



AUGUST 21-23, 2018 • CLEVELAND, OHIO

Multifamily Meet-up

Part 1

Meet Up Agenda

- Part 1 8:30-10am
 - Welcome and Summit Highlights
 - Case Study 1: Mercy Housing
 - The Year Behind and 2018 Data Drive Results
 - Roadmap to 20%
 - Partner Recognition
 - Goal Achiever Remarks: Jersey City Housing Authority

Meet Up Agenda

- Part 2 10:30-12pm
 - Case Study 2: Shepherd Park Apartments
 - Financial Navigator Demo
 - Case Study 3: Tenderloin Neighborhood Development Corporation
 - The Year Ahead
 - Closing Announcements

Ask an Expert Lounge

■ Wednesday 3:30-4:00pm

- Building Envelope (*Melissa Voss Lapsa, ORNL*)
- Water Efficiency & 50001 Ready (*Prakash Rao, LBNL*)
- Steam & Energy Assessments (*Thomas Wenning, ORNL*)
- Portfolio Resilience Planning and Implementation
- Specialty Facilities (Labs and Data Centers)
- Facility Related Control Systems Security

■ Thursday 10-10:30am

- Plug & Process Loads (*Kim Trenbath, NREL & Sormeh Konijav, Waypoint Building Group*)
- Building Envelope (*Simon Pallin, ORNL*)
- DOE Tools (*Harry Bergmann, DOE*)
- Federal Agency Reporting & Accountability
- Federal Workforce Development & Engagement
- ESPC, UESC, and Appropriations Project Development

■ Thursday 3:30-4pm

- Plug & Process Loads (*Kim Trenbath, NREL & Sormeh Konijav, Waypoint*)
- DOE's Energy Assessment and Management Software (*Thomas Wenning, ORNL*)
- Process Heating & Waste Recovery (*Sachin Nimbalkar*)

Don't Miss Today:

- 12:30-2pm Lunch and keynote/plenary with Department of Energy leadership
- 2-3:30pm Resilience Roundtable
- 6-7:30pm Summit Reception
- 7:30pm Multifamily Sector Dinner (see sign up sheet)

Thursday's Multifamily Sessions

8:30-10: Institutionalizing Energy Efficiency

10:30-12: Getting a Running Start

12:00-2: Lunch, Partner Recognition, BBC Swap Panel

2-3:30: Risky Business

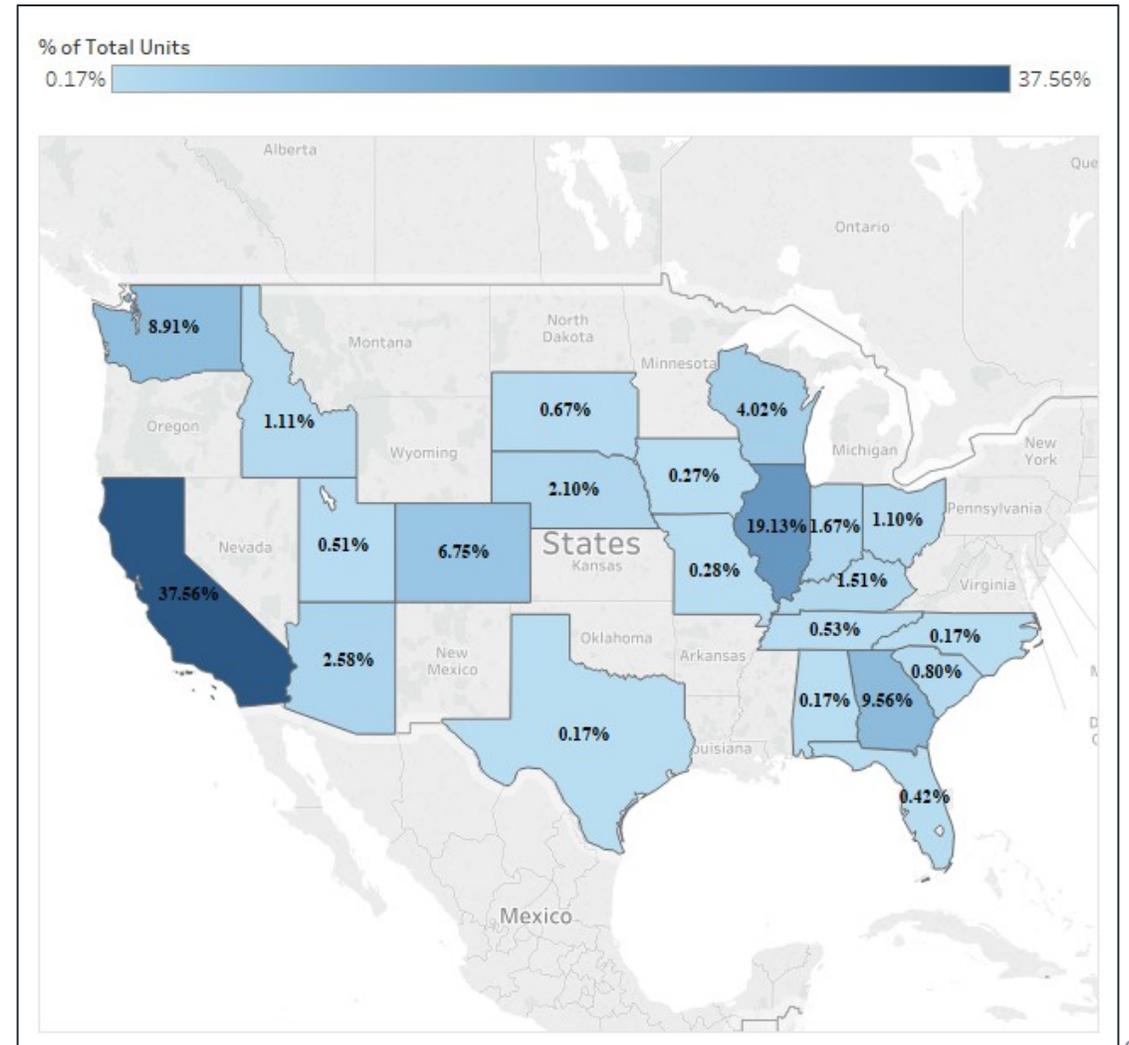
4-5:30: Building Futures

Overcoming Obstacles to Implement Large Scale Efficiency in a Diverse Portfolio



Mercy Housing

- Largest Affordable Housing Nonprofit in US
- Developer, owner, manager
- ~320 owned properties
- ~23,000 units
- ~22.5M sf (owned)
- 22 States
- Mostly LIHTC, HUD (Section 202, Section 8), USDA RD



What's the problem?

- Objectives

- Reduce operating expenses
- 20% energy and water reduction portfolio wide

- Barriers

- Lack capital
- Split incentives
- Payback periods
- LOC and loan adversity or inability
- Non-fungible savings/pencil at each property
- Cannot re-invest savings starting with low hanging fruit
- Equipment O&M
- Gaining internal buy-in
- Snowflake portfolio



Transparent ESCO

- No capital investment
- Pay from actual savings – performance incentive
- Shared savings
- No property loan, lien
- No O&M costs during contract
- Reduced O&M burden on Mercy staff
- Substantial state & utility subsidies
- Experienced implementation team
- Proven techniques and technologies
- 10-year agreement
- UA adjustments

