



New Foundations for Community-Based Energy Efficiency:

**Plans, Programs, and Transformational Changes
to Housing**

*New Approaches to Energy Efficiency and Green
Retrofit*

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Real Energy Savings for \$200

J E O P A R D Y !

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Existing Buildings	Energy Efficiency as a Resource	Energy Efficiency Continuum	Comprehensive Approach	Real Energy Savings	Financing Energy Efficiency	ENERGY STAR®
\$200	\$200	\$200	\$200	\$200	\$200	\$200
\$400	\$400	\$400	\$400	\$400	\$400	\$400
\$600	\$600	\$600	\$600	\$600	\$600	\$600
\$800	\$800	\$800	\$800	\$800	\$800	\$800
\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000



Energy Efficiency as a Resource (Or, Energy Efficiency is the New Oil)

- First question is about cost -- won't that cost a lot?
- If these things were cheap or even cost-effective, the private sector would have done them already, right?
- Energy efficiency is the cheapest, simplest way to put money back into people's pockets, meet environmental goals, and create green jobs
- Energy efficiency investments offer substantial returns simply doesn't compute
- Studies show that there is energy efficiency and savings money being left on the table
- "Cost-negative" investments that can in the next few decades increase the aggregate efficiency of the economy by 20, 30, 50 percent
- Insulation may not be as glamorous as solar panels or wind turbines
- Energy efficiency is the new oil
- A significant investment in energy efficiency will continue to stimulate the economy long after the money is spent
- Energy efficiency is the gift that keeps on giving





Focus on Existing Buildings

- Abundance of existing buildings on continuum of needing various energy upgrades (weatherization to comprehensive/major rehab)
 - New construction market is being pushed by energy code updates
 - Deeper energy savings possible in existing buildings
 - Help fund the “gap” for energy efficiency as public funds limited and competitive:
 - Energy efficiency oftentimes “value engineered” out of project
 - Create jobs - “green” jobs and transition lost new construction jobs to rehab
 - Invest in improving older communities
 - Upgrading older buildings
 - Dollars saved on energy bills results in additional money available to be spent in the community - multiplier effect
 - Make homes more affordable, comfortable and healthy
 - Combat rising utility costs
 - Maximize energy savings, comfort, quality and minimize greenhouse gas emissions
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Multifamily Buildings by Vintage

It is estimated that over 3.5 million multifamily units exist in California

Residential Building Stock

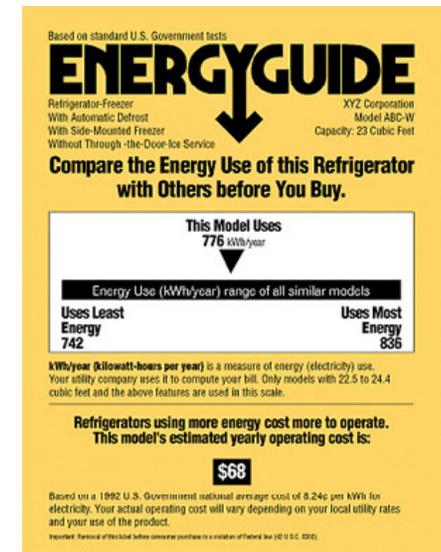
	Single-Family Dwelling Units		Multifamily Buildings	
	Units Added	Total Units	Units Added	Total Units
pre-1982		5,554,290		2,723,422
1982-1991	1,080,354	6,634,644	610,900	3,334,322
1992-2000	720,714	7,355,358	216,720	3,551,042
2001-current	193,220	7,548,578	73,577	3,624,619

Over half (2 million) were constructed before there was an Energy Code



Energy Efficiency Continuum

- Strive for deep energy savings in buildings
- Push buildings along the energy efficiency continuum, to reduce their energy intensity and carbon footprint to the greatest extent practical
 - From energy efficiency to zero net energy (solar)
 - Adding green elements to rehab
- Programs and investments focus on and reward deep energy savings with escalating incentives
 - Performance-based incentives: the more you save, the more you get
- Previous programs will just be jumping off points
 - 15% above Title 24 for new construction
 - 20% improvement over existing conditions for existing buildings
- Focus on “real” energy savings
 - Take out phantom energy savings from “assumed” equipment and Time Dependent Valuation



