



Strategic Alignments: Renewables, Water, and the Community Stake

Better Buildings Summit

May 11, 2016

11:15-12:30 PM



U.S. DEPARTMENT OF
ENERGY

Today's Presenters



Susan Peterson
Foundation
Communities



Caitlin Rood
Mercy Housing



Benjamin Knopp
Think Little Home
Energy





Foundation Communities: Creating Housing Where Families Succeed

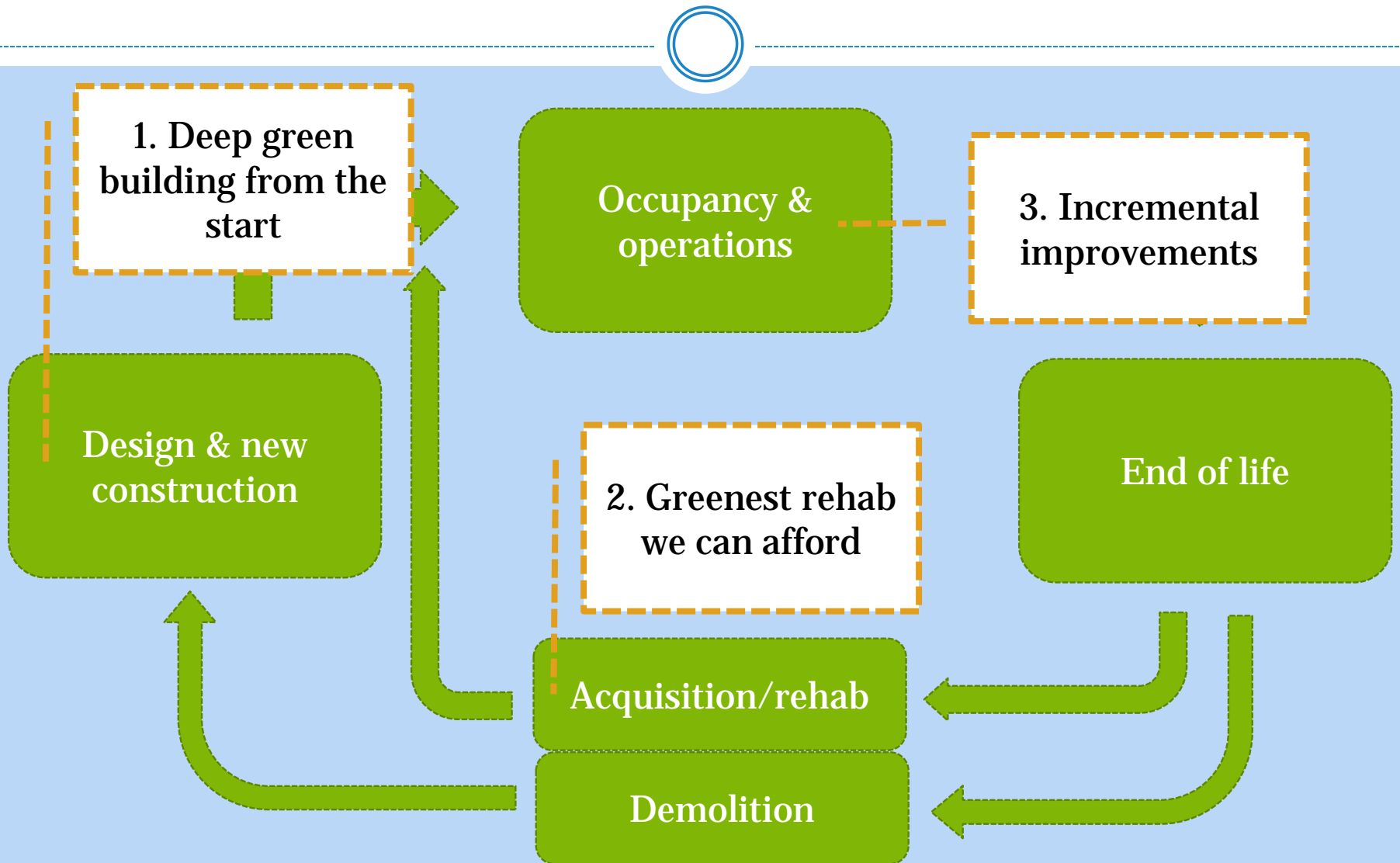
Susan Peterson



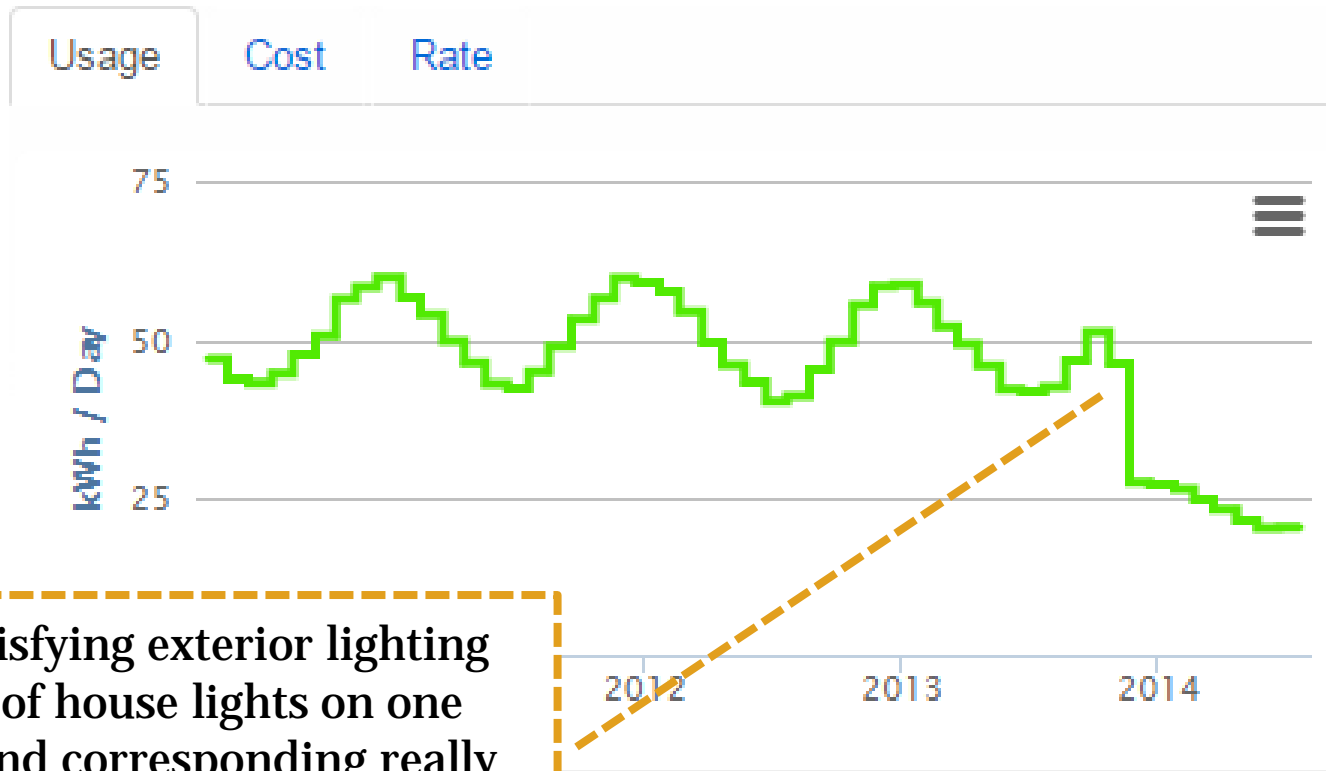
Foundation Communities



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



**Not in
Texas!**

- 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

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

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

 **Southwest Trails Apartments2**
8405 Old Bee Caves Rd., Austin, TX, 78735

 **Owner Energy**
Partial **B** 3 kBTU/ft²/yr

 **Cooling**
Common Area **C** 4.2 BTU/ft²/CDD

 **Heating**
Common Area **D** 8.9 BTU/ft²/HDD

 **Electric Baseload**
Common Area **B** 639 kWh/unit/yr

 **Fossil Fuel Baseload**
Common Area **A** 0.02 mmBTU/bdrm/yr

 **Water**
A 53.8 gal/bdrm/day

Electric
\$19,554

Gas
\$961

Water
\$94,082

- 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)