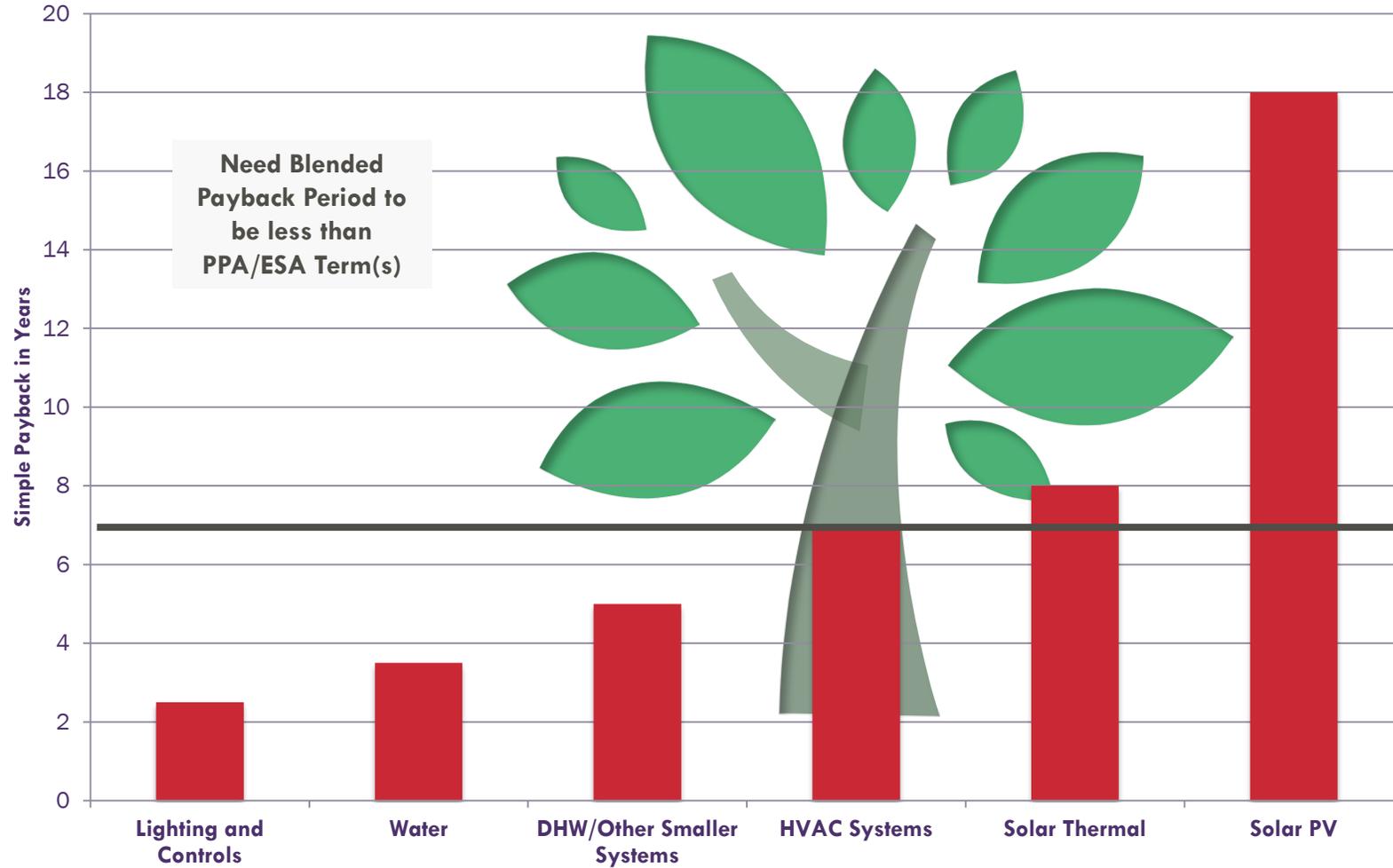


ACE

Affordable Community
Energy Services

Whole Tree Approach

USE LOWER HANGING FRUIT TO REACH THE TOP



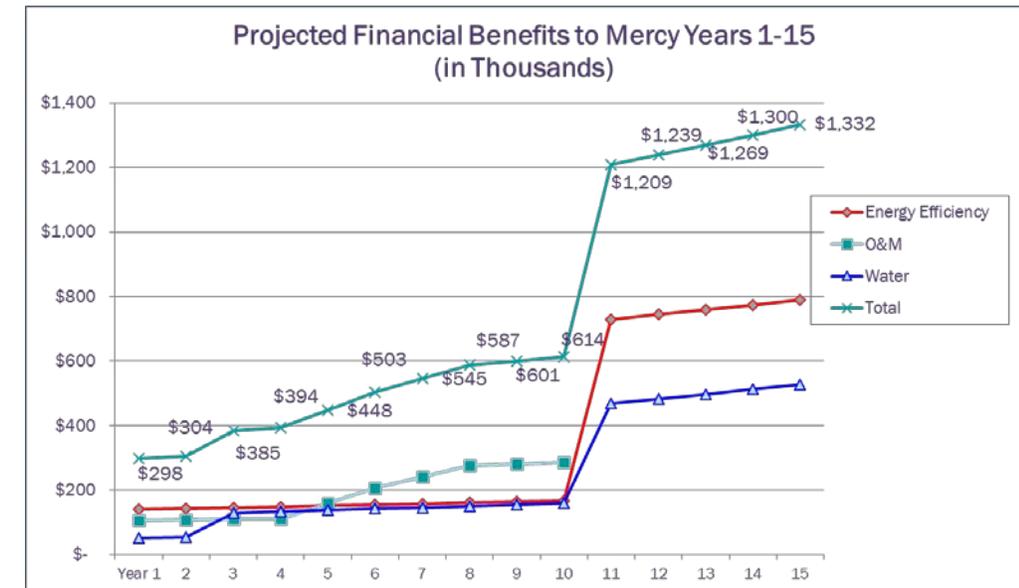
There is more than 1 tree



WHOLE PORTFOLIO RETROFITS

Project Overview

- Mercy Housing California
 - 114 properties (100% of CA portfolio) evaluated
 - 38% of Mercy Housing entire portfolio
- \$6.3M capital
- \$11M property savings (15 years)
- Phase 1 – Whole Building, Deep
 - 12 properties
 - Complete in 2017
- Phase 2 – Whole Building and Prescriptive
 - ~25 properties
 - Implementation underway
- Phase 3 - Prescriptive
 - ~65 properties ~ Q2-Q4 2019



Rebate Programs

- California Low Income Weatherization Program
- Bay Area Regional Energy Network
- Southern California Regional Energy Network
- Marin Clean Energy
- Pacific Gas and Electric Utility



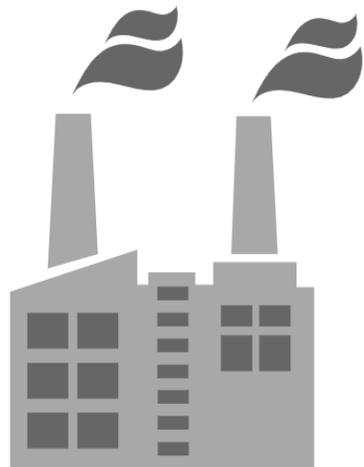
Phase 1a Overview

Capital Value (one time sum)	\$ 1,976,678
Unexpected Costs (one time cost)	\$ (68,006)
Total Project Utility Savings Utility (Project to Date [April 2017 – May 2018])	\$ 80,720
O&M Savings (annual) (Project to Date [April 2017 – May 2018])	\$ 15,300

The Environmental Impact

Overall energy
consumption
5,091 mmBTU

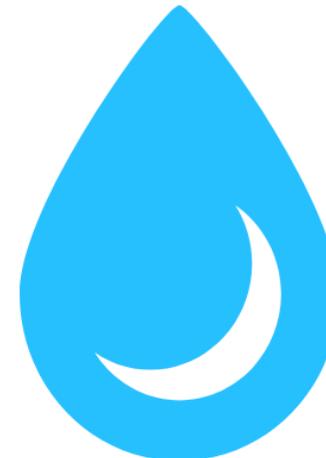
32%



**=293,745
POUNDS
OF BURNED
COAL**

Overall water
consumption
637,450
gallons

4%



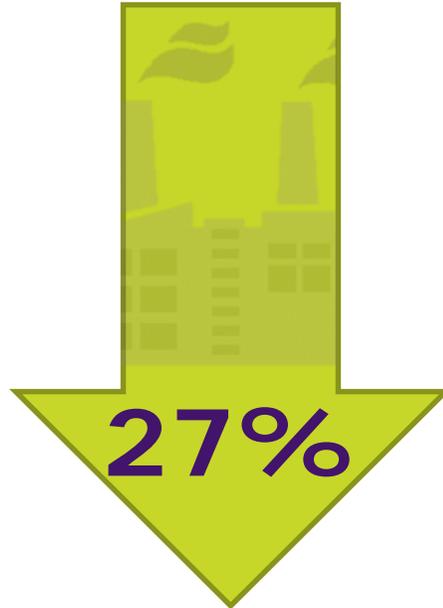
**=37,061
8 minute
showers**

Property Case Study

- Common Area and In-unit Lighting
- Energy Star Washers and Refrigerators
- Low-flow Faucet Aerators
- Tub Diverters
- Heat Pump Water Heaters
- Domestic Hot Water Recirculation Flow Control
- Domestic Hot Water Piping Insulation
- Retro-commission Steam Cycle Control, Orifice Plates, Service Steam Traps
- Condensate Receiver Tank Insulation



Consumption Impact



Energy Consumption



Water Consumption



Early Lessons

- Setting baseline
- Uncovering of property issues
- Cold water bypass/distribution
 - 50% of MF properties?
 - No 0.5s
 - Recirculation flow control
 - Hybrid mode operation of HPWH
- Blame Game
- Ongoing program perception
- Ongoing O&M, turnover, warranty claims, who to call



Contact Information

Caitlin Rood

Mercy Housing

National Environmental Sustainability Director

crood@mercyhousing.org

303.830.6213

www.mercyhousing.org





The Year Behind: MF Sector Update

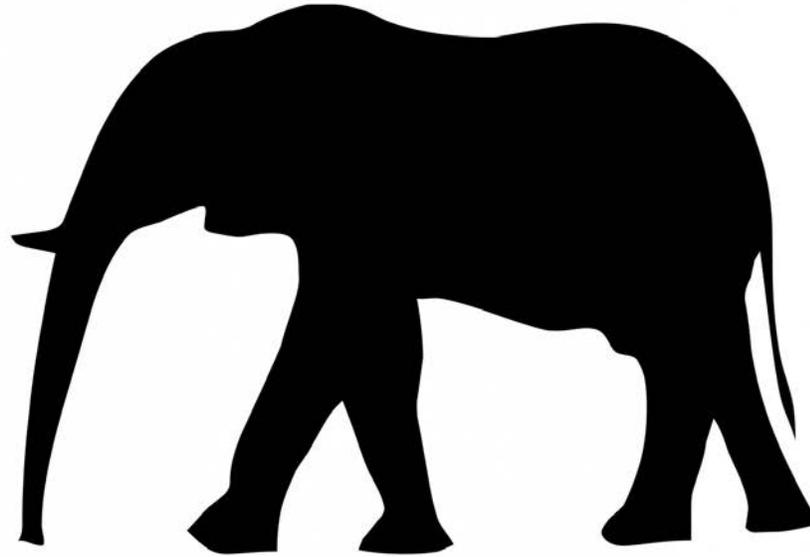
BBC Multifamily Sector Partners

- **750,000** Housing Units
- **625 Million** Square Feet
- **10 Trillion** BTUs saved
- **\$95 Million** saved



