



# Energy Efficiency Section

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# ENERGY EFFICIENCY PROGRAM EVALUATION

2006-08 IOU Program Portfolio  
Energy Savings

Energy Division's Schedule and Process for  
Reporting Program Achievements



# Energy Efficiency Goals, Administration, and Evaluation Framework

- **Energy Action Plan (EAP)**
  - Established Energy Efficiency (EE) as the first resource in the loading order to meet California's energy demand growth
- **Energy Savings Goals for IOUs (D.04-09-060)**
  - Adopted 10-year energy savings goals for the IOUs consistent with the EAP
- **EE Administrative Structure post-2005 (D.05-01-055)**
  - IOUs given lead responsibility to administer ratepayer-funded EE programs
  - Energy Division charged with managing all Evaluation, Measurement, and Verification (EM&V) impact studies to ensure that the "program results be credible and reliable for resource planning purposes."
- **2006-08 EE Portfolios (D.05-09-043, D.05-11-011)**
  - IOU authorized budgets of \$2.1 Billion for 3 year program period
  - Energy Efficiency Programs expected to eliminate the need for 1,489 MW of new generating capacity, and save 7,334 GWH and 121,989 MTh
  - Commission set aside 7.6% of portfolio funding for all EM&V activities including \$118 million for Energy Division and \$44.7 million for IOU managed studies. This budget includes funding for potential studies, IOU process evaluations, strategic planning activities, and the Database for EE Resources (DEER)



# 2006-08 Energy Efficiency Evaluation

- Energy Division issued competitive RFPs to engage nationally recognized EM&V experts to evaluate the 2006-08 Portfolios
- Many of our consultants performed similar evaluations for the California IOUs prior to 2006, and/or for other utility EE programs
- 23 Major Contracts
  - \$97.3 million encumbered for Energy Division's program evaluation
  - 60 consulting firms (including primes and subcontractors)
  - 1,070 individual consultants authorized for hourly billing (excludes administrative support)
  - Results based on more than 25,000 survey responses and more than 10,000 individual measurements including verification of measure installations through site visits and field sampling.
  - Work products include 15 impact reports and 3 non-resource reports



# 2006-08 Evaluation Reports

- Residential Retrofit
- Upstream Lighting
- Commercial Retro Commissioning
- Small Commercial
- Major Commercial
- Specialized Commercial
- Commercial Facilities
- HVAC
- Codes and Standards
- Local Government Partnerships
- Emerging Technologies
- Residential New Construction
- Non-Res New Construction
- PG&E Agriculture and Food Processing
- PG&E Fabrication, Process, Manufacturing
- SCE Industrial and Agriculture
- Marketing, Education, and Outreach



# 2006-08 Program Evaluation Report Schedule

## Program Evaluation Reports

15 Consultant Reports now posted for public comment

- Reports focus on measuring High Impact Measures (HIMs) as well as major Program findings
- Draft Reports released November 17 to December 11, 2009
- 30-day comment period
- Public Webinars scheduled for every report
- Reports to be finalized by mid to late January 2010
- Reports available for downloading at <http://www.energydataweb.com/cpuc/default.aspx>



# 2006-08 IOU Portfolio Evaluation Schedule

## Energy Division's Final Performance Basis Report

Cumulative Savings (MW, MWH, and Therms) for each IOU portfolio based on Final Program Evaluation Reports published in January 2010

- Overall IOU EE Portfolio and Program Accomplishments
- Cost Effectiveness, Total Resource Cost, Emission Impacts, Lifecycle Impacts
- Final calculation of IOU performance relative to EE savings goals

*Report to be issued for public review by April 15, 2010*



# CPUC September 2009 Decision Launched Efficiency Strategic Plan via 2010-2012 IOU Programs

**Approves \$3.1 billion for efficiency programs**

- Three Year Savings Potential:
  - 7,000 GWH ♦ 1,500 MW ♦ 150 MM Therms
  - 3 million tons of CO<sub>2</sub>e avoided
- Equivalent to 3 large power plants
- Supports 15,000 – 18,000 new/retained jobs \*
- Additional \$750 million for low-income home retrofits and appliances

\*Job benefits calculated based on Council of Economic Advisers' May 2009 publication of "*Estimates of Job Creation from the American Recovery and Reinvestment Act of 2009*"



# Aims for Long-Lasting Efficiency

- 12 Uniform statewide programs (by economic sector and market segment)
- Cal SPREE (Statewide Program for Residential Energy Efficiency) with pilot approach to 20%+ savings for up to 130,000 homes
- Commercial and government benchmarking and retrofits
- Comprehensive heating, ventilation, cooling quality services
- Commercial and institutional On-Bill Financing
- Training for contractors, architects, owners, managers, inspectors
- Pathway to Zero Net Energy new construction
- Starts shift from basic compact fluorescent lamps (CFLs) to advanced lighting technologies
- Statewide marketing & outreach coordinated across 4 IOUs



