



**Greening Your HOME Program II:**  
Multi-Family Programs



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### Session Details

- Trainers:
  - Ryan Merkin, Steven Winter Associates
  - Lynn Katano, L.A. County
  - Phil Jones, ICFI [pjones@icfi.com](mailto:pjones@icfi.com)
- Focus on how to bring energy efficiency and green building into your program now
- All questions encouraged; cell phones are not, thanks
- <http://hometa.info/index.cfm?do=viewConference>



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### Session Topics

- EE and Green in HOME, NSP, other Federal Programs
- DOE, Utilities, Lenders
- Definitions and references
- New construction vs rehab
- Beyond efficiency – health and ecology
- Energy Star and other standards
- Your local standards and project management
- Cost/benefit analysis
- Casa Dominguez Project



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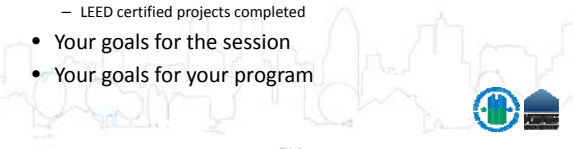
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### Your Experience and Goals

- Years of experience with energy efficiency or ENERGY STAR
- Professional certification
- Level of familiarity with green building
  - Novice
  - Good experience
  - LEED certified projects completed
- Your goals for the session
- Your goals for your program



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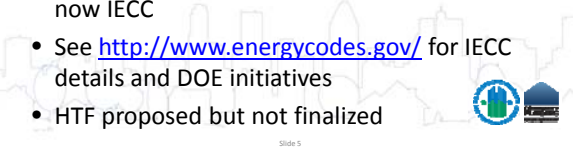
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### EE and Green in HOME, NSP, and other Federal Programs

- Opportunities and funding are HUGE - limited only by requirement for reasonable cost.
- Requirements for Energy Efficiency and green limited AT THIS TIME.
- HOME requires compliance with the MEC, now IECC
- See <http://www.energycodes.gov/> for IECC details and DOE initiatives
- HTF proposed but not finalized



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### More on HOME

- CHDO Green NOFA Grants
- HOME Model Program Guide for Energy Star and HOME is on the web
- Great resource, two notes:
  - Energy Star guidelines have changed
  - New ES Multi-Family program



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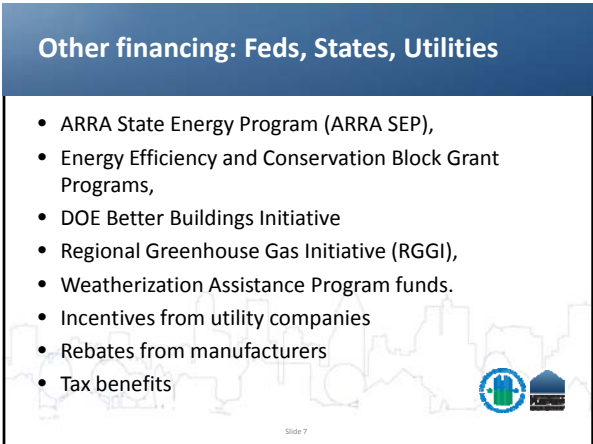
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### Other financing: Feds, States, Utilities

- ARRA State Energy Program (ARRA SEP),
- Energy Efficiency and Conservation Block Grant Programs,
- DOE Better Buildings Initiative
- Regional Greenhouse Gas Initiative (RGGI),
- Weatherization Assistance Program funds.
- Incentives from utility companies
- Rebates from manufacturers
- Tax benefits



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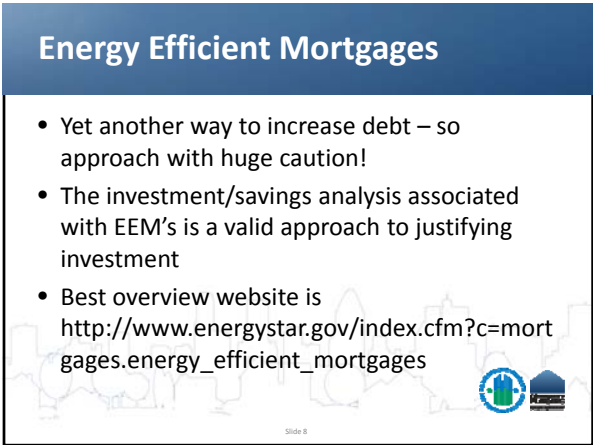
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### Energy Efficient Mortgages

- Yet another way to increase debt – so approach with huge caution!
- The investment/savings analysis associated with EEM's is a valid approach to justifying investment
- Best overview website is [http://www.energystar.gov/index.cfm?c=mortgages.energy\\_efficient\\_mortgages](http://www.energystar.gov/index.cfm?c=mortgages.energy_efficient_mortgages)



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### Building Your Capacity

- Web links – do the reading
- Recruit and use skilled professional firms
- Professional certifications
  - BPI
  - Resnet
  - LEED/USGBC
  - Association of Energy Engineers (portfolio management)



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## Greening Your HOME Program II: Multifamily Programs

Ryan Merkin, M.S., LEED AP  
Steven Winter Associates, Inc.




