Energy Exchange℠

Better Buildings® SUMMIT

AUGUST 21-23, 2018 • CLEVELAND, OHIO

Multifamily Meet-up

Part 2

Better Buildings Challenge Showcase:

Shepherd Park Apartments

The Schochet Companies – AMO ®

RPM Rethinking Power Management LLC

schochet companies

SCHOCHET BACKGROUND

- Schochet Companies is a full service real estate development and management company headquartered in Braintree, MA
- Founded by Jay R. Schochet over forty years ago
- Schochet has since developed, owned, and/or managed in excess of 7,000 apartments and over 600,000 square feet of retail and commercial space throughout New England and on the West Coast
- Currently Schochet owns and/or manages 31 sites throughout the Northeast, overseeing over 5,000 units.

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RPM BACKGROUND

- Based in Boston, MA
- Is an energy and sustainability consulting company
- In 2009 was enlisted by Schochet to assist in launching a comprehensive **Sustainability Initiative:**

  The initiative defined strategies to achieve specific targets and goals related to:

  - **Energy and water use reductions**
  - **Greenhouse gas emission reductions**
  - **Staff and tenant engagement**
  - **Information exchange with others in the industry**
  - **Healthy living**
  - **Organizational development**

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SHEPHERD PARK

Sector Type: Multifamily

Location: Hartford, CT

Project Size: 144,000 square feet

Financial Overview:

Project Costs: $656,650
Utility Incentive: $177,984

Annual Energy Use + Annual Energy Cost (with Savings):

- Annual Energy Savings: 20%
- Annual Cost Savings: $68,100

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SHEPHERD PARK

Background:

- Shepherd Park is a 373 unit apartment complex consisting of seven buildings, and provides subsidized senior housing

- Originally built in the early 1900's, the property served as a ward and convent until 1980 when it was rehabilitated into affordable housing

- Managed by The Schochet Companies with a portfolio-wide Sustainability Initiative that includes several goals:
  - Energy reduction
  - Water and greenhouse gas reduction

- Since 2012 Shepherd Park has implemented a broad range of efficiency upgrades detailed here

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EFFICIENCY MEASURES IMPLEMENTED

Projects

- Boiler Replacement
- Hot Water Circulation Pump Replacement
- Interior LED Lighting Replacement
- Exterior LED Lighting Replacement
- Unit Air Sealing
- Unit Water Saving Measures

Energy and Cost Savings

- Annual kWh Savings: 109,603 kWh
- Annual Therm Savings: 13,051 therms
- Est. Avoided Costs: $26,733
- Utility Incentives for Projects: $177,984

EFFICIENCY MEASURE DETAIL

- **Hot Water Circulation Pump Replacement:** The property downsized form two to one high efficiency circulation pump. Additionally, the pump replacement project resolved several on going maintenance issues.
  - Annual kWh Savings: 27,315 kWh
  - Estimated Avoided Costs: $3,278
  - Project Cost: $59,378
  - Utility Incentive: $21,950
- **Interior LED Lighting Project:** The property upgraded from induction to LED lighting.
  - Annual kWh Savings: 39,752 kWh
  - Estimated Avoided Costs: $4,770
  - Project Cost: $66,412
  - Utility Incentive: $14,956
- **Exterior LED Lighting Project:**
  - Annual kWh Savings: 42,536 kWh
  - Estimated Avoided Costs: $5,104
  - Project Cost: $88,052
  - Utility Incentive: $39,599

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EFFICIENCY MEASURE DETAIL

- **Boiler Replacement**: The boilers, which were at the end of their useful life, were replaced with high efficiency, condensing boilers.
  - Annual therms savings: 4,230 therms
  - Estimated avoided costs: $4,737
  - Project Cost: $165,108
  - Utility Incentive: $33,199

- **Unit Air Sealing:** in addition to reducing energy use, air sealing reduced issues with cooking smells.
  - Annual Therms Savings: 7,706 therms
  - Estimated Avoided Cost: $8,631
  - Project Cost: $62,415
  - Utility Incentive: $62,415

- **Unit Water Saving Measures:** .8 gpf (gallons per flush) toilets as well as low flow devices save on both water and sewer costs.
  - Annual Therms Savings: 190 therms
  - Estimated Avoided Costs: $213
  - Project Cost: $5,865
  - Utility Incentive: $5,865

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OTHER BENEFITS

- Increased overall efficiency.
- Lighting projects alleviated safety concerns.
- Air sealing increased occupancy comfort and reduced odors, as well as decreased number of maintenance calls for staff.
- Reduced use of toxic chemicals on-site improved health and safety. Implemented a green cleaning program, no-smoking policy and integrated pest management plan.

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Better Buildings Financing Navigator Demo

Wednesday, August 22nd, 2018

Energy Exchange | Better Buildings SUMMIT

The Better Buildings Financing Navigator

The Better Buildings Financing Navigator is an online tool that helps public and private organizations find financing solutions for energy efficiency and renewable energy projects.

With the Navigator, you can…

1. **Explore:** Learn the basics of the clean energy financing market
2. **Find:** Answer a few simple questions to see which financing options might be a fit for your project
3. **Connect:** Speak to Better Buildings Financial Allies who may be able to finance your project

Available at: https://betterbuildingssolutioncenter.energy.gov/financing-navigator

Live Demo

BETTER BUILDINGS FINANCING NAVIGATOR
HOME
EXPLORE
FIND
CONNECT
Find financing that fits your needs
Explore financing options
Connect with Financial Allies
About the Financing Navigator
Factsheets and Resources
See Ally Solutions
Featured: CPACE for Resiliency

Thank You!