# Other New IOU Initiatives in 2010-12

## Support California's EE Strategic Plan

- IOUs to apply appropriate energy ***benchmarks*** to all commercial and government facilities participating in utility programs
- A ***new Strategic Lighting Plan*** with strategies to develop RD&D partnership pipelines, advance best practices, create widespread uptake, and accelerate market transformation and new technologies.
- CPUC/IOUs will ***apply findings from market and brand research to inform statewide marketing & outreach campaign.***

# 2010 –2012 IOU Workforce Education & Training to Support EE Delivery

## WE&T Planning - \$8 Million

Strategic planning & collaboration arm of WE&T

- Needs Assessment Research Collaboration
- Web-Portal Development Collaboration
- IOU Taskforce & External Coordination
- IOU Workforce Program Design & Revisions

## WE&T Centergies - \$73 Million

Education & Training offered through the 8 IOU statewide Training Centers, e.g.:

- HVAC Installation
- Food Processing Efficiency
- Green Building Design
- Lighting Systems
- Specialized Installer Training

**\$97 Million**

## WE&T Connections - \$16 Million

Work with traditional educational sectors, providing technical input to technical institutes, community colleges & community based organizations; e.g.:

- Guest Lectures
- Help with adult education & community colleges
- Advice to education curriculum developers

## WE&T Pilot Programs – Funded In Centergies and Connections

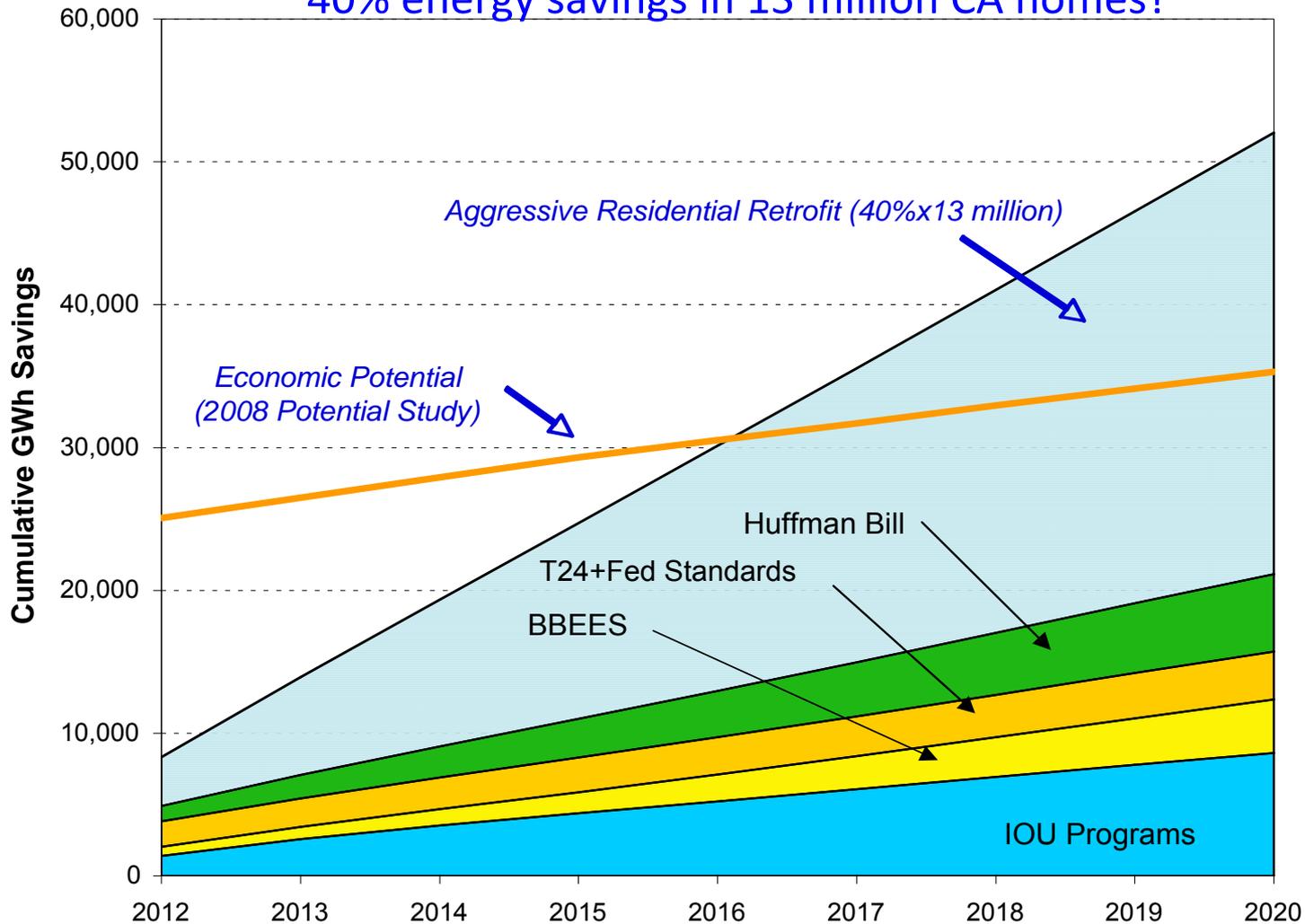
*Five pilot programs:*

- Building Commissioning
- Residential HVAC Installation Service
- Food Service Equipment
- EE Career education & practice (9-12)
- Green Training (K-12)



# Introducing New Strategies to Achieve All Cost-Effective Efficiency:

What if we could capture deep home energy retrofits with 40% energy savings in 13 million CA homes?