How to Achieve Deep Energy Savings in Existing Buildings? Comprehensive Approach

- Integrated, whole-building approach
- Building science approach
 - Maximizes the energy savings to reduce payback period and save on costs
 - Counts synergistic energy savings from multiple measures
- Typically requires use of an outside energy/building science expert (new green jobs)
 - Energy consultants (evaluate energy efficiency options) - typically engaged in new construction only
 - HERS Raters conduct audit and final inspection) (typically engaged in new construction only
 - Home Energy Performance Contractors - emerging field



Comprehensive Approach: Designed for Comfort (DfC) Program

- SCE/SCG Territory
- Performance-Based Program
 - Show a minimum of 20% improvement over existing conditions
 - Space Heating
 - Space Cooling
 - Water Heating
 - Insulation
 - Windows
- Incentives, assistance and training to help analyze cost-effective energy efficiency upgrades
 - Up to \$700/dwelling unit for LARGE projects
 - Up to \$1500/dwelling unit for SMALL projects
 - Up to \$500/unit for Special Needs projects
 - Energy consultants (\$40/unit, max. \$5,000/project)
 - HERS raters (\$50/unit, max. \$6,000/project)
 - Energy Smart Pak (worth \$35/pak) provided to each tenant of participating project
 - Tenant training to change energy use behavior



DESIGNED FOR COMFORT

ENERGY STAR Multifamily High-Rise Pilot

- ENERGY STAR® label for low-rise
- Pilot for high-rise label
- Pilot requirements:
- Meet performance guidelines using ENERGY STAR® simulation guidelines
 - National: 20% better than ASHRAE 90.1-2004 as defined by Appendix G
 - California: Test drive 20% above Title 24 - define building simulation guidelines based on Title 24
 - Top quartile of benchmarking tool
- Quality assurance through inspection and program protocols
- Incremental cost of implementing each energy efficiency measure
- Building energy performance data for a period of at least two years



New Ways to Pay for Energy Efficiency

- Traditional methods for paying for energy efficiency include reserves, utility-funded programs, lower utility allowances, etc.
- New methods to pay for energy efficiency:
 - Forward thinking cities that use stimulus money/block grants to fund energy efficiency in affordable multifamily housing
 - Loan products geared toward green rehab
 - Example: Enterprise Community Partners Green Retrofit Pilot Program
 - Increase energy efficiency of affordable multifamily rental properties
 - Improve property cash flow
 - Improvements that enhance the quality of life of the residents and the long term viability of the project
 - Grants/consulting contracts for building assessment and energy audits
 - Loans for capital improvements (exploring appropriate financing models)
 - Support in weaving together all possible incentives and rebate programs
 - Technical support to measure and verify energy savings achieved
 - Create replicable systemized approach to green retrofits at the property and portfolio levels

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Better Energy Management Practices for Multifamily Buildings

