Climate Mobilization Act Series: Keeping PACE with New York City

Financing is one of the primary barriers to advancing retrofits and C-PACE has the potential to dramatically improve the prospects for buildings all across the city. Our speakers will describe the components of NYC Accelerator PACE Financing, provide examples of how C-PACE has been used in other jurisdictions, and provide an overview of relevant incentive programs.

Opening Remarks:
Elizabeth Kelly, Senior Policy Advisor, NYC Mayor's Office of Climate & Sustainability
Moderator:
Sadie McKeown, Executive Vice President, Lending & Initiatives, Community Preservation Corporation (CPC)
Speakers:
Fred Lee, Co-CEO, New York City Energy Efficiency Corporation (NYCEEC)
Crystal Smith, Director, New York Market, Greenworks Lending
Simona Li, Senior Project Manager, NYSERDA
Andrew Chintz, Project Finance Specialist, NYC Accelerator

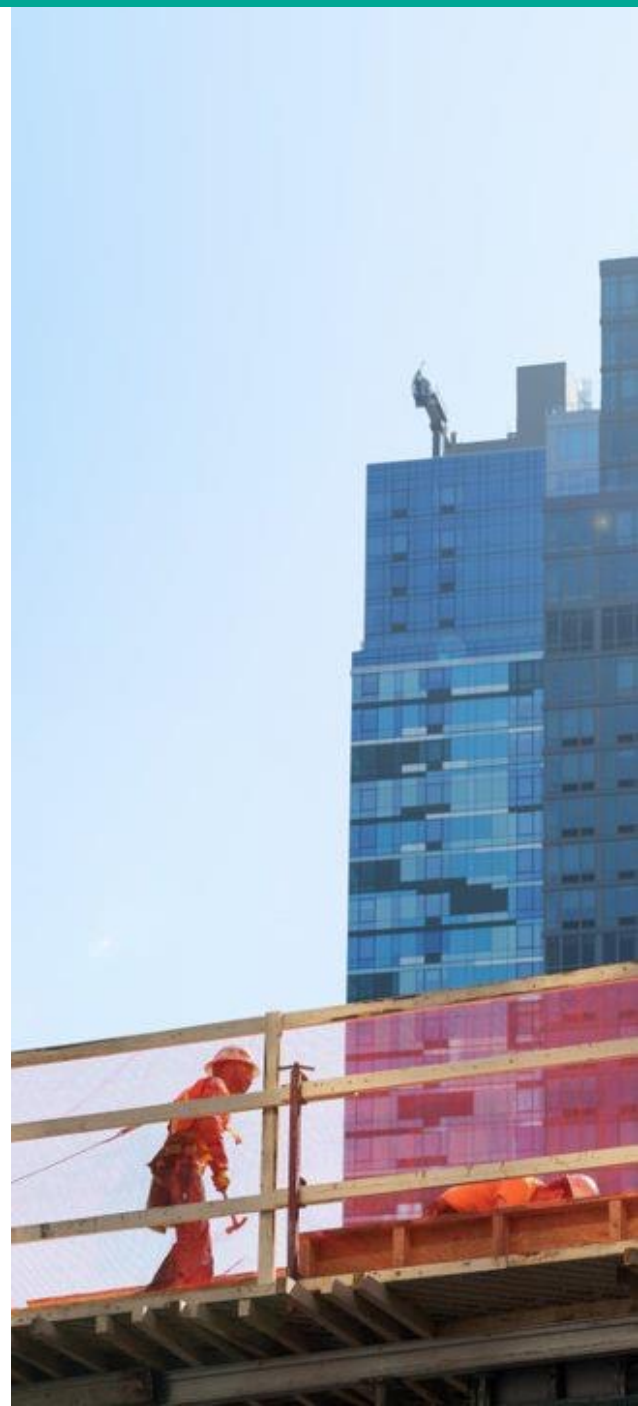
June 15, 2021 | 9:00 to 10:30 am | 1.5 AIA LUs
Building Energy Exchange | be-exchange.org

NRDC
be ex building energy exchange
NYC Mayor's Office of Sustainability

How Can NYC Accelerator Help?

