

New Solar Homes Partnership

**CEC Staff Workshop
February 8, 2011**

**Renewable Energy Office
High Performance Buildings Office
Efficiency and Renewable Energy
Division**



New Solar Homes Partnership

Welcome Remarks

Payam Narvand
Renewable Energy Office

Renewable Energy Office
High Performance Buildings Office
Efficiency and Renewable Energy
Division



Agenda

1. NSHP Program Overview (presented by Diana Chong) 10:10am–10:20am
2. Preliminary stakeholder survey results
 - Stakeholder comment period
3. Building Energy Efficiency
 - Stakeholder comment period
4. Military housing
5. Transient housing
6. Incentive decline issues
 - Stakeholder comment period



General Program Eligibility

- New residential construction (Single-family, multifamily, affordable housing)
- Served by PG&E, SCE, SDG&E, BVES
- 1 kW AC or larger, grid-connected.
- Offset customer's electric load.
- New certified components with 10-year warranty.



General Program Eligibility

- Energy Efficiency
 - *Minimum* - Tier 1: 15% higher than current Title 24
 - *Encouraged* - Tier 2: 30% higher and 30% AC reduction



Current Incentives

- Market-rate housing
 - \$2.50/watt – base incentive
(18-month reservation)
 - \$2.60/watt – solar as standard
(36-month reservation)
- Affordable housing
 - \$3.50/watt – residential unit installations
 - \$3.30/watt – common area installations
(36-month reservation)



Agenda

1. NSHP Program Overview
2. Preliminary stakeholder survey results – presented by Karin Corfee from KEMA
10:20am-10:50am
 - Stakeholder comment period
3. Building Energy Efficiency
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NSHP Stakeholder Surveys

Preliminary Results

Installers

Builders

NSHP Advisory Committee

Agenda

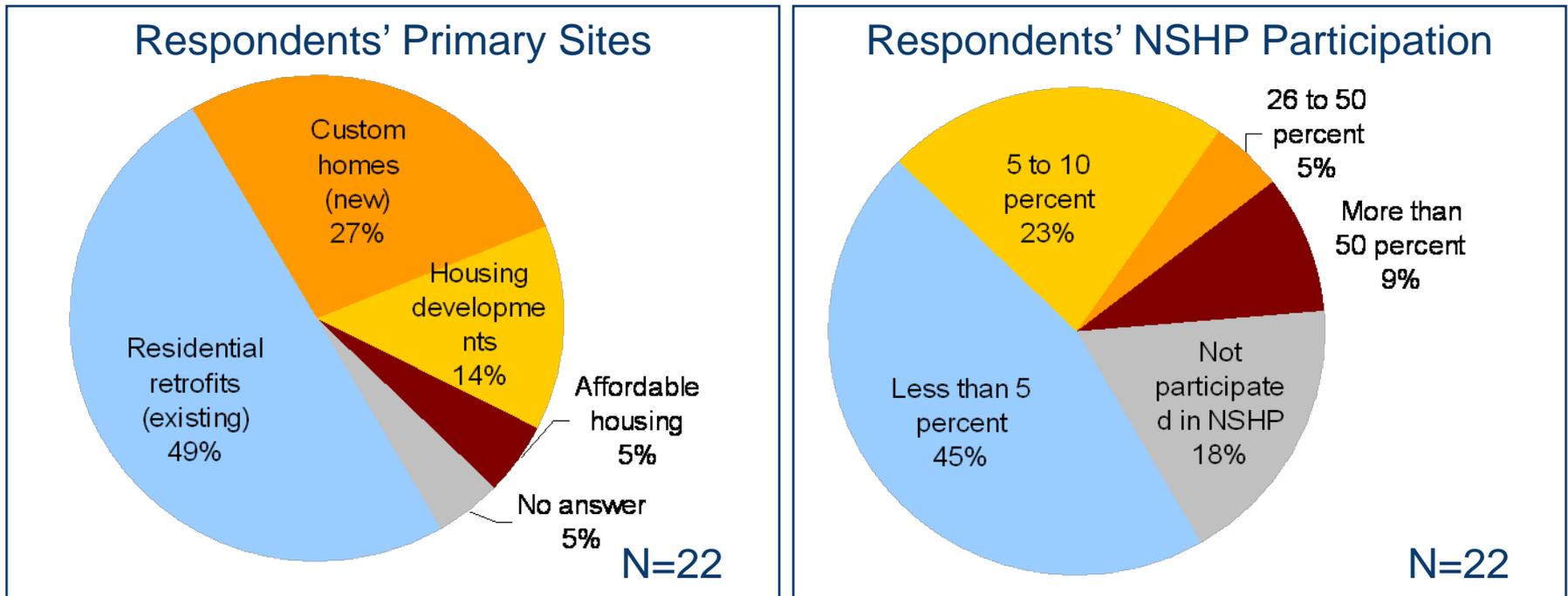
- Key Objectives of Stakeholder Surveys
- Installer Survey
- Builder Survey
- NSHP Committee Comments