Systematic Community Energy Management Planning Practices

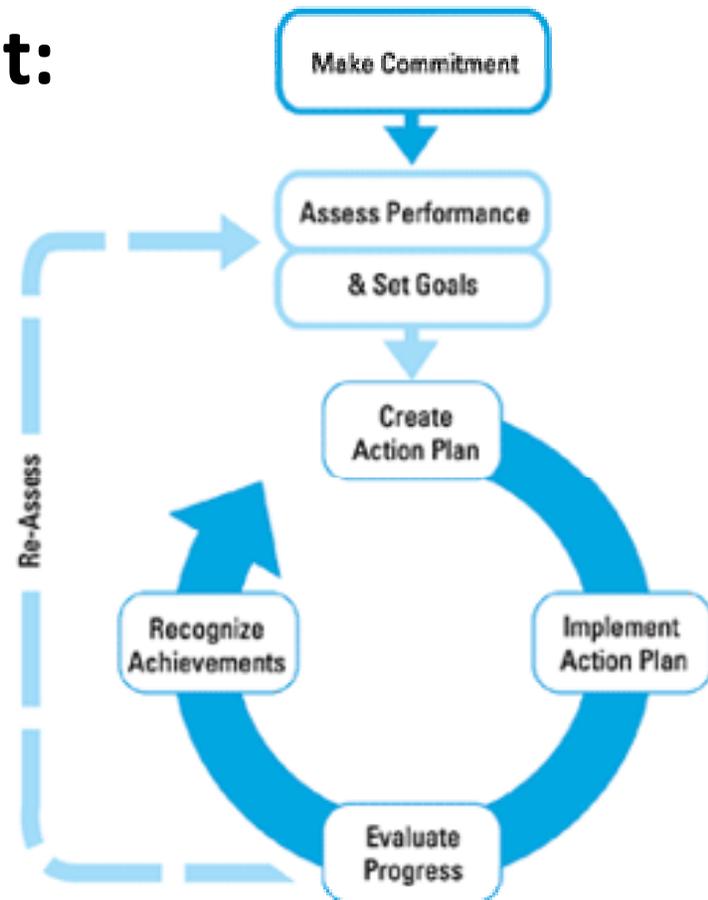
- Encourage multifamily building owners to actively manage their community's energy use on an ongoing basis
- Oftentimes, energy management consists of either replacing failed equipment or focuses on common areas (where building owner pays utilities) and not so much on the dwelling units
- Energy management plan can help communities develop a process to:
 - Set energy performance or savings goals
 - Identify opportunities to save energy
 - Establish operations and maintenance procedures for energy measures
 - Determine the appropriate approach to a rehab/retro fit
 - Select the most cost effective measures and specifications
 - identify financing, funding, incentive, and free resources
 - Analyze their investments in energy efficiency
 - Create action and implementation plans
 - Evaluate progress



EPA's Energy Management Cycle

Steps to Energy Management:

- Make Commitment
- Assess Performance
- Set Goals
- Create Action Plan
- Implement Action Plan
- Evaluate Progress
- Recognize Achievements



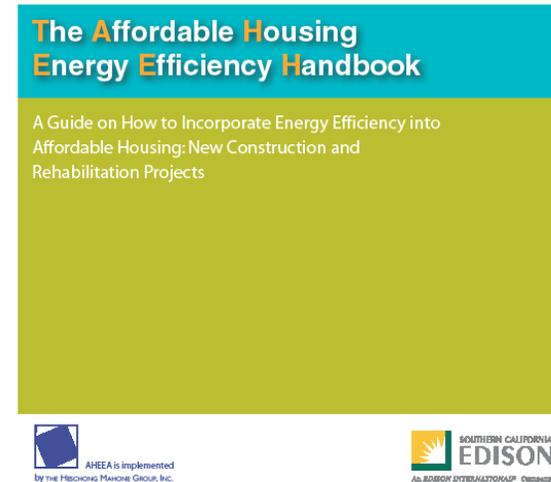
Energy Efficiency for \$1200

- What is the new oil?
- What is the cheapest, simplest way to put money back into people's pockets, meet environmental goals, and create green jobs?
- What is as glamorous as solar panels or wind turbines?
- What is the gift that keeps on giving?
- What do existing buildings need?
- What creates green jobs?
- What makes homes more affordable, comfortable and healthy?
- What reduces greenhouse gas emissions?



Affordable Housing Energy Efficiency Handbook

- Basic concepts of energy efficiency and integrated design
- Details on various energy saving measures
- Possible funding sources and assistance
- All about Energy Efficiency-Based Utility Allowance Schedules
- **FREE Download at**



www.h-m-g.com/multifamily/aheea



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