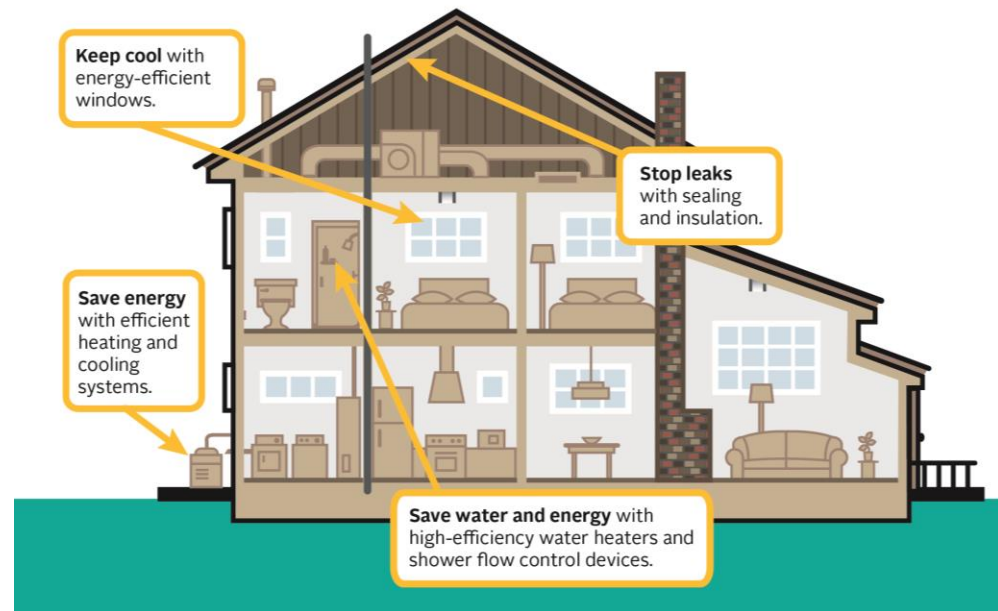# Home Upgrade
CABEC Conference

October 10, 2014

Home Upgrade
Energy Upgrade California®

Agenda

- Home Upgrade Offers
  - Home Upgrade
  - Advanced Home Upgrade
  - Home Energy Assessment
- Software Project

Keep cool with energy-efficient windows.

Stop leaks with sealing and insulation.

Save energy with efficient heating and cooling systems.

Save water and energy with high-efficiency water heaters and shower flow control devices.

Home Upgrade

- Prescriptive/ Performance Hybrid

- Capped at $2,500

- 100+ points required

- Minimum three measures required (1+ base)

POINTS	INCENTIVE
100	$1,000
150	$1,500
200	$2,000
250	$2,500

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Home Upgrade

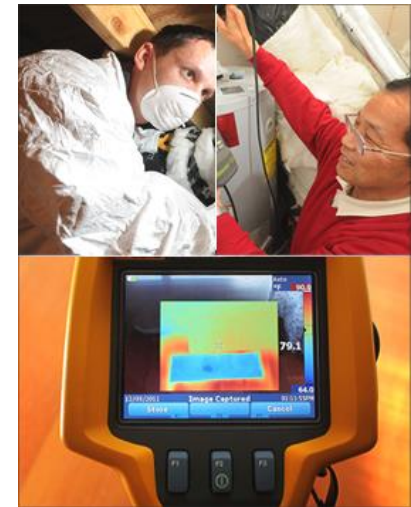| Category	Upgrade	Technical Specifications	Points	
Base Measures (1 or more)	Duct Sealing	Seal to ≤ 10% for existing systems	25	
	Duct Replacement	Seal to ≤ 6% for replacement ducts (Must include R-8 duct insulation, Duct Insulation may NOT be claimed as a separate measure)	65	
	Whole Building Air Sealing	≥ 15% leakage reduction from starting default ACHn	25	
	Whole Building Air Sealing	≥ 30% leakage reduction from starting default ACHn (Vintage 1993+ not eligible)	45	
	*Attic Insulation & Air Sealing	Insulation ≥ R-30 (≥ R-38 in climate zones 1 & 11-16) & Air Seal the Attic Plane	55	
	*Attic Insulation & Air Sealing	Insulation ≥ R-44	65	
Base Measure Kickers*	2nd Base Measure	Total of two base measures	15	
	3rd Base Measure	Total of three base measures (In addition to 2nd base measure kicker)	20	
Flex Measures	Wall Insulation	Insulate ≥ R-13	50	
	Windows	<= U-0.32 (All windows or 17% of Conditioned area sq ft)	70	
	Floor Insulation	Insulate ≥ R-19	40	
	Duct Insulation	Insulate ≥ R-8 (R-6 allowed if R-8 not feasible. Buried ducts allowed)	40	
	Furnace	≥ 92% AFUE	60	
	Furnace	≥ 95% AFUE	70	
	Wall Furnace	≥ 70% AFUE	40	
	Air Conditioner	≥ 14 SEER/12 EER	65	
	Air Conditioner	≥ 15 SEER	75	
	Gas Storage Water Heater	EF ≥ 0.67	35	
	Gas On-Demand Water Heater	EF ≥ 0.82	90	
	Electric Storage Water Heater	EF ≥ 0.93	40	
Mandatory Measures	DHW Pipe Wrap	1st 5 ft. of hot and cold water pipes must be insulated to ≥ R-4.2 unless not feasible	0	
	Thermostatic Control Valve	Mandatory unless not feasible	0	
	Low-Flow Showerhead	Must be performed unless not feasible	0	
	CO Alarm	Install in homes with attached garage or gas appliance	0	
			TOTAL:	

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Advanced Home Upgrade

- Performance based (Energy Pro Modeling)
- Incentives start at $1,000 (No incentive cap)
- Customized solution based on an energy assessment; allows for deeper retrofits
- Home modeling and diagnostic testing is required

Eligible measures include the following:

- Air sealing
- Duct sealing
- Attic insulation
- High-efficiency furnaces
- High-efficiency cooling systems
- Wall insulation
- Windows
- Cool roofs
- Lighting

- Pool pumps
- Appliances
- Wall furnaces
- Low-flow shower head
- Dishwasher upgrade
- Domestic hot water upgrade
- Door upgrade
- Refrigerator upgrade
- Whole house fan
- and more!