40 Units

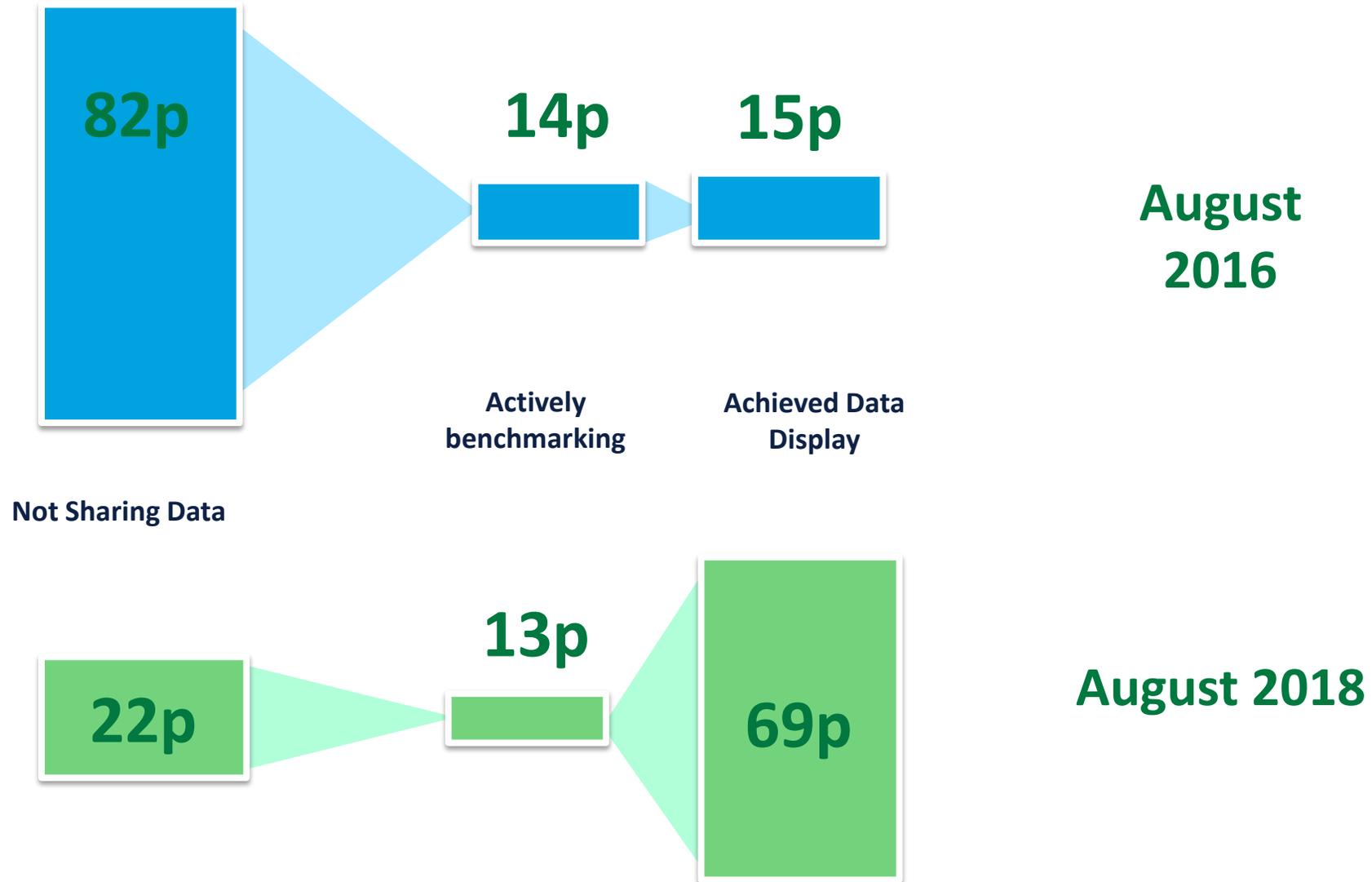
**Cion Housing
New Mexico**



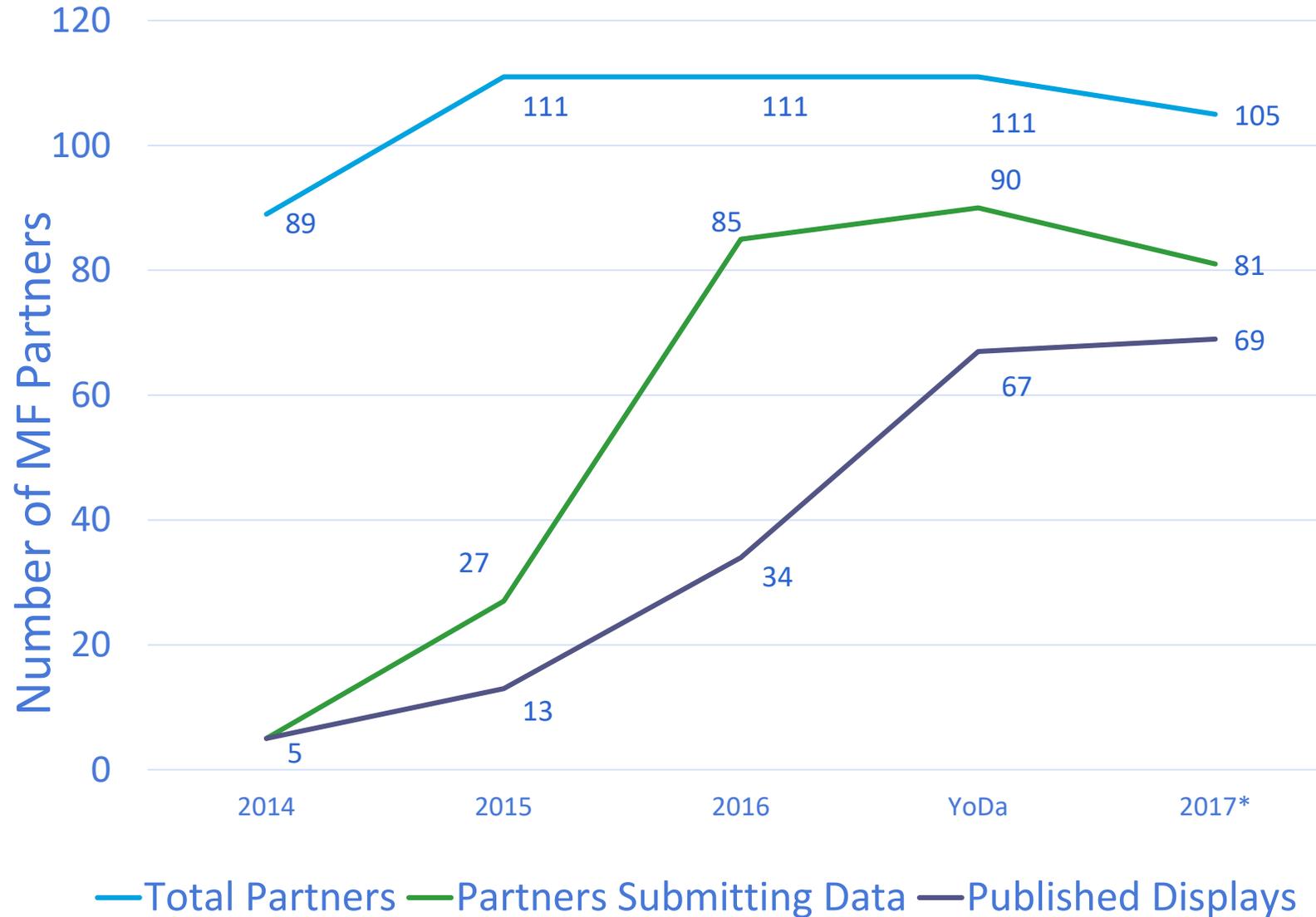
178,000 Units

**New York City Housing Authority
New York**

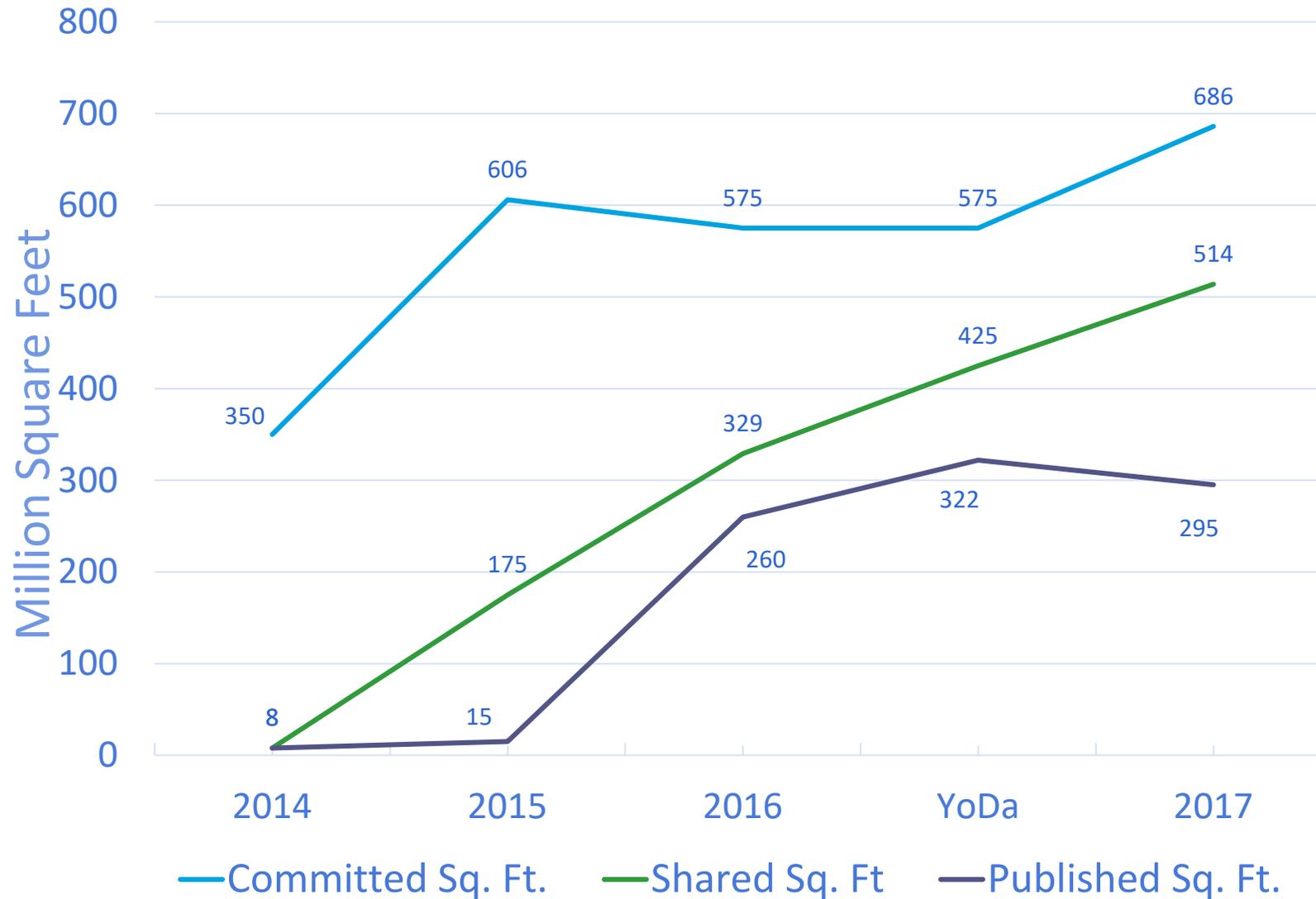
Utility Benchmarking Pipeline



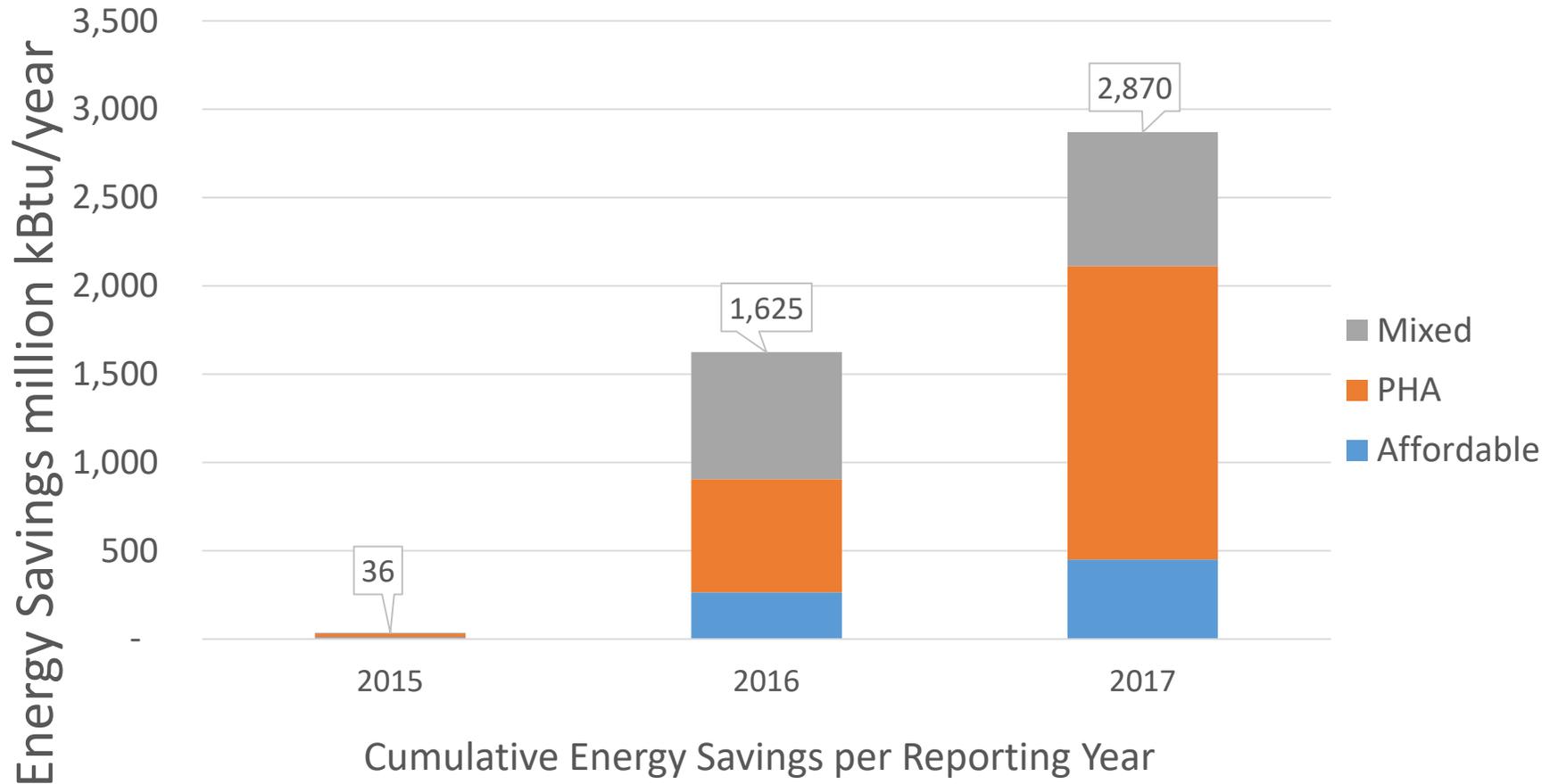
Multifamily Partners Data Reporting Progress



Shared Square Footage Progress

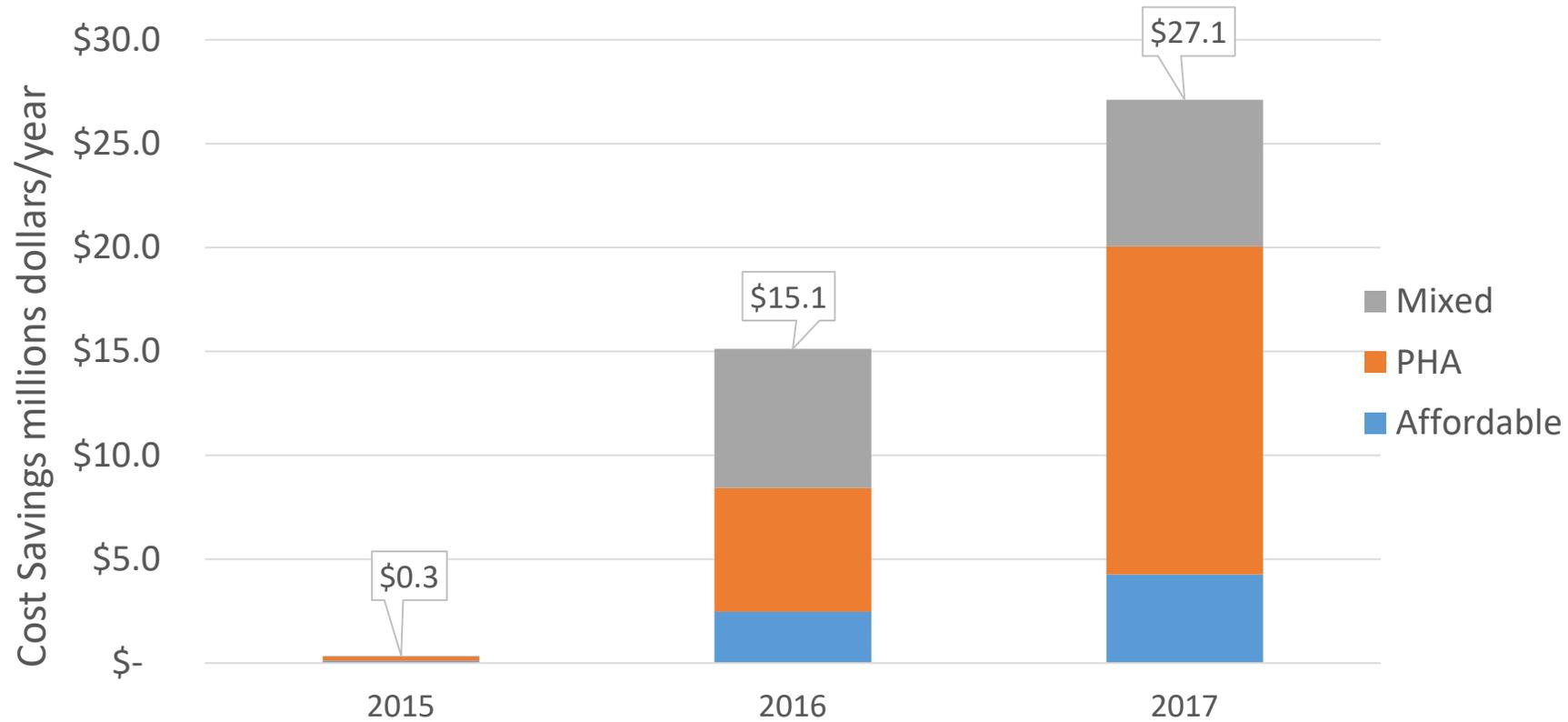


Energy Savings: BBC MF Sector



Energy Savings (kBtu/yr.)	2015	2016	2017