Holt Mountcastle
Financial Ally Sector Lead
703-639-4258
hmountcastle@retechadvisors.com

Layering Rebates & Choosing a Scope of Work

A whole-building retrofit at **$0** net cost!

TNDC's Case Study

Ruchi Shah, Sustainability Manager, Tenderloin Neighborhood Development Corporation

TENDERLOIN NEIGHBORHOOD DEVELOPMENT

Tenderloin Neighborhood Development Corporation (TNDC) at a Glance!

What We Do

- Affordable housing – 40 buildings in 8 San Francisco neighborhoods, serving over 3,500 units

Who We House

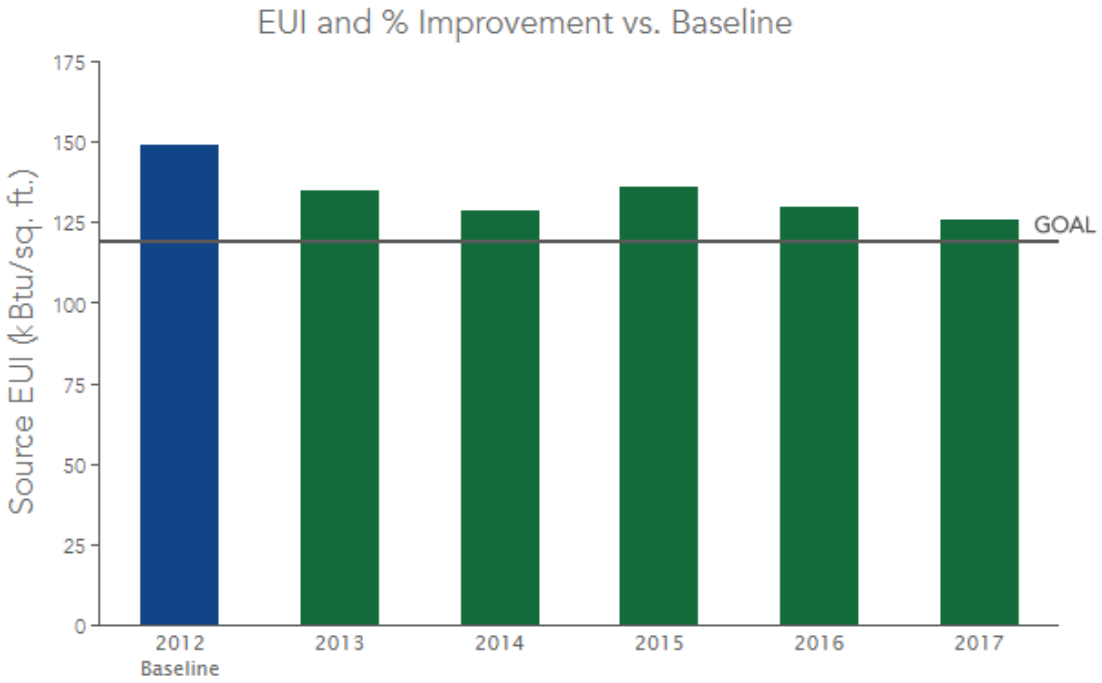
- 80% of our residents have an annual income of less than $18,000
- Diverse racial & ethnic backgrounds – over 30 languages spoken
- Nearly 50% of our residents are seniors and 20% of all our tenants have experienced at least one recent episode of homelessness