Crossroads Apartments2
8801 McCann, Austin, TX, 78757



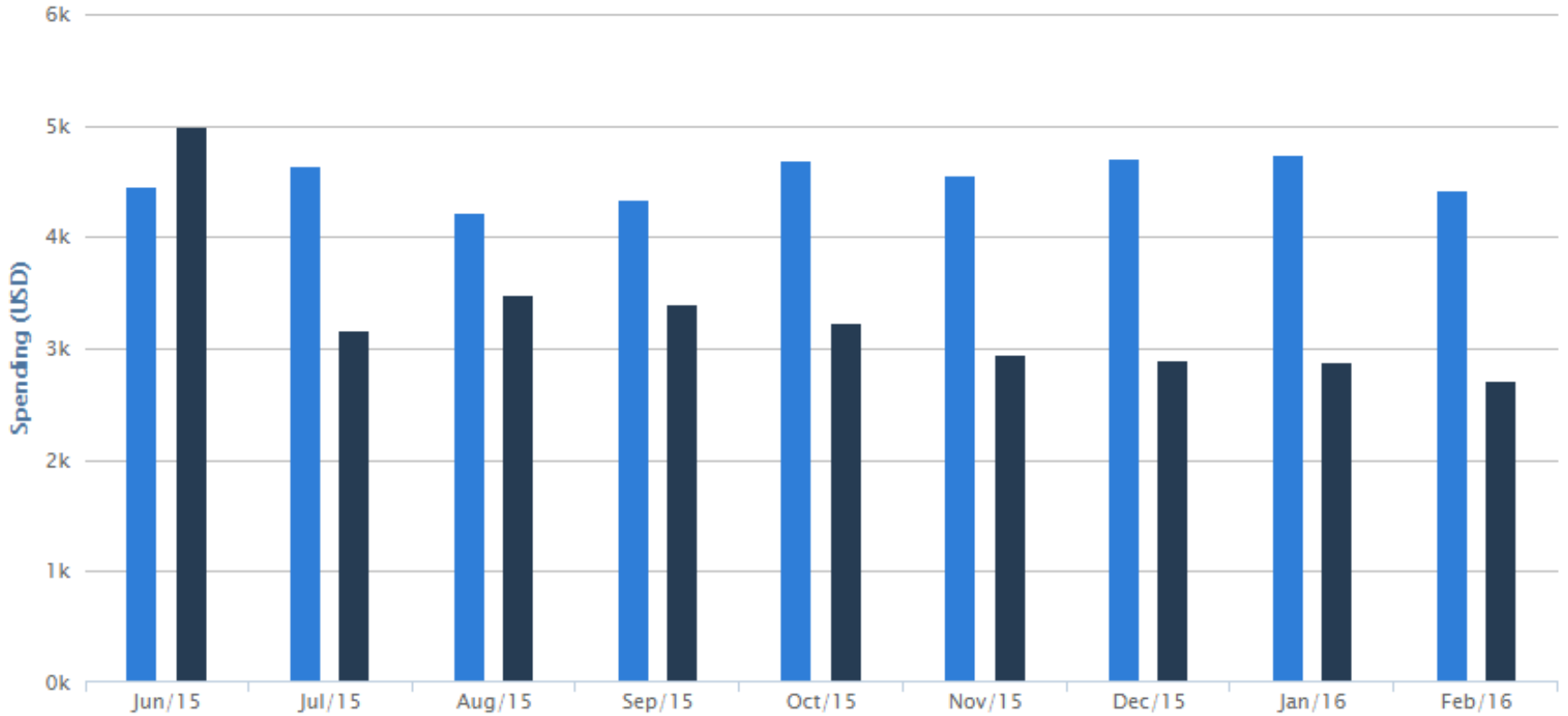
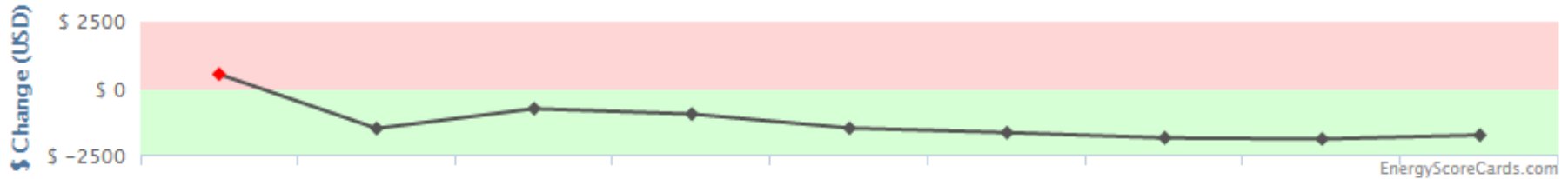
Tools

Package: **Toilet replacements**

Status: N/A

