

### Strategic Alignments: Renewables, Water, and the Community Stake

Better Buildings Summit May 11, 2016 11:15-12:30 PM



### Today's Presenters



Susan Peterson
Foundation
Communities



Caitlin Rood
Mercy Housing



Benjamin Knopp
Think Little Home
Energy





CABAN DEVELO



Foundation Communities: Creating Housing Where Families Succeed Susan Peterson

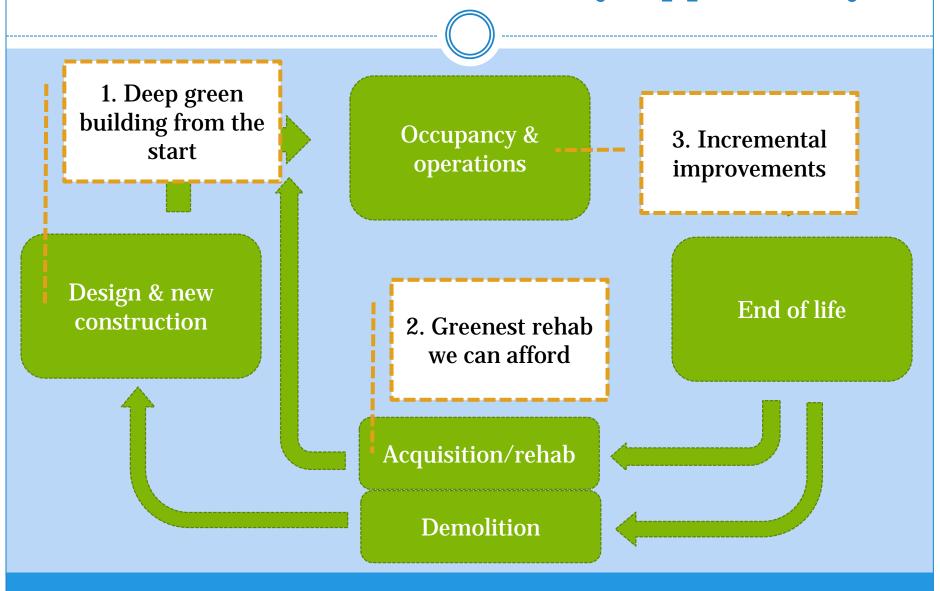




### **Foundation Communities**



### **Green Investments At Every Opportunity**



### Sometimes, We Make Our Money Back



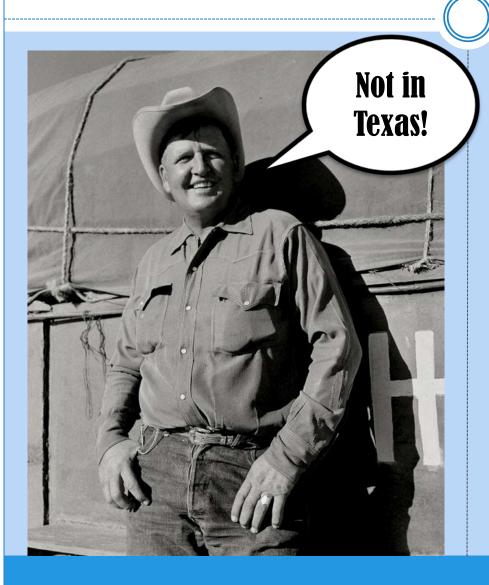
Really satisfying exterior lighting upgrade of house lights on one building and corresponding really satisfying 50%+ drop in energy consumption on a single electric meter ... yessssss!

### Often, Our Residents Make Our Money Back



**Split Incentives** 

### Not Many Mechanisms Available Yet to Resolve



- On-bill financing?
- Green leases?
- Sophisticated performance-based utility incentives tailored especially for multifamily?

