSHP, and has been installed~~, and is operating satisfactorily or a complete interconnection package has been submitted to the appropriate utility for the system,~~ as of the date stated below.

(2) The electrical generating system described above and in any attached documents is properly interconnected to the utility distribution grid and has been issued utility approval to operate the system as interconnected to the distribution grid, or ~~a complete interconnection package has been submitted to the appropriate utility for the system.~~ will receive utilty approval to operate the system as interconnected to the distribution grid no later than 90 calendar days after the reservation expiration date.

(3) The rated electrical output of the generating system, the physical location of the system, and the equipment identified were installed as stated above in Sections 1-4.

(4) Except as noted above, there were no changes in the information previously submitted for this system.

The undersigned party further acknowledges that he or she is aware of the requirements and conditions of receiving funding under the NSHP, including the special reporting and repayment requirements for leased systems and systems providing electricity under a power purchase agreement, and agree to comply with all such requirements and conditions as provided in the Energy Commission's *NSHP Guidebook, ~~Sixth~~ Seventh Edition*, ~~Overall Program Guidebook~~ and the *Building Energy Efficiency Standards* (Title 24, Part 6) as a condition to receiving funding under the NSHP.~~-~~ If the system is leased or provides electricity through a power purchase agreement (PPA), an annual status report on the operation of the solar energy system must be submitted by the lessor or owner of the solar energy system,~~–~~If the lease agreement or PPA is terminated and the system is removed from the building upon which it was originally installed within ~~five~~ ten years of the system's installation or the start date of the agreement, whichever is later, the lessor or system owner is responsible for the funding repayment.~~-~~ As specified in the NSHP Guidebook, the undersigned applicant authorizes the Energy Commission during the term of the NSHP to exchange information on this form with the electric utility servicing the system in order to verify compliance with the NSHP requirements.

Applicant/ Authorized Representative	***Required Supporting Documentation***	***Documents to be Verified by Program Administrator***
Name: _____ Title: _____ Signature: _____	• Final building permit signoff or occupancy permit (Code-Compliant projects only.) • Ten-Year Warranty Form (NSHP-3) • Payee Data Record (STD-204), and	• Final EPBI Documentation (~~CF-4R-PV~~NSHP PV-3) • Final NSHP Energy Efficiency Documentation (CF-3R~~4~~ and NSHP EE-

Date: _____	IRS W-9 if requested • Lease or Power Purchase Agreement~~, and Transfer Document, if applicable~~	3~~CF-4R-EE-NSHP~~) or utility new construction energy efficiency program payment letter (Tier I or Tier II projects only) • Utility Approval of Interconnection
For the latest mailing address information, visit [http://www.gosolarcalifornia.ca.gov/contacts/consumers.php].		

NSHP-3	TEN-YEAR WARRANTY FORM *NEW SOLAR HOMES PARTNERSHIP*

System Information

This warranty applies to the following _____ kW solar electric generating system
Equipment Description: _____
Located at: _____

What is Covered

This ten-year warranty is subject to the terms below (check one of the boxes):

☐ **All components of the generating system AND the system's installation.** Said warrantor shall bear the full cost of diagnosis, repair, labor, and replacement of any system or system component, at no cost to the customer. Said warrantor also assumes coverage of the major system components in all situations where the manufacturer warranty does not cover the entire ten-year period; or

☐ **System's installation only.** Said warrantor shall bear the full cost of diagnosis, repair, labor, and replacement of any system or system component, exclusive of the manufacturer's coverage, at no cost to the customer. Copies of manufacturer ten-year warranty certificates for the major system components (i.e. photovoltaic modules and inverter MUST be provided with this form).

☐ **Owner-builder or self-installed installation.** Warranty is inclusive only of the manufacturer's coverage. Copies of manufacturer ten-year warranty certificates for the major system components (i.e. photovoltaic modules and inverter MUST be provided with this form). The owner-builder or self-installer assumes coverage of all other aspects of the ten-year warranty.

General Terms

This warranty extends to the original purchaser and to any subsequent purchasers or owners at the same location during the warranty period. For the purpose of this warranty, the terms "purchaser," "subsequent owner," and "purchase" include a lessee, assignee of a lease, and a lease transaction. This warranty is effective from _____ (date of completion of the system installation). A copy of this warranty is provided to the purchaser of the solar electric generating system.

Exclusions

This warranty does not apply to:

- Damage, malfunction, or degradation of electrical output caused by failure to properly operate or maintain the system in accordance with the printed instructions provided with the system.
- Damage, malfunction, or degradation of electrical output caused by any repair or replacement using a part or service not provided or authorized in writing by the warrantor.
- Damage malfunction, or degradation of electrical output resulting from purchaser or third party abuse, accident, alteration, improper use, negligence or vandalism, or from earthquake, fire, flood, or other acts of God.

Obtaining Warranty Service

Contact the following warrantor for service or instructions:

Name: _____ Phone: ( )

Company: _____ Fax: ( )

Address: _____

Authorized Representative(s): _____ Date: _____