

# NSHP Energy Efficiency

**Maggie Dimitrova**  
**February 25, 2014**





# Agenda

**Title 24 Energy Efficiency Standards**

**NSHP EE Requirements**

**NSHP Plan Check Requirements**

**NSHP Field Verification Requirements**

**Resources**



# Title 24 Energy Efficiency Standards

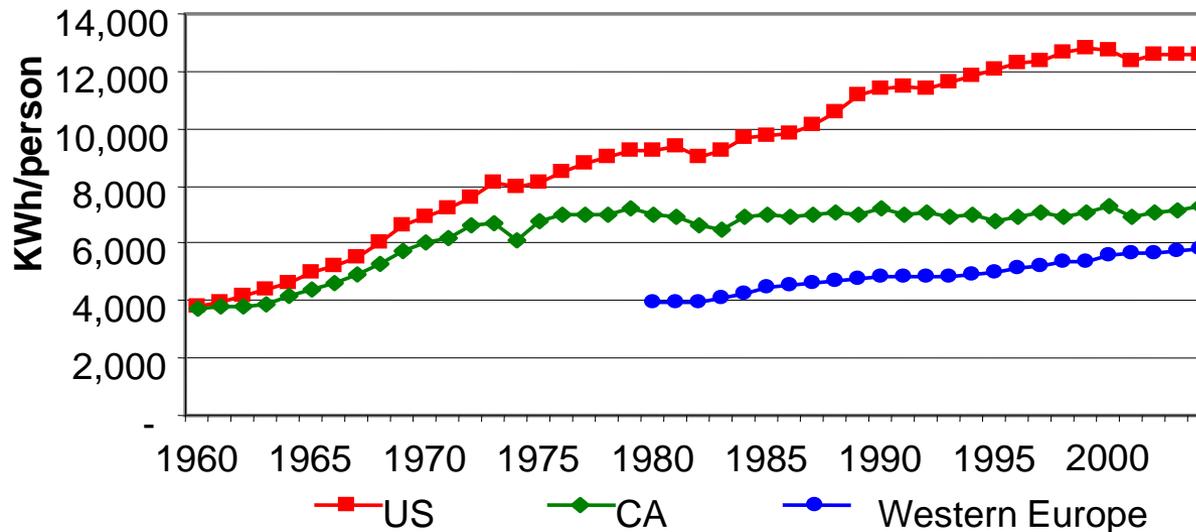


# 30+ Years of Energy Efficiency Success

Title 24 requirements and energy efficiency programs have helped keep per capita electricity consumption in California flat since 1976

PG&E's programs alone have avoided the release of over 135 million tons of CO<sub>2</sub> into the atmosphere over the same period

The State goal is to have Zero Net Energy new residential buildings by 2020 and commercial by 2030



Courtesy Art Rosenfeld, California Energy Commission



# Title 24

**2013 Title 24, Part 6, EE Building Code will become in effect on July 1, 2014**

## **Title 24 Methodology**

- Mandatory Measures
- Prescriptive Method (list of requirements)
- Performance Approach (trade off between features, flexible budget)

# Why energy efficiency?

## Homeowner

- Savings – lower energy bill
- Comfort – energy efficient, solar home
- Environment – reduced carbon footprint

## Builder/Developer

- Differentiation from competition
- Incentives for both energy efficiency and solar
- Ease of access and reduced paperwork

## Solar Contractor

- Differentiation from competition
- Customer satisfaction

# How to achieve higher EE

**Strategies vary by climate zone, market sector, and building type**

- High performance windows
- Energy efficient water heating
- Improved wall and ceiling insulation
- High efficiency space heating and cooling equipment (HVAC)
- High efficiency appliances
- High efficacy lighting
- Properly sized equipment

**Customers work with an energy consultant to determine the best approach for their budget**



# NSHP EE Requirement



# NSHP EE Requirements

Any building whose electric load is offset by the PV system must meet the NSHP EE requirements

EE compliance shall be demonstrated for the building as a whole and cannot combine unrelated or detached buildings

Additions/Alteration may be eligible if they are substantial, and the entire building meets the EE requirement

# NSHP EE Requirements – 2008 T-24

## Tier 1 – minimum EE requirement

- 15% better than the code for combined space heating, cooling and water heating

## Tier 2 – encouraged EE level

- 30% better than the code for combined space heating, cooling and water heating, and 30% reduction in cooling load

## Energy Star® appliances

# NSHP EE Requirements – 2013 T-24

- ***Code-compliant***
- **Tier I**
  - 15% compliance margin for residential buildings
  - *10% compliance margin for non-residential buildings*
- **Tier II**
  - 30% compliance margin for residential buildings, 30% space-cooling
  - *15% compliance margin for non-residential buildings, 15% space-cooling*
- ***Solar Compliance Credit***
  - Available for single family projects in Climate Zones 9-15
  - Credit available only when 2015 federal AC standards are used
  - Cannot be claimed for 2013 Code-Compliant projects
  - Can be claimed for 2013 Tier I and Tier II projects.