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Home Energy Assessment (SDG&E)

Home Assessment Report:

- EnergyPro Generated Home Performance Report
- Contractor Scope of Work Proposal
- Homeowner Guide
- SDGE Energy Upgrade California My Action Plan
- California Home Energy Rating Score (if applicable)
- Energy Efficiency & Renewable Energy Financing Options
- Energy Efficiency & Renewable Program Information

Home Assessment Kit Contents:

- Five LED Lamps
- One Smart Power Strip
- One Low-Flow Showerhead Fixture
- One Low-Flow Faucet Aerator
- One Thermostatic Shut-off Valve Fixture

Becoming A Participating Contractor or Rater

Benefits:

- Training and mentoring opportunities
- Expand your technical and no-technical skills
- Listed on the online directory for utility customers
- Connect with Homeowners interested in Upgrades

Eligibility:

- Attend Orientation Workshop
- CSLB License
- Insurance or Bonding Requirements
- Contractor/Rater Participation Agreements

Software Project

CPUC Project Directive: "We direct Commission Staff and the IOUs to work collaboratively with the California Energy Commission and other Energy Upgrade California stakeholders to identify approaches to adequately **broaden allowable software under Energy Upgrade California** while containing costs required for needed Commission Staff Reviews"
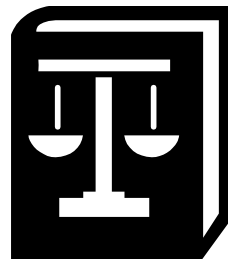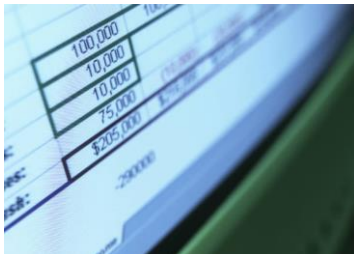
(Ordering Paragraph 61 of Decision 12-05-015)

More Accurate Models

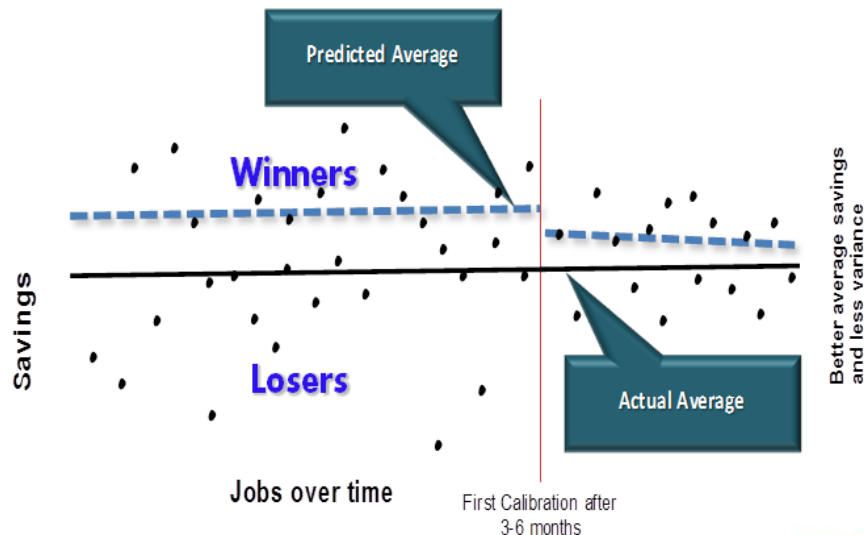## CalTEST – California Test for Energy Software Tools

- Data set of typical EUC Homes

- Calibrated and Un-calibrated Models of EUC Homes compared to actual results

- Program uses these results to determine software eligibility

- Initial adjustment factor may be applied to savings predictions

Ensure Delivery of Savings as Predicted

CalTRACK – Data-Driven Tracking and Feedback System

- Jobs tracked by software version used, climate zone, etc.

- Savings predictions compared to weather normalized post retrofit billing data (calibrated)

- Adjustment factor for performance by software and climate zone to further calibrate predictions on an ongoing basis

New Software Benefits

- Software accurately predicts savings on average

- Contractors deliver on predicted savings

- More choice for modeling software s for contractors

- Homeowners get the energy savings they're promised

- Strong link between incentives and savings

- Less risk (greater predictability) for investors

- Better environment for private capital and Industry Investment

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Next Steps

1.	Analyze Past Performance Data	**Complete**
2.	Define Required HPXML Dataset and Schema Definition (HPXSD)	**Complete**
3.	Develop CalTEST: A system to screen software against past EUC homes to test predictive accuracy	**Complete**
4.	Develop CalTRACK: A system to calibrate software predictions to actual billing data on an ongoing basis	**Underway**
5.	Launch CalTEST: Test and Approve new Software, On-board software (ensure inter-operability with back-end data systems), Allow software models to be used to predict savings on actual Home Upgrade homes	**Sept-Oct 2014**
6.	Launch CalTRACK: Implement approved software systems for ongoing tracking and reporting	**Sept 2015**

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Questions