



New Solar Homes Partnership (NSHP) Training Seminar

August 13, 2015

Renewable Energy Office
Renewable Energy Division

Agenda

1. Welcome & Housekeeping
2. Program Information & Eligibility
3. NSHP Documentation
4. Energy Efficiency
5. PV Calculator
6. Application Clinic

Purpose

- Provide financial incentives to encourage the construction of new, energy efficient solar homes
- Enhance energy savings for homeowners
- Provide a “bridge” to achieving California’s zero net energy homes



New Solar Homes Partnership Program Goals



Photo Courtesy of Sherrill Neidich

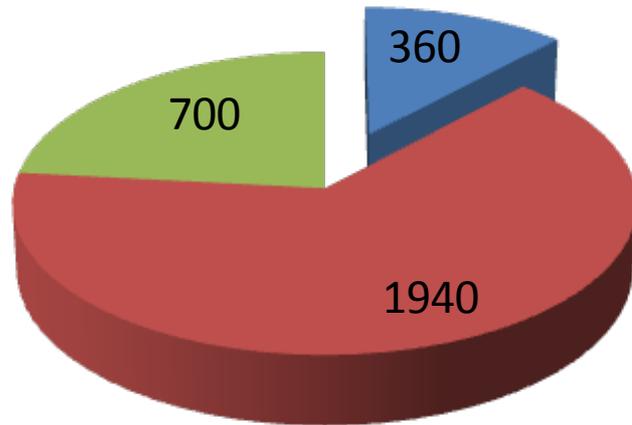
- Sustainable solar homes market; builder commitment to install solar energy systems
- High-performing solar systems on highly efficient residential construction
- 360 MW installed capacity
- Solar on 50%+ new homes
- Self-sufficient solar industry

NSHP Funding

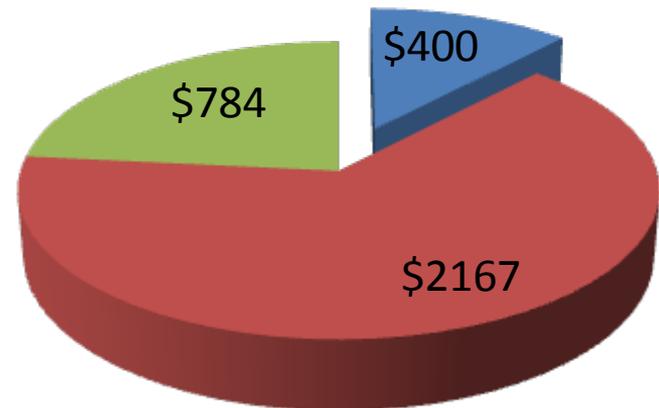
- Last Updated 8/3/15
- Available Funding: \$ 66.4 Million
 - Requested Funding: \$ 14.2 Million
 - Remaining Funding: \$ 52.2 Million
- Potential Additional Funding Sources: Modified Reservations and Expired Projects, SB 83

California Solar Initiative

- New Solar Homes Partnership (NSHP)
- CPUC's California Solar Initiative (CSI)
- Publicly Owned Utility Solar Programs

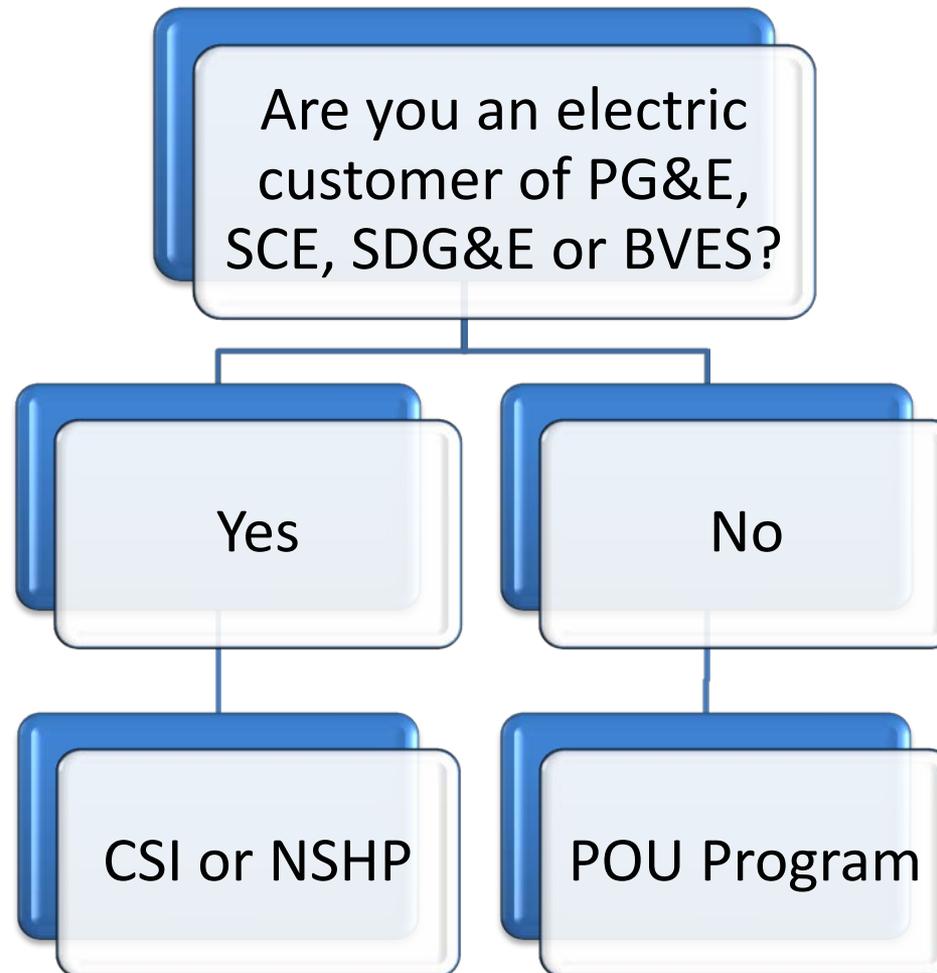


MW Goal



Budget (Millions)

Which Program Do I Apply To?