Affordable	10,060,096	264,312,104	451,025,071
PHA	20,838,771	640,578,040	1,661,275,592
Mixed	5,030,048	720,113,820	757,456,413
Total	35,928,916	1,625,003,964	2,869,757,076

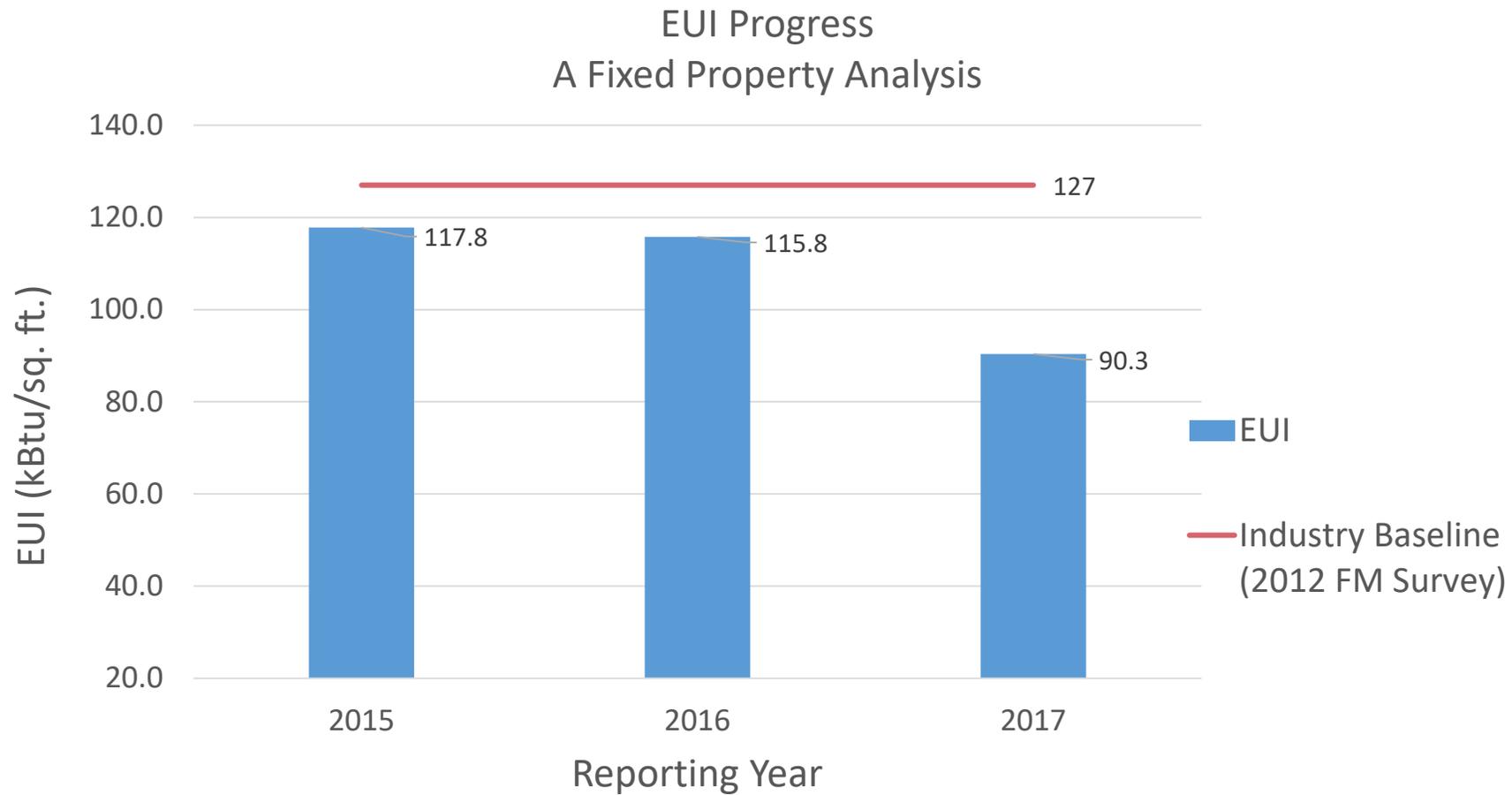
Cost Savings: BBC MF Sector



Cumulative Cost Savings per Reporting Year

Cost Savings (Dollars/yr.)	2015	2016	2017
Affordable	\$ 96,428	\$ 2,460,546	\$ 4,258,688
PHA	\$ 199,743	\$ 5,962,282	\$ 15,792,125
Mixed	\$ 48,214	\$ 6,697,296	\$ 7,056,925
Total	\$ 344,385	\$ 15,120,124	\$ 27,107,738