Savings to Date: **\$11,060**

Water Savings: **26.7%**





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

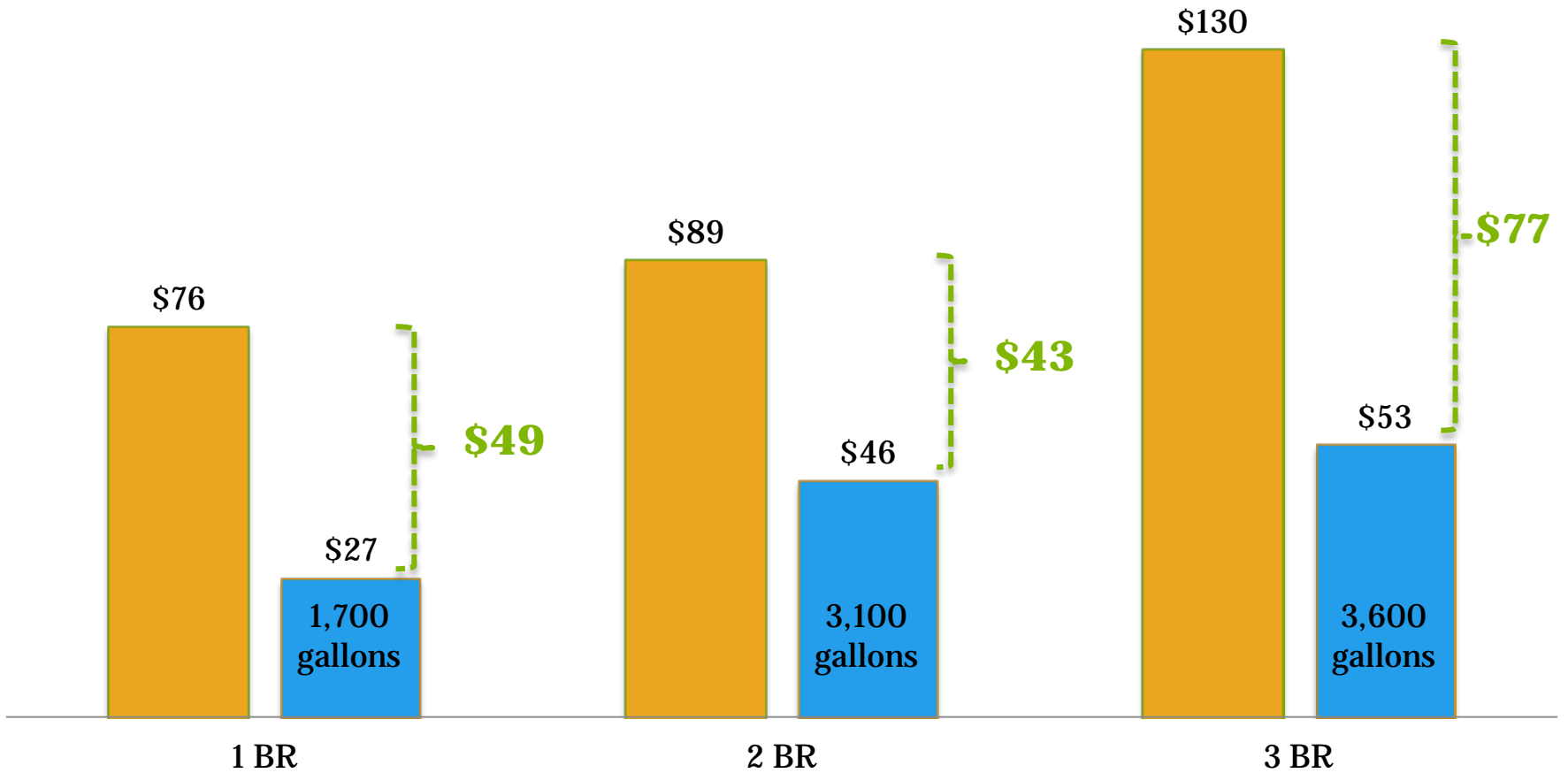
Compile in spreadsheet and submit to state housing agency