### ... Except Utility Allowances

[maximum allowable rent] =

[total housing cost] — [utility allowances]





### **IRS Allows 5 Calculation Methodologies**

- 1. PHA (public housing authority) allowances
  - 2. Local utility estimate
    - 3. Actual use
  - 4. HUD utility schedule model
  - 5. Energy consumption model

### PHA Most Common, But We Used Actual Use

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### Requires:

- 12 months of actual consumption data for the utility allowance you want to change
- Data for 20% of units from each floor plan
- Sec. 8 excluded

160 units

Mostly 50%

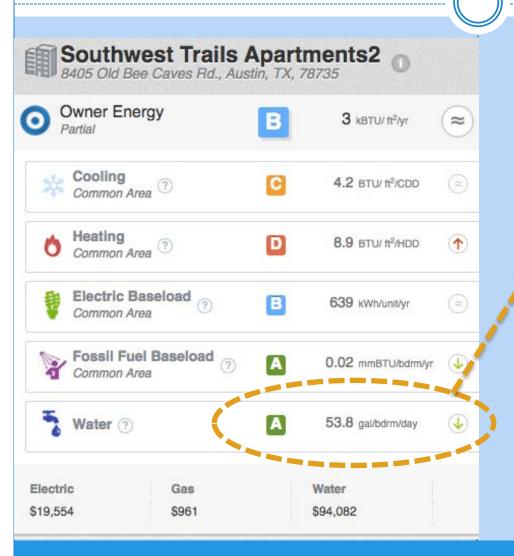
15-year old property

Maxed out on rents, but needed more revenue for capital improvements



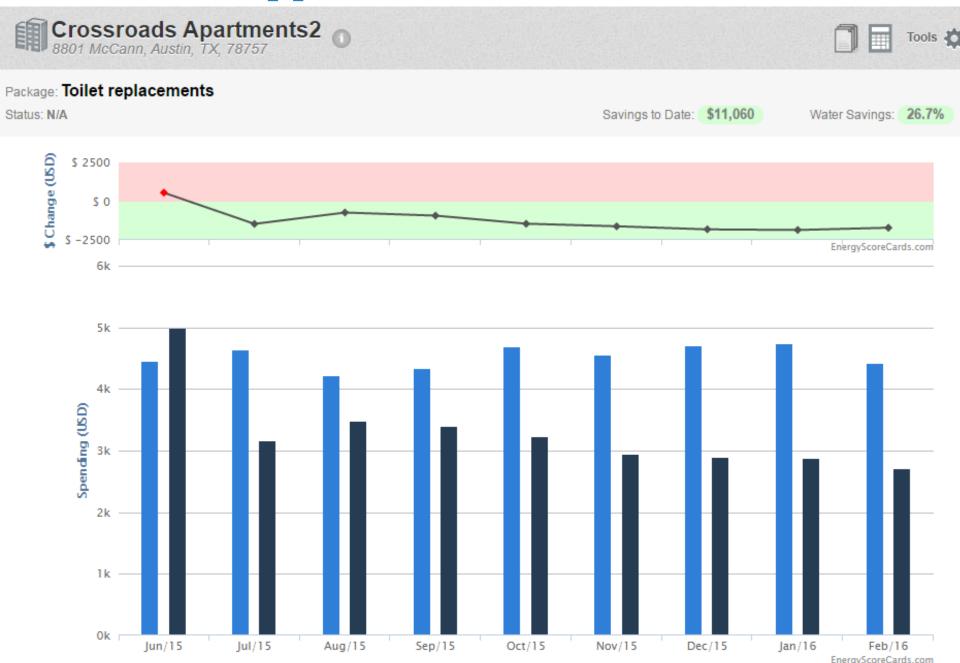
**Southwest Trails** 

### Recent Investment In H2O Conservation



- 0.5 gpm lavatory faucets
- 1.5 gpm showerheads
- 1.5 gpm kitchen faucets
- 54 gallons/BR/day
  - (despite regular toilets and in-unit washer/dryer hookups)