- Receive connections to financial incentives
- Access technical assistance for building upgrades, such as an energy audit
- Meet local law compliance with expert advice
- Find service providers in your area
- Learn new skills with online training

NYC ACCELERATOR



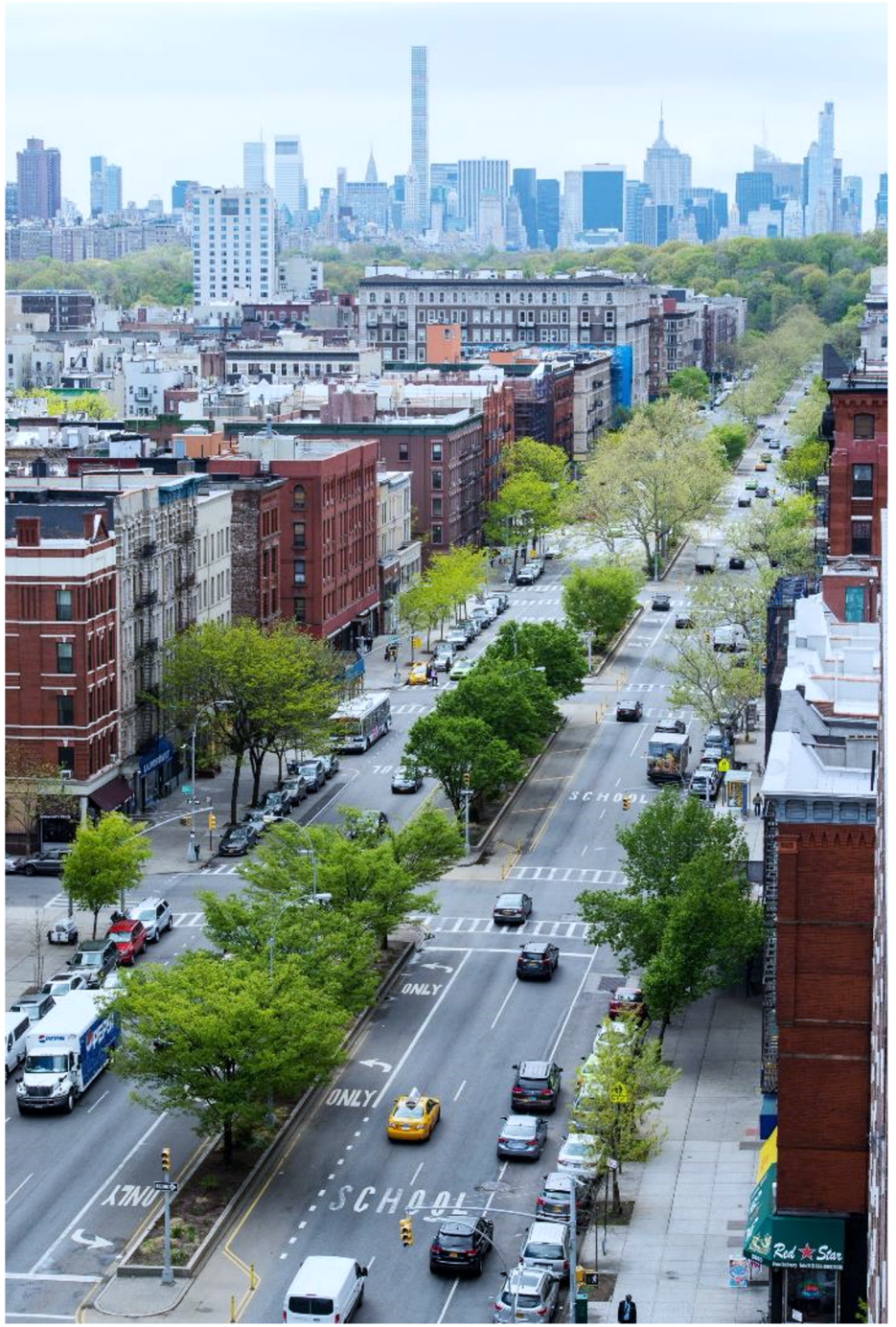
NYC Accelerator Is Your Gateway to PACE Financing in NYC

- NYC Accelerator is a free resource that assists building owners to navigate LL97 requirements, plan a scope of work and finance that work