CSI or NSHP?

What kind of project will the solar system be installed on?

New Residential Construction Projects

NSHP

Existing Homes, Existing and New Commercial, Industrial, Government, Non-Profit and Agricultural Projects

CSI



New Solar Homes Partnership 9th Edition Guidebook Changes

Important Dates

- 7/8/15

Adoption & Effective Date of NSHP
Guidebook, 9th Edition

General Program Changes

	Old (8 th Edition)	New (9 th Edition)
Lease Agreements/PPAs	Must provide the lessee or customer the option of renewing their agreement or purchasing the system at the end of the initial term of the agreement	No longer required to include an option to renew the agreement or purchase the system at the end of the initial term of agreement
Lease Agreement/PPAs	The lessor or system owner is responsible for repayment of the NSHP funding when the lease is terminated early	If the lessee is the payee, the lessee may be identified as the party responsible for repayment of the NSHP funding when the lease is terminated early
Lease Agreement/PPAs	Must demonstrate the NSHP funding benefits the end-use customer by reducing the lease payments	If the lessee is the payee, demonstrating the NSHP funding benefits the end-use customer is no longer required
Affordable Housing	Verify system owner's tax status using the State of California Franchise Tax Board's "Exempt Organization List"	Can also verify property tax status through a Supplemental Clearance Certificate issued to the system owner for the property by the California Board of Equalization (will accept Organizational Clearance Certificate at reservation) OR Verify entity is registered on IRS "Exempt Organization" list to determine system owner's tax status

General Program Changes

	Old (8 th edition)	New (9 th edition)
Affordable Housing		Specifies regulatory agreement must be with a housing agency qualified to enter into the agreement (examples in the guidebook)
Reservation Expiration	Projects have 90 calendar days after reservation expires to complete and submit the remaining required supporting documentation that make up the payment claim package	Projects have either three months or 90 calendar days, whichever is later, after reservation expires to submit required supporting documentation for a complete payment claim package
Project Funding	Projects with one solar energy system site and an increase in expected performance will be funded at the incentive level in effect when NSHP-2 and documents supporting the system changes are submitted	Projects with one solar energy system site and an increase in expected performance will be funded at the incentive level in effect when complete payment claim package is submitted
Project Funding	If a project with multiple solar energy system sites has 10 percent or less of original funding remaining, 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.	Projects with multiple solar energy systems that do not have enough original funding may request additional funding after submitting complete payment claim. Additional funding will be at current incentive level.
Metering Requirements	Affordable housing projects that qualify for virtual net metering (VNM) are not required to separately net-meter each residential dwelling unit that will be allocated electricity from the solar system.	Any project that qualifies for virtual net metering (VNM) is not required to separately net-meter each residential dwelling unit that will be allocated electricity from the solar system.

General Form Changes

Form	Changes
NSHP-1	Wording change: Large developments: 50 percent or more of the residential dwelling units in a project (minimum of 6 residential dwelling units) will have solar energy systems installed. Add Applicant name to signature line
NSHP-2	Wording change: The NSHP-2 form must be postmarked by the expiration date and all required supporting documentation must be submitted no later than 3 months or 90 calendar days, whichever is later . Added Final Total System Cost Documentation to Required Supporting Documentation
NSHP-3	Wording change: For the purpose of this warranty, the terms “purchaser,” “subsequent owner,” and “purchase” include a lessee, assignee or a lease, and a lease transaction, or a host customer, assignee of a power purchase agreement, and a power purchase agreement

Does the new Guidebook (Ninth Edition) Apply to Your Project?

- May Apply If:
 - A reservation application has been submitted, but has not received Energy Commission approval
 - Written Notice
 - A reservation has been approved, but not all payment claims have been approved
 - Applicant may also request project be subject to 9th edition reservation criteria and processes
 - A payment claim has been submitted, but has not received Energy Commission approval
 - May be subject to 9th edition payment claim criteria and processes
- Does Not Apply If:
 - Approved applications that have been paid
 - Approved payment claims
 - Previously disapproved reservation applications



Getting Ready to Participate in the New Solar Homes Partnership Program

Before Applying to NSHP

- **Please Read the NSHP Guidebook and NSHP Web Tool Handout**
- Consider what stage of construction your project is in:
 - Can your project be designed to meet the minimum energy efficiency requirements?
 - Is your project eligible for incentives from your utility's energy efficiency new construction program?
 - Can everything in your project be verified by a HERS rater?

Eligibility Requirements

- Project located in one of four investor-owned electric service territories (PG&E, SCE, SDG&E, BVES).
- Solar energy system will be at least 1 kW AC or larger and interconnected with the utility grid.
- The electricity from the system will offset the end-use customer's electric load.
- The system will be composed of new certified components from the Energy Commission's Lists of Eligible Equipment and will be covered by a 10-year warranty.

6 MONTHS?

Eligibility Requirements Continued

- New residential construction
 - A residential building is considered “new” if the entire building structure is subject to current Title 24 Standards.
 - Solar permit shall be applied for prior to the issuance of the certificate of occupancy, but no later than **60** days after.
- Solar energy systems and energy efficiency measures are third-party verified.