Key Objectives of Stakeholder Surveys

- Get stakeholder input on NSHP policies, process, and program guidelines including
 - What works and what doesn't work?
 - How to achieve greater NSHP program success and participation
 - Why or why haven't key stakeholders participated in the NSHP program
 - What are the barriers for participation in the NSHP
 - What would it take to attract these non-participating stakeholders to the NSHP program, etc.

Installer Respondent Profile

- Surveys sent out: 20
- Companies responded: 15
- Total responses: 22



Most respondents indicated that they are very knowledgeable (44%) or extremely knowledgeable (39%) about NSHP. All are at least somewhat knowledgeable.

NSHP Participant Experience - Difficulties

Please rate how difficult the following aspects of the NSHP program are to you.	Average Rating	N
NSHP process and administrative paperwork	4.0	18
Home Energy Rating Service (HERS) verification process	3.6	18
Requesting homeowners and builders to meet a higher energy efficiency requirement (at least 15% over current building code)	3.4	18
NSHP PV-Calculator	2.8	18
Assistance and support from utilities' NSHP program staff	2.2	18

5= Extremely difficult, 4= Very difficult , 3= Somewhat difficult , 2= Not really difficult , 1= Not Important difficult

NSHP Participant Experience – Other Difficulties

Write-in difficulties (number of mentions)

- NSHP online tool (4)
- Shading calculations (3)
- Application approval delays (1)

NSHP Participant Experience – Overall Satisfaction

What is your overall satisfaction level with NSHP program?	Rating	N	% N
AVERAGE RATING	2.8	18	100%
Extremely satisfied	5	3	17%
Somewhat satisfied	4	4	22%
Neutral	3	2	11%
Somewhat unsatisfied	2	5	28%
Extremely unsatisfied	1	4	22%

When asked whether they plan to participate in NSHP program in the future, 1 company indicated that its policy no longer allows NSHP participation due to its associated administrative cost.

Non-NSHP Participant Responses

(4 non-NSHP participant respondents, only 2 of them install PV on new residential construction)

Please rate on how important the reasons are below in your decision to not participate in the NSHP program.	Average rating	N
No or not enough knowledge on NSHP program	5.0	1
NSHP application process is too burdensome and complex	4.5	2
Energy efficiency requirements (min.15%>T-24 code) are too costly/ burdensome	4.0	1
Do not install PV on new homes in investor-owned electric service territories	1.0	1