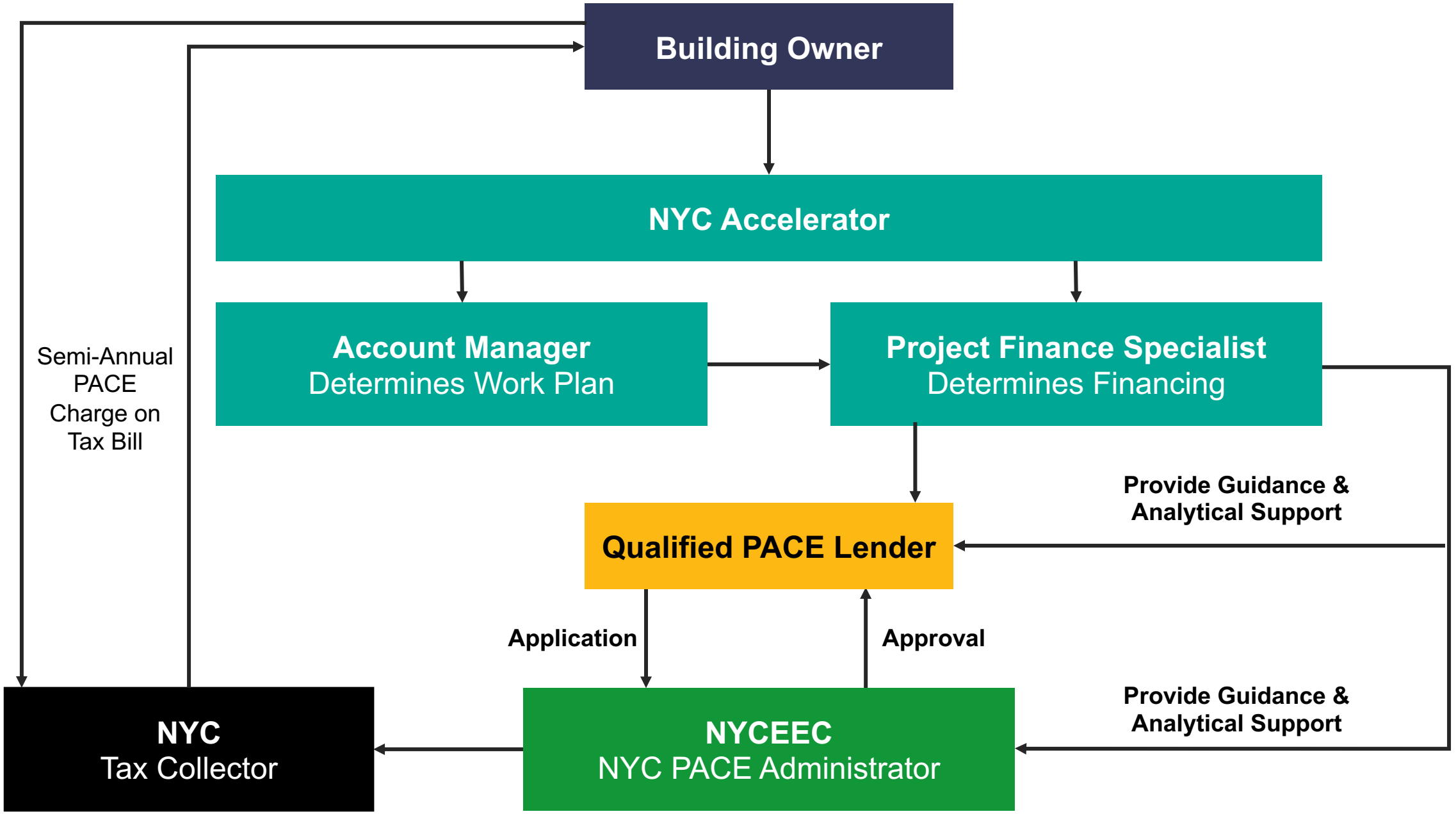
- PACE financing was enabled under LL96 to finance required improvements to help buildings meet LL97 thresholds

NYC ACCELERATOR

- NYC Accelerator PACE financing program has launched
- NYC Accelerator is your first stop to pursue PACE financing, we're here to help you:
  - Understand PACE
  - Determine if it fits your building
  - Engage you in the PACE process
  - Help you analyze your choices
- NYC Accelerator can also assist you in identifying other financing options