A	B	D	E	F	G	H
Unit	SQFT	Move-in - Month	Day	Year	Average Monthly Consumption (gallons)	6/13/2013 - 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

■ Public Housing Authority

■ Southwest Trails Actual Use



	Actual Use vs. PHA Difference	No. of Units	Add'l Revenue Each Month	Add'l Revenue 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



Not in Texas!

- 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

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

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**



238 units

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)

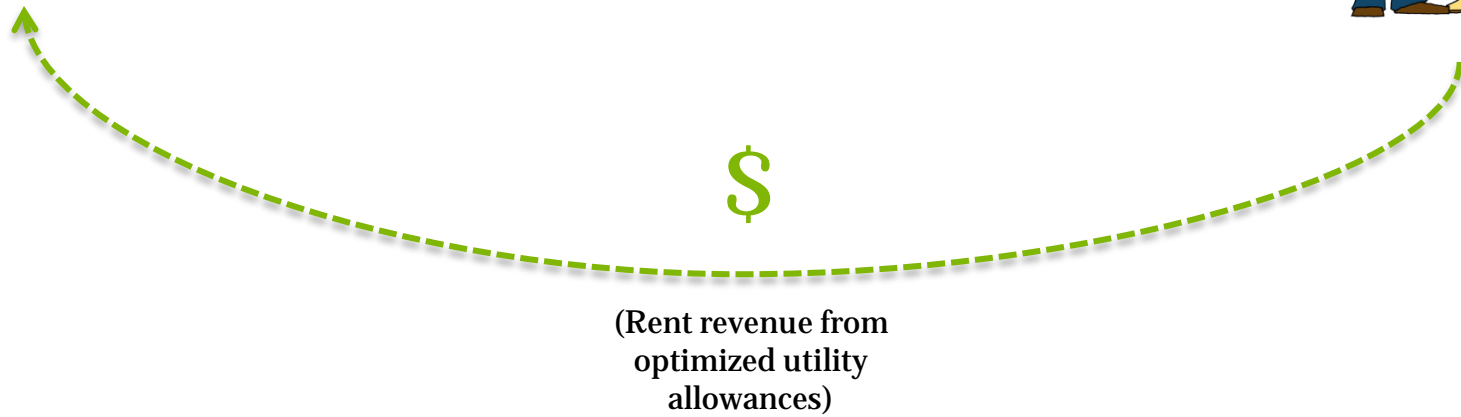
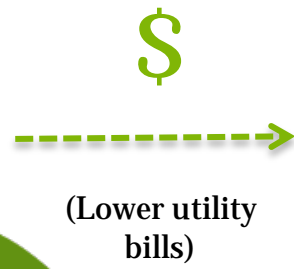
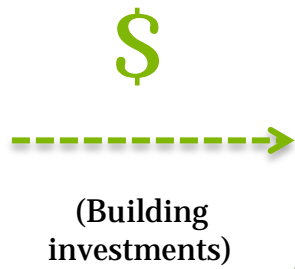
- 238-unit property with apartments (5+ unit buildings)
- Tenants pay for electricity only
- Current allowances are provided by Austin Housing Authority
- Energy efficiency enhancements include EnergyStar appliances and R35 blown insulation