### (Sidebar: Flapperless Pressure-Assisted Toilets)



#### Data

Resident move-in dates from (1) rent roll

1 year of monthly water consumption for each unit from (2) third-party water submeters/billing service (NWP Services)

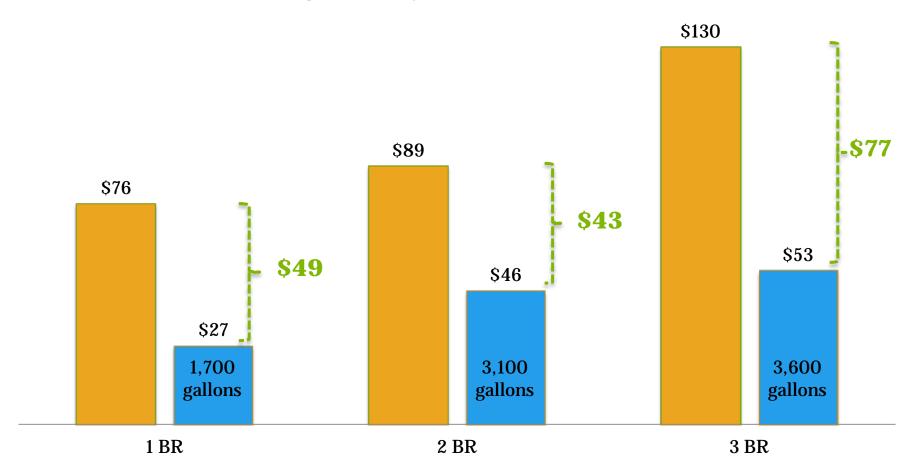
(3) Current published rates from applicable utility

Compile in spreadsheet and submit to state housing agency

| Α    | В    | D                  | E   | F    | G   | Н                        |
|------|------|--------------------|-----|------|---|--------------------------|
| Unit | SQFT | Move-in -<br>Month | Day | Year | Average Monthly<br>Consumption<br>(gallons) | 6/13/2013 -<br>7/16/2013 |
| 112  | 1019 | 7                  | 19  | 2013 | 4,576                                       | 1,830                    |
| 1323 | 1204 | 5                  | 26  | 2006 | 657   | 540                      |
| 522  | 1019 | 3                  | 1   | 2002 | 805   | 810                      |
| 933  | 1047 | 6                  | 21  | 2012 | 2,478                                       | 1,590                    |
| 1414 | 1204 | 4                  | 1   | 2011 | 3,302                                       | 4,180                    |
| 1032 | 1047 | 11                 | 21  | 2001 | 1,348                                       | 1,770                    |
| 721  | 1047 | 10                 | 19  | 2012 | 3,306                                       | 3,700                    |
| 1111 | 1019 | 2                  | 15  | 2011 | 879   | 880                      |
| 1221 | 1204 | 4                  | 1   | 2011 | 1,535                                       | 1,550                    |
| 224  | 1204 | 12                 | 1   | 2010 | 5,640                                       | 5,090                    |
| 1521 | 1204 | 6                  | 11  | 2010 | 4,727                                       | 5,090                    |
| 1612 | 789  | 8                  | 16  | 2010 | 2,220                                       | 2,220                    |