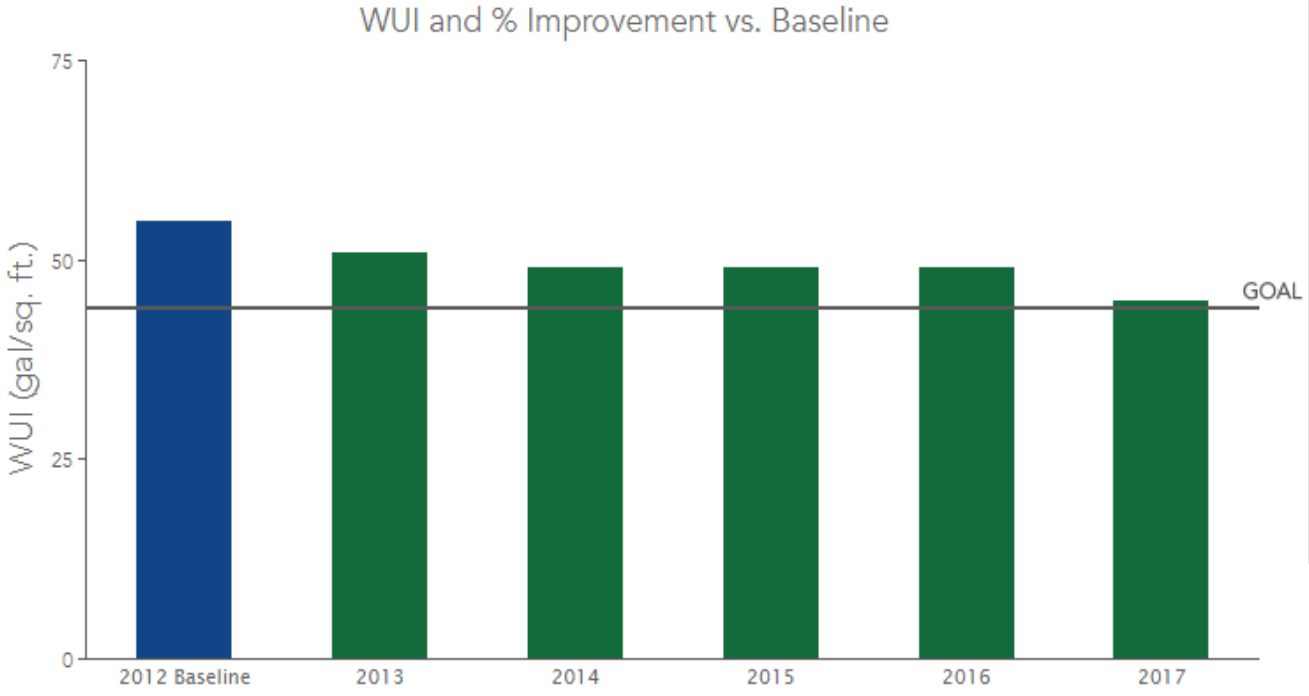
How We Go Beyond Housing

- **Tenderloin After-School Program –** provides assistance to 250 kids for out of school support, including completing their homework
- **Health & Wellness Program –** serves over 700 seniors learn healthy aging skills
- **Community Gardens and Neighborhood Pantries –** in association with the San Francisco Food Bank:
- provide 225,000 pounds of fresh produce and food to the local community

Better Buildings Challenge Goals

- Energy - Reducing portfolio-wide source EUI (kBtu/sf.ft) **20%** from a 2012 baseline by 2023.
- Water - Reducing portfolio-wide source WUI (gal/sq.ft) **20%** from a 2012 baseline by 2023.





Need to Retrofit

Alexander Residences
- Built in 1928
- 179 senior units
- 81,000 Sq. ft
-Central space heat & DHW

- One of the least efficient and most expensive properties in TNDC's portfolio
- Annual energy expense - $111,000
- Master-metered for all utilities
- Eligibility for 3 rebate programs: Low-Income Weatherization Program (LIWP-Multifamily), BayREN, and CSI Solar Thermal
- Rooftop space availability
- Strong property reserves

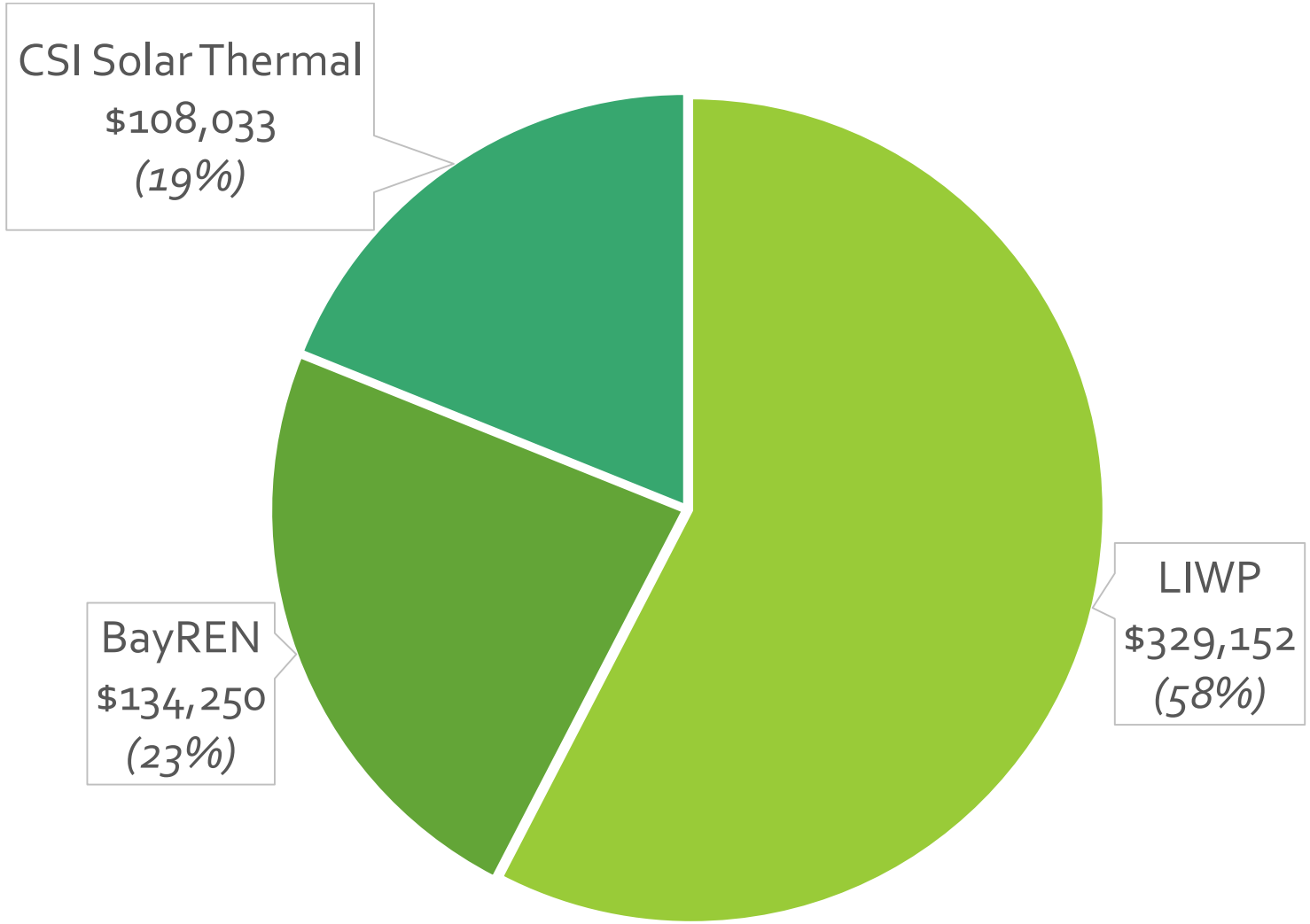
Retrofit Scope:

- Site EUI Savings
- GHG Savings

With technical assistance from Association for Energy Affordability (AEA), we developed an extensive retrofit scope:

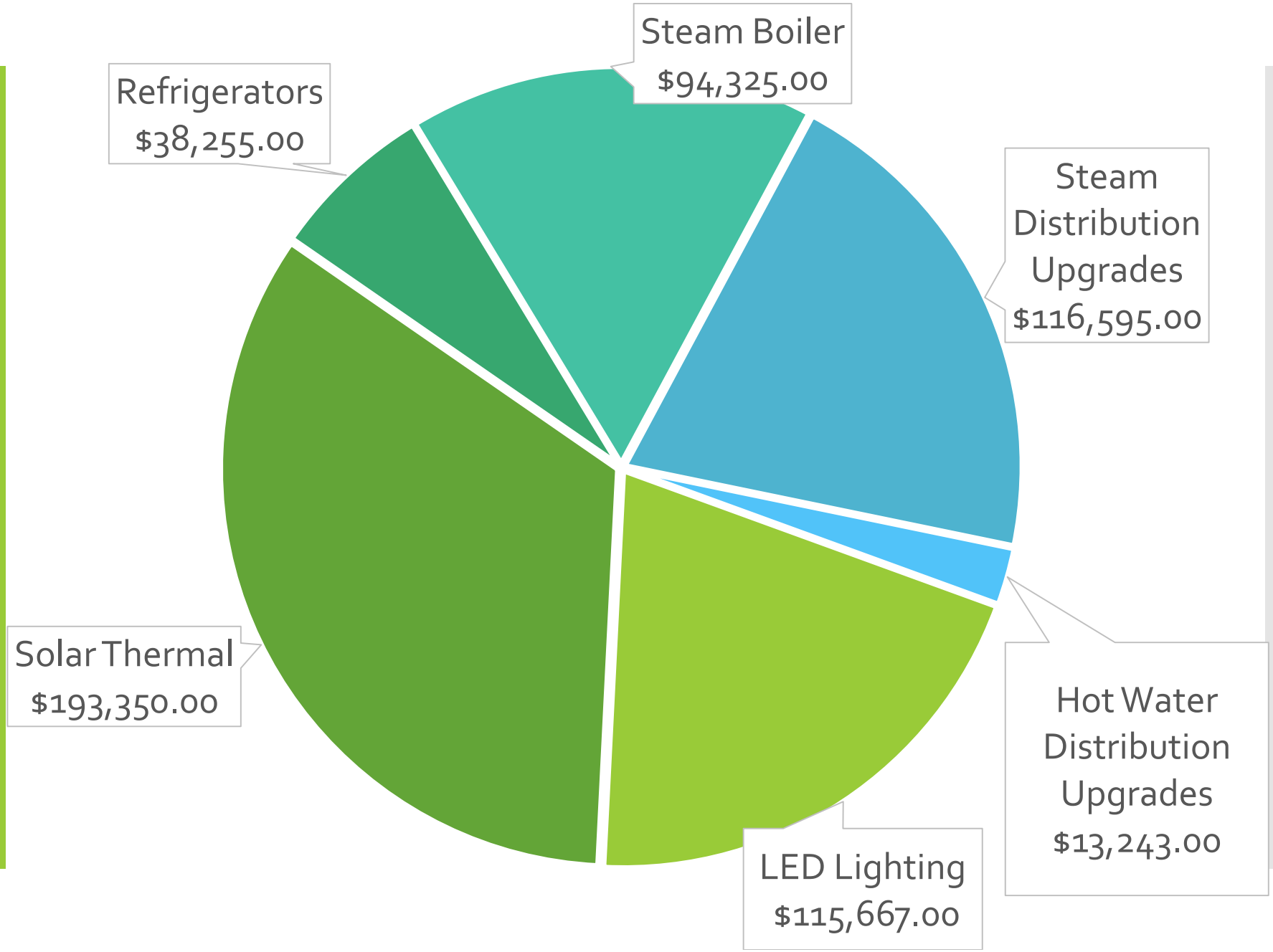
Measures	Modeled Energy Savings	GHG Savings ($MTCO_2$)
Whole-building LED lighting retrofit	5.5%	29.1
Solar thermal hot water system	8.0%	23.3
Energy Star refrigerators	0.3%	2.3
New higher efficiency steam boiler	2.5%	7.5
Robust steam distribution upgrade and commissioning: - Thermostatic Radiator Valves (TRVs) - Orifice plates - Steam cycle controller - Upgrades to condensate recapture system	9.5%	27.9
Hot water distribution upgrades: - Pipe insulation - Variable speed hot water pump - Low-flow water fixtures	2.6%	7.6
	28.4%	97.7

Rebates & Incentives



* **Rare opportunity to combine several rebate programs for full cost coverage** based on scope of work, location, and current incentive levels. Typical projects participating in energy incentive programs would likely see 50-75% cost coverage.