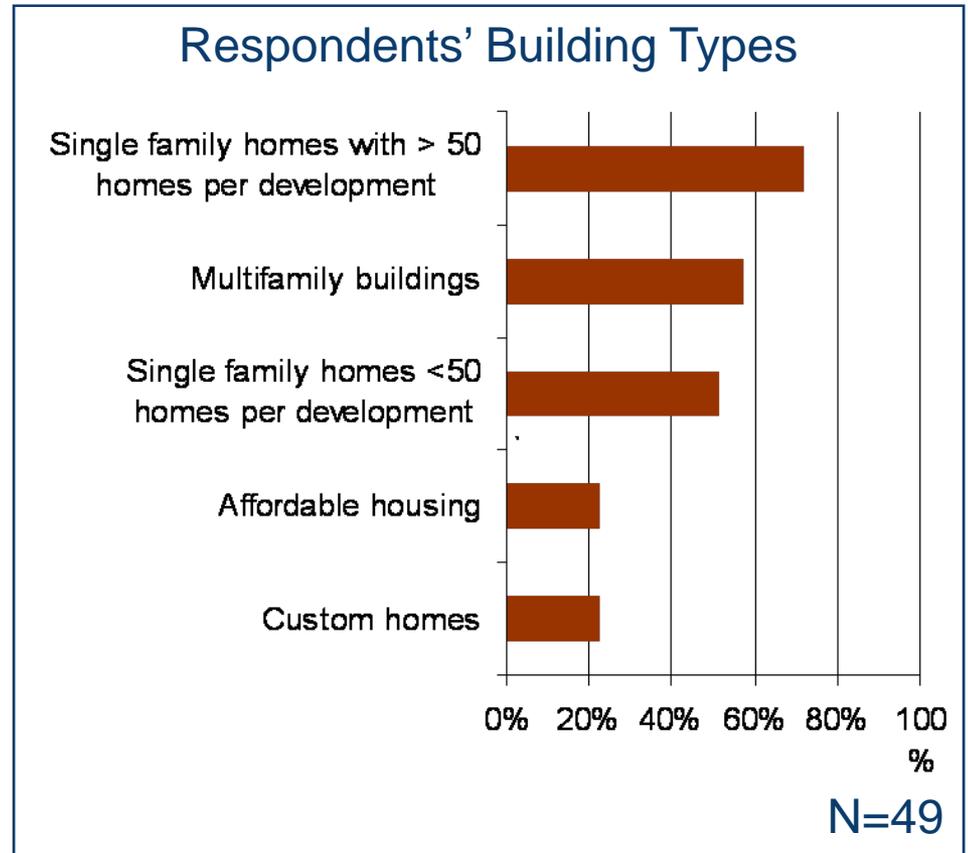
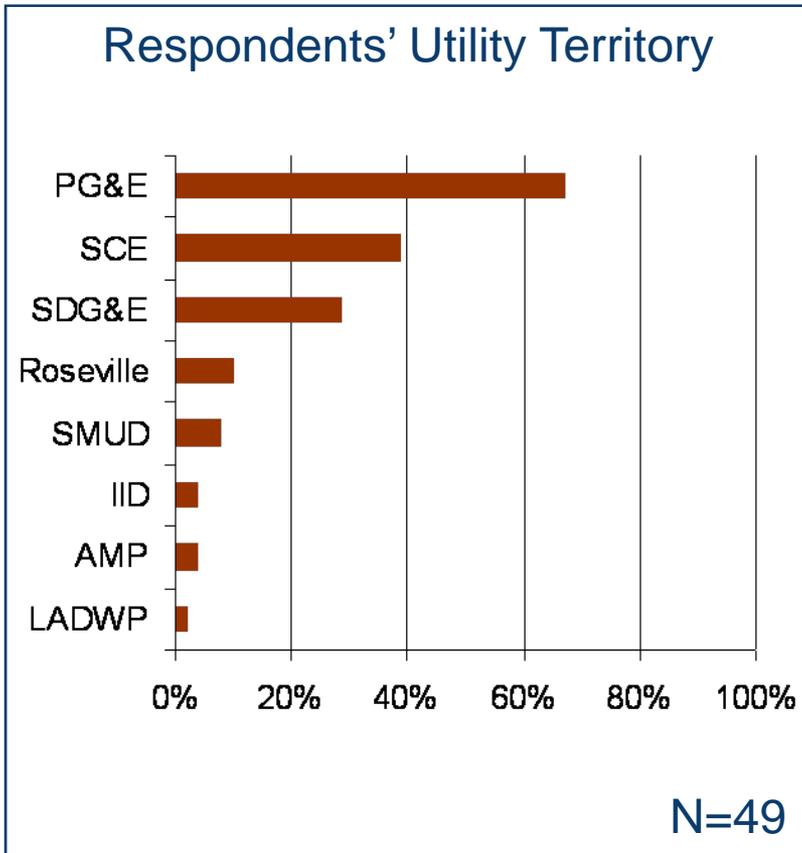
5= Extremely Important, 4= Very Important, 3= Somewhat important, 2= Not Really Important, 1= Not Important At All