\$113K in additional revenue/year

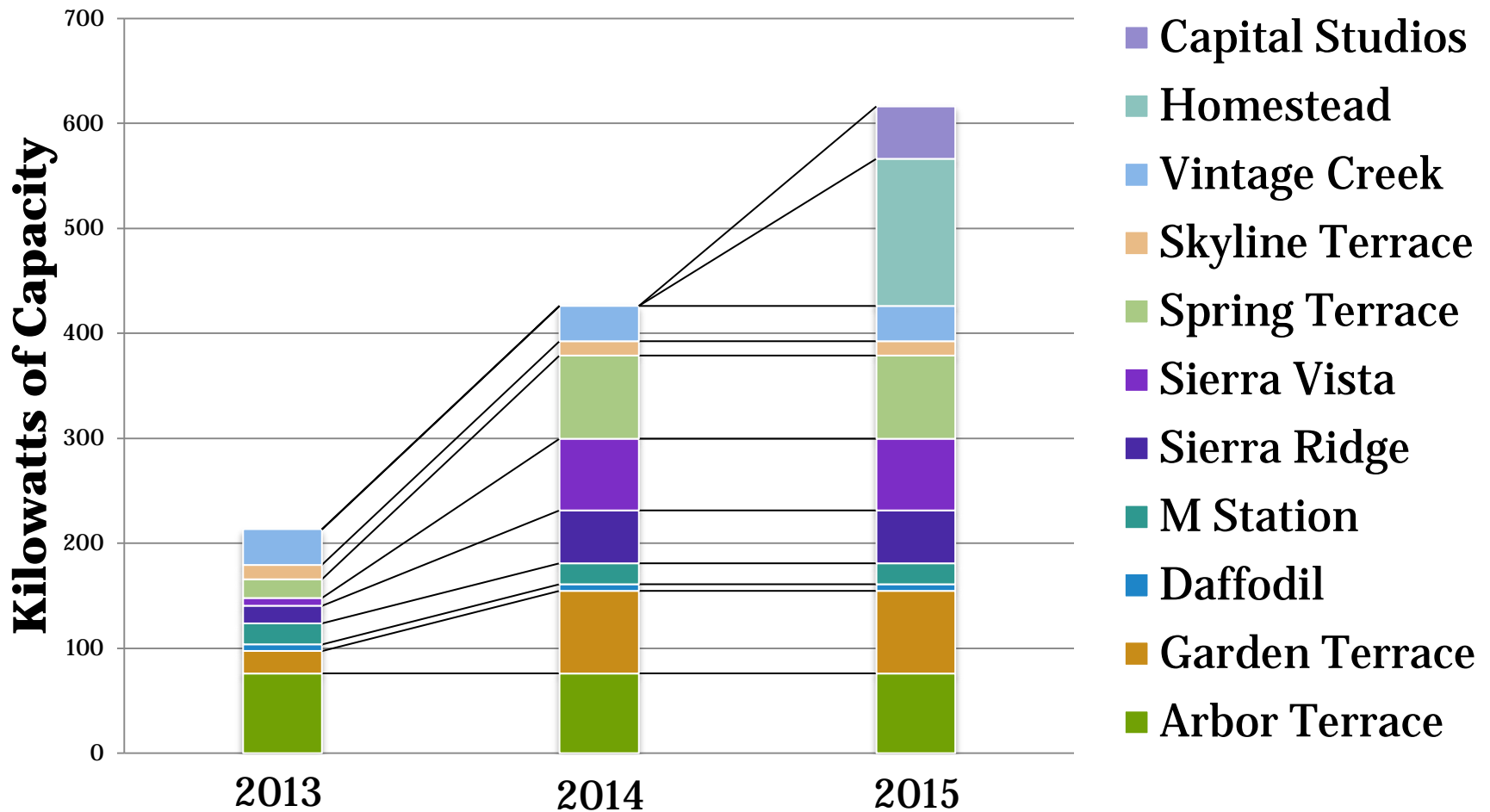
Unit Type (# of Units)	Previous UA per Unit	UApro+ EUA per Unit	Difference per Unit	Additional Monthly Revenue	Additional Annual Revenue
1 BR (156)	\$87	\$48	(-\$39)	+\$6,084	+\$73,008
2 BR (82)	\$113	\$72	(-\$41)	+\$3,362	+\$40,344
Revenue Totals				+\$9,446	+\$113,352
5 Year Revenue Projection					+\$566,760
*Project Payback Period					< 1 month



**FOUNDATION
COMMUNITIES**
creating housing where families succeed



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
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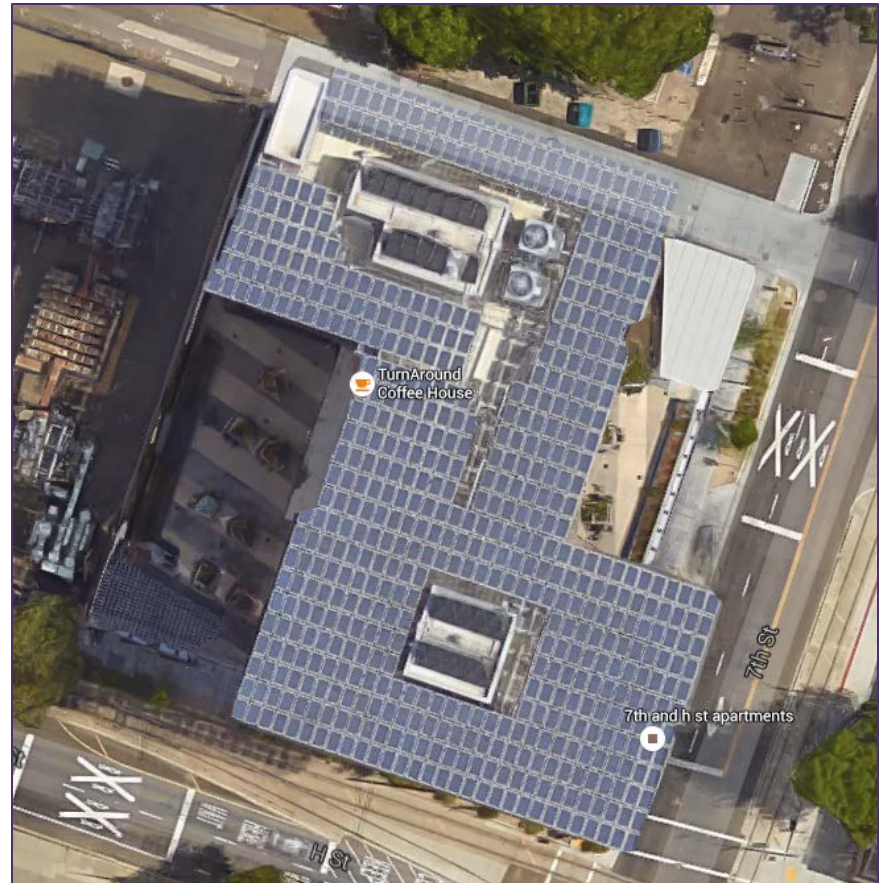
Caitlin Rood

