

Energy Saving  
Partners



## Multifamily Buildings

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**Our goal was to simplify the process  
into 4-important steps**

- Obtain Written Permission
- Determine Eligibility
- Are there Energy Saving Opportunities?
- How will the Occupants Benefit?

## What did we see?

Heating systems that were:

- Old
- Oversized
- Inefficient
- Leaky
- Or non-functioning

## Before



After



What did we see?

Lighting systems that were:

- Old
- Incandescent
- On 24/7

Before



After



## What else did we see?

Windows that were:

- Old
- Leaky
- Inefficient during heating and cooling seasons

## Before



# After



## We saw

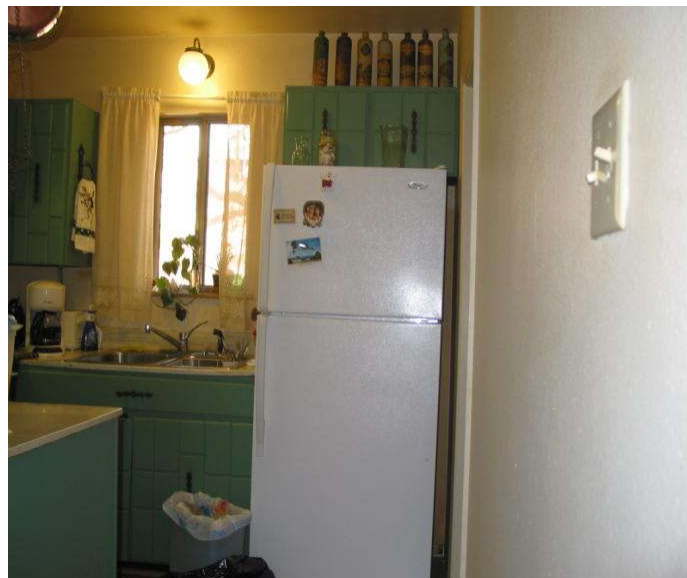
Appliances that were:

- Old
- Inefficient

## Through the wall A/C units



## Refrigerators



## Benefit to the Occupants

- Do occupants pay their utilities directly?
- Are their utilities included in the rent?
- Would Owners be willing to:
  - ✓ Lower Rents (for a period or time)
  - ✓ Freeze Rents (for a period of time)
  - ✓ Offer some other form of benefit to occupants



## Review...big pay back

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- Heating Systems and DHW
  - Down size system
  - Increase Efficiency
- Kwh reduction
  - Lighting upgrades
  - Refrigerators
  - Cooling (SEER) Improvement
- Air Leakage reduction
  - Inexpensive, but sometimes difficult



## Review...marginal pay back

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- Windows
- A/C units
  - Incremental cost
- Solar
  - PV and Thermal
  - Cost Sharing (owner, utility, us)

## Problems...

- ◆ Scheduling
  - Weather
- ◆ Financial (pooling \$\$)
- ◆ Getting equipment
- ◆ Relocating occupants
- ◆ Solar
  - Expensive
  - Roof/Codes issues

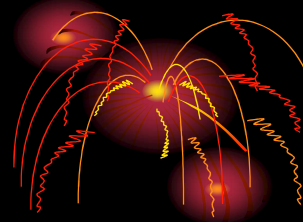
## Production

- **1 mil budget over 2yrs.**
- **12 projects**
- **412 total units**
- **~ \$2400/unit**



## ECM

- **21- boilers replaced**
  - avg. 500 kbtu reduction (10.5 mbtu)
- **4100 bulbs replaced x 30 w reduction**
  - = 123k watts saved
- **5 kw PV system up**
- **Solar thermal**
  - 40 panels (4x10)
  - 2300 gal. storage
  - 80% DHW
- **Solar thermal (evacuated tube)**
  - 120 sq ft
  - 160 gal storage
  - 25% DHW



## 5 kw PV system



## Evacuated Tubes



## 40 panel thermal