Costs by Scope Category



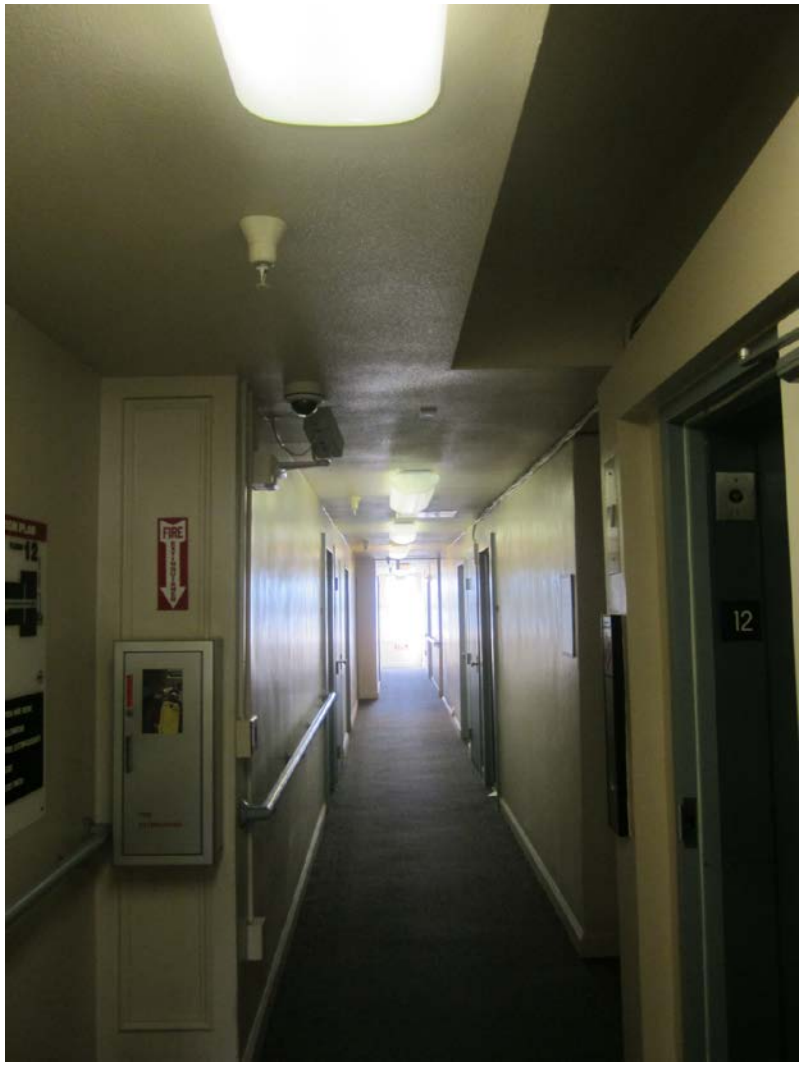
Before and After Photos – **Steam Boiler**