Strategic Alignments: Renewables, Water, and the Community Stake

Mercy Housing

greenHOPE
MERCY HOUSING ENVIRONMENTAL SUSTAINABILITY

National Solar Project Development Partner Selection Process



Mercy Housing 7th 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

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



- 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

RFQ ISSUED: October 26, 2015

RESPONSES DUE: December 7, 2015

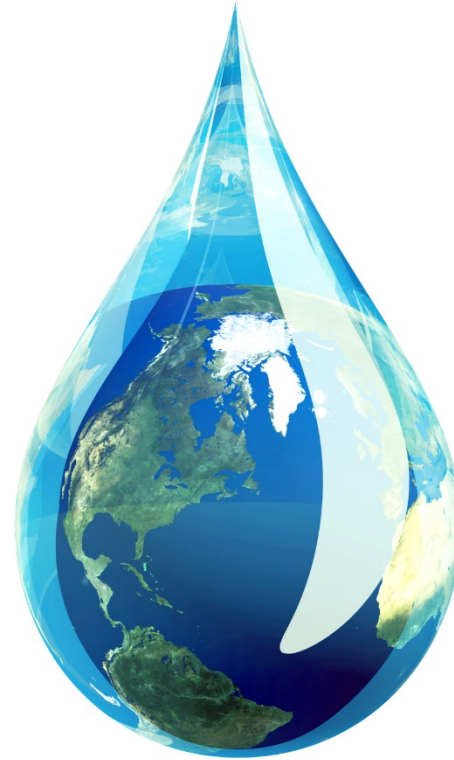
Review Bidders

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

- 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

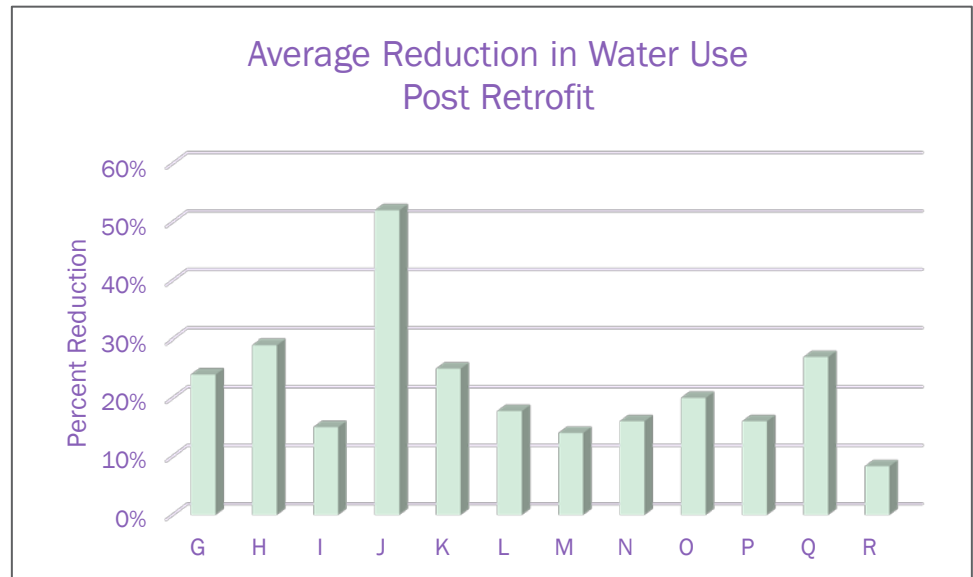
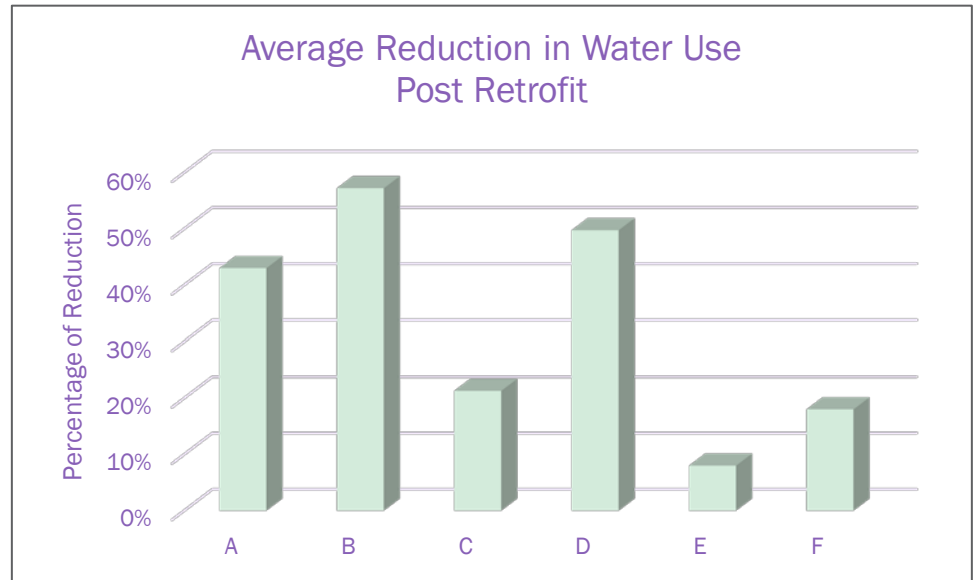
Solar Bidding Proposal Evaluation			
CONFIDENTIAL - INTERNAL USE ONLY			
Newly Hired / Bidder Development Partner			
Organizational Capabilities			
Company Qualifications	Experienced successful solar project development in the market area.	Good track record of solar project development in the market area.	Good track record of solar project development in the market area.
Key Team Members	Experienced project management, engineering, permitting, and sales staff.	Experienced project management, engineering, permitting, and sales staff.	Experienced project management, engineering, permitting, and sales staff.
Price Proposal Experience	Proven ability to provide accurate and competitive pricing.	Proven ability to provide accurate and competitive pricing.	Proven ability to provide accurate and competitive pricing.
Financial Health	Complete financial statement and audit of operating assets.	Complete financial statement and audit of operating assets.	Complete financial statement and audit of operating assets.
Experience with MF, Public and Affordable Housing			
Solar Experience	Experienced in program management of solar projects in the market area.	Experienced in program management of solar projects in the market area.	Experienced in program management of solar projects in the market area.
Challenges/Opportunities	Identify key challenges and opportunities in the market area.	Identify key challenges and opportunities in the market area.	Identify key challenges and opportunities in the market area.
Solar Project Development Partner Approach			
Strategic Approach	Clear and concise approach to solar project development.	Clear and concise approach to solar project development.	Clear and concise approach to solar project development.
State/Market Capabilities	Strong relationships with state and local government agencies.	Strong relationships with state and local government agencies.	Strong relationships with state and local government agencies.
Challenges/Opportunities	Identify key challenges and opportunities in the market area.	Identify key challenges and opportunities in the market area.	Identify key challenges and opportunities in the market area.
Cost & Potential Savings			
Overall Bid/Discount	Competitive pricing and potential for cost savings.	Competitive pricing and potential for cost savings.	Competitive pricing and potential for cost savings.
Technical Viability and Quality	Strong technical capabilities and quality of workmanship.	Strong technical capabilities and quality of workmanship.	Strong technical capabilities and quality of workmanship.
Workload Viability and Staffing			
Personnel	Experienced and qualified staff.	Experienced and qualified staff.	Experienced and qualified staff.
Equipment	Current and well-maintained equipment.	Current and well-maintained equipment.	Current and well-maintained equipment.
Services	Comprehensive and reliable services.	Comprehensive and reliable services.	Comprehensive and reliable services.
Subcontractors	Strong relationships with subcontractors.	Strong relationships with subcontractors.	Strong relationships with subcontractors.
Availability	Timely and reliable availability.	Timely and reliable availability.	Timely and reliable availability.
Timeline Response and Follow-up Information			
Timeline Response	Timely and accurate response to requests for information.	Timely and accurate response to requests for information.	Timely and accurate response to requests for information.
Follow-up Information	Proactive communication and follow-up.	Proactive communication and follow-up.	Proactive communication and follow-up.