EUI Reporting Progress



Progress in Reducing EUIs:

- Fannie Mae Survey: EUI of 127 based on 1,000 properties
- BBC EUIs based on 110 properties reporting all 3 years
- 22% decrease in energy use intensity

Multifamily Utility Benchmarking Toolkit

HUD EXCHANGE | Multifamily Utility Benchmarking Toolkit

What is in this Toolkit? ▶

BENCHMARKING 101
View Guide

UTILITY BENCHMARKING STEP-BY-STEP
View Guide

POLICIES AND PROGRAMS
View Guide

The image shows a navigation menu for the Multifamily Utility Benchmarking Toolkit. It features a dark green header with the HUD Exchange logo and the title 'Multifamily Utility Benchmarking Toolkit'. A light blue button labeled 'What is in this Toolkit? ▶' is positioned on the right. Below the header, three vertical panels are displayed, each with a background image and a dark overlay containing text and a 'View Guide' button. The first panel, titled 'BENCHMARKING 101', features a background image of a modern apartment building. The second panel, titled 'UTILITY BENCHMARKING STEP-BY-STEP', features a background image of a utility room with various pipes and equipment. The third panel, titled 'POLICIES AND PROGRAMS', features a background image of a utility room with a large blue tank and other equipment.

BBC MF Energy & Water Efficiency Resources @ HUD Exchange



Utility Benchmarking



Building and Product Standards



Retrofit Planning



Operations and Maintenance



Resident Engagement



Retrofit Finance

MF Open Calls: Peer-to-Peer Exchange

- 4 Open Calls/year
- Mini-webinar peer learning exchange
- Featured partner(s) presenting





Thank you!

2018 Data Drive Update

2018 Data Drive Update

Important Dates to Remember

- January 1st – December 31st
-

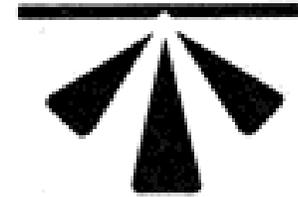
BBC Multifamily Goal Achievers

Goal Achievers

- Jersey City Housing Authority - 26% (2018)
- JCHE - 24% (2017)
(≥ 95% Whole Building data & > 20% energy savings, IM and Showcase)

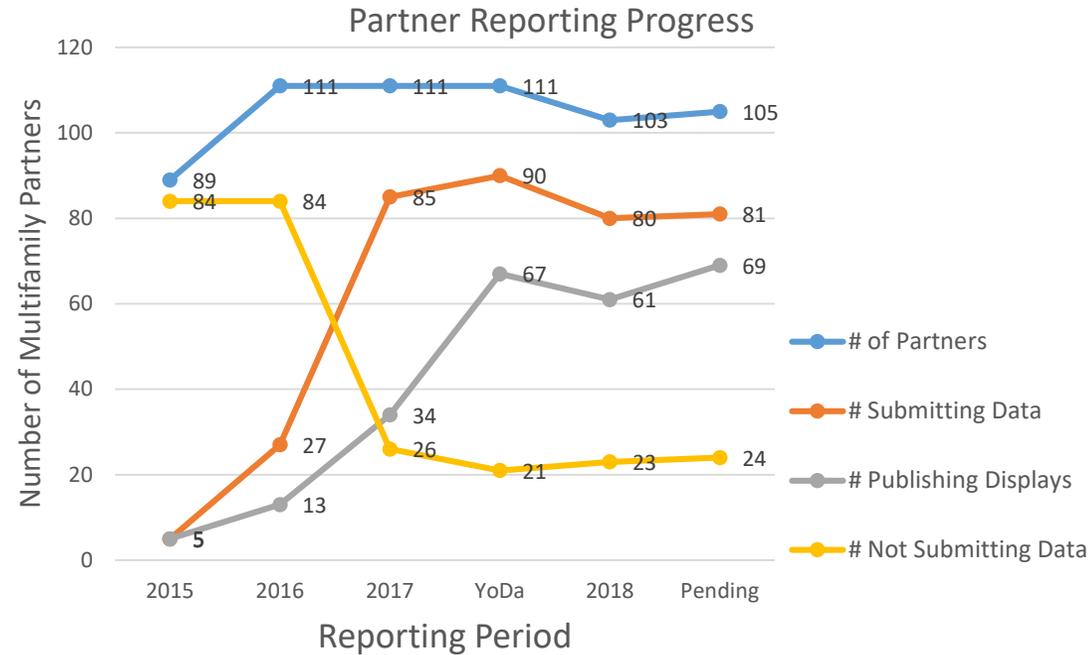
Near Goal Achievers

- Trinity Housing Corporation of Greeley, Colorado – 18%
- Cambridge, MA Housing Authority – 18%
- Atlanta Housing Authority – 17%
- The Renaissance Collaborative – 17%
- Danville Development – 15%



2018 Data Drive Update

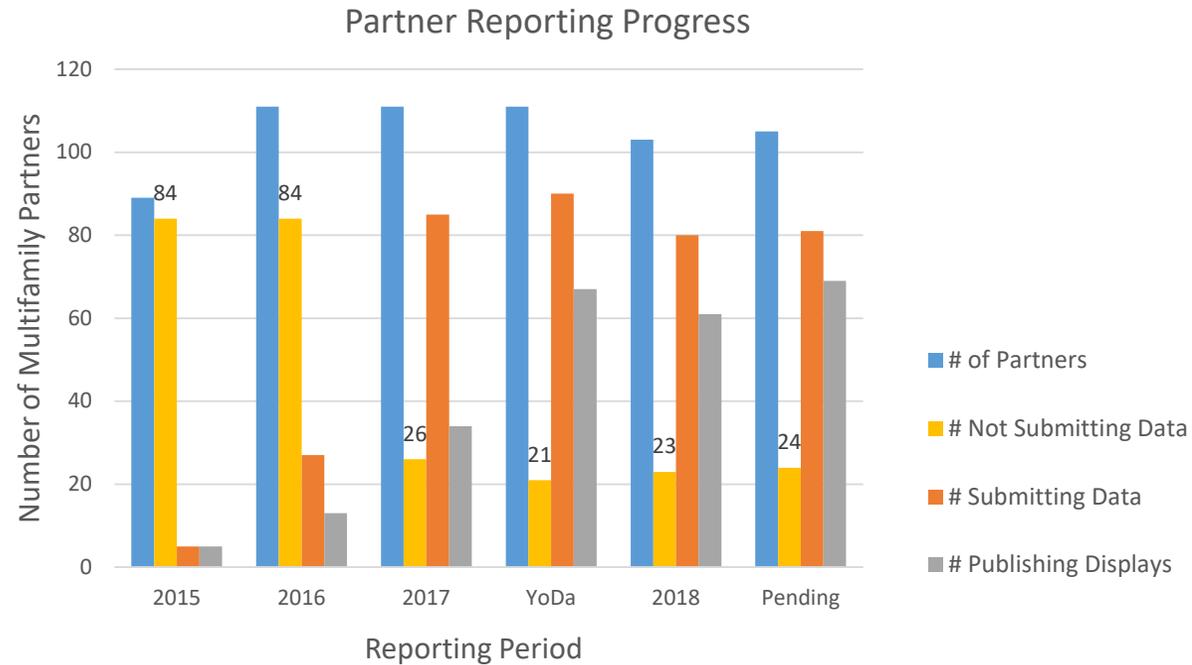
Partner Reporting Progress



Partner Reporting Progress	2015	2016	2017	YoDa	2018	Pending
# of Partners	89	111	111	111	103	105
# Not Submitting Data	84	84	26	21	23	24
# Submitting Data	5	27	85	90	80	81
# Publishing Displays	5	13	34	67	61	69

2018 Data Drive Update

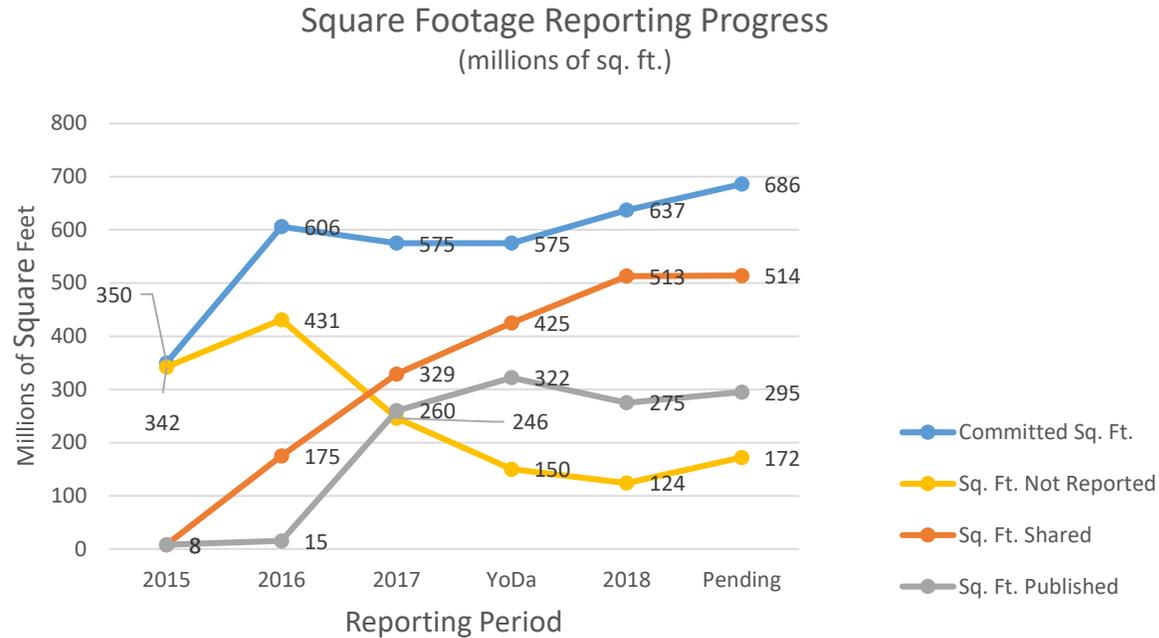
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2018 Data Drive Update