Existing Steam Boiler

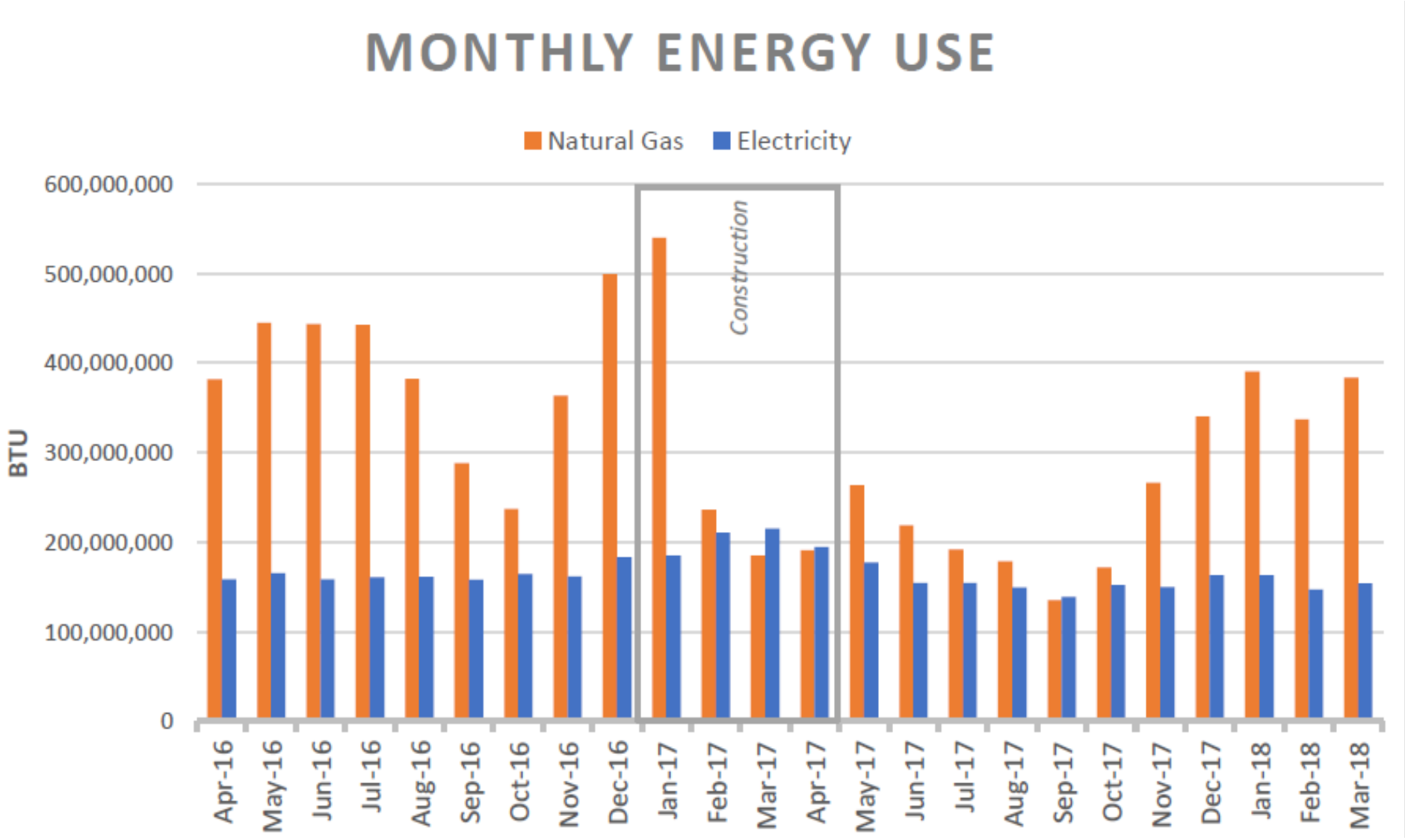
New Steam Boiler

Before and After Photos – **Solar Thermal**

Before and After Photos – **LED Lighting**



1st Year Monitoring Results



*** Electric space heating used during construction while steam boiler was offline**

1st Year Monitoring Results

DETAILED ENERGY USE COMPARISON

ELECTRICITY	kWh	Cost
Annual Electricity Use Pre-LIWP	610,287	$62,880.08
Annual Electricity Use Post-LIWP	556,410	$60,486.63
Electricity Savings	**53,877**	**$2,393.45**
	9%	4%

NATURAL GAS	Therms	Cost
Annual Gas Use Pre-LIWP	44,438	$48,496.11
Annual Gas Use Post-LIWP	30,683	$32,805.28
Natural Gas Savings	**13,755**	**$15,690.83**
	31%	32%

TOTAL ENERGY USE	BTU	Cost
Annual Energy Use Pre-LIWP	6,526,098,290	$111,376.19
Annual Energy Use Post-LIWP	4,966,744,820	$93,291.91
Total Energy Savings	**1,559,353,470**	**$18,084.28**
	24%	16%

GREEN HOUSE GAS SAVINGS

ANNUAL GHG	Metric Tons CO2
Pre-LIWP	428.25
Post-LIWP	338.23
GHG Savings	**90.03**
	21%

Lessons Learned

1. Knowledge of available incentive programs and its applicability
2. Strong buy-in from top-down and bottom-up
3. Staff capacity and turn-over issues
4. Teamwork and relationship with program managers
5. Vendor management
6. Monitoring and tracking performance to sustain the savings

Thank You!
Discussion & Questions!

Ruchi Shah – rshah@tndc.org

For more information about the LIWP rebate program, visit:
https://camultifamilyenergyefficiency.org/

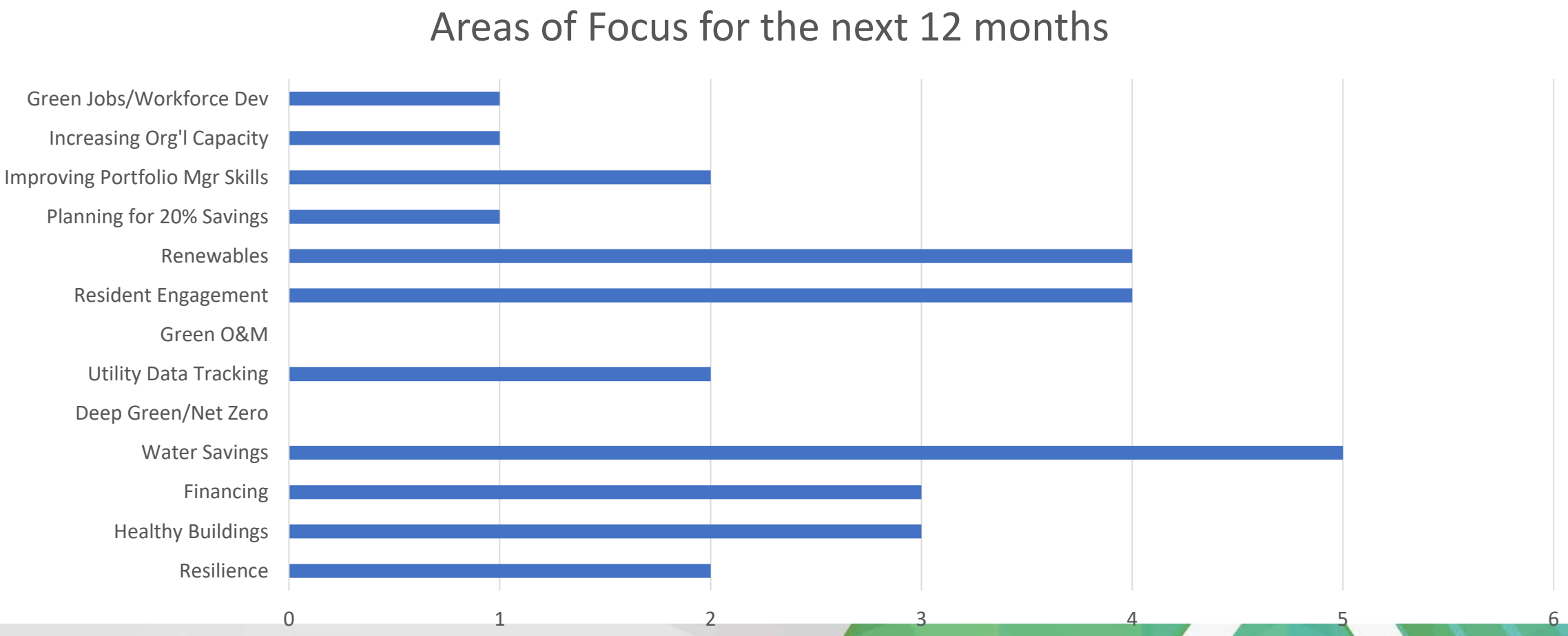
For more information about the BayREN rebate program, visit:
https://bayareamultifamily.org/