Water Conservation



Water Conservation

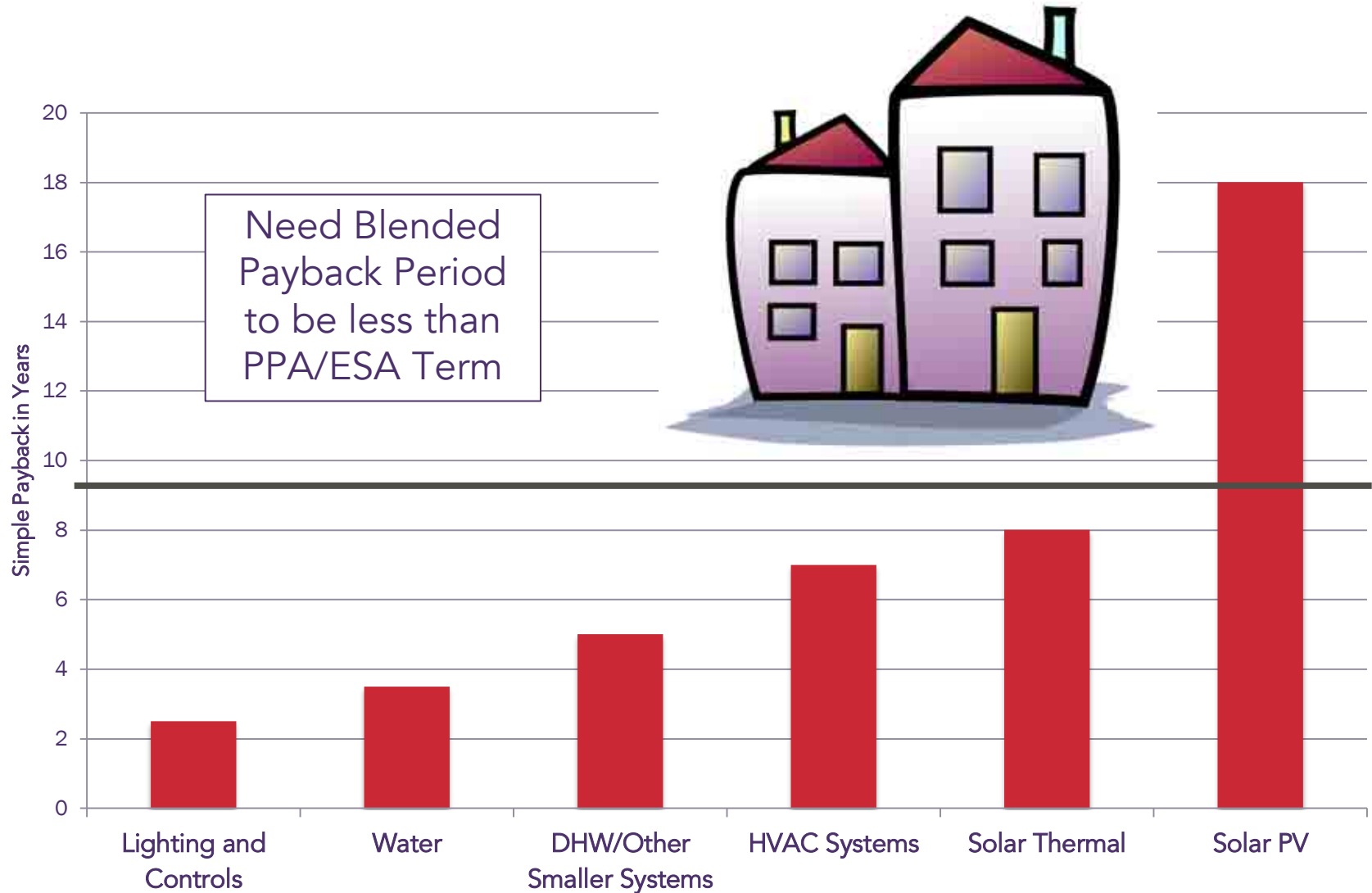
- Indoor Water Conservation Model Comparison
- Use rebates and pay from savings models
 - Smart Valve
 - Irrigation
 - Landscape
 - Toilets



A Word about Whole Building Retrofits



Whole Building Retrofits



Thank you!

QUESTIONS?

Caitlin Rood
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303-830-6213



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
2. The Goldilocks Approach: carefully balance cost and performance using the integrated design process



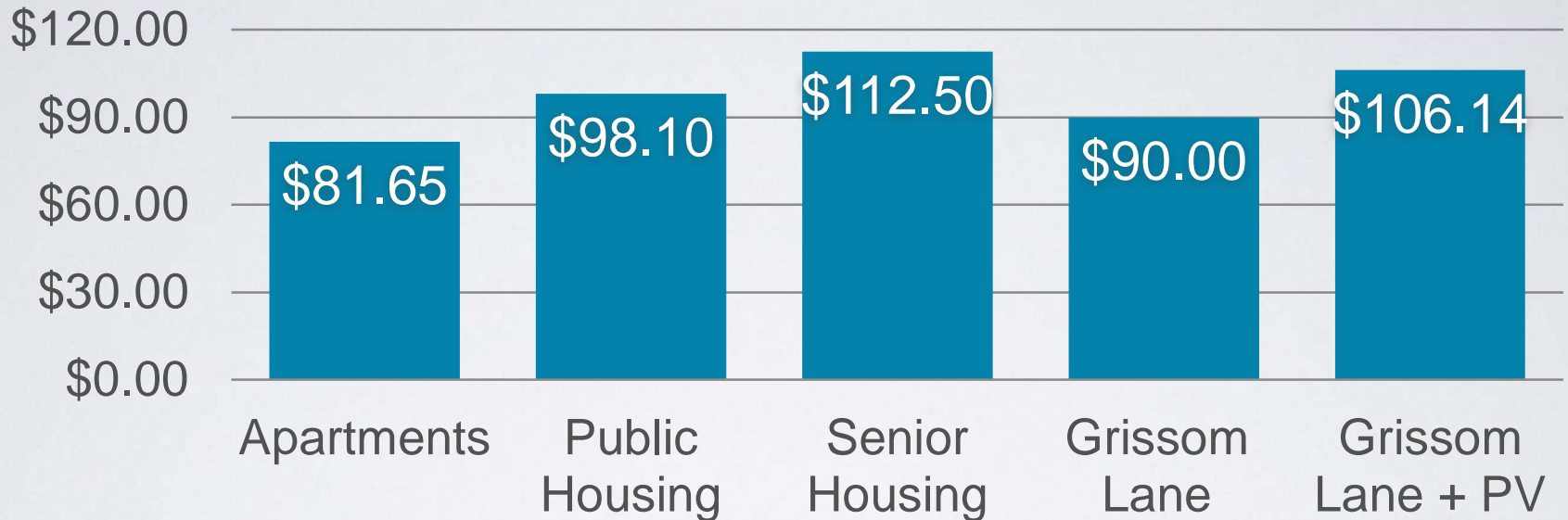
TWO RESULTS OF HIGH PERFORMANCE

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