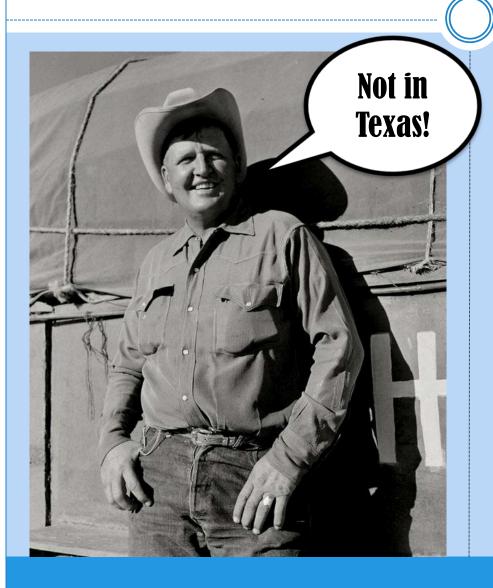
### Water/Wastewater Utility Allowances





|      | Actual Use<br>vs. PHA<br>Difference | No. of Units | Add'l<br>Revenue<br>Each Month | Add'l<br>Revenue<br>Each Year |
|------|-------------------------------------|--------------|--------------------------------|-------------------------------|
| 1 BR | \$49                                | 16           | \$800                          | \$9,600                       |
| 2 BR | \$43                                | 72           | \$3,000                        | \$36,000                      |
| 3 BR | \$77                                | 48           | \$3,700                        | \$44,400                      |
|      |                                     |              | TOTAL ->                       | \$90K                         |

### First Go 'Round Wasn't Easy



- State housing agency unfamiliar with how water rates are applied
- Lots of emails & a rather tense in-person meeting
- Time-sensitive due to data expiration dates and posting requirements

### **Energy Consumption Model**

#### IRS Allows 5 Calculation Methodologies

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### Requires:

- Construction documents or inspection
- Mechanical system, appliance & fixture data
- Licensed engineer to run an energy a model
- Pro tip: aggregated data from your utility



2011 green rehab

R-38 insulation

15 SEER HVACs

Solar screens

Plenty of shade

CFL & T8 lighting

EUI: 30 kBTU/ft2/year



**Sierra Vista Apartments** 

### **Results**

### NeighborWorks America Engineered Allowance Project Summaries and Results

Project Payback Periods are based on NeighborWorks America future rate sheet

### Project: (Austin, TX)

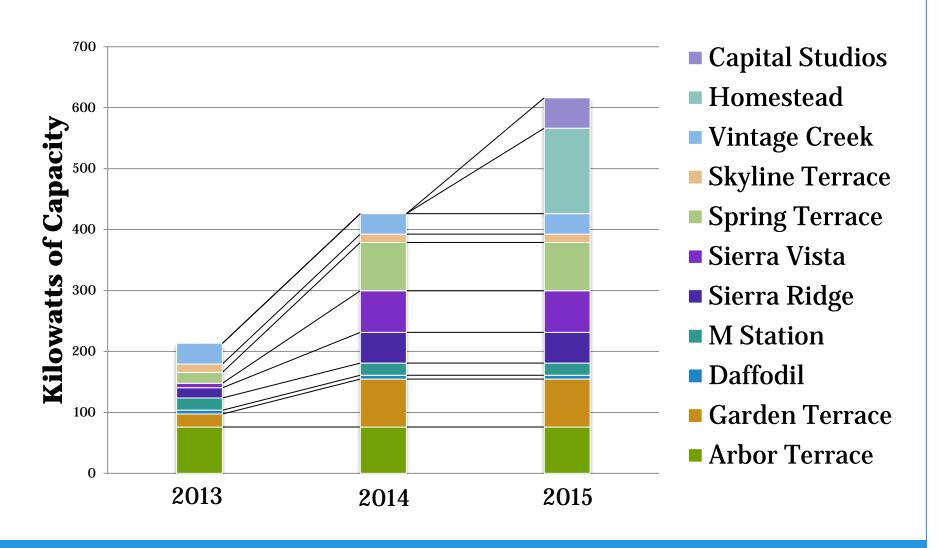
- 238-unit property with apartments (5+ unit buildings)
- Tenants pay for electricity only
- Current allowances are provided by Austin Housing Authority
- Energy efficiency enhancements include EnergyStar appliances and R<sub>35</sub> blown insulation

| Unit Type<br>(# of Units) | Previous<br>UA per<br>Unit | UApro+ EUA<br>per Unit | Difference per<br>Unit | Additional<br>Monthly<br>Revenue | Additional<br>Annual<br>Revenue |
|---------------------------|----------------------------|------------------------|------------------------|----------------------------------|---------------------------------|
| 1 BR (156)                | \$87                       | <b>\$48</b>            | (-\$39)                | +\$6,084                         | +\$ 73,008                      |
| 2 BR (82)                 | \$113                      | \$72                   | (-\$41)                | +\$3,362                         | +440,344                        |
|                           | •                          |                        | Revenue Totals         | +\$9,446                         | +\$113,352                      |
|                           |                            |                        | 5 Year Revenue P       | rojection                        | +\$508,760                      |
|                           |                            |                        | *Project Payback       | Period                           | < 1 month                       |