NYC Accelerator PACE Roadmap



NYC ACCELERATOR

Contact Our Team of Experts

Web: www.nyc.gov/accelerator

Email: info@accelerator.nyc

Phone: 212-656-9202

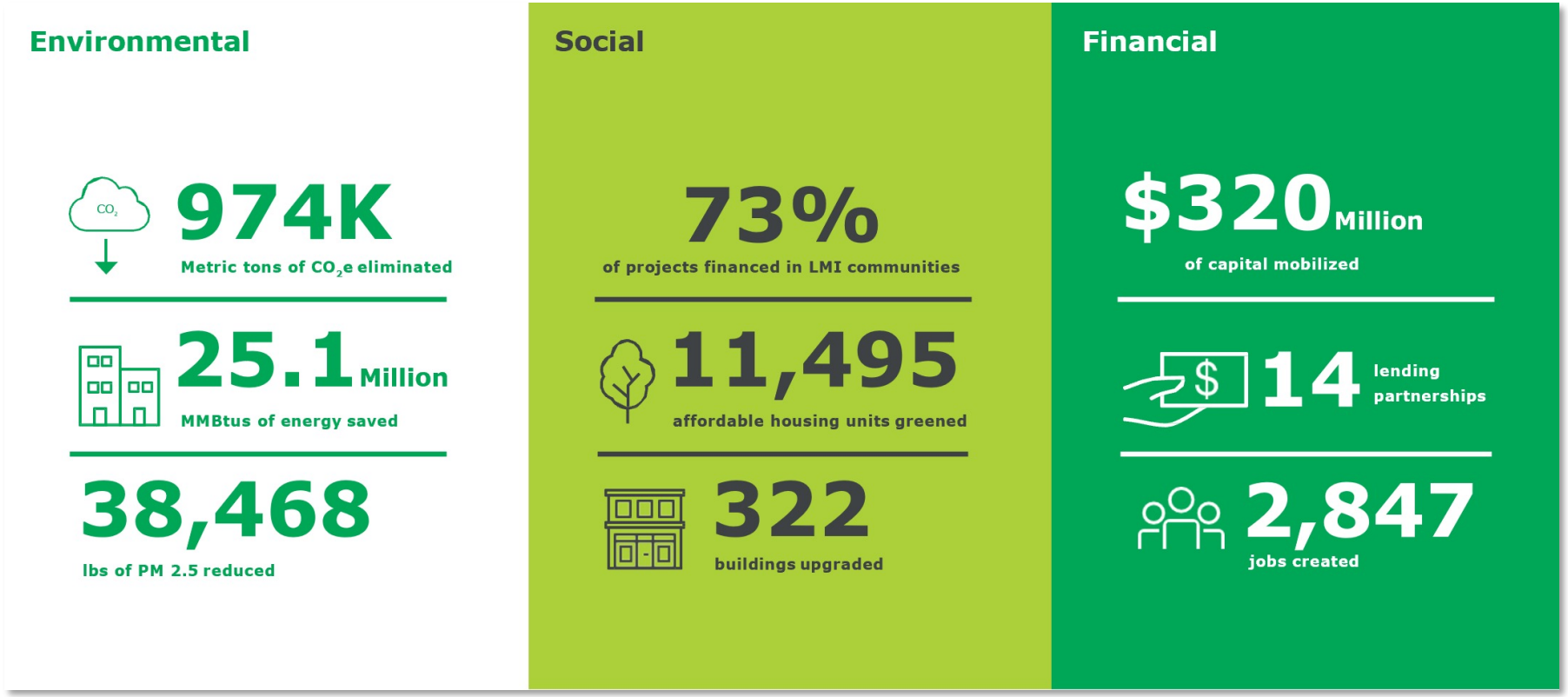
NYCEEC
BUILDING FINANCIAL SOLUTIONS

NYC ACCELERATOR PACE FINANCING

June 15, 2021

NEW YORK CITY ENERGY EFFICIENCY CORPORATION

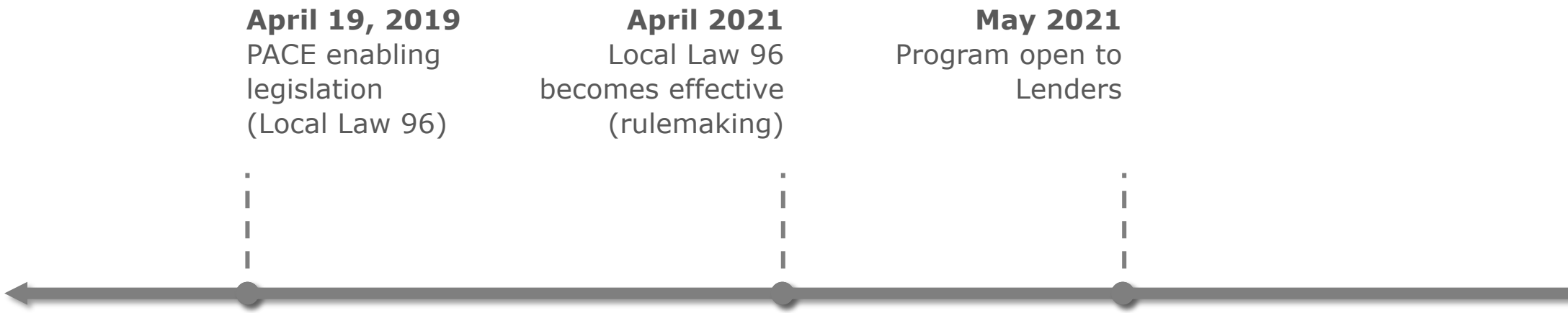
The country's first local green bank.



PRESENTATION OVERVIEW

- Where PACE stands today
- Where PACE is headed
- Overview of NYC Accelerator PACE Financing
  - Eligible properties
  - Required documentation
  - Cost-effectiveness evaluation
  - Mortgage holder consent
  - Repayment
- Who benefits?
- How to get started

WHERE PACE STANDS NOW



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NEXT STEPS

2021

- Lenders to prequalify and begin delivering projects.
- New construction guidelines expected

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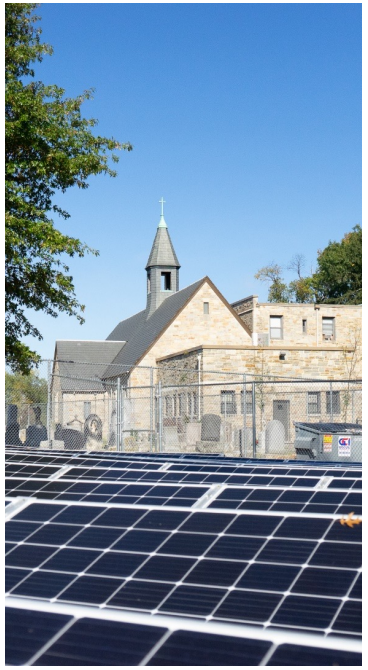
PROGRAM OVERVIEW