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## Green is Here to Stay

- Standards of New Construction
  - LEED for Homes, LEED for New Construction
  - ENERGY STAR® Multifamily
  - Enterprise Green Communities
  
- Standards of Existing Buildings
  - Benchmarking Legislation



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## Benchmarking



**BUILDING ENERGY QUOTIENT**



**STATEMENT OF ENERGY PERFORMANCE**  
Maguire High School



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### Which Building is Most Efficient?

First ES MF Bldg ->

First LEED MF in <-US

1972 MF Milwaukee WI ->

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### Benchmark Targets

Category	Target	Critical Action Needed
Space Heating	<10 BTU/FT2/HDD	>15 BTU/FT2/HDD
Electric Use	<4-5 kWh/FT2/YR	
Water Use	<50 gal/person/day OR < 100 gal/bedroom/day	>65 gallons/person/day
Hot Water		
Resident Complaints	No quantitative target	You'll know it

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### Financing Green

#### Resources

- [www.dsire.org](http://www.dsire.org)
  - Federal, State, and Local Programs
- Enterprise Foundation
- Weatherization Assistance Program

Many measures make sense without incentives...

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## Green Finance

### The Cost/Benefit Analysis

- Simple Payback
  - How long measure takes to payback in years.
- S.I.R.
  - Present Value / Measure Cost
  - > 1.0 is desirable
- LCC
  - Provides net present value of investment.
- TRC
  - Includes total project, design, & program costs.



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## Where to Start: Water

- Toilets  
1.3 gpf or less
- Showerheads  
1.75 gpm
- Faucet Aerators  
1.5 gpm Kitchen | 1.0 gpm lavatories  
Look for EPA's WaterSense® Label



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## Where to Start: Lighting

- Incandescents are no longer affordable
- Federal legislation phases out
- CFL's replace all
- T8 Tubes & CFL's
- LED Replacements
- Controls: Occupancy, Photosensor
- Some fixtures have controls built in!



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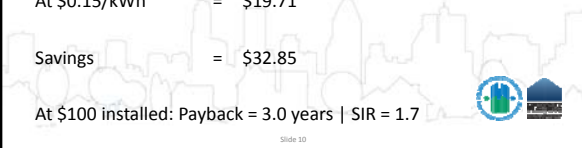

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### Cost/Benefit of Lighting Retrofit

<b>T12 Lamp Replacement</b>	
40W x 24/7/365	= 350 kWh
At \$0.15/kWh	= \$52.56
<b>LED</b>	
15W x 24/7/365	= 131 kWh
At \$0.15/kWh	= \$19.71
<b>Savings</b>	= \$32.85

At \$100 installed: Payback = 3.0 years | SIR = 1.7



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### Cost/Benefit of Lighting Retrofit

<b>T12 – 2 Lamp Replacement</b>	
86W x 24/7/365	= 753 kWh
At \$0.15/kWh	= \$113.00
<b>T8 Bi-level Fixture</b>	
62W x 4/7/365	= 90.5 kWh
19W x 20/7/365	= 138.7 kWh
At \$0.15/kWh	= \$34.38
<b>Savings</b>	= \$78.62

At \$300 installed: Payback = 3.8 years



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### Advanced Measures: IAQ

#### The Central Ventilation Retrofit

- Test flows
- Clean shaft
- Seal shaft
- Seal registers at sheetrock
- CAR Dampers (auto balancing)
- New direct drive fans (less maintenance)



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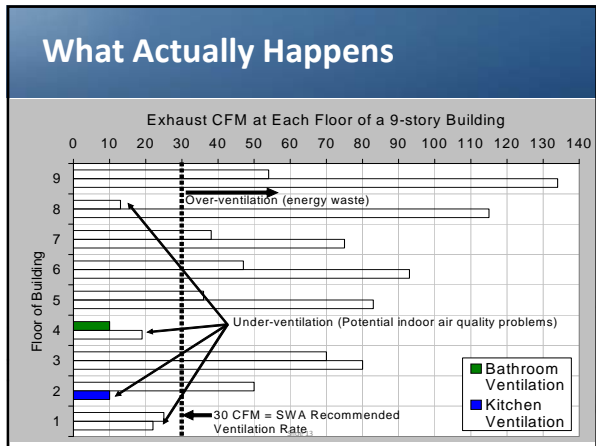
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- ### Advanced Measures: IAQ
- #### Whole Building Airsealing
- Electrical penetrations
  - Plumbing penetrations
  - Window framing
  - Wall to floor connection
  - Doors and vestibules
  - Basement ceiling
- Slide 14

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### Detailed Oversight

Standard ones...