Other Installer Comments

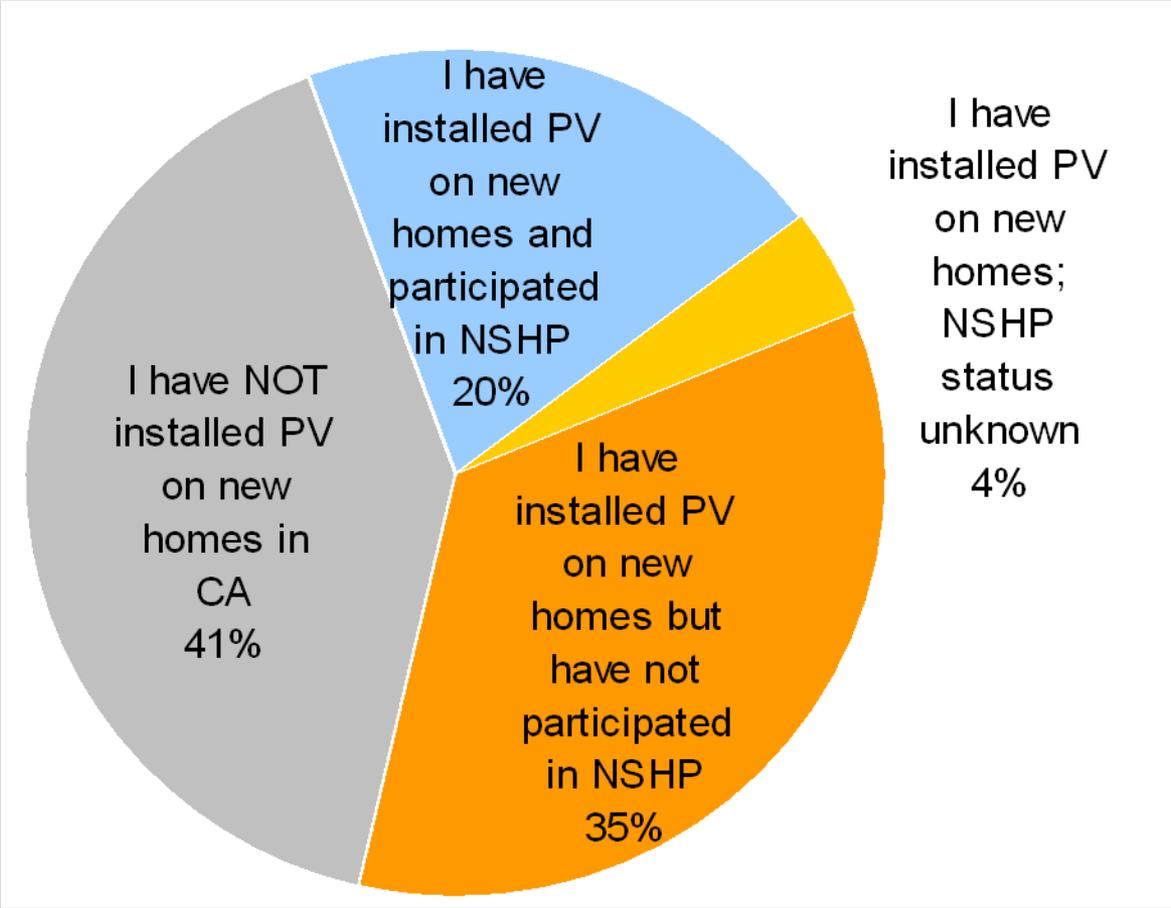
- Remove system size cap (2)
- Higher rebate level with premium for BIPV
- Provide real-time data on rebate levels
- Expand virtual net metering availability
- Eliminate percent above Title-24 requirement and move the Title-24 bar up instead

Builder Respondent Profile

- Total responses: 39 Completes, 10 Partial Completes



Builders' PV Experience in California



N=49

From the survey comments, it appears that some builders have participated in NSHP but have not been personally involved (possibly due to turn-key services from installers). Therefore, the dark orange slice could be mistakenly larger than it actually is.

Builders with No PV on New Homes Experience in California

Please rate the importance of each of the reasons below in your decision to not install PV.	Average rating	N*
PV is too costly	4.7	15
Incentive programs are too complicated	3.7	15
Solar homes do not sell well	2.8	15
No or not enough knowledge on PV	2.7	15
Permitting and other regulations are too complicated	2.7	15
PV technology is too complicated and/or unreliable	2.4	15

5= Extremely Important, 4= Very Important, 3= Somewhat important, 2= Not Really Important, 1= Not Important At All

* 3 builders did not respond and 2 were planning to participate

Builders with No PV on New Homes Experience in California

- Other reasons for not installing PV on new homes
 - Visual appearance (2)
 - Maintenance concerns for customers
 - Long-term liability for the builder
 - Waterproofing concern of roof
 - Multi-pitch roofs are not conducive to PV
 - PV is not cost-effective, ie. does not produce enough power to pay for itself without government subsidies

Builders who have Installed PV in California- Home Sales

How well are your solar home sales compared to non solar home sales?	N	% N
Much better	0	0%
Somewhat better	4	14%
About the same	14	48%
Somewhat worse	3	10%
Much worst	3	10%

Builders who have Installed PV in California – Install Decision

Please rate the importance of each of the reasons below in your decision to install PV.	Average Rating	N
Federal tax credits for installing solar	3.8	27
Incentives from solar rebate programs	3.8	27
Market differentiation	3.6	27
New Business Models are removing upfront PV cost barriers for both consumers and builders	3.4	26
Environmental responsibility	3.4	27
Homebuyers demand and want solar	2.7	26

