2010 POLICY AND INCENTIVE OVERVIEW

Regulatory Climate for Passive House
And Beyond
Overview

- Federal Policy + Programs
- CA State Policy + Programs
- Bay Area Policy + Programs
Federal Programs

- HR-2454: American Clean Energy and Security Act
- ARRA: American Recovery and Reinvestment Act
- EEM’s and EIM’s
- Home Star – “Cash for Caulkers”
HR-2454 American Clean Energy and Security Act

• More of utilities’ electricity from renewable sources. (6% by 2012 and 20% by 2020) = more favorable source energy multipliers

• $90 billion to energy-efficiency and renewable-energy technologies

• New energy-efficiency standards for buildings would require 30% improvement by 2010 and 50% improvement by 2016

• Households could receive $3,000 in financial support to make their residences at least 20% more energy efficient

• Status: Passed in House, awaiting Senate vote
Federal Policy + Standards

ARRA - American Recovery and Reinvestment Act

- $5 billion for weatherizing modest-income homes
- $300 million to buy energy efficient appliances
- $250 million to increase energy efficiency in low-income housing
- $9 billion of State Fiscal Stabilization Fund administered by the federal Department of Education - governors can use for school modernization + renovation
- $120 million Dept of Defense Energy Conservation Investment Program
- $100 million for energy conservation and alternative energy projects for Navy and Marines
- Military Family Housing Construction: Army $34.5M, Air Force $80.1 M
ARRA - American Recovery and Reinvestment Act

- $4.5 billion for measures to make GSA facilities “high-performance green buildings” and up to $3 million to be directed toward programs for training in the construction, repair, and alteration of federal buildings.

- $2 billion in *Neighborhood Stabilization Funds* to be distributed through a competitive process to states, localities, nonprofit organizations, and consortia for the purchase, rehabilitation, and redevelopment of abandoned and foreclosed housing and/or vacant properties to reduce neighborhood blight.
Federal Policy + Standards

ARRA - American Recovery and Reinvestment Act

• $6.3 billion for state and local governments to make investments in energy efficiency
  – $3.2 billion toward Energy Efficiency and Conservation Block Grants (EECBG) created by the 2007 energy law, of which $2.8 billion will be distributed through formula, and $400 million will be through competitive grants. (Administered by CEC)
  – $3.1 billion in funding for the Department of Energy’s State Energy Program (SEP), which provides funding to states and state energy offices for energy initiatives, and renewable energy and energy efficiency programs.
    • SMUD: $19,969,421
    • ABAG: $10,750,000
    • SF Mayor’s Office of Housing: $2993,029
ARRA - American Recovery and Reinvestment Act

- ABAG: $10,750,000 - Retrofit Bay Area (PACE)
  - Region-wide energy efficiency program
  - Goal: retrofit 17,000 homes (single family and multifamily) to achieve reduction in home energy consumption
  - Thus creating 1,739 home energy retrofit jobs
Federal Incentives

ARRA - American Recovery and Reinvestment Act

• Tax Credit for Energy-Efficient Existing Homes: individual tax credit of 30% for 2009 and 2010
  – No upper cost limit on
    • Solar Energy Systems
    • Geothermal Heat Pumps
    • Small Wind Turbines
    • (Existing and new, principal and second homes qualify. Rentals do NOT qualify)
    • Fuel Cells – up to $500/0.5kW of capacity for principal residence
  – $1,500 total cap on
    • Biomass Stoves
    • HVAC
    • Insulation
    • Roofs
    • Water Heaters (non-solar)
    • Windows and Doors
    • (Must be existing home and principal residence)
EEM’s and EIM’s

Energy Efficient Mortgage & Energy Improvement Mortgage

• Purchase or refinance a home that is already energy efficient
• Purchase or refinance a home that will become energy efficient after energy-saving improvements are made.
• Most energy-efficient financing programs offer both types of EEMs, as well as home-improvement loans for making energy-efficiency upgrades to your existing home.
Home Star

“Cash for Caulkers”

- Calls for the creation of a national program to provide direct rebates to homeowners who invest in qualifying home energy efficiency improvements:
  - insulation and weatherization
  - high-efficiency heating and air conditioning equipment
  - replacement windows
  - other cost-effective home improvements that can permanently reduce household energy bills