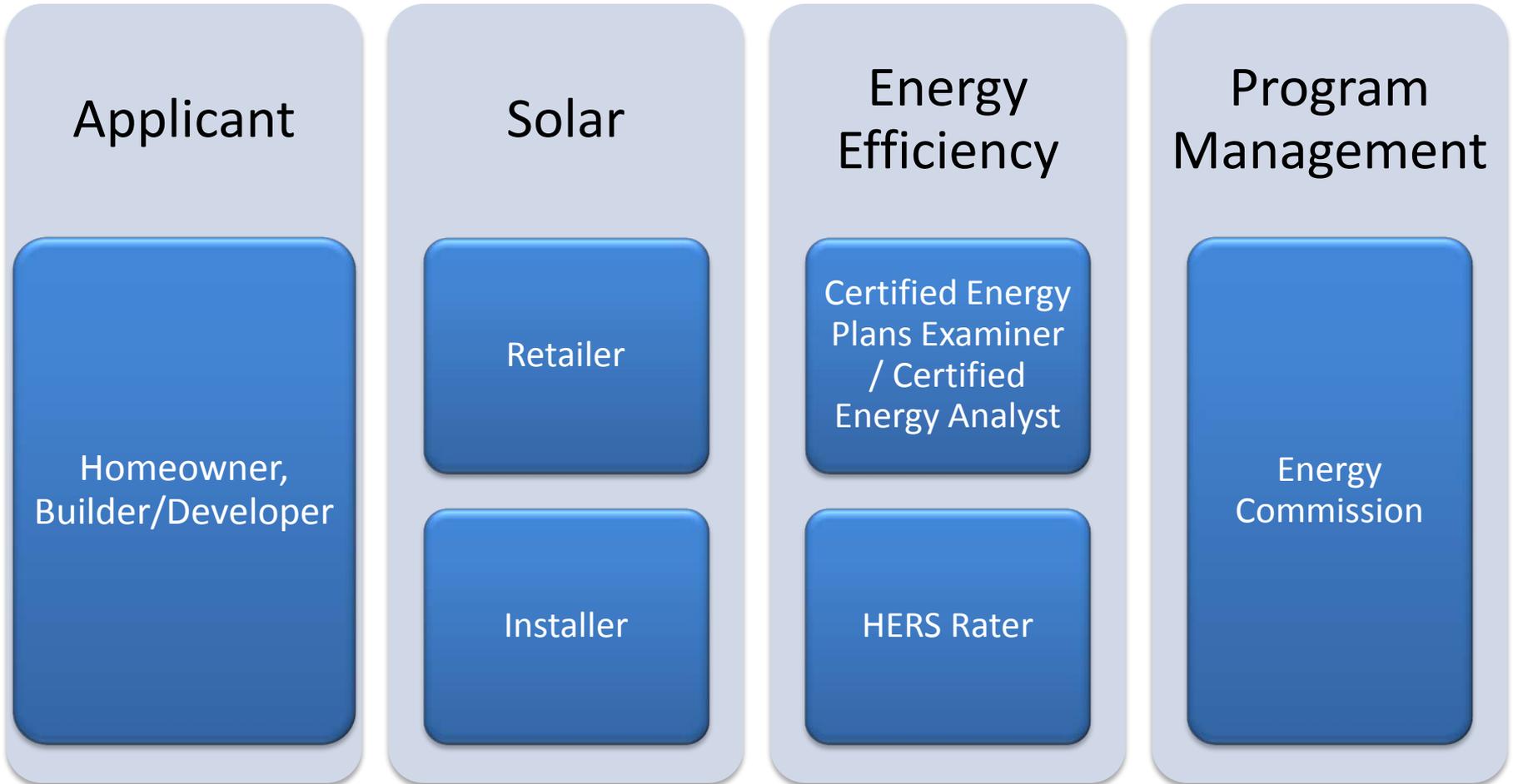
Energy Efficiency Requirements

- 2013 Building Energy Efficiency Standards
 - **Code-Compliant:** Meets the 2013 Standards before...
- 2008 and 2013 Building Energy Efficiency Standards
 - **Tier 1:** minimum 15 percent beyond the Standards for combined space heating, cooling and water heating
 - **Tier 2:** minimum 30 percent beyond the Standards for combined space heating, cooling and water heating and 30 percent for space cooling
 - Non-Residential: Tier 1=10%, Tier 2=15%

Retailers and Installers

- Contractors installing solar systems must have a California State A, B, C-10 or C-46 license. Solar systems may also be self-installed.
- Retailers and installers **may** self-register with the Energy Commission via the Go Solar California website,
<http://www.gosolarcalifornia.ca.gov/database/addcompany.php>

Involved Parties



FIND A CEPE, CEA, HERS RATER? CODE COMPLIANT PROJECTS?

Incentive Structure

- One-time, upfront incentive
- Incentives decline as megawatt targets are achieved
- Incentives decline to zero at the end of the program
- <https://www.newsolarhomes.org/RebateLevels.aspx>
- Incentive amount calculated using the CEC-PV Calculator
- Expected Performance Based Incentive (EPBI)
- Incentives limited to the first 7.5 kW AC for a residential unit AND
- Incentive Amount Cap
 - Affordable Housing Residential Unit Project: Limited to 75% of the Total System Cost
 - Market-Rate Housing Project: Limited to 50% of the Total System Cost

Market-Rate Housing

Code-Compliant Incentive (per watt, reference system)	Tier I Incentive (per watt, reference system)	Tier II Incentive (per watt, reference system)	Reserved Volume (MW-AC)
\$2.25	\$2.50	\$2.60	55.3
\$2.00	\$2.25	\$2.35	N/A
\$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	35
\$0.75	\$1.00	\$1.50	50
\$0.50	\$0.75	\$1.25	60
\$0.35	\$0.50	\$1.00	65
\$0.25	\$0.35	\$0.75	72

Affordable Housing

Code-Compliant Incentive (per watt, reference system)	Residential Dwelling Unit Incentive (per watt, reference system)	Common Area Incentive (per watt, reference system)	Reserved Volume (MW-AC)
\$3.25	\$3.50	\$3.30	3.3
\$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		3.5
\$1.15	\$1.50		5.0
\$0.80	\$1.25		6.0
\$0.55	\$1.00		6.5
\$0.35	\$0.75		7.2

Project Types

Custom Homes

Large Developments

Projects/Phases of 6 or
more homes
AND

Solar on at least 50% of
those homes

Small Developments

Projects/Phases of less than
6 homes
AND/OR

Solar on less than 50%
of homes.