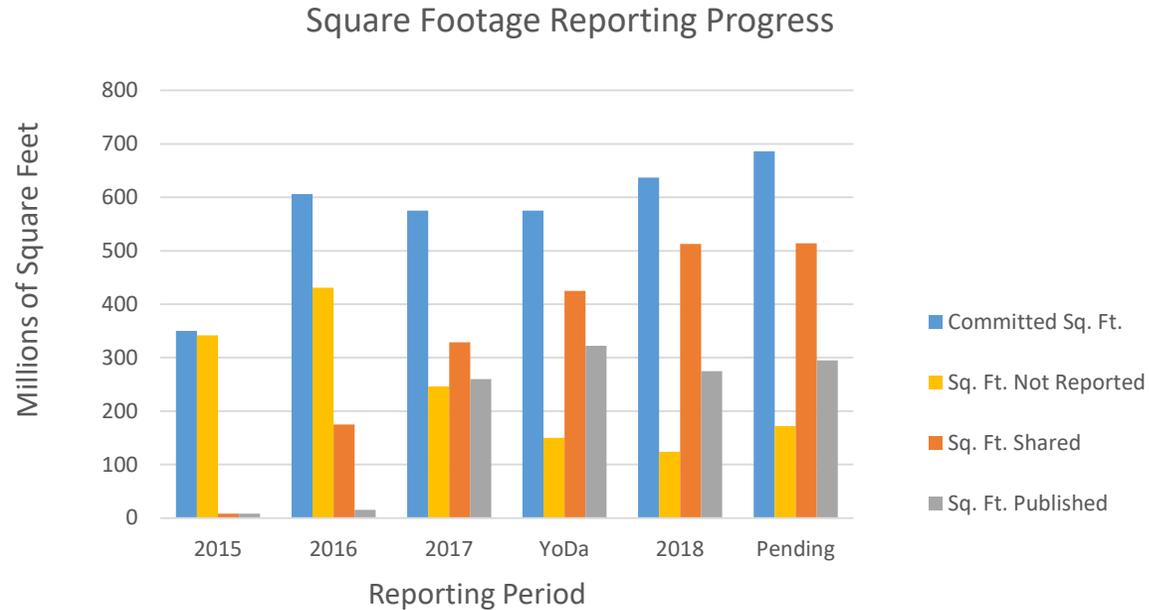
Square Footage Reporting Progress



Sq. Ft. Reporting Progress	2015	2016	2017	YoDa	2018	Pending
Committed Sq. Ft.	350	606	575	575	637	686
Sq. Ft. Not Reported	342	431	246	150	124	172
Sq. Ft. Shared	8	175	329	425	513	514
Sq. Ft. Published	8	15	260	322	275	295

2018 Data Drive Update

Square Footage Reporting Progress

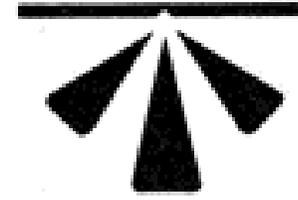


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2018 Data Drive Update

Top Challenges & Successes

1. Internal Capacity - *San Buenaventura HA*
2. Qualifying Portfolio's - *Mercy Housing*
3. Collecting Baseline & Current Year Data
 - Collecting Tenant Data (Sampling) - - *Cuyahoga HA*
 - Collecting AWBD - *Beacon Communities*
 - Using Estimated Data (52722 & EPC) – *Rockford HA*
4. Integrating Similar Data sets - *3rd Party Vendors*
5. Late & Delayed Data from Utilities - *Winn & FS Energy*
6. Renewables - *POAH*
7. Using/Understanding Data - *SAHF*



2018 EPA Portfolio Manager Update

Release date is **Sunday, August 26, 2018** (2012 CBECS data)

Visit www.energystar.gov/scoreupdates

U.S. building stock is becoming more energy efficient, buildings will see, on average, a drop in their ENERGY STAR scores.

- Baseline EUIs will update
- Current year EUIs will update
- Existing certifications won't be affected
- Current applications won't be affected



National electricity source energy factor:

- Old is 3.14
- New is 2.80

Save your old Metrics –

- Run the “Performance Highlights” report



Roadmaps to 20% Savings

One Goal – Many Paths



contact@sahfnet.org

Roadmap Tool

- Excel-based tool for quantifying your reduction target and plotting a set of paths to get there
- Available on the HUD Exchange website
- Free!



[Home](#) > [Programs](#) > [Better Buildings Challenge Multifamily Sector](#) > [Energy and Water Efficiency Resources](#) > [Retrofit Planning](#)

Retrofit Planning

Multifamily Retrofit Toolkit: Step-by-Step Retrofit Process

This resource from Enterprise Community Partners includes the critical steps for retrofitting multifamily affordable housing, from reviewing benchmarked utility data to developing a scope of work to performing ongoing monitoring and evaluation of energy performance.

...

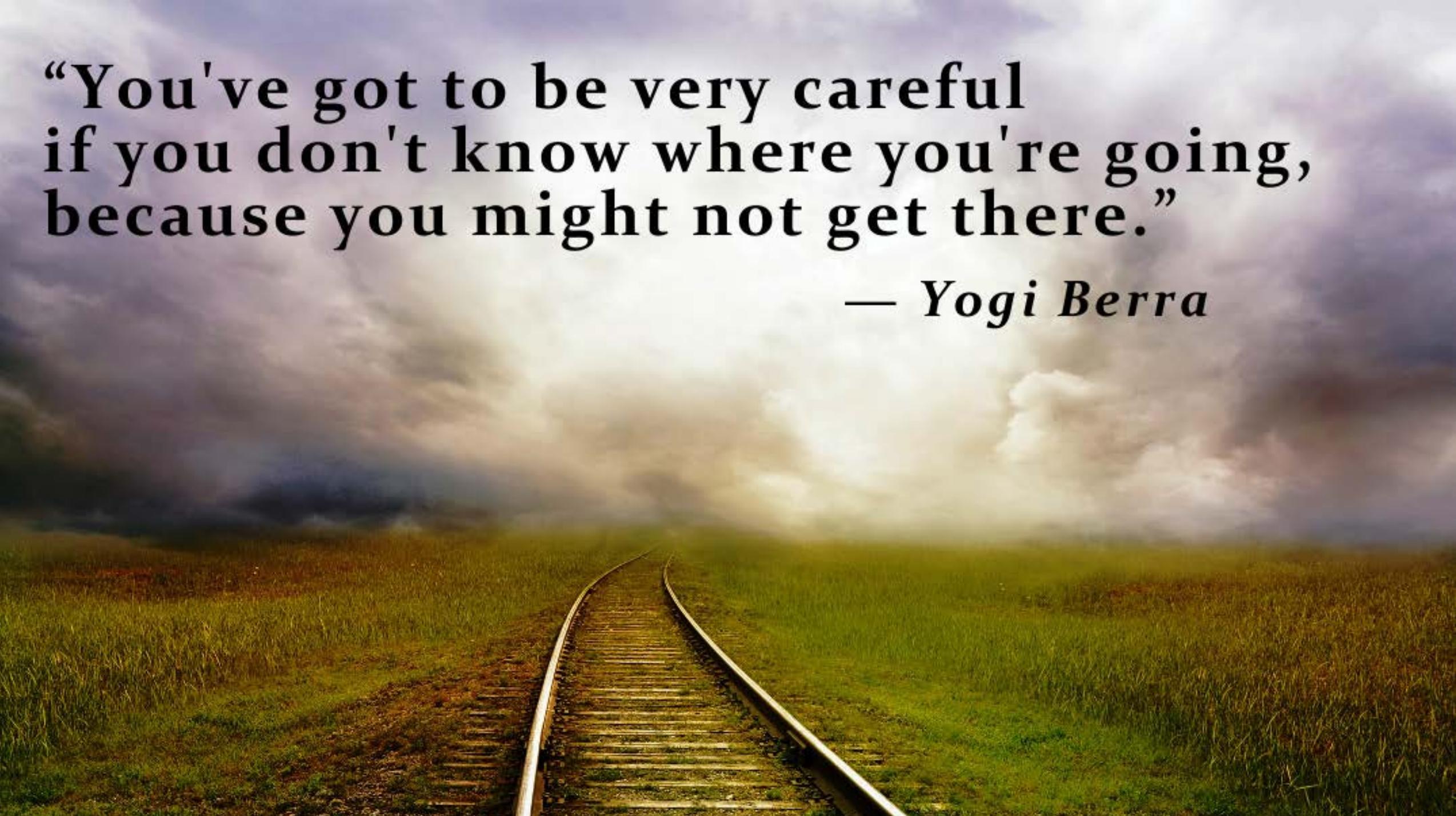
Guide to Energy Audits

This guide provides an overview of the energy audit process, such as determining audit types and levels, reviewing utility data, and selecting an energy auditor.

Federal
FEDERAL PARTNER
RESOURCE

Roadmap to 20% Energy Reduction Workbook

This Excel-based workbook from Stewards of Affordable Housing for the Future (SAHF) helps multifamily property owners develop a strategy for reaching portfolio-wide energy or water reduction targets by entering basic portfolio information, establishing baseline consumption, and planning out various energy- and water-efficient building improvements.

A landscape photograph featuring a railway track that curves through a vast field of tall grass. The sky is filled with dramatic, dark clouds, with a bright light source breaking through in the distance, creating a strong contrast and a sense of depth. The overall mood is contemplative and somewhat somber.