- Other reasons for installing PV on new homes
 - Save money on utility bills (2)
 - City requirements

Builders who have Installed PV in California – PV Offering

- Among the 27 respondents, 41% are offering PV on all their housing communities in CA
- For the builders who are not offering PV on all their housing communities, they unanimously stated that customers are not choosing PV because of the additional cost

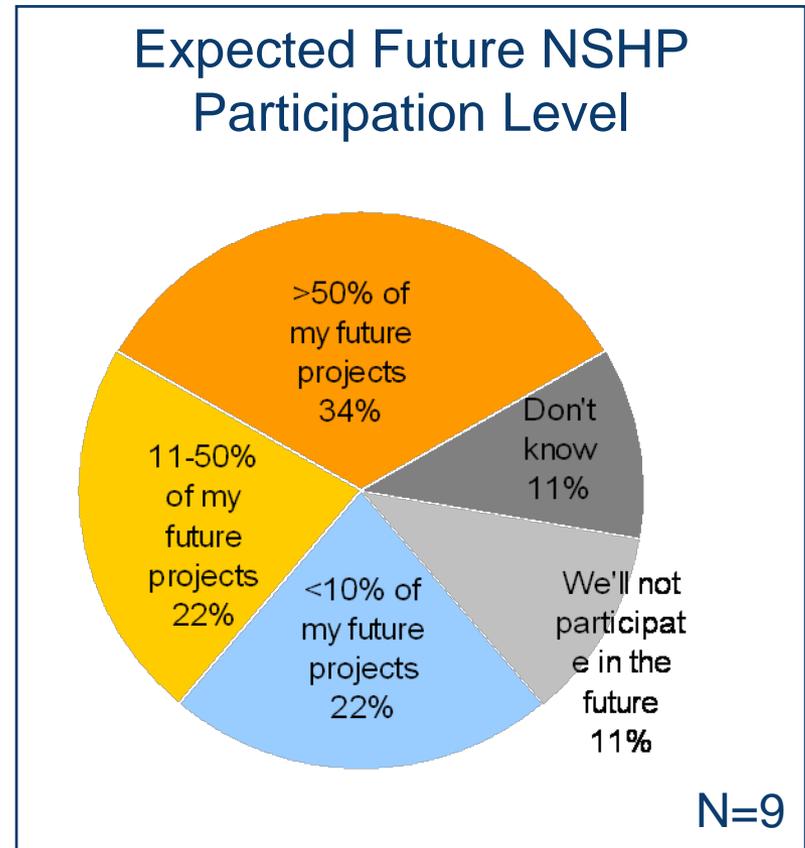
Builders who have participated in NSHP

- All respondents reported that the solar installer or retailer handled the NSHP rebate application paperwork
- All respondents are at least “somewhat knowledgeable” of the NSHP program requirements and policy objectives

Please describe how difficult the following aspects of the NSHP program are to you .	Average Rating	N
Cost barriers to meet higher energy efficiency requirements	3.3	9
NSHP process and administrative paperwork	2.9	9
Assistance and support from utilities' NSHP program staff	2.6	8
Home Energy Rating Service (HERS) verification process	2.4	8
NSHP PV-Calculator	2.1	8
Assistance from third-party solar rebate administrator	2.0	8

Builders who have participated in NSHP – Overall Satisfaction

- On average, builders are “somewhat satisfied” with NSHP (ie. Average rating of 3.8, with 5 being extremely satisfied and 3.0 being neutral).
- No builder is dissatisfied with NSHP.
- Most builders are planning to participate in NSHP in the future.



Builders who have not participated in NSHP

Please rate the importance of each of the reasons below in your decision to not participate in the NSHP program	Average Rating	N*
No or not enough knowledge on NSHP program	4.1	9
Energy efficiency requirements (min.15%>T-24 code) are too costly/ burdensome	4.0	9
NSHP application process is too burdensome and complex	3.0	9
Do not build homes in investor-owned electric service territories	1.8	8

*The low response rate might be due to the fact that some of the builders are shielded from the NSHP process despite its company's participation in NSHP

Builders' Recommendations

- Need better information to explain cost/benefit analysis to customers (4)
- Educate appraisers
 - Appraisers do not allow adequate value of the PV system in the new home sale appraisal (2)
- Assist in marketing of solar homes to consumers
- Increase subsidies to reduce/eliminate PV cost
- Increase PV efficiency so subsidies won't be required
- Reduce energy efficiency requirement