RESERVATION PERIODS?

Project Types Continued

Common Areas

Areas in the development that are reserved for the use of the residents.

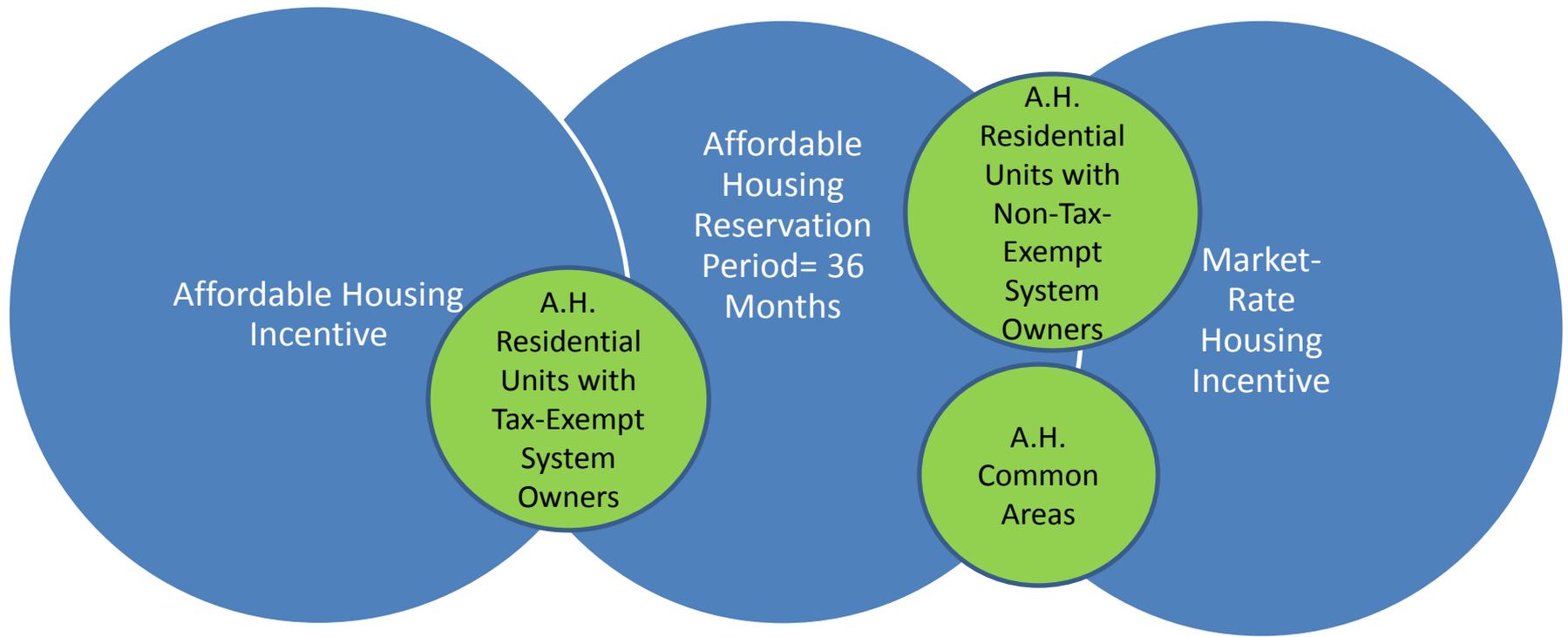
Example: Recreation Center, Pool House, etc.

Affordable Housing

At least 20% of the project units must be reserved for extremely low, very low, lower, or moderate income households for a period of at least 10 years.

RESERVATION PERIODS?

Affordable Housing Reservation Period vs. Incentive Level



AFFORDABLE HOUSING: COMMON AREAS, TAX EXEMPT VS. NON-TAX EXEMPT

The Basic Process



Reservation

- Applicant submits reservation application package.
- Energy Commission reviews and approves. Incentive is reserved for applicant.



Installation and Verification

- Applicant installs PV system and energy efficiency measures.
- HERS rater verifies and tests measures installed.
- Building department finalizes solar permit.
- Applicant applies for interconnection.