“You've got to be very careful
if you don't know where you're going,
because you might not get there.”

— *Yogi Berra*

Setting Your Reduction Target



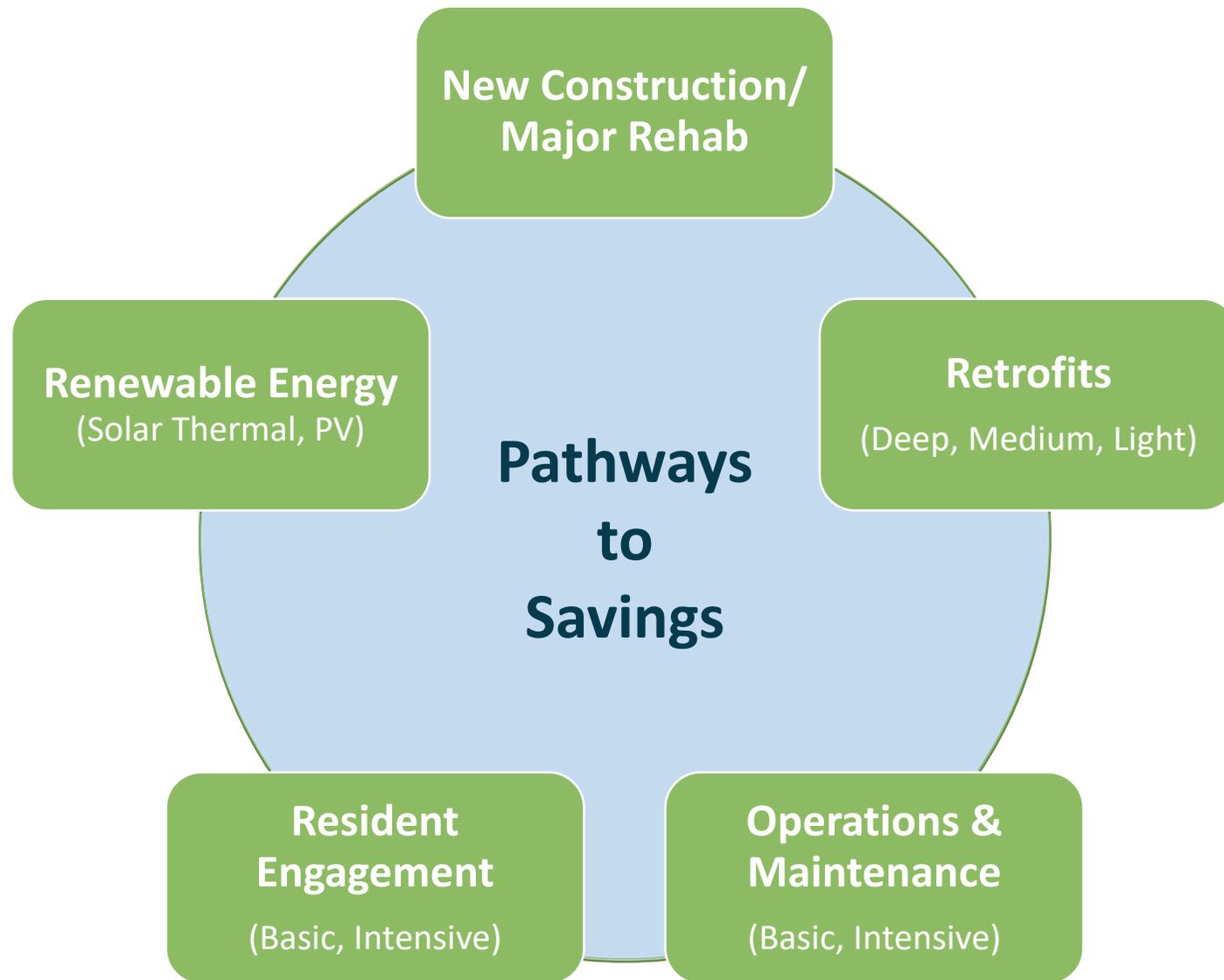
Inputs

- Number of Units
- Square footage
- Baseline EUI and WUI (if available)
- Savings to date (if any)

Outputs

- Baseline consumption in MMBTU & Millions of Gallons
- Target MMBTU and Millions of Gallons to be saved

Work Plan Categories



Work Plan Inputs

1) Overall Workplan:

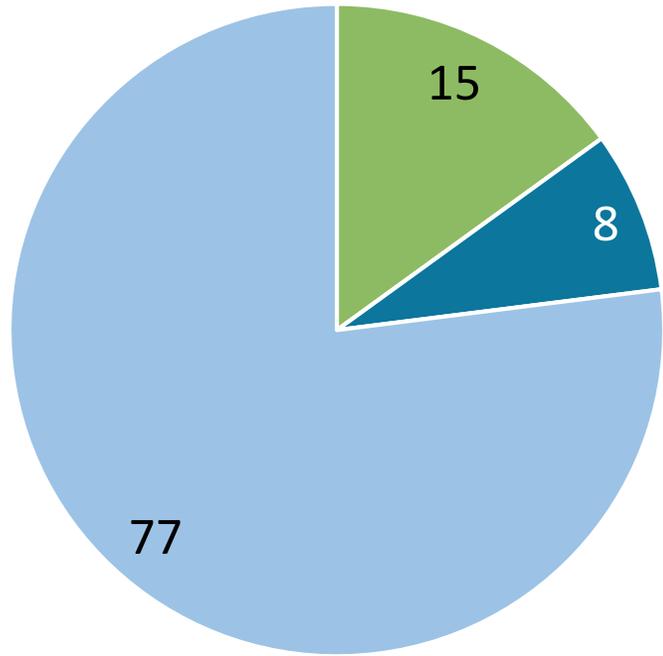
Values in the cells highlighted in yellow are suggestions only and can be modified						
Measure/Pathway	% of Units	# Units	Energy Savings per Unit	Water Savings per Unit	Total MMBTU Saved	Total Water Savings (Million gallons/year)
Deep Efficiency at New Construction / Rehab		-	40%	25%	-	-
Deep Efficiency Discretionary Retrofit		-	30%	20%	-	-
Medium Efficiency Discretionary Retrofit / Equipment Upgrade		-	15%	5%	-	-
Light Efficiency Discretionary Retrofit - Energy		-	4%		-	-
Light Efficiency Discretionary Retrofit - Water		-		25%	-	-
Appliance Upgrade at Time of Purchase		-	2%	0.8%	-	-
Improved O&M – basic level		-	4%	2%	-	-
Improved O&M / Retro-commissioning – intensive/R&D effort		-	15%		-	-
Resident Engagement – basic level		-	2%	1%	-	-
Resident Engagement – Intensive/R&D effort		-	8%	5%	-	-
Solar Domestic Hot Water		-	20%		-	-
Solar Photovoltaic*		-	0.4%		-	-
Total					-	-
Additional savings needed to reach target					-	-