## Code Compliant – 2013 Title 24

Compliance documentation may be completed by anyone legally authorized to sign 2013 Title 24, Part 6 compliance documentation.

Must meet the code prior to claiming solar compliance credit (remove from CF-1R).

Must submit a copy of the Title 24 compliance documentation run using the 2013 compliance software.

- Same as documentation submitted to local building department

Must select a HERS Rater for their PV inspection

- No NSHP energy efficiency verification will be required

# NSHP EE Compliance Forms

**CF-1R/PERF-1** - document that shows the energy efficiency measures being installed on the project and compliance margin. PERF-1 is for non-residential or high-rise residential buildings.

- Must be run using the correct version of T-24 (2008/2013).
- Applicable T-24 standard is determined by the date when the building permit was applied for.
- Must be run by a CABEC approved Certified Energy Plans Examiner (CEPE) or Certified Energy Analyst\* (CEA)
- CEPE/CEA must be certified under the appropriate – residential or non—residential T-24 standard
- Must be run using the whole building compliance approach (not existing/additions/alterations)

\*2013 T-24 projects signed by 2013 CEA only past July 2014 (or future date)



# Changes to EE Verification Forms

## Revised Title 24, Part 6 form names for 2013

Previous Name	Revised Name
CF-6R Certificate of Field Verification	CF-2R Certificate of Installation
CF-4R Certificate of Field Verification and Diagnostic Testing	CF-3R Certificate of Verification

## Revised NSHP Efficiency Verification Form Name

Previous Name	Revised Name
CF-4R-EE NSHP Certificate of Field Verification	NSHP EE-3 Additional Energy Features Checklist



# NSHP Plan Check Requirements

# NSHP Plan Check Requirements

**NSHP Plan Checks required for all projects except:**

- *2013 Code-Compliant NSHP projects*
- *Projects with compliance documentation signed by a CEA certified for the 2013 Standards*
- Projects participating in CAHP/CMFNH\*

**Projects that have their NSHP Plan Check waived do not need to submit:**

- Construction Plan Set
- Electronic input files (.bld, .mp8 or .ribd)
- Plan Set and Checklist Items

\*Common Area not included in CAHP/CMFNH plan check and require NSHP plan check

# Plan Check Documents

## Plan Check Checklist listed in Appendix C

**Construction Plan Set** - A compilation of plans that shows what will be installed in the home that include(s):

- Architectural, Electrical, Mechanical, and Plumbing
- Window/Door Schedule showing sizes and including ALL skylights
- Elevation, wall, roof, floor construction assemblies
- Floor finish schedule (if CF-1R shows high mass design)
- A site plan with a North Arrow (custom homes)



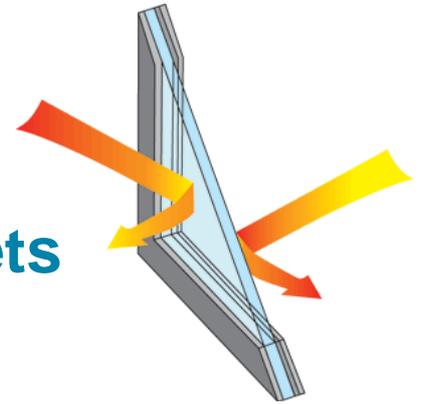
# Plan Check Documents (Cont.)