- "Open Market" PACE program
- Long term, fixed-rate loans
- Commercial properties, currently retrofits only
- Energy audit or feasibility study required
- Savings-to-Investment Ratio (SIR) requirement
- Mortgage holder consent
- Repayments on tax bill

ELIGIBLE PROPERTY TYPES



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REQUIRED DOCUMENTATION

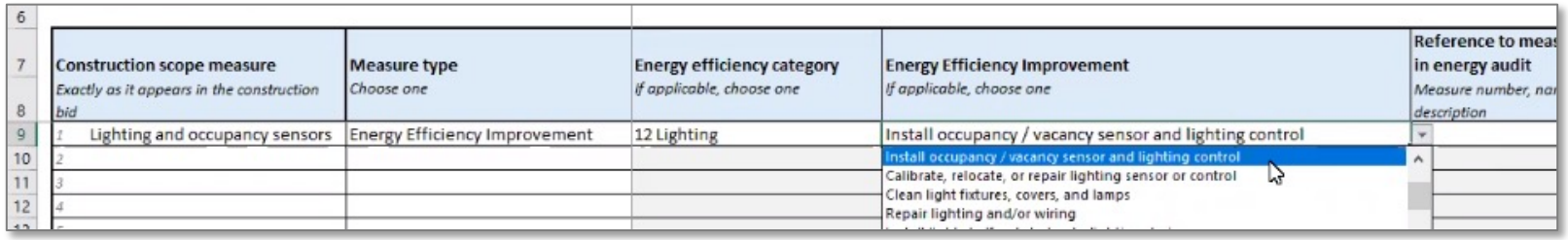
- Evidence of lender qualification
- Energy audit and/or feasibility study
  - On a case-by-case basis, IPNAs may be submitted
- Scope of work or cost schedule, project sources and uses
- Technical certification
- Required legal agreements

COST-EFFECTIVENESS EVALUATION

$$Savings\ to\ Investment\ Ratio\ (SIR) = \frac{Net\ Present\ Value\ of\ Savings}{Total\ Project\ Costs\ funded\ by\ PACE}$$

Technical certification objectives:

- Ensure loan term does not exceed weighted average useful life
- Show standardized SIR calculation
- Tracking program-wide impacts



	Construction scope measure *Exactly as it appears in the construction bid*	Measure type *Choose one*	Energy efficiency category *If applicable, choose one*	Energy Efficiency Improvement *If applicable, choose one*	Reference to meas in energy audit *Measure number, nar description*
1	Lighting and occupancy sensors	Energy Efficiency Improvement	12 Lighting	Install occupancy / vacancy sensor and lighting control	
2				Install occupancy / vacancy sensor and lighting control	
3				Calibrate, relocate, or repair lighting sensor or control	
4				Clean light fixtures, covers, and lamps	
				Repair lighting and/or wiring	

MORTGAGE HOLDER CONSENT

- Projects must receive signed consent from any existing mortgage lien holders prior to closing.
- NYCEEC and the City working with banks to educate them on value of consenting.
- New NYU-sponsored tool can help project developers understand existing mortgages in place.

REPAYMENT

- PACE Charges collected on Jan 1 and July 1 statements of account beginning after construction.
- Collected in same manner as other tax charges and remitted to lender by City via NYCEEC/Chase accounts
- Can accommodate prepayments/interest-only periods
- Must be fixed rate

WHO BENEFITS?

Multifamily housing sector

- Rental buildings, coops, and affordable housing can take advantage of long-term financing.
- Some multifamily buildings cannot refinance their mortgage but must undertake renovation work to comply with LL97

Commercially tenanted buildings

- PACE charge payments can be passed through to tenants in many commercial leases.
- Commercial building owners often hold properties for <10 years; with PACE owners only pay debt service for the savings that they enjoy and benefits are shared with tenants.

Municipalities

- 13,000+ jobs created to date.