# Efficiency Regulations

- Appliances (Title 20)
  - Efficiency standards just adopted for televisions, Tier 1 effective January 2011, Tier 2 effective January 2013
  - Updates to appliance certification process and data tables to be developed
  - Enforcement of currently covered appliances underway
  - Next appliances to consider and schedule are yet to be determined



# Efficiency Regulations

## ■ Buildings (Title 24)

- ❑ Most recent standards go into effect January 2010
- ❑ Considerable effort being placed on compliance tools and enforcement assistance
- ❑ Compliance manuals developed and issued
- ❑ Public domain computer programs available
- ❑ Private vendor programs ready soon
- ❑ Training and education at industry sponsored meetings on-going
- ❑ Training and education for building departments on-going
- ❑ On-line training program (videos) about to be launched
- ❑ Planning, analysis, discussion underway for next cycle of standards



# Efficiency Rating Tools

As we advance to highly efficient new and existing buildings, energy performance ratings become important information and decision making tools.

## ■ Home Energy Rating System

- ❑ Developed to rate existing homes
- ❑ Provides a rating of the building's efficiency
- ❑ Provide list of cost effective alterations/retrofits
- ❑ Valuable information for current owner
- ❑ Valuable information for potential buyer of home
- ❑ Launching use of HERS through ARRA program and through AB758



# Efficiency Rating Tools

## ■ Commercial Tools

- ❑ Operational Benchmarking - CEC is expanding the U.S. EPA's Energy Star Portfolio Manager to cover more building types in California's building stock
- ❑ AB 1103 requires commercial building energy consumption disclosure – Energy Star rating or data must be disclosed
- ❑ Tool will help utilities and building owners meet their obligations under AB 1103
- ❑ Asset Rating Tool – Developing tool to rate the physical building assets, not the occupant behavior
- ❑ Building tenants differ and change far more often than the sale of an entire building so asset ratings may provide more tangible information than knowing the last 12 months of utility bill/energy usage of previous tenant.



# **Joint Comments on Respective Roles for Selected Energy Efficiency Topics**



# AB 758 Implementation

## CEC Planned Actions

- 758 calls for comprehensive program to achieve energy savings in California's existing building stock
- CEC conducting introductory discussions with stakeholders
- CEC will initiate rulemaking proceeding by March 2010 and develop a concept paper
- CEC must develop portfolio of techniques and practices
- Multiple implementation approaches including financing, public outreach and education, green workforce training
- ARRA programs will help pilot some ideas

## CPUC/IOU Planned Actions

- CPUC will explore potential for larger IOU utility role in financing residential and non-residential EE retrofits
- CPUC staff will guide CEC on information available from IOUs and efficiency program evaluations to help CEC program development
- IOUs Designing Comprehensive Home Energy Retrofit Program to Deliver 20%+ Savings & coordinate with CEC SEP and EECSBG local community programs



# Efficiency Financing

## CEC Planned Actions

- ARRA component for municipal financing programs - assist cities, counties and groups of cities and counties to develop or extend such programs
- Can be used for start up or on-going costs, energy ratings/audits or commissioning, interest rate buy-down, interim financing, low income grants/rebates
- Allows building owners to finance energy efficiency and on-site renewable energy improvements permanent to building
- Paid through an assessment with property tax

## CPUC/IOU Planned Actions

- All IOUs in 2010-12 will offer On-Bill Financing for non-residential customers, up to \$50,000 per commercial meter, \$250,000 per governmental meter, and up to \$1 million for large institutions
- IOUs to coordinate EE retrofit delivery programs with AB 811-type financing programs
- Explore merits of and leverage potential for retrofit financing options with ratepayer and/or other funding



# Zero Net Energy Homes & Buildings

## CEC Planned Actions

- ZNE new residential in 2020
- ZNE new nonresidential in 2030
- Each cycle of standards to improve the energy efficiency of new construction by approximately 15%
- Mandatory standard plus 15% for tier 1, and 30% tier 2 “reach standards”
- Improved appliance standards for plug loads is key component
- Cost effective renewable generation important

## CPUC/IOU Planned Actions

- Develop and share **best practices** through ZNE focused programs: ZNE Pilot Program, SCE Technology Test Center, Sustainable Communities, and Savings by Design.
- Engage key ZNE **stakeholders to inform action plan** to advance ZNE new buildings and retrofits.
- **Collaborate** among government policy leaders at USDOE, CEC, and other states pursuing ZNE buildings (MA, OR)