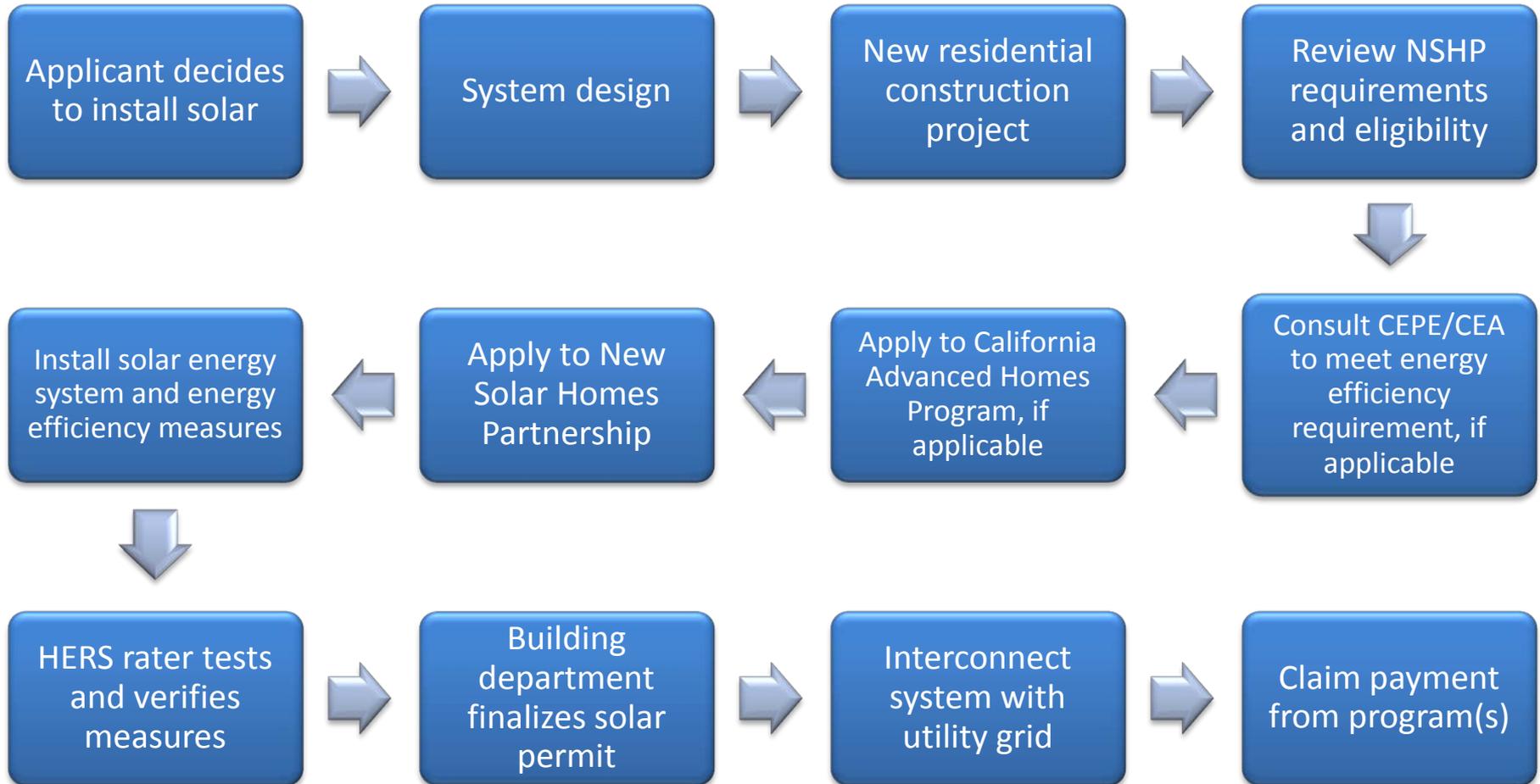


Payment Claim

- Applicant submits payment claim package to incentive program(s).
- Energy Commission reviews and approves. Incentive is paid.



The Detailed Process



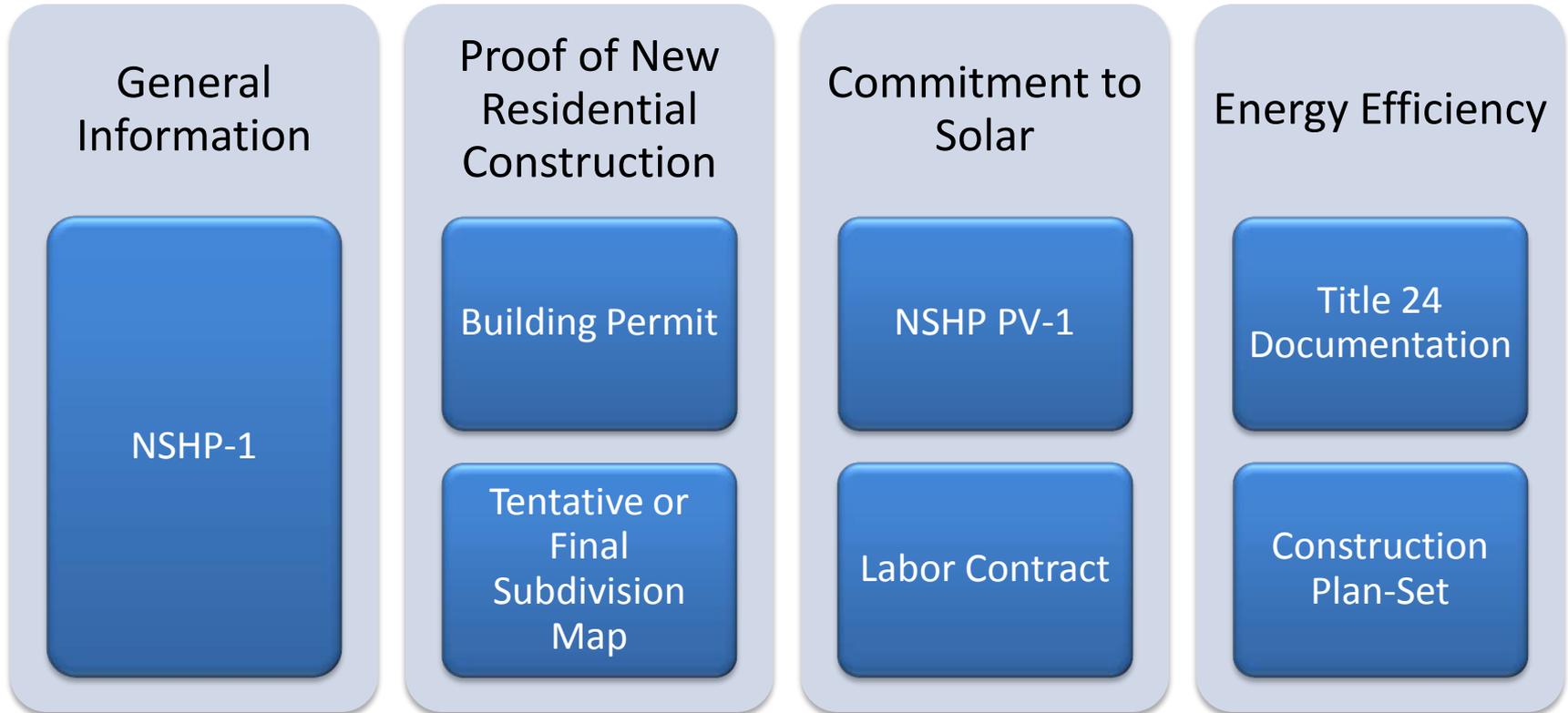
Complete NSHP Reservation Applications and Payment Claims...