Roadmap Participants Shout Out

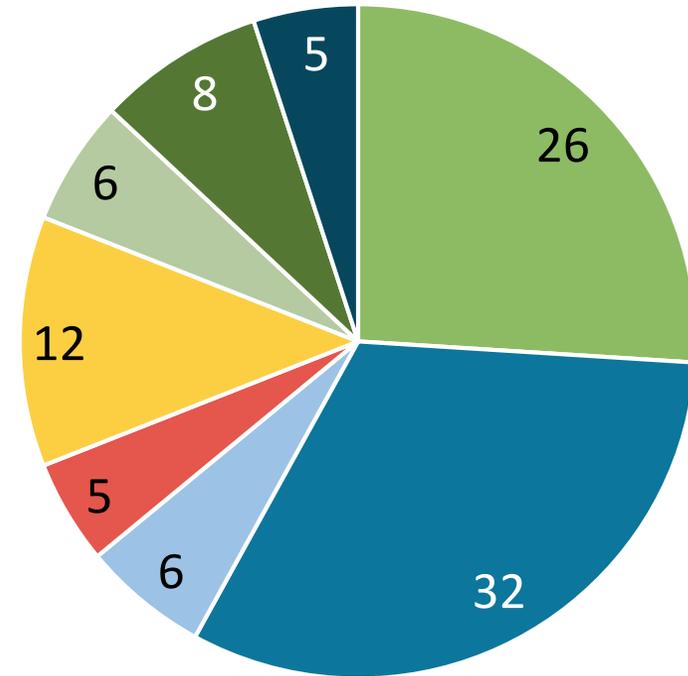
ANGOLA HOUSING
AUTHORITY



Many Pathways

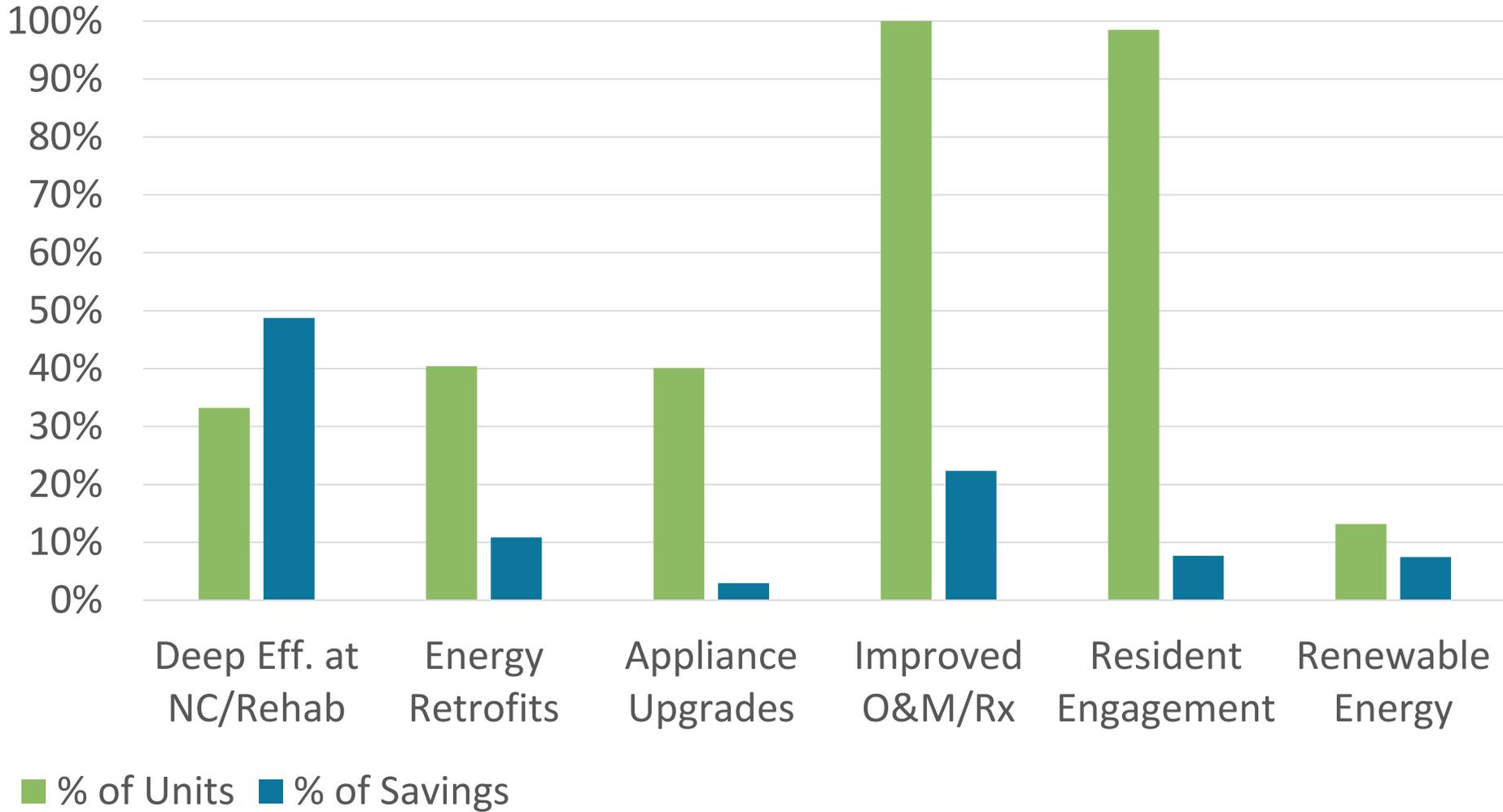


- Improved O&M – basic
- Resident Engagement – basic
- Solar Thermal



- New Construction / Rehab
- Light Retrofits
- Improved O&M – basic
- Resident Engagement – basic
- Medium Retrofits
- Appliance Upgrades
- Improved O&M – intensive
- Resident Engagement – Intensive

SAHF Member Work Plan Results





- Better Buildings Solution Center:
 - <https://betterbuildingsinitiative.energy.gov/solutions>
- Resident Engagement:
 - <http://www.enterprisecommunity.org/solutions-and-innovation/green-communities/tools-and-services/resident-engagement>
 - <http://www.sahfnet.org/our-work/energy-and-water-conservation/resident-engagement>
- Operations and Maintenance
 - <http://www.sahfnet.org/our-work/energy-and-water-conservation/operations-maintenance>



Multifamily Sector Recognition

2018 Better Buildings Summit

New BBC MF Partners

- Boston Housing Authority
- Bozzuto Management
- Foundation Communities
- Highland Commercial Properties
- Kier Property Management
- Puerto Rico Public Housing Administration
- Stark Metropolitan Housing Authority

Total = 7 new partners since the 2017 Summit

BBC MF Partners that Published a Showcase Project

- AHEAD, Inc.
- Beacon Communities
- Commonbond Communities
- EAH Housing, Inc.
- Foundation Communities
- Houston Housing Authority
- Jamaica Plain Neighborhood Development Corporation
- Jonathan Rose Companies
- King County Housing Authority
- NHP Foundation
- Schochet Companies
- Tampa Housing Authority
- Tenderloin Neighborhood Development Corporation
- The Boston Land Company
- Village of Hempstead Housing Authority
- Wesley Housing Corporation
- Wishrock Investment Group

Total = 17 partners since the 2017 Summit

BBC MF Partners that Published an Implementation Model

- Housing Authority of the City of Palatka, FL
- Jersey City (NJ) Housing Authority
- New York City Housing Authority
- Preservation of Affordable Housing
- Rockford Housing Authority
- Tampa Housing Authority
- Trinity Management
- Village of Hempstead Housing Authority

Total = 8 partners since the 2017 Summit

BBC Multifamily Partners with Published Showcase Project AND Implementation Model

- Aeon
- Balfour Beatty Communities
- Corcoran Management
- Cuyahoga Metropolitan Housing Authority
- Jersey City Housing Authority
- LINC Housing Corporation
- Mercy Housing
- **New York City Housing Authority**
- NHT/Enterprise Preservation Corporation
- Preservation of Affordable Housing
- Rockford Housing Authority
- **Tampa Housing Authority**
- Tenderloin Neighborhood Development Corporation
- The Economic Development Authority of the City of Mankato, MN
- The Housing Authority of the City and County of Denver
- TH Real Estate (TIAA)
- The Tower Companies
- **Village of Hempstead Housing Authority**

Bold = Accomplished for first time since the 2017 Summit
Total = 18 partners

BBC Multifamily partners who shared a partial data display this year

- AHEAD, Inc.
- Beacon Communities
- **BRIDGE Housing Corporation**
- Caritas Communities, Inc.
- **CommonBond Communities**
- **Corcoran Management**
- **East Bay Asian Local Development Corporation**
- Fort Wayne Housing Authority
- **Foundation Communities**
- **Housing Authority of the City of San Buenaventura, CA**
- Jonathan Rose Companies
- Korman Residential Properties
- **Lucas Metropolitan Housing Authority**
- Mercy Housing
- National Church Residences
- NHP Foundation
- NHT/Enterprise Preservation Corporation
- Peabody Properties, Inc.
- Preservation of Affordable Housing
- Retirement Housing Foundation
- Rockford Housing Authority
- **San Antonio Housing Authority**
- Satellite Affordable Housing Associates
- Tampa Housing Authority
- Tenderloin Neighborhood Development Corporation
- **The Community Builders**
- The Evangelical Lutheran Good Samaritan Society
- The Silver Street Group and Housing Management Resources
- Trinity Management
- Utica Municipal Housing Authority
- **Windsor Locks Housing Authority**
- **WinnCompanies**
- Wishrock Investment Group

Total = 33

Bold = Published for the first time this year

BBC Multifamily partners who shared a full data display this year

- Atlanta Housing Authority
- Angola (IN) Housing Authority
- Cambridge, MA Housing Authority
- Capitol Hill Housing
- Cascap, Inc.
- **Cion Housing Services**
- **Cleveland Housing Authority**
- Danville Development
- Gateway Management Services, LLC
- Helena (MT) Housing Authority
- Palatka (FL) Housing Authority
- Jersey City (NJ) Housing Authority
- Jewish Community Housing for the Elderly
- Keene Housing
- King County Housing Authority
- Minneapolis Public Housing Authority
- New Bedford Housing Authority
- New York City Housing Authority
- Presby's Inspired Life
- Schochet Companies
- The Economic Development Authority of the City of Mankato, MN
- The Housing Authority of the City and County of Denver
- The Renaissance Collaborative
- The Tower Companies
- TH Real Estate (TIAA)
- Trinity Housing Corporation of Greeley, Colorado
- Village of Hempstead Housing Authority
- Vistula Management Company
- Washington, DC Housing Authority

Total = 29 partners

Bold = Published for the first time this year

BBC Multifamily Goal Achiever



Has met the BBC goal of 20% reduction in portfolio-wide energy consumption, achieving 26% savings in six years.



Jersey City Housing Authority

Energy Performance Contract



SIEMENS

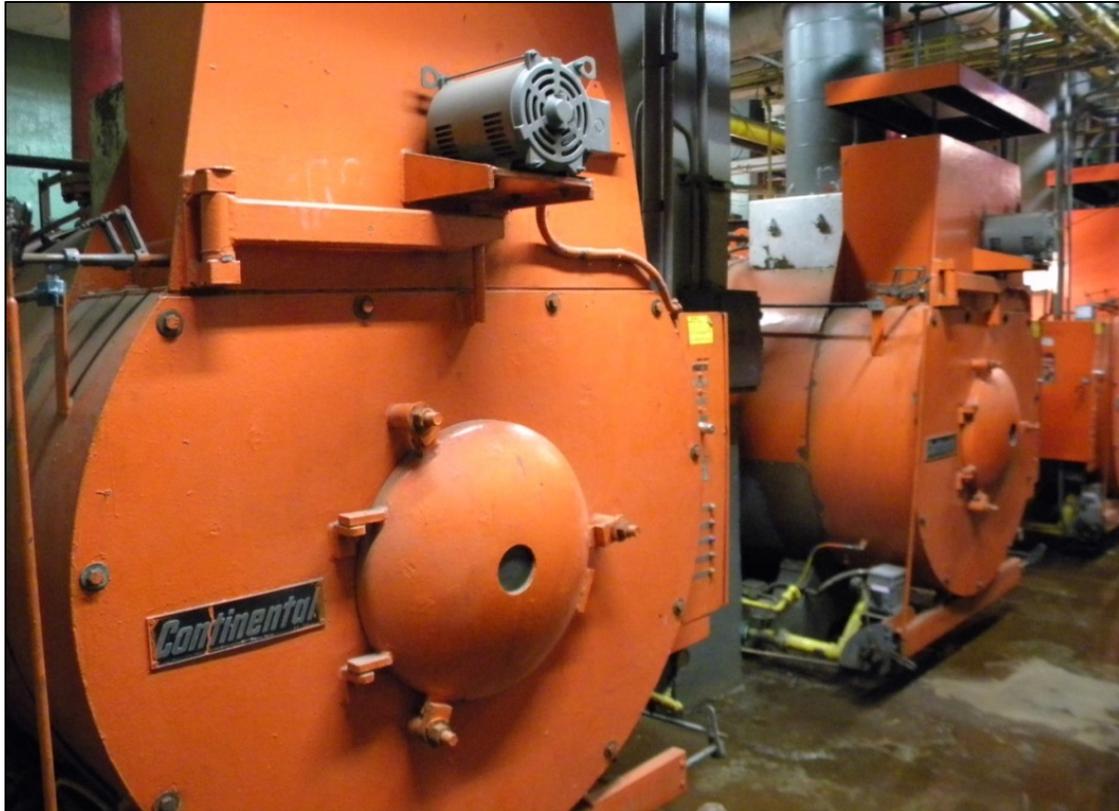
Lighting and Water Efficiency



Holland Gardens – Solar Hot Water Heater



Booker T. Washington Apartments – Boiler Decentralization



Before



After