TENDERLOIN NEIGHBORHOOD DEVELOPMENT

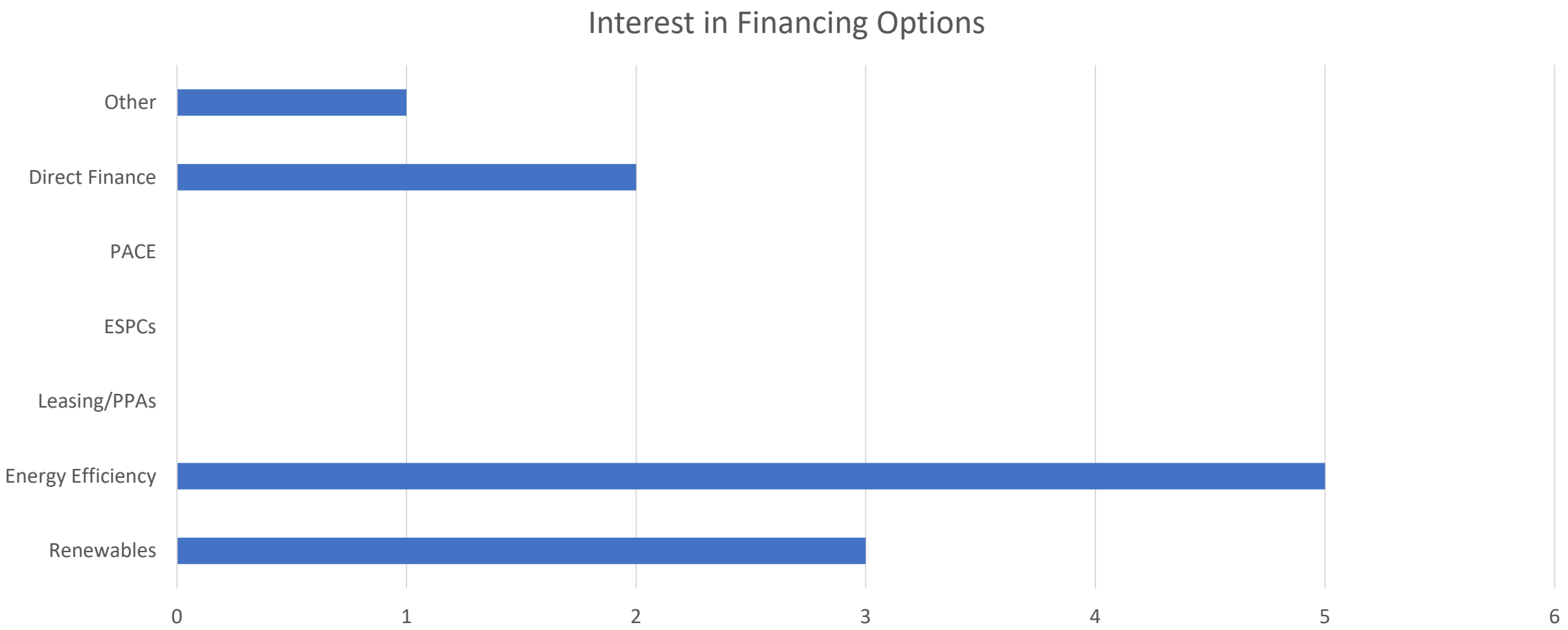
The Year Ahead

Survey Results and Discussion

Survey Results



Survey Results



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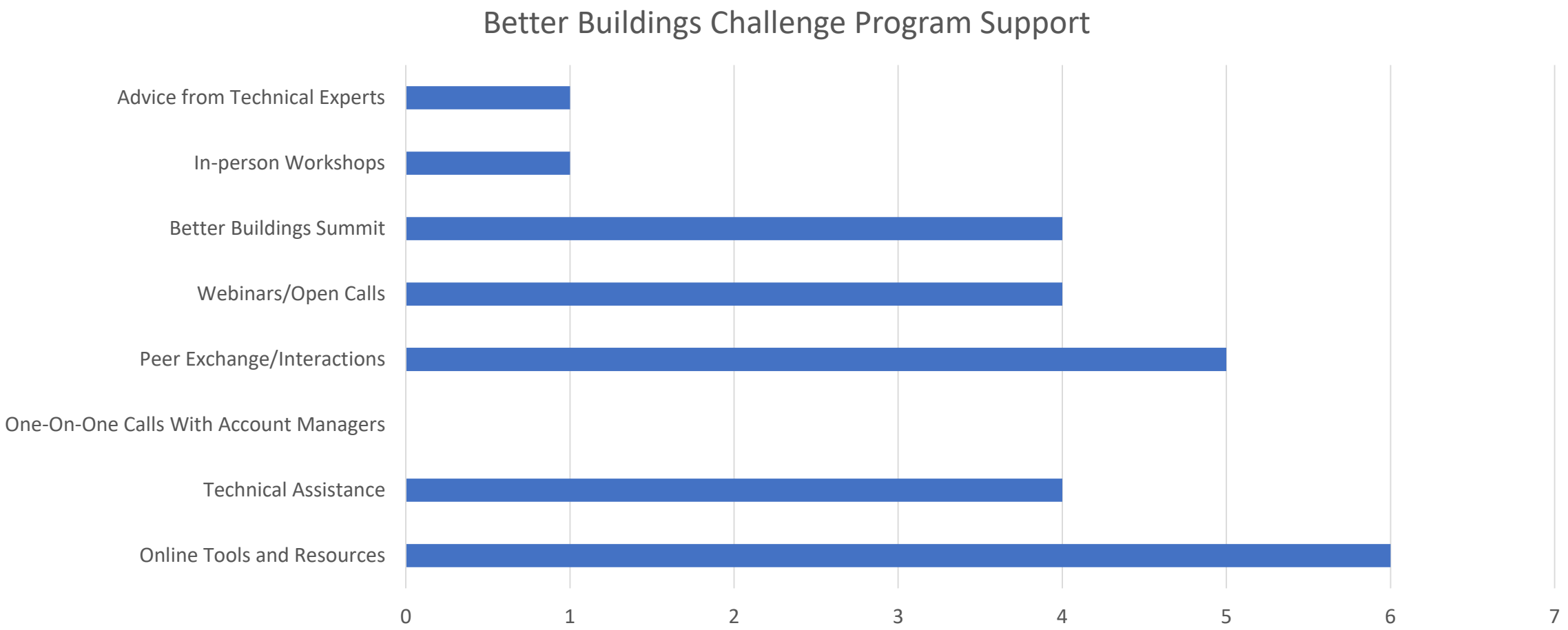

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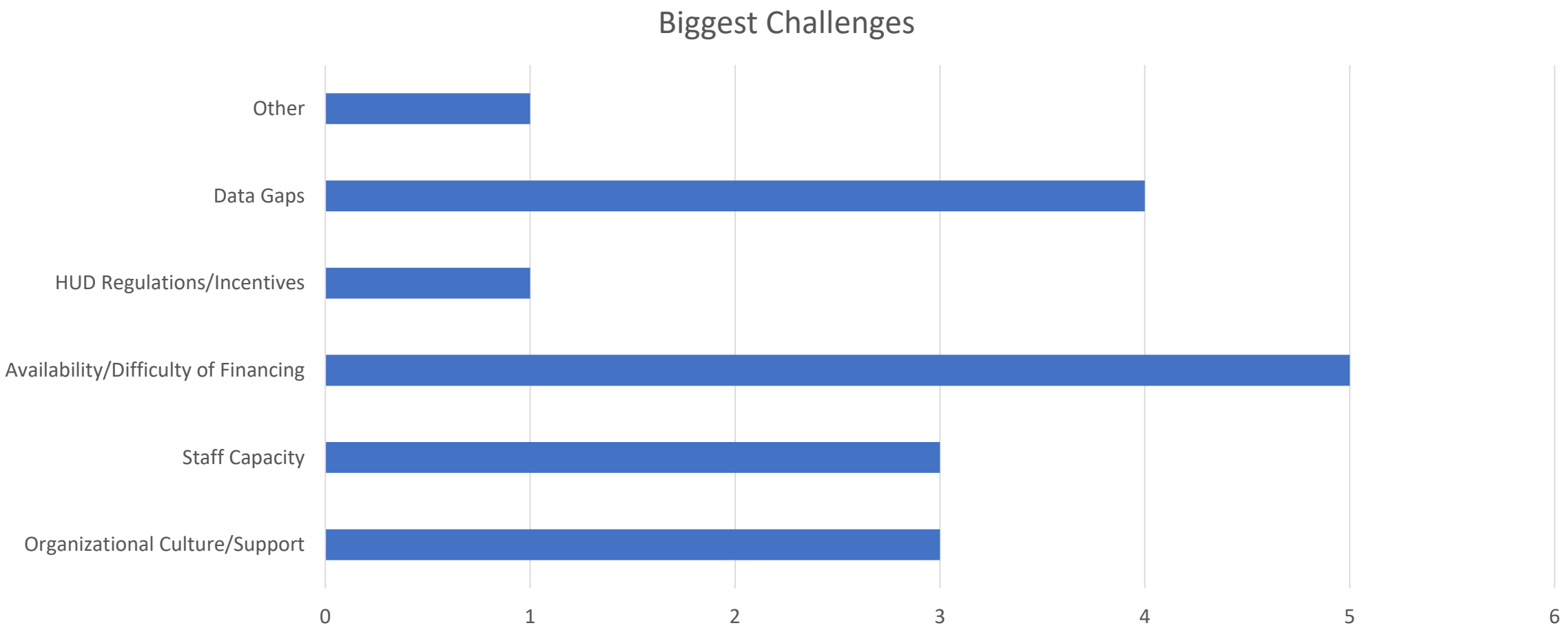

HUD Initiatives

- BBC Support
- Pay for Success
- Health@Home TA
- Building Futures
- Community Solar/RRI Policies
- PRPHA Power Oasis
- Data and Communication

Have Another Great Year!