LARGE BUILDINGS

SMALL BUILDINGS

HOW TO GET STARTED

- Talk to an Efficiency Advisor.
- Contact a prequalified Lender.
- Reach out to NYCEEC.

https://www1.nyc.gov/site/nycaccelerator/index.page

NYSERDA Multifamily Low Carbon Resources and Programs

June 2021

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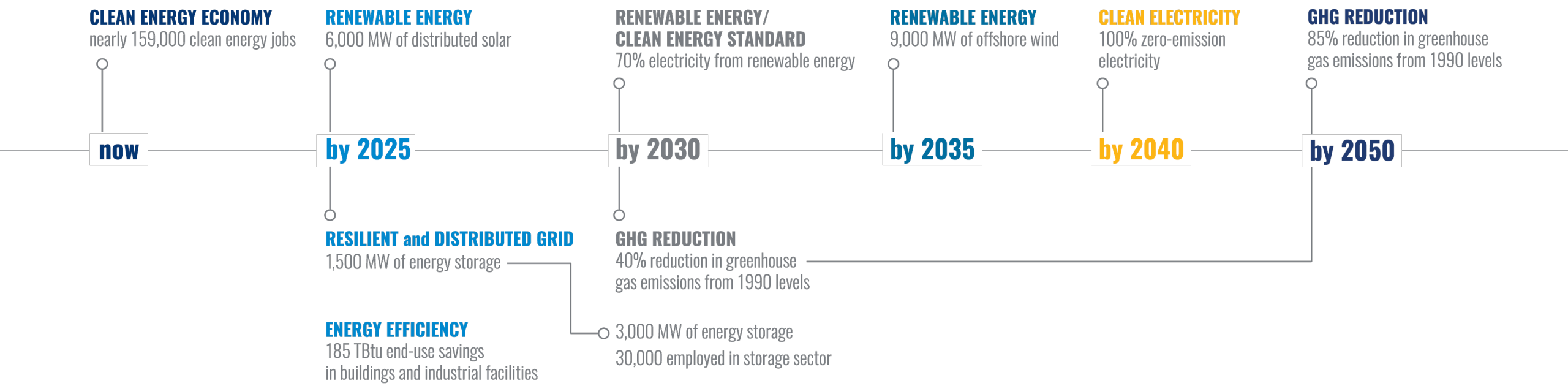
New York State Clean Energy Goals
Climate Leadership and Community Protection Act



35% - 40% of the benefits of New York's Climate Leadership and Community Protection Act investments must flow to disadvantaged communities

Vision:

A Roadmap to Achieve a Carbon Neutral Building Stock Statewide by Mid-Century

“Carbon Neutral” Buildings

> Reduce energy demand: highly energy efficient

> Decarbonize on-site energy services

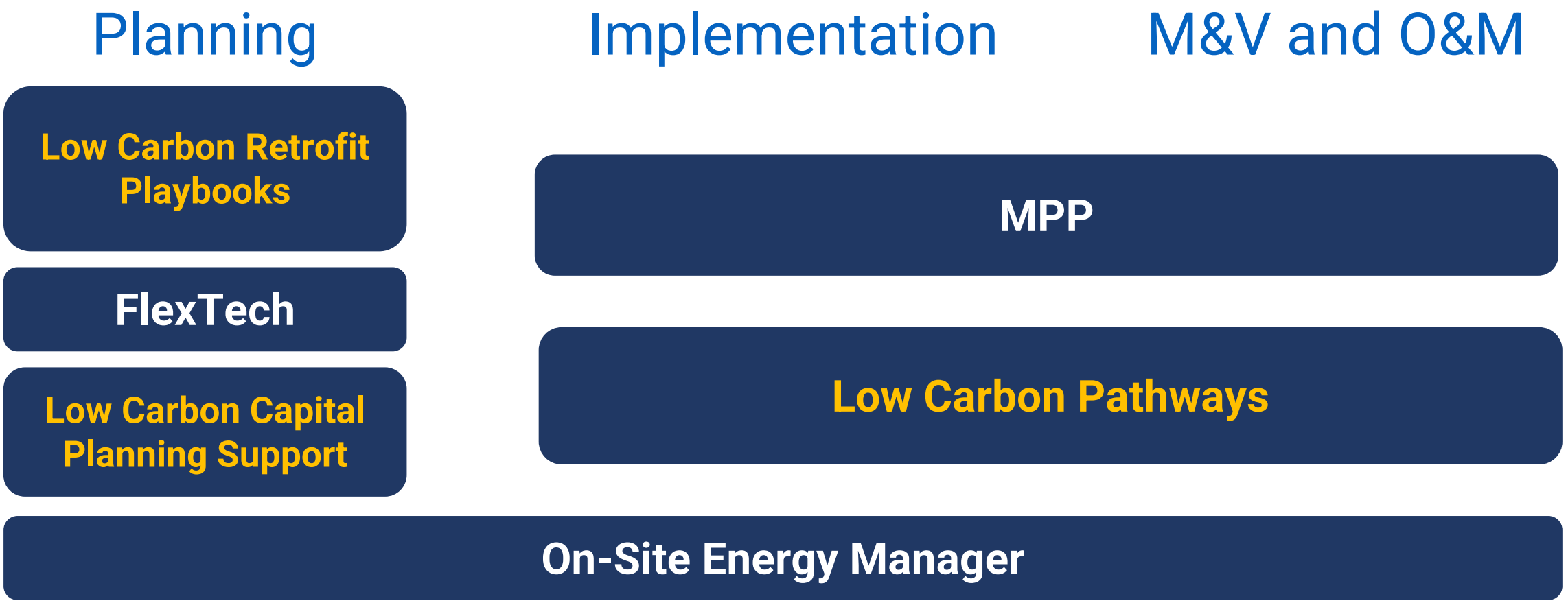
> Balance from clean energy: on-site, community, grid