- Rebate amounts can be deducted from overall job costs at the time of sale and paid directly to the contractor or product retailer after retrofit work is completed.
State Policy and Incentives

- AB 32 Global Warming Solutions Act
- CPUC Long-term Strategic Plan
- CALGreen
- T24 2008 (ASHRAE 62.2)
- AB 1451 Property Tax Exclusion
- PACE Financing
The Plan: AB 32 + CPUC Strategic Plan

- Reduce GHG’s to 1990 levels by 2020
- Reduce GHG’s to 80% of 1990 levels by 2050
- All new residential construction ZNE by 2020
- All new commercial construction ZNE by 2030
CALGreen: GB Executive Order

• Effective January 1, 2011
• Mandatory inspections of energy systems for NR buildings ≥10,000 sf
• New buildings must:
  • Reduce water consumption by 20%
  • Divert 50% of construction waste from landfills
  • Install low emitting materials
  • Install separate water meters for NR indoor/outdoor
  • Install moisture-sensing irrigation systems for larger landscape projects
Title 24, Part 6 - 2008

- Effective January 1, 2010
- Overall 15% more restrictive than T24 2005
- Most lighting must to be high efficacy or have vacancy sensor controls (kitchen lighting =2005)
- Prescriptive Cool Roof requirements
- New HVAC must prescriptively comply with new refrigerant charge, proper airflow, and fan watt draw verification HERS inspections
Title 24, Part 6 - 2008

Increased U-factor and SHGC requirements = New base-line compliance window for most prescriptive packages is dual pane/vinyl window with Low-E, spectrally selective coating

Duct testing optional in T24 2005, now standard prescriptive requirement

New TDV multipliers = Homes that shift energy use to off-peak will realize large credits in the compliance calcs that can be used to offset other design priorities such as larger windows or a challenging on-site building orientation
Title 24 2008 Ventilation

New required whole house ventilation to provides a minimum amount of outdoor air by using either a continuously running bathroom fan or SA/RA ventilation thru central HVAC.

\[ Q_{\text{fan}} = \frac{A_{\text{floor}}}{100} + 7.5 \left( N_{\text{bedrooms}} + 1 \right) \]

Per ASHRAE 62.2-204: minimum of 1 cfm for each 100 sq. ft. of floor area plus 7.5 cfm for each occupant. # occupants is determined by multiplying the number of bedrooms and then adding one.
Title 24 2008 Ventilation

ASHRAE 62 recommended minimum residential ventilation rate
• 0.35 Air Changes per Hour or
• 15 cfm/person, whichever is higher
• (usually 0.35 AC/h)
• Lowest minimum residential ventilation rate in the world!

AND ...62.2 sizes fans to deliver less than or equal to 60% of ASHRAE’s 0.35 ACH min vent rate – assumes 0.15 from infiltration (NOT HAPPENING WITH PH!!)

PH requires the greater of 18cfm/person or 0.3AC/h. PH delivered results always exceed ASHRAE 62.2, because PHPP sizes ventilation systems to meet loads, not meet 60% of loads.
“If you want the best system money can buy, use heat recovery ventilation, but tighten the home as much as possible, and commission to ensure proper installation”

-Judy Roberson, Residential Building Scientist and Ventilation Consultant
Title 24 2008 – Other Req’s

- Dryer exhaust must be vented to outside
- Kitchen hood must be vented to outside
- Sound ratings for fans in living space
  - Continuous - 1 sone
  - Intermittent- 3 sones
- MERV 6 filter required on supply systems
- Doors to attached garage must be weather-stripped
- Minimize air transfer between adjacent homes
Component Modeling Approach (CMA) may be used for non-NFRC rated windows (T24 NR Manual Section 3.2)

- New performance rating method from NFRC for components (frames, spacers, glazing)
- Approved components do not require re-certification
- Generates accurate, project specific performance and label certificate (LC) (web-based)
- Single LC for all fenestration on a project
- Approved LC’s can be reused w/ minor modification
- Use in place of punitive default values (tables 116A+B and NA6)
Property Tax Exclusion + AB 1451

• CA Revenue and Taxation Code allows a property tax exclusion for certain types of solar energy systems installed between January 1, 1999, and December 31, 2016.