- Meet all NSHP program requirements and administrative expectations.
 - Have consistent names, site addresses, and equipment on all supporting documentation.
 - Have all of the required signatures on the documents.
- Use the newest versions of documents and calculation tools supplied and/or authorized by the California Energy Commission.
- Include all required supporting documentation with the reservation application or payment claim package.



New Solar Homes Partnership: The Reservation Application

Reservation Application Document Overview



Additional Information for Certain Project Types

- Regulatory Agreement (Affordable Housing)
- System Size Justification

Reservation Application Form (NSHP-1)

What It Is:

- Provides general information on the project (applicant information, location, housing type, utility, HERS rater information)
- Designation of an authorized representative
 - Signs the NSHP Payment Claim Form (NSHP-2)

Who Provides It: Applicant

100% COMPLETION?

New Residential Construction Building Permit OR Subdivision Map

What It Is:

- Document from the city or county stating that a new home is being constructed on the site where the solar energy system is being installed.
- A tentative or final subdivision map that illustrates where all of the homes participating in the NSHP are located. The document should be issued by the city or county.

Who Provides It: Applicant

IS THIS ALWAYS REQUIRED?

Certificate of Compliance Form (NSHP PV-1)

What It Is:

- It documents the system specifications and provides an estimated incentive amount.
- Each NSHP PV-1 comes with two digital files, .her and .emf. The .her file must be submitted in addition to the NSHP PV-1.
- ***No signature required.***

Who Provides It: Solar Retailer/Installer

Installation Contract

What It Is:

- The installation contract specifies the work the solar installer will be performing on the project.
- Indicates the specific system components to be installed on the project.
- Identifies estimated NSHP incentive amount.
- Self-installs?

Who Provides It: Solar Retailer/Installer

Energy Efficiency Documentation – Title 24 Report (CF-1R/PERF-1)

What It Is:

- A document that shows the energy efficiency measures being installed on the project. CF-1R is for residential projects. PERF-1 is for non-residential projects. Input file must also be submitted.

Who Provides It: This depends on the project's energy efficiency level and the applicable Building Standards.

Reminder: A Certified Energy Plans Examiner/ Certified Energy Analyst must be certified for the appropriate residential type and Building Standards that the home is constructed under.

UNDER WHAT CIRCUMSTANCES IS A PLAN CHECK NOT REQUIRED?

Energy Efficiency Documentation – Construction Plan-Set

What It Is:

- A compilation of the plans that shows what will be installed on the home.
- Specifically, the NSHP is looking for the set that includes:
 - Architectural, Electrical, Mechanical, and Plumbing
 - 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 site plan with a North arrow

Who Provides It: Applicant

IS THIS ALWAYS REQUIRED?

Regulatory Agreement

What It Is:

- A document requiring the developer to restrict a certain number of units in the project for affordable housing
- Must be between the developer and a housing agency qualified to enter such an agreement (e.g., TCAC), or a city or county (for projects funded by the HOME program)

Who Provides It: Applicant

Reminder: Affordable Housing Projects Only

System Size Justification

What It Is:

- Documentation showing that the solar energy system is sized such that its expected performance is no greater than 100 percent of the building's on-site estimated annual electricity consumption. Acceptable documents are the estimated annual electricity consumption of the residential unit based on a detailed energy use calculation, or a letter detailing expected energy consumption.

Who Provides It: Certified Energy Plans Examiner (CEPE), Certified Energy Analyst (CEA), architect, engineer, C-10 licensed electrical contractor.

When to Provide: For Common Area systems greater than 7.5kW and if requested by Program Administrator

Submitting the Reservation Application

Step 1: READ THE NSHP GUIDEBOOK!

Make sure that your project is eligible

Make sure you're familiar with the program requirements

Step 2: Gather the required project documentation.

Use the reservation checklist

Verify that all documents are complete with consistent information

Step 3: Submit the reservation application.

Submittal via the NSHP Web Tool is encouraged

Keep it simple

Step 4: Energy Commission Review

Tracking the Status of the Reservation Application

Plan Check (if applicable)

Qualifying for a Correction Period

Step 5: Energy Commission Approval

Other Reservation Application Related Details...

If you have a project with more than one home, then...

The reserved funding is tied to the project, not to the sites.

Think of it like a bank account:

If a site requests less money...

If a site requests more money...

What if you run out of money...

You can add more sites to an existing project, if...

You have funding remaining for your project

AND those additional sites are from the same subdivision as the original project

AND your project has not expired

AND you have not been paid an incentive for all sites within that original project.

More Reservation Application Related Details...

Reservation Funding Decrease Schedule	
Interval	Funding Decrease
12 months	Requested incentive <15% original amount, funding may be reduced up to 85% of original amount
18 months	Requested incentive <35% original amount, funding may be reduced up to 65% of original amount
24 months	Requested incentive <55% original amount, funding may be reduced up to 45% of original amount
30 months	Requested incentive <75% original amount, funding may be reduced up to 25% of original amount

- Large Developments
- Evaluation Criteria
 - Sum of incentive amounts for Submitted Sites vs. Reservation Amount

WHAT COUNTS AS A SUBMITTED SITE?