\$113K in additional revenue/year



### Burgeoning Solar Capacity on Owner-Paid Accounts, But None On Resident-Paid Accounts



180 kW solar

1-1.5 kW "mini arrays" on 140 resident-paid electric meters

FC-owned electric submeters

Use heating, cooling & electric baseload utility allowances (actual use or energy consumption model) to recoup investment



**Homestead Oaks Apartments** 

Susan Peterson
Green Initiatives Director
Foundation Communities
susan.peterson@foundcom.org



Strategic Alignments: Renewables, Water and the Community Stake Caitlin Rood





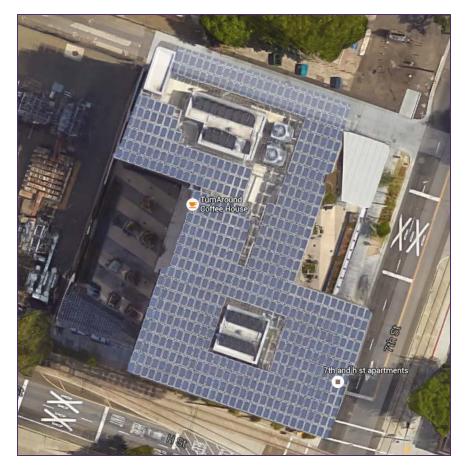
### Strategic Alignments: Renewables, Water, and the Community Stake

**Mercy Housing** 





National Solar
Project
Development
Partner
Selection
Process



Mercy Housing 7<sup>th</sup> and H Apartments Sacramento

### **History**



- PV, solar thermal and geothermal >60 properties
- Funding
  - Development
    - Budgeted and excess
  - Recapitalization
  - Replacement reserves
  - Shared savings
    - HUD and LIHTC
    - Notify vs Inform



Mercy Housing Grand and Venice
Los Angeles



### Renew300



- 1,000 KW and 30,000 therms by 2020
- Expiring ITC
- HUD TA







### **Solicit Interest**



### Approach

- Competing for attention, ITC expiring
- Relatively small projects individually, KW not MW
- Development partner concept
- Open to roof top and off site
- Write RFP
  - Sample sites
  - No site visit
  - Specified response format including cost
- Release RFP, Marketing
- Webinar, not required, anonymous participation
- Question response

#### REQUEST FOR QUALIFICATIONS

FOR

NATIONAL SOLAR PV PROJECT DEVELOPMENT PARTNER

ISSUED BY: Mercy Housing

CONTACT: Caitlin Rood

crood@mercyhousing.org

FO ISSUED: October 26, 2015

RESPONSES DUE: December 7, 2015



### **Review Bidders**



- Proposal review
- Short list
- In-person interviews
- Select top candidate

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- Organizational Capabilities
- Experience with MF and Affordable Housing
- Solar project development partner approach
- Cost and potential savings
- Technical viability and quality
- Interview responses and follow up