NSHP Advisory Committee Comments

- Difficulties
 - Rebate payment time is too long
 - Incentive programs for energy efficiency requirements (Tier 1 and Tier 2) are insufficient
 - Field inspection procedures/requirements are too complicated and costly
 - Incentive payments come from separate programs for EE and PV

NSHP Advisory Committee- Recommendations

- Simplify rebate application for installing PV that is not tied to other actions (such as EE measures)
 - Design it to be like the appliance rebates.
- Explore ways of bringing lease financing to builders (possibly through an RFP process)
- Additional (possibly short term) incentives for builders that standardize solar on 100% of their homes



Thank you for your attention

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Building Energy Efficiency (EE)

- Building Permit Requirements (T24, Part 6)
 - SB1-NSHP guiding principles
 - Problem
 - Recommendations
- Approval Process Changes
 - Amend NSHP Guidebook
 - Streamline process (discontinue EE documentation at reservation stage)
 - Include provisions for submitting building permits and EE documentation



NSHP EE Guiding Principles

- The goal:
 - To create a self-sustaining market for new solar (PV) homes that install high levels* of energy efficiency and high performing solar energy systems, and
 - To promote the greatest energy production for the cost of installation
- * High levels indicates performance at greater levels of efficiency than just meeting code



Building Energy Efficiency

- NSHP Guidebook (3rd Ed.) requires EE Tiers be met with reference to code in effect when the building permit is pulled
- NSHP homes pulling permits after 1/1/10 must be better than the 2008 EE Standards
 - Tier One must be 15% better (minimum)
 - Tier Two must be 30% better



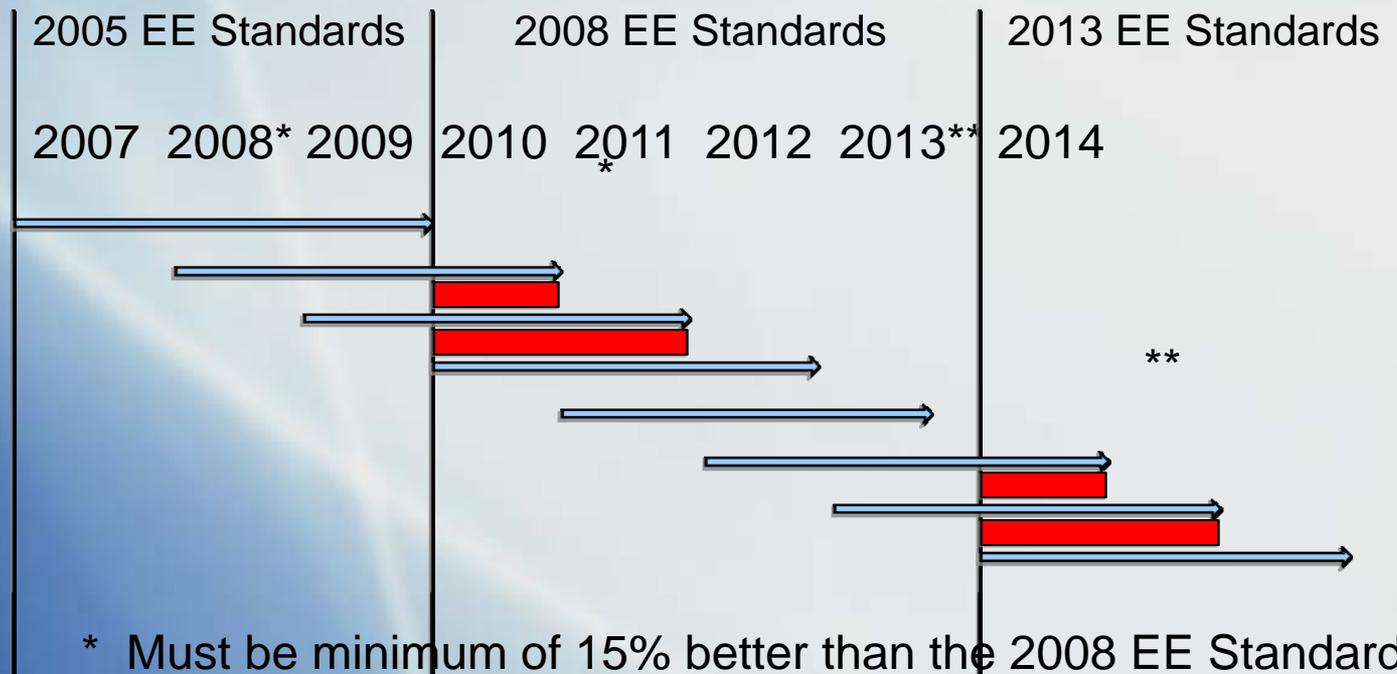
Building Energy Efficiency

- Applications submitted after 1/1/10 are meeting the requirement to be better than the 2008 EE Standards
- Some applications submitted prior to 1/1/10 are not meeting this requirement
 - Some homes are better than 2008 EE Standards
 - Some homes are merely better than 2005 EE Standards
 - Both are receiving the same incentives



Building Energy Efficiency

- Applicant Project Timeline



* Must be minimum of 15% better than the 2008 EE Standards

** Must be minimum of 15% better than the 2013 EE Standards



Building Energy Efficiency

- Problem
 - NSHP Guidebook language is not clear or consistent concerning the “permit” requirement
 - It is not explained in the Reservation Section
 - It is not explained in the Awards Section
 - There is no procedure for submitting building permits to verify program requirements
 - Building permits are not being submitted at the reservation or awards stages for a project

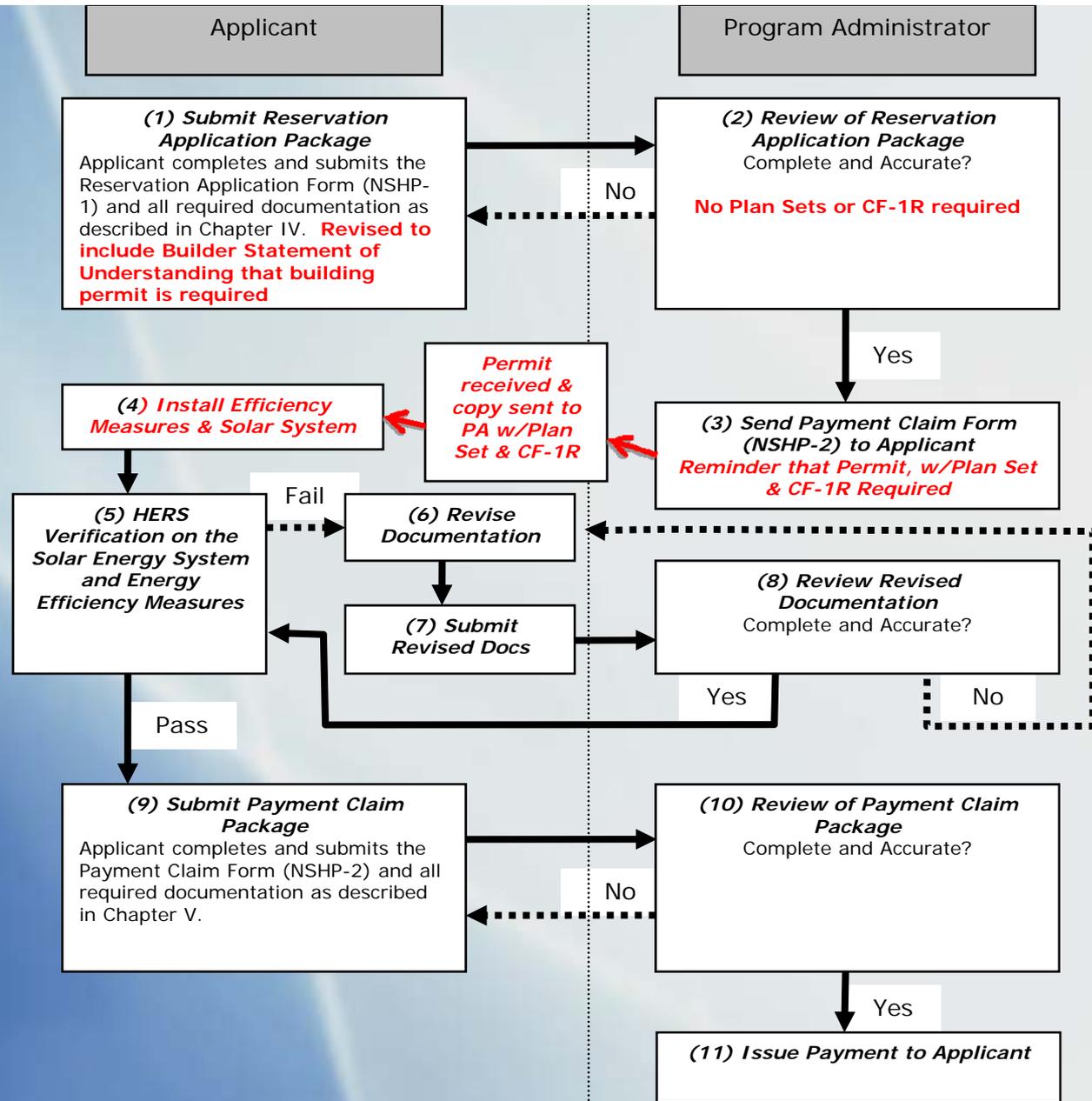


Building Energy Efficiency

- Recommendations
 - Continue SB1 and NSHP policy to require homes to exceed the EE Standards in effect at the time a building permit is pulled
 - Amend the NSHP Guidebook to clearly and consistently apply this policy by requiring the submittal of a building permit and supporting documentation to demonstrate compliance with program Tier requirements
 - Amend NSHP Guidebook to allow reservations prior to 1/1/10 to have a grace period until January 2012 to be better than 2008 code requirements



Figure 1
Application Process Flow Chart for All Projects, Except Solar as an Option



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Affordable Housing Requirements

- Regulatory Agreement – guarantee that housing units will be for specified income level tenants for a minimum of 10 years
- Individual metered units
- PRC 25744(b)(3): Incentives shall benefit the end-use consumer



Affordable Housing Incentives

- Incentives decline as megawatt targets are reached
- Incentives decline to zero over duration of program

Residential Unit Incentive	Megawatt Targets
\$3.50	1.5
\$3.15	1.8
\$2.80	2.2
\$2.45	2.5
\$2.10	3
\$1.75	3
\$1.40	4
\$1.05	5
\$0.70	6
\$0.35	7
Total	36



Military Housing

- Military Housing Privatization Initiative (MHPI) in 1996
- Privatized to upgrade housing and increase supply of housing



Military Housing Issues for NSHP

- Regulatory agreement
- Metering issues – some developments are under one commercial meter
- Incentives must directly benefit tenants
- Should military housing have a “separate but equitable” allocation or be included with other affordable housing projects?



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6. Incentive decline issues
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Transient Housing Issues for NSHP

- Currently ineligible to apply
- Looking to expand eligibility
 - Need to define what transient housing is or what types of transient housing could apply



Current Definitions in Title 24, Part 2

- California Building Code – Occupancy Group R1
 - Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:
 - Boarding houses (transient)
 - Hotels (transient)
 - Motels (transient)
 - Efficiency dwelling units (transient) (HCD 1)
 - Congregate living facilities (transient)



What does “transient” mean?

- Occupancy of a dwelling unit or sleeping unit for not more than 30 days (Title 24, Part 2, Section 310.2)



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 - Stakeholder comment period



NSHP Reservations: All Program Activity

- 1219 Projects for 10896 Sites, \$77.13 Million, 27.79 MW AC

Base Incentive (per watt, reference system)	Solar as a Standard Feature Incentive (per watt, reference system)	Reserved Volume (MW-AC)
\$2.50	\$2.60	15
\$2.25	\$2.35	18
\$2.00	\$2.10	22
\$1.75	\$1.85	25
\$1.50	\$1.60	30
\$1.25	\$1.35	35
\$1.00	\$1.10	40
\$0.75	\$0.85	50
\$0.50	\$0.60	75
\$0.25	\$0.35	90
Total		400



NSHP Reservations: Affordable Housing Activity

- 82 Projects for 568 Sites, \$10.51 Million, 3.12 MW AC

Residential Dwelling Unit Incentive (per watt, reference system)	Common Area Incentive (per watt, reference system)	Reserved Volume (MW-AC)
\$3.50	\$3.30	1.5
\$3.15	\$2.97	1.8
\$2.80	\$2.64	2.2
\$2.45	\$2.31	2.5
\$2.10	\$1.98	3.0
\$1.75	\$1.65	3.0
\$1.40	\$1.32	4.0
\$1.05	\$0.99	5.0
\$0.70	\$0.66	6.0
\$0.35	\$0.33	7.0
Total		36.0



Incentive Decline

- Should the incentive levels for both market-rate housing and affordable housing drop?
- Next Steps
 - 30-Day Incentive Decline Notice



Thank you for your time

Next Action steps:

Written comments on the NSHP Workshop topics shall be emailed by **5:00 p.m. on February 15, 2011** to docket@energy.state.ca.us **AND** smiller@energy.state.ca.us, **OR** mailed or delivered to the following address:

California Energy Commission, Dockets Office,
MS-4, Re: Docket No. 06-NSHP-1, 1516 Ninth
Street, Sacramento, CA 95814-5504



Thank you for your time

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