New Solar Homes Partnership: Plan Check

What is a Plan Check

- Verify Energy Efficiency Documentation against building plans
- Verify mechanical equipment satisfy Title 20
- Check for T24 requirements
- Needed for all 2008 and most 2013 projects

Exempt from NSHP Plan Check

NSHP projects are required to have an NSHP plan check unless:

- Code-Compliant
- Tier I or Tier II under 2013 Standards with compliance documentation completed by 2013 certified CEA
- Utility energy efficiency program

Documents Needed for Plan Check

- Building Plans
 - Architectural Drawings
 - Civil Drawings
 - Electrical Drawings
 - Mechanical Drawings
 - Structural Drawings
- CF-1R/PERF-1C
 - Signed .pdf
 - Calculator file (.bld, .mp8, etc.)
- LTG-1

Building Plans

- Should include the following sheets
 - Mechanical
 - Electrical
 - Structural
 - Plumbing
- Specific items looked for
 - Insulation
 - Fenestration Area/ Efficiency
 - Mechanical Equipment
 - More information available at <http://www.gosolarcalifornia.org/documents/nshp.php>. The name of the document is: *New Solar Homes Partnership Checklist*

Tips for a Quick Plan Check

- Make sure that you have provided the CEC with your HERS provider, and that the CEC has access to that project in the HERS provider registry.
- **CF-1R:** Include the ZIP file for 2008 projects. For 2013 projects you will need to provide an .XML file. Include these files with your Reservation application package
- **NSHP PV-1:** Include the .her file with your Reservation application package
- Fill out the table below and include it with your Reservation application package as part of your Title 24 documentation. You can find this table on the Go Solar California website at: <http://www.gosolarcalifornia.org/documents/nshp.php>. The name of the document is: *New Solar Homes Partnership Checklist: Reservation Application*

Location of Plan Check Required Information in Construction Plans (Optional, but providing this information will help speed up the plan check process)	
Information on Construction Plans	Location in Plans (Sheet/Page or Spec. Sheet)
• Ceiling, Floor and Roof/Attic Insulation values (R-values)	
• If applicable: Cool Roof values (thermal emittance and aged solar reflectance)	
• Fenestration (window and door) efficiency values (U-factors, Solar Heat Gain Coefficients [SHGC])	
• Window and door areas/dimensions	
• HVAC efficiency values/specifications (SEER/EER, AFUE, COP, etc)	
• Water heating efficiency values/specifications (Energy Factor, Thermal Efficiency, Standby Loss)	
• If applicable: Solar Water Heating Solar Savings Fraction (provide copy of solar fraction calculator as well)	

Energy Efficiency Documentation

- 2008 vs 2013 standards
- CF-1R or PERF-1
- Solar Hot Water Heating
- LTG-1

Types of Buildings

- Residential
 - Single Family Home
 - Multi Family Homes
- Non-Residential
 - Community Center
 - Recreation Rooms
 - Manager's Unit

Building Type	CF-1R	PERF-1
Low-Rise Residential	x	
High-Rise Residential		x
Detached Common Area		x
Low-Rise Mixed Use (under 20%)	x	
Low-Rise Mixed Use (over 20%)	x	x
High-Rise Mixed Use (under 20%)		x
High-Rise Mixed Use (over 20%)		x

Title 20

- Database that contains appliance approved to be sold in California
- Appliance model numbers will be verified against Title 20