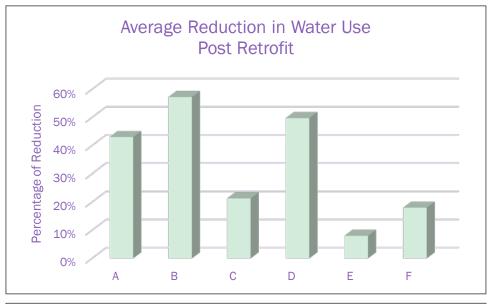
# Water Conservation

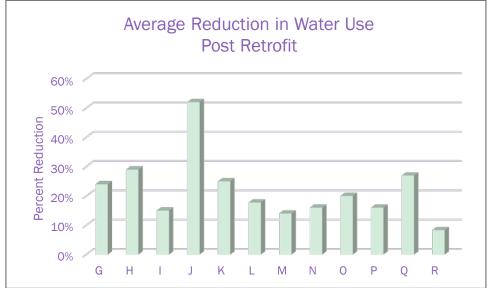


### **Water Conservation**



- Indoor Water
   Conservation Model
   Comparison
- Use rebates and pay from savings models
  - Smart Valve
  - Irrigation
  - Landscape
  - Toilets







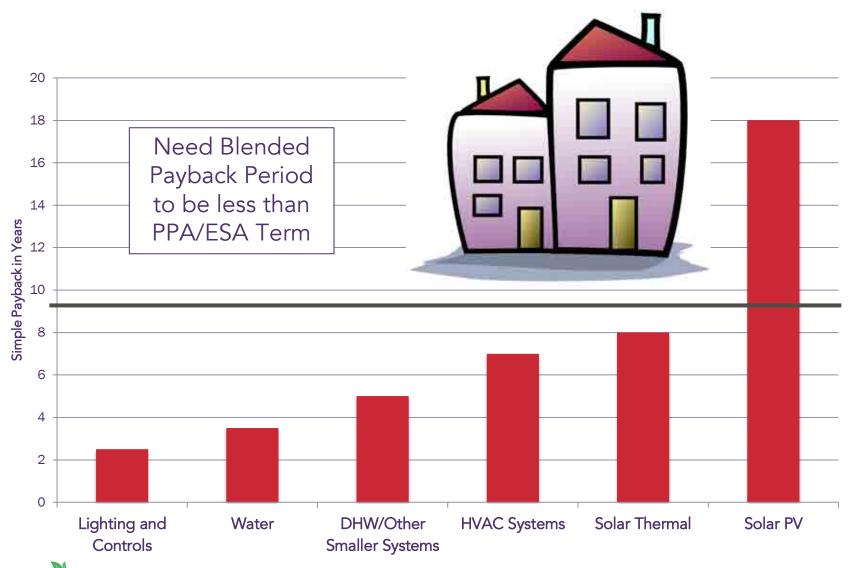


# A Word about Whole Building Retrofits



### **Whole Building Retrofits**









## QUESTIONS?

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National Environmental Sustainability Director
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### Financing High Performance Projects Benjamin Knopp



# FINANCING HIGH PERFORMANCE PROJECTS



Benjamin Knopp

Building Science Consultant
Think Little Home Energy



### WHY NOT HIGH PERFORMANCE?

- The #1 Excuse: "It's too expensive."
- · Reality: It doesn't have to be
- Tools: Integrative design process, modeling, 3rd party verification, commissioning, monitoring, retro-commissioning, education



## TWO APPROACHES TO HIGH PERFORMANCE

- 1. The Hare Approach: use all the latest and greatest technology with lots and lots of solar PV
- The Goldilocks Approach: carefully balance cost and performance using the integrated design process















# TWO RESULTS OF HIGH PERFORMANCE

- 1. The Hare Result: expensive and complex
- 2. The Goldilocks Result: simple and cost effective

First EarthCraft VA Verified Net-Zero Project





### Cost per square foot per unit (excluding site work)



### RS MEANS DATA

(Grissom Lane is Senior Affordable Housing)



### FINANCING MECHANISMS

- 1. Collaboration, Consultation, and Optimization
- 2. Low-Income Housing Tax Credit (LIHTC)
- 3. VA DHCD HOME Funds
- 4. NeighborWorks America Grant
- 5. HUD Community Development Block Grant (CDBG)



### QUESTIONS?

Presented By:

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### Discussion