Gap at drywall/duct

Plumbing Penetrations/  
Heating Penetrations



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### Detailed Oversight

Annoying ones..




Door latch holes

Outlets

Door Hinges

Electrical panels



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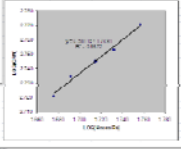
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### Progress Testing



Item	Value	Unit	Notes
Door	1.0	ft <sup>2</sup>	
Pressure	1.0	inches	
Flow	0.05	cfm	
Leakage	0.05	cfm/ft <sup>2</sup>	



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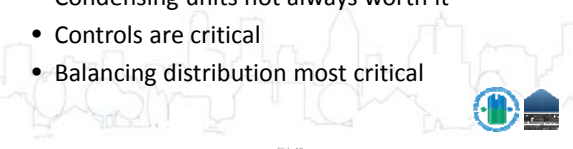
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## Other Measures

Heating and Domestic Hot Water Systems

- Do not replace with same!
- Replace all atmospheric equipment
- Condensing units not always worth it
- Controls are critical
- Balancing distribution most critical



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## What's New in New Construction?

Multifamily High-rise with ENERGY STAR®

Performance and Prescriptive Paths  
Assistance from Schematic Design  
Plan Reviews  
Specifications  
Modeling  
Testing & Verification, Commissioning



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## Thank You!

Questions?

Ryan Merkin  
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212-564-5800 ext. 116



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## Greening Our HOME Program

Lynn Katano, Senior Project Manager  
Community Development Commission  
of the County of Los Angeles




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### Community Development Commission

- Los Angeles County's Affordable Housing and Community and Economic Development Agency
  - Housing Authority
  - Community Development Department
  - Redevelopment Agency
- FY 10-11 budget - \$494 million
- Staff size – 655
- Over 80% of the CDC's funding comes from HUD.



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### Community Development Commission

- Housing Development & Preservation Division
  - Housing Development Unit
  - Housing Preservation Unit
  - Special Needs Housing Unit
  - Programs/Administration Unit
- Responsible for administration of HOME funds
  - Unincorporated county areas
  - 45 cities that participate in the Commission's Urban County Program




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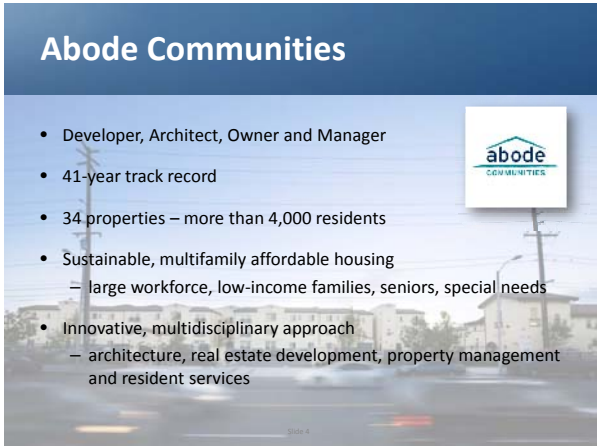

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## Abode Communities

- Developer, Architect, Owner and Manager
- 41-year track record
- 34 properties – more than 4,000 residents
- Sustainable, multifamily affordable housing
  - large workforce, low-income families, seniors, special needs
- Innovative, multidisciplinary approach
  - architecture, real estate development, property management and resident services



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## East Rancho Dominguez

- CDC acquired parcels - 1987 and 1993
- Remediation of contaminated soil and the removal of underground storage tanks
- Closure from the Los Angeles County Department of Public Works in October 1992
- Proposed light industrial development



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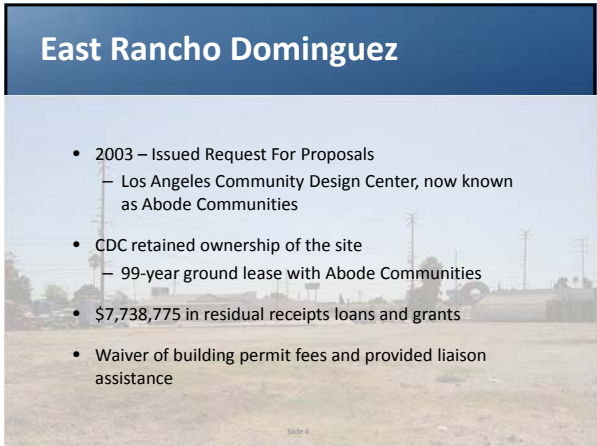
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## East Rancho Dominguez