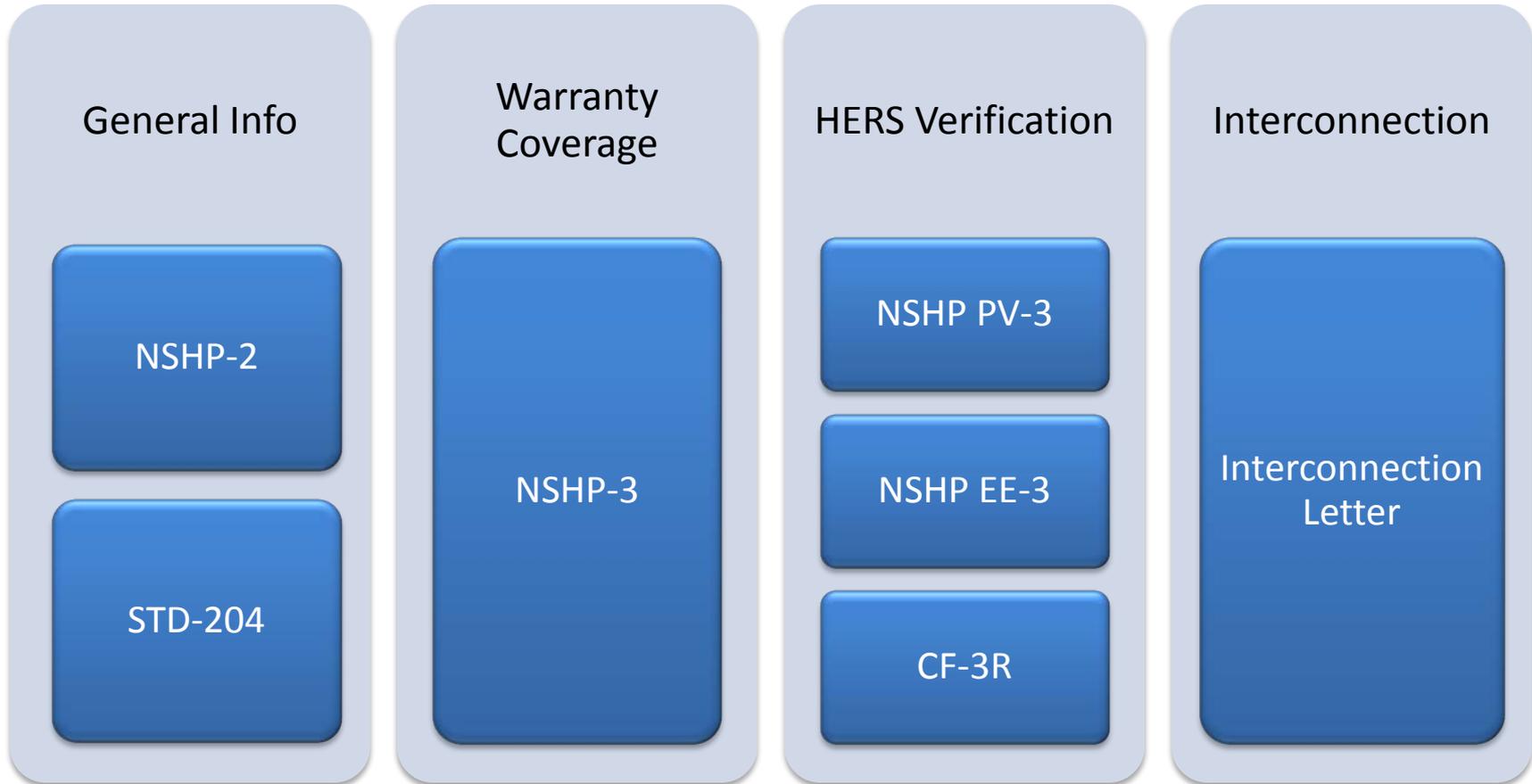
Missing or Inaccurate information

- Missing Information
 - Plan Check clarification email/letter
- Inaccurate Information
 - Plan Check Corrections Letter
 - Can be satisfied with two options



New Solar Homes Partnership: The Payment Claim

Payment Claim Document Overview



Additional Information for Certain Projects

- Lease Agreements or Power Purchase Agreements
- Building Permit Sign-Off

Payment Claim Form (NSHP-2)

What It Is:

- A document that confirms the incentive amount for the site.
- Requests data on various components of the NSHP process.
- Allows the payment to be reassigned.
- *Original, wet signatures required on form.*
- Mail document to CEC.

Who Provides It: Applicant

100% COMPLETION?

Payee Data Record (STD-204)

What It Is:

- A standardized State document that must be completed by any entity that will be receiving funds from the State.

Who Provides It: Applicant or Payee

Ten-Year Warranty Form (NSHP-3)

What It Is:

- This document indicates what is being covered by the ten-year warranty.
- Manufacturer's warranties for modules and inverters also required if only system installation is covered by ten-year warranty.

Who Provides It: Solar Retailer/Installer

Lease Agreement/PPA

What It Is:

- Agreements for systems that are not purchased.
- An agreement made with end-use customer (i.e. builder or homebuyer).
- Requirements:
 - Term \geq 10 Years
 - Identify NSHP incentive amount and benefit*
 - Option at end of lease term*
 - Repayment*

Who Provides It: Solar Retailer/Installer

HERS Verification Forms (CF-3R, NSHP EE-3, NSHP PV-3)

What It Is:

- Forms verifying that the newly constructed home contains all of the energy efficiency features listed during the plan check.
- Forms verifying that the solar energy system was installed according to the design and shading criteria entered into the PV Calculator.
- Final building permit sign-off or occupancy permit can be turned in for projects that submitted a PERF-1.

Who Provides It: Verified in the HERS Registry by the Energy Commission in most cases.

Interconnection Letter

What It Is:

- A letter from the utility providing authorization for the solar energy system to be interconnected to the utility grid.
- VNEM allocations should match the NSHP-1.

Who Provides It: Applicant

Final Building Permit Signoff

What It Is:

- Documentation provided by the building department that verifies the **building** meets the required California Building Code.
 - Inspection Record with signatures, Certificate of Occupancy

Who Provides It: Applicant

REQUIRED FOR ALL PROJECTS?

Final System Cost Documentation

What It Is:

- Documentation that clearly identifies the final amount paid or legally incurred by the **system owner** for the purchase and installation of the solar energy system.
 - **NO** financing fees, origination fees, processing fees, administrative fees, etc.

Who Provides It: Solar Retailer/Installer

Submitting the Payment Claim

Step 1: READ THE NSHP GUIDEBOOK!

Make sure you're familiar with the program requirements

Plan ahead to make sure you can meet the program deadlines

Step 2: Gather the required project documentation.

Use the payment claim checklist

Verify that all documents are complete with consistent information

Step 3: Submit the payment claim.

Submittal via the NSHP Web Tool is encouraged

The NSHP-2 with original signatures must be mailed in

Step 4: Energy Commission Review

Tracking the Status of the Payment Claim

Qualifying for a Correction Period

Step 5: Energy Commission Approval

Other Payment Claim Related Details...

Are time extensions allowed?

If you turn in your NSHP-2 on or before the reservation expiration date...

You have 3 months or 90 calendar days (later date) to submit the remaining documents for the payment claim package.

You can request a partial payment, if...

Your project is participating in your utility's new construction program.

AND on or before the reservation expiration date, you have submitted all documents in the payment claim package, with the exception of the CF-3R and NSHP EE-3.

You will have up to 90 calendar days after the reservation expiration date to submit the CF-3R and NSHP EE-3, and request the balance of your incentive.

NSHP Resources

Go Solar California Website

- <http://www.gosolarcalifornia.ca.gov/index.php>

NSHP Online Application Tool

- <https://www.newsolarhomes.org>

NSHP Forms and Documents

- <http://www.gosolarcalifornia.ca.gov/documents/nshp.php>
- <http://www.energy.ca.gov/title24/>

NSHP Training Seminars

Next NSHP Training Seminar: August 27, 2015

**All NSHP Training seminar materials are located at:
<http://www.gosolarcalifornia.ca.gov/nshp/training/>**



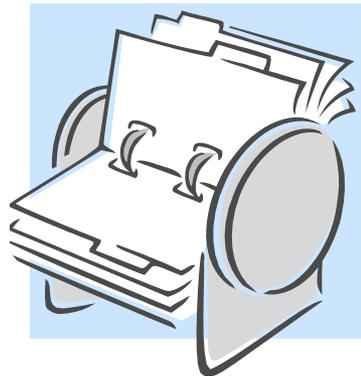
Contact Information

California Energy Commission

Renewables Call Center

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Questions?