• Amended by AB 1451 in 9/08 to include the construction of an active solar energy system incorporated by an owner-builder in the initial construction of a new building that the owner-builder does not intend to occupy or use.
Property Assessed Clean Energy (PACE)

• Allows property owners to borrow money to pay for energy improvements.
• Repaid via a special assessment on the property over a period of years.
• Property owner must agree to repay the loan on his/her property tax bill for up to 20 years.
• Eligibility requires a clean property title and payments current on property taxes and mortgages.
• Local gov’s may authorize the property owner to contract for improvements or purchase directly.
• (CEC) recommends photovoltaics (PV), geothermal heat pumps, fuel cells, high-efficiency HVAC systems, insulation and high-efficiency windows.
Bay Area Policy and Incentives

• Local PACE programs
• Local Green Building Ordinances
• Marin Green Building Incentives
• Santa Clara Solar Thermal Leasing
• SF Solar Energy Incentive Program
• PG&E Net Zero Pilot Program
• PG&E Savings by Design
• PG&E Rebates
Bay Area PACE Programs

- BerkeleyFIRST (only solar)
- Sonoma County Energy Independence Program
- ABAG - Retrofit Bay Area (still in planning)
- GreenFinanceSF (3/1/10 launch)

(Not all local governments in California offer PACE financing)
Bay Area Policy and Incentives

Marin Green Building Incentives

• Waiver of the Title 24 energy fee (new only)
• Fast-track permit processing
• Free green building technical assistance, design consultation, resources and information for all Marin County residents.
• Requirements:
  • Exceed Title 24 requirements by 20%, or install an on-site renewable energy system that produces a minimum of 75% of the annual energy use for the building and site amenities.

Santa Clara Solar Thermal Leasing

• Santa Clara Water & Sewer Utilities Department supplies, installs and maintains solar water heating systems for residents and businesses. The renter pays an initial installation fee and a monthly utility fee.
Bay Area Policy and Incentives

**SF Solar Energy Incentive Program**
- Residential: $1,000 - $2,500
- Low-income Residential: $7,000
- Multi-family residential owned by a non-profit: $4,500/kW
- Non-residential buildings owned by a non-profit: $1,500/kW

**PG&E Net Zero Pilot Program**
- Conduct building research, development, and demonstration (RD&D) projects.
- ZNE Subprograms
  - ZNE Communities
  - ZNE Demonstration Showcase
  - ZNE Technology Advancement
  - ZNE Design Integration
PG&E Programs

PG&E Savings by Design

Offers *commercial* building owners and design teams:

- Design Assistance
- Design Team Incentives up to $50K per project
- Owner Incentives of up to $500K per project
- Incentives for:
  - Enhanced Cx
  - Certification
  - End-use monitoring
- “Energy Design Resources" educational tools
PG&E Incentives

- Cool Roof Rebate: Up to $0.20 psf
- Insulation Rebate: $150 rebate from PG&E for 1,000 sf of attic insulation, and up to $500 back for 1,000 sf of wall insulation.
- Duct Sealing Rebate:
  - **Tier 1A Existing** central duct systems; all Seasonal Energy Efficiency Rating (SEER) levels Maximum of $200
- Residential Energy Efficiency Tax Credit: Tax credits are available up to 30% of the cost of the project (maximum of $1,500 in 2009/2010 for existing homes) for:
  - Insulation
  - Duct sealing and infiltration reduction
  - Energy-efficient windows and skylights
  - Air-source heat pumps
  - High efficiency gas furnaces and boilers
  - High efficiency water heaters
Other “Incentives” (PR!)

Sustainable Industries

The Business Source for Leaders of the New Economy

Friday, March 12, 2010
Meydenbauer Convention Center, Bellevue, WA
www.BuiltGreenConference.com

Calif. retrofit shoots for Passive House status
by Charles Redell - 1.22.10

SONOMA, CALIF.

A home builder in California’s Napa Valley is working on what he says will be the first retrofit in the state to be certified as a Passive House. When the work on the 1,800-square-foot home, which was built in 1960, is complete, its mechanical systems will use 90 percent less energy than a home built to code, says Rick Milburn, president and CEO of Solar Knights Construction, Inc.

The home’s air-light sheathing will be covered by four inches of foam.
Questions?

Thank You!

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