- 2003 – Issued Request For Proposals
  - Los Angeles Community Design Center, now known as Abode Communities
- CDC retained ownership of the site
  - 99-year ground lease with Abode Communities
- \$7,738,775 in residual receipts loans and grants
- Waiver of building permit fees and provided liaison assistance



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## Casa Dominguez

- Unit Mix - 70 one-, two-, three- and four-bedroom units
  - 7 units set aside for Transition Aged Youth (TAYs)
- 650 square feet to 1277 square feet
- 35% - 50% (AMI) < \$39,650 for a family of four, annually



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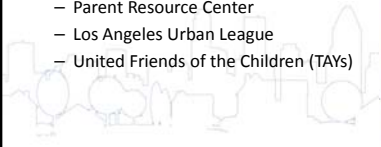
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## Casa Dominguez

- 12,000 sq. ft. Family Development Center
  - 66-space child care facility
    - Children's Collective
  - FQHC
    - St. John's Well Child & Family Center
  - Parent Resource Center
  - Los Angeles Urban League
  - United Friends of the Children (TAYs)



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## Casa Dominguez



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### Casa Dominguez



**Energy Efficiency**

- Solar Energy System Providing 100% of the Common Area Electricity
- Ground Source Heat Pump
- ENERGY STAR® Appliances and Lighting
- High Efficiency-Low-E Windows
- Use of Natural Light
- Naturally Ventilated Corridors
- Blown-In Insulation



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### Casa Dominguez

- **Water Conservation**
  - Grey Water Irrigation System
  - California-friendly Landscape
  - Low-Flow Plumbing Fixtures
- **Indoor Air Quality**
  - Formaldehyde-Free Cabinetry
  - Recycled Content Carpets
  - Low-VOC Paints and Floor Coverings
  - Restrooms and Kitchens Vented to Outside
- **Waste Reduction**
  - Pre-Fabricated Framing System to Reduce Construction Waste
  - Recycling Program



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### Casa Dominguez



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Casa Dominguez



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Casa Dominguez



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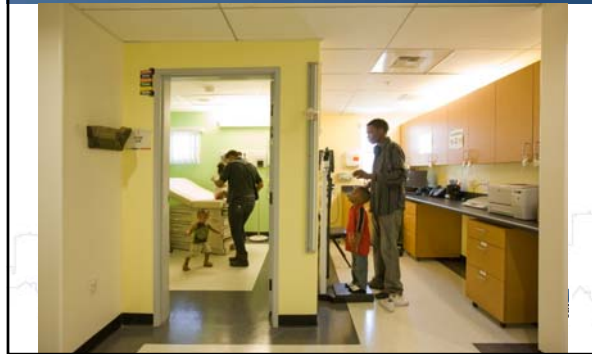
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## Notice of Funding Availability

- **Round 10 (2006)** - LEED certification
- **Round 11, 12 & 13** - GreenPoint Rated
- **Round 14** -
  - Required Sustainable Building Methods
  - Additional Points
    - LEED, Green Communities or GreenPoint Rated
      - Energy Efficiency Incentive = \$50,000
      - Exceed 2008 Title 24 by 15%



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## Notice of Funding Availability

- **Round 15** -
  - Increased Sustainable Building Methods requirement
  - Increased optional point items and EEI to \$100,000
  - Additional points awarded
    - Photovoltaic, solar thermal system, grey water irrigation system, passive cooling
    - Edible garden, composting program
    - Innovative stormwater management strategies
  - Sustainable Rehabilitation for Existing Special Needs Projects



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## Sustainable Rehabilitation for Existing Special Needs Projects

- **Round 15** -
  - Special Needs projects; minimum 10 years old
    - limited operating revenue
    - dependant on replacement reserves
  - \$75K/unit ; \$2M maximum
  - Goals
    - Green Building Practices
    - Energy & Water Efficiency Measures
      - 20% reduction
  - Code violations to be addressed first
  - Green Physical Needs Assessment & Audit



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**Your New BFF**

- **Architectural Consultants**
  - LEED certified architects w/sustainability experience
  - Residential vs. Commercial experience
  - Collaborative ventures
- **Project/Construction Management Consultants**
  - LEED certified w/affordable housing development experience
  - Cost-effective, integrated, sustainable design solutions
  - Cost of construction vs. long term affordability



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