> Real time response to grid conditions

Required to achieve the State’s GHG emissions reduction goals

Current market in NYS: <0.5% Net Zero buildings

Programs and Resources to Meet You Where You Are



Eligibility

- Existing Multifamily buildings - 5 or more residential units
- Mixed Use Buildings acceptable - at least 50% residential space
- Pay into electric System Benefits Charge (SBC) or NYSERDA Clean Energy Fund
- Affordable Housing required for MPP

Technical Assistance and Planning Support

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Multifamily Low Carbon Retrofit Playbooks

Overview

> **Inventory of the low carbon solutions that can deliver LL97 2030 compliance** for five prevalent multifamily building typologies; Based on actual buildings

> **Identify pathways for implementation over time that:**

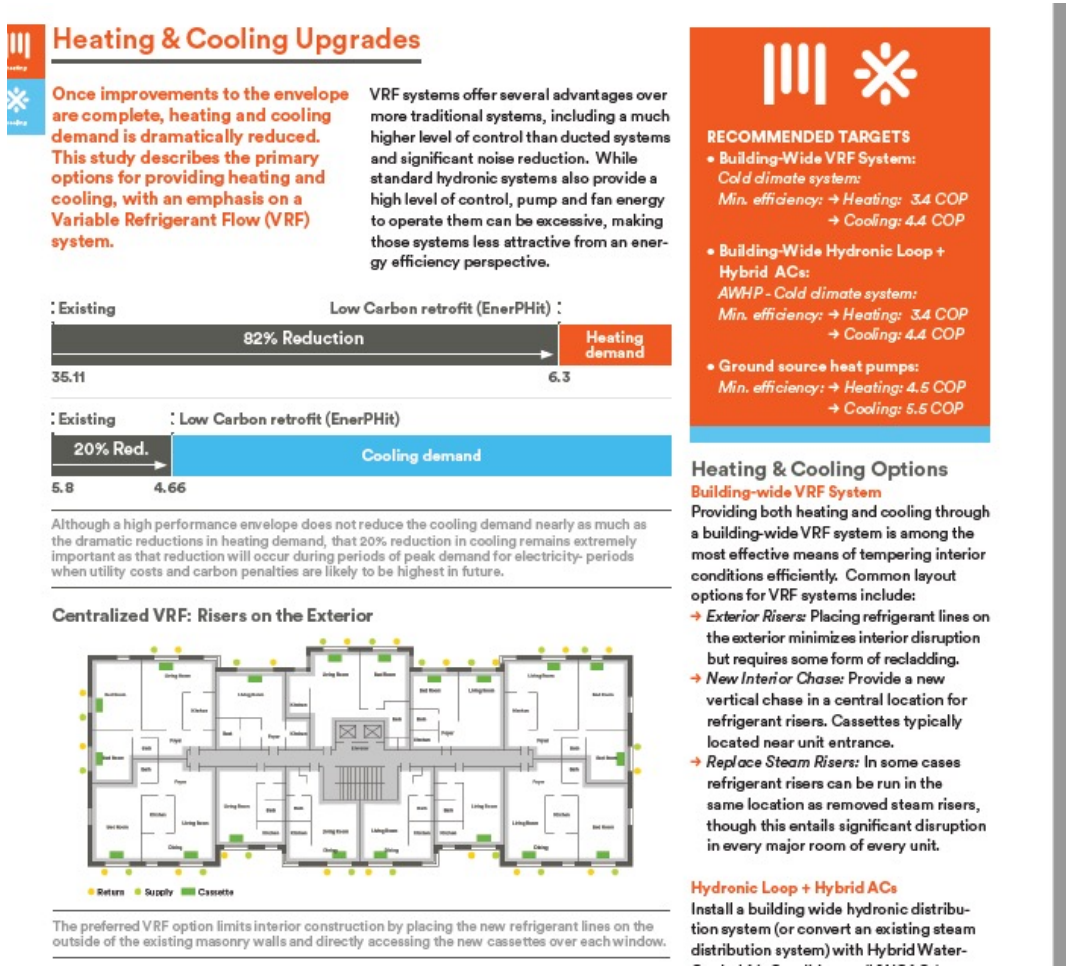
- (1) Breaks down a whole-building retrofit into discrete measure packages; and
- (2) Leverages common capital planning milestones (e.g. tenant turnover, equipment end-of-life, new building acquisition, NYC LL11 façade upgrades, etc.)

