

# Your Path to Energy Savings



Maggie Dimitrova  
John Chyka

November 2nd, 2009



# Agenda

**PG&E's Integrated Approach**

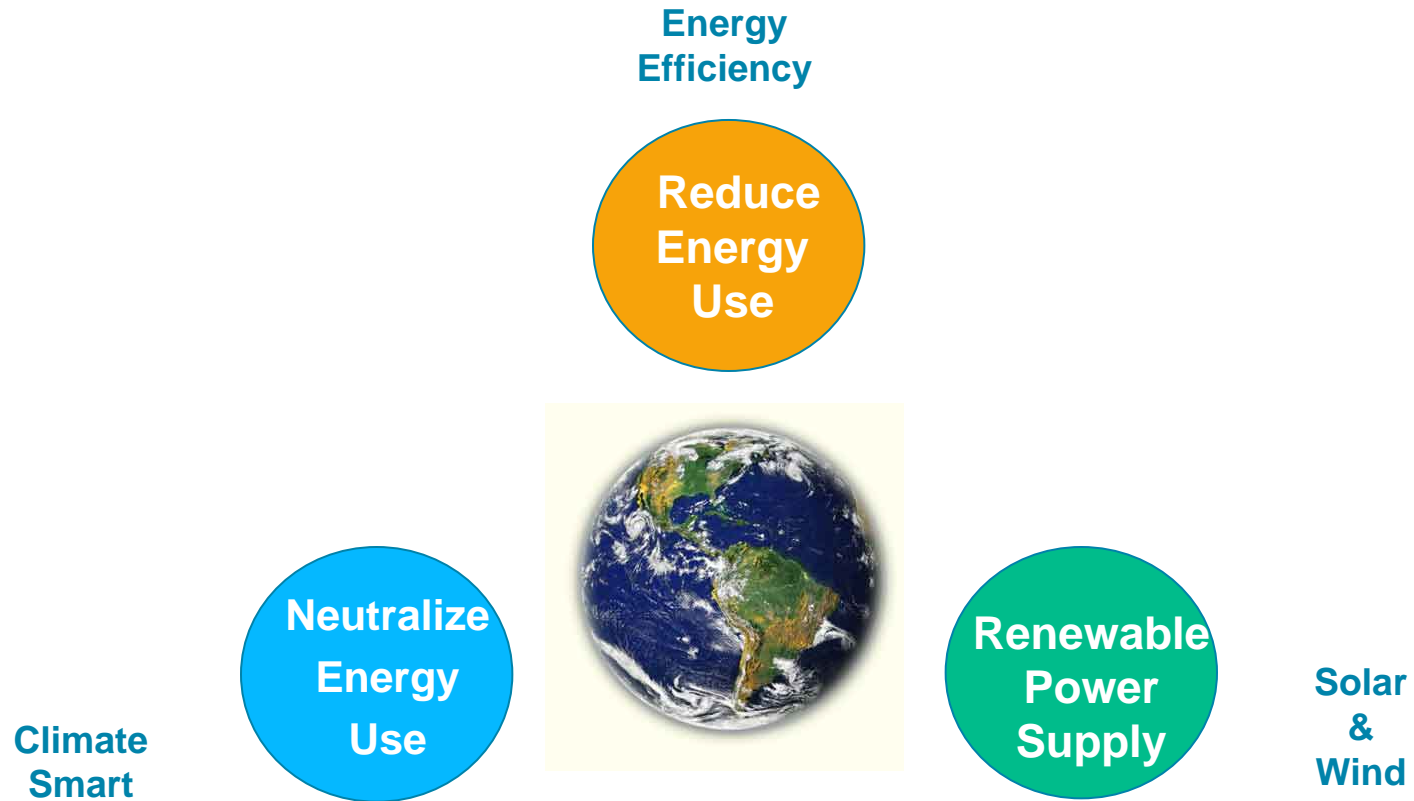
**Energy Efficiency Incentive Programs**

**California Energy Efficiency Standards**

**New Solar Homes Partnership Program**



# PG&E's Integrated Approach





# 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



# Case Study

## Carsten Crossings\*

70% electrical offset – 2.5 kW PV system  
35% above 2005 Title 24, 40% reduction in cooling

### Building Envelope

- R-49 attic insulation
- R-15 blown insulation walls
- Windows: U-value .35 & SHGC .32

### Mechanical System

- Tankless water heaters .84 EF
- 94 AFUE furnace variable speed
- AC: 15 SEER/12 EER
- Ventilation – Beutler Fresh Vent
- ENERGY STAR appliances
- HERS Measures – buried ducts, high EER right sized AC, duct testing, thermal bypass checklist, house wrap/blower door



# Energy Efficiency Incentive Programs



# Energy Efficiency Programs

## Residential New Construction Program

## California Multifamily New Homes Program

### Target Customers

- Builders, developers, and custom home owners in PG&E's territory

### Market Segment

- Residential New Construction



# Residential New Construction Program

## Options –

### New Solar Homes Partnership Performance Method

- Tier 1 - \$400 Coastal;  
\$500 Inland
  - 15% better than T-2
  - ENERGY STAR<sup>®</sup> appliances
- Tier 2 - \$2,000
  - 35% better than T-24
  - ENERGY STAR appliances
  - 40% reduction in cooling
  - PG&E electric service
  - Offer Solar



## RNC (Cont'd)

**ENERGY STAR Performance Method - \$400 Coastal;  
\$500 Inland**

- **15% better than T-24**
- **EPA guidelines**
- **Additional rebates for select appliances and lighting**

**Prescriptive - measure based**



# How to Participate

**Work with your Title 24 consultant**

**Prepare your Title 24 information for each of the plan types**

**Choose HERS rater to perform the field verification and testing**

**Submit application and supporting documents to the processing center or your representative**



# Required Documents

- RNC application and appropriate form
- Hard copy of the final 2005 CA Title 24\* CF-1R and/or CF-1R-PV form and corresponding electronic input files
- Complete set of construction plans:
  - Floor plan with elevations
  - Mechanical and electrical sheets
  - Site plan with North arrow for custom homes
  - Subdivision lot map and list of lots/addresses

\*2008 Title 24 in effect January 1, 2010



# Required Documents (Cont'd)

- **Copy of the signed EPA Partnership Agreement for all ENERGY STAR projects (if ES)**
- **Manufacturer equipment specification documentation (ARI/GAMA listings)**



# California Multifamily New Homes Program

Administered by PG&E and implemented by Heschong Mahone Group, Inc.

HMG facilitates EE design and construction in Multifamily housing

- Design assistance and training
- Financial incentives
- Program coordination – EPA Energy Star®, CEC NSHP, USGBC LEED New Homes (NH) and New Construction (NC), GreenPoint Rated Program and TCAC LIHTC affordable financing



# CMFNH (Cont'd)

## Options -

### **ENERGY STAR Performance Method - \$150 Coastal; \$200 Inland**

- 15% better than T-24
- EPA guidelines
- Additional rebates for select appliances and lighting

### **New Solar Homes Partnership Performance Method**

- Tier 1 - \$150 Coastal;  
\$200 Inland
  - 15% better than T-24
  - ENERGY STAR® appliances
- Tier 2 – to be developed



# California Energy Efficiency Standards



# Title 24

## Title 24, Part 6 – Energy Efficiency Standards\*

### Methodology

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

### Performance Approach

- Analysis of building's performance
- Emphasis on peak reduction

\* New 2008 Title 24 effective January 1, 2010



# Title -24 (Cont'd)

## Certified software programs

- Energy Pro (Versions 4.1, 4.2, 4.3, 4.4)
- Micropas 7 (Versions 7.0, 7.1, 7.2, 7.3)

Programs compare “Standard Design” with the “Proposed Design”

- Compliance Margin – the difference between the two

Third Party Plan Check

Third Party Field Verification



# Plan Check

**Applicant submits compliance documentation and selects HERS rater**

**Third party plan check**

- **Verify completeness and accuracy of Title 24 documentation**
- **Validate energy savings and compliance margin**



# HERS Verification

**HERS Provider – CalCERTS, CHEERS**

**HERS Rater – performs field verification and diagnostic testing**

- **HERS Rater inspects all EE measures that helped achieve 15% margin**
- **Energy saving not realized unless measures are installed properly**



# HERS Verification (Cont'd)

## HERS Rater inspects PV system

- Verify system design and installation (site-specific or California Flexible Installation)
- Confirm shading, azimuth, and tilt
- Verify performance – solar irradiance, ambient temperature, AC output displayed on inverter (expected output measured by PV calcs)



# New Solar Homes Partnership Program



# NSHP

**Timeline - January 1, 2007 through the end of 2016**

## **Purpose**

- **Provide incentives and support activities for installing eligible solar photovoltaic (PV) systems on new homes**
- **Create a self sustaining market for energy efficient, solar homes**

**Goal - 400 MW; \$400 Million**



# Incentives

**One time, up-front, expected performance based  
(CEC PV EPBI calculator)**

**Incentive levels decline to zero over 10 years as  
megawatt goals/triggers achieved**



# Incentive Structure

## Affordable Housing

- **\$3.50/watt** for residential units
- **\$3.30/watt** for common area

## Market Rate Housing

- **\$2.50/watt: Base Incentive**
- **\$2.60/watt: Production housing with solar standard**



# Integrating EE & Solar

## EE Program Tier 1

SF (\$400/\$500)

MF (\$150/\$200)

- 15% better than T-24
- ENERGY STAR® appliances

## NSHP Tier 1

Starting at \$2.50/watt; \$3.30 for affordable housing

- 15% better than T-24
- ENERGY STAR appliances

OR

OR

## EE Program Tier 2

SF (\$2,000)

- 35% better than T-24
- ENERGY STAR appliances
- 40% reduction in cooling
- PG&E electric service

## NSHP Tier 2

Starting at \$2.50/watt; \$3.30 for affordable housing

- 35% better than T-24
- ENERGY STAR appliances
- 40% reduction in cooling



# How to Participate

## Before You Apply –

- Establish electric service from PG&E
- Participate in PG&E's EE Program
- Apply for interconnection under Net Energy Metering
- Review NSHP Guidebook & apply online



# Contact Info

**Residential New Construction Program: 1-800-342-7737**  
[www.pge.com/newhomes](http://www.pge.com/newhomes)

**California Multifamily New Homes: 1-866-352-7457**  
[www.h-m-g.com/multifamily/CMFNH](http://www.h-m-g.com/multifamily/CMFNH)

**Statewide Solar Website:**  
[www.gosolarcalifornia.com/nshp](http://www.gosolarcalifornia.com/nshp)

**New Solar Homes Partnership Program: 415-973-3480**  
[www.pge.com/nshp](http://www.pge.com/nshp)

**Net Energy Metering: 415-973-5676**  
[www.pge.com/gen](http://www.pge.com/gen)

**Climate Smart:**  
<http://www.joinclimatesmart.com>

# Q & A