## Title 24 and PV Forms and Files

- CF-1R
- .bld, .mp8, or .ribd
- CF-1R-PV
- .her and .emf

## Equipment and Materials Spec Sheets

- Windows, Glazed Doors, Skylights
- Space Heating
- Air Conditioning([www.ahridirectory.org](http://www.ahridirectory.org))



# CAHP/CMFNH Applications

## Complete Utility EE Requirements, not NSHP EE requirements

- NSHP EE documents waived
  - CF-1R
  - Electronic input files (.bld or .mp8)
  - Plan Set and Checklist Items
- EE Verification completed in CAHP/CMFNH
  - NSHP EE-3 does not need to be filled out
- PV Verification by a PV HERS Rater still needed
- Required Documentation (or verified internally)
  - CAHP/CMFNH Approval Letter or Plan Check approval confirmation in CAHP/CMFNH project log at reservation
  - CAHP/CMFNH Payment Approval or verify EE and PV field verification in HERS Registries at payment



# NSHP Field Verification Requirements

# NSHP HERS Provider

CalCERTS and CHEERS are the only Home Energy Rating System (HERS) Registries certified for NSHP EE and PV field verification

[www.cheers.org](http://www.cheers.org)

[www.calcerts.com](http://www.calcerts.com)





# NSHP HERS Requirement

All energy efficiency measures used to meet the above code EE requirements must be verified by a qualified HERS Rater.

- CF-1R HERS measures will be verified by a HERS Rater on CF-3R.
- Above code measures will be verified by HERS Rater on NSHP EE-3

HERS Rater may to the site multiple times during construction to verify all measures.



# NSHP HERS Recommendations

## **Highly Recommended:**

That applicants select a HERS rater early in the application process. Verification of some EE measures may be required to be completed as early in the construction process as foundation or rough-in (i.e., assembly, piping insulation)

## **Recommended:**

That applicants select a HERS rater that can verify both energy efficiency measures and solar.

# Energy Efficiency Inspection

## Before EE Inspection:

- Rater must obtain applicable CF-2R (formerly CF-6R) from installer
- Rater must obtain NSHP EE-3 from registry

## HERS rater will verify installed features listed on form

- Pre-drywall inspection
  - HERS Rater may need to come on-site
  - Pictures, invoices and CF-2Rs can be used as verification. Must be okayed by HERS Rater first.
  - QII must be completed pre-drywall
- Final inspection
  - HERS Rater completes NSHP EE inspection (NSHP EE-3) and CF-3R (formerly CF-4R)



# PERF-1 Projects

**Currently the PERF-1 cannot be uploaded in the HERS Registry**

- Applies to non-residential buildings and high-rise residential buildings greater than three stories

**Applicant must submit all Acceptance Test results, HERS Test Results, and Utility Inspection Results to the NSHP PA for review.**

- After reviewing the submitted documents, the PA will sign off that the project has met all NSHP EE requirements

# Photovoltaic System Inspection



## Before PV Inspection

- Rater must obtain applicable NSHP PV-2 (formerly CF-6R-PV) from installer
- Rater must obtain PV checklist from HERS registry

## During PV Inspection

- HERS rater will verify system installation matches NSHP PV-1 and NSHP PV-2

## After PV Inspection

- HERS Rater upload verification results to registry to generate NSHP PV-3 (formerly CF-4R-PV)

# HERS Registry Upload Process

## Parties Involved:

- Project Created by: Energy Consultant/HERS Rater or NSHP PA
- Project Owned by: HERS Rater
- Project Shared with: Energy Consultant, HERS Rater (PV and EE), PA

## Steps Involved:

- Approved CF-1R and NSHP PV-1 uploaded to registry by NSHP PA
- If not created by HERS Rater, PA transfers project to Rater or shares
- If Rater not on transfer list, PA contacts Provider to have Rater added
- Homeowner requested to sign off on CF-1R
- After homeowner signoff, Rater can access CF-1R and can upload inspection results
- If changes are made to the EE of the building, a new CF-1R must be submitted for review and plan check (required except for 2013 T-24 code-compliant or CEA projects)

# HERS Registry Verification Process

## Parties Involved:

- Field verification completed by HERS Rater
- Field verification confirmed by NSHP PA

## Steps Involved:

- HERS Rater verifies the EE and PV in the field and uploads results in the HERS Registry
- NSHP PA verifies that both the NSHP EE-3 and NSHP PV-3 forms are uploaded in the HERS Registry



# Q & A and Resources

**2008 Documents available at:**

<http://www.energy.ca.gov/title24/2008standards/>

**2013 Documents available at:**

<http://www.energy.ca.gov/title24/2013standards/>

**Energy Standards Hotline**

[title24@energy.ca.gov](mailto:title24@energy.ca.gov)

**1-800-772-3300**