> **Highlight benefits of low carbon solutions beyond energy savings** including reduced O&M costs for owners and improved health and comfort for residents

Multifamily Low Carbon Retrofit Playbooks
Typologies Covered

> Pre-War 4-7 stories
> Post-War 4-7 stories
> Post-War 8+ stories
> Post-1980 8+ stories
> Garden-style 1-3 stories

Covers 80%+ of NYS multifamily stock *(focus on NYC)*



Heating & Cooling Upgrades

Once improvements to the envelope are complete, heating and cooling demand is dramatically reduced. This study describes the primary options for providing heating and cooling, with an emphasis on a Variable Refrigerant Flow (VRF) system.

VRF systems offer several advantages over more traditional systems, including a much higher level of control than ducted systems and significant noise reduction. While standard hydronic systems also provide a high level of control, pump and fan energy to operate them can be excessive, making those systems less attractive from an energy efficiency perspective.

Existing — Low Carbon retrofit (EnerPHit)
82% Reduction — Heating demand
35.11 — 6.3

Existing — Low Carbon retrofit (EnerPHit)
20% Red. — Cooling demand
5.8 — 4.66

Although a high performance envelope does not reduce the cooling demand nearly as much as the dramatic reductions in heating demand, that 20% reduction in cooling remains extremely important as that reduction will occur during periods of peak demand for electricity- periods when utility costs and carbon penalties are likely to be highest in future.

Centralized VRF: Risers on the Exterior

Return Supply Cassette

The preferred VRF option limits interior construction by placing the new refrigerant lines on the outside of the existing masonry walls and directly accessing the new cassettes over each window.

RECOMMENDED TARGETS

- **Building-Wide VRF System:**
  Cold climate system:
  Min. efficiency: → *Heating: 3.4 COP*
  → *Cooling: 4.4 COP*
- **Building-Wide Hydronic Loop + Hybrid ACs:**
  AWHP - Cold climate system:
  Min. efficiency: → *Heating: 3.4 COP*
  → *Cooling: 4.4 COP*
- **Ground source heat pumps:**
  Min. efficiency: → *Heating: 4.5 COP*
  → *Cooling: 5.5 COP*

Heating & Cooling Options

Building-wide VRF System

Providing both heating and cooling through a building-wide VRF system is among the most effective means of tempering interior conditions efficiently. Common layout options for VRF systems include:

→ *Exterior Risers:* Placing refrigerant lines on the exterior minimizes interior disruption but requires some form of recladding.
→ *New Interior Chase:* Provide a new vertical chase in a central location for refrigerant risers. Cassettes typically located near unit entrance.
→ *Replace Steam Risers:* In some cases refrigerant risers can be run in the same location as removed steam risers, though this entails significant disruption in every major room of every unit.

Hydronic Loop + Hybrid ACs

Install a building wide hydronic distribution system (or convert an existing steam distribution system) with Hybrid Water-

Multifamily Low Carbon Retrofit Playbooks
Where can I find these?

Playbooks and more detailed walkthrough available on Building Energy Exchange (BEEx) website

Link to playbook PDFs:
https://be-exchange.org/lowcarbon multifamily-main/

Link to walkthrough video:
https://be-exchange.org/multifamily-retrofits-playbooks-launch/

Post-war Mid & High Rise Efficiency Package

	Retrofit Strategies	Benefits				Costs
ENVELOPE	ROOF	Energy Savings *1 to 5*	Comfort *1 to 5*	Health/IAQ *1 to 5*	Maintenance *low/med/high*	[$ range]
	→ Insulate Roof	★★	★	★	LOW	$
	EXTERIOR WALL					$$$$$
	→ Add Interior insulation	★★	★★★	★	LOW	$$$
	→ Add Exterior Insulation	★★★★★	★★★★	★★★	LOW	$$$$
	WINDOWS					
	→ Replace Existing Windows with High Performance Windows	★★★★	★★★★★	★★★	LOW	$$$$$
	→ Install high performance double pane storm windows	★★	★★★	★★	MEDIUM	$$
	Air Tightness					
	→ Reduce air leakage				LOW	

RECOMMENDED TARGETS

- **Roof Insulation:** *Minimum of R-50, or local code minimum.*
- Add Interior insulation : *Minimum of R-20*
- **Add Exterior Insulation :** *Minimum of R-10*
- **Replace Existing Windows with High Performance Windows:** *Recommended U value = 0.167 Btu/hr.ft2.F*
- **Install high performance double pane storm windows:**
  - → *Double-pane storm U value = 0.5 Btu/hr.ft2.F*
  - → *Storm window + Exgisting single pane glazing U value = 0.3 Btu/hr.ft2.F*
- **Reduce air leakage:**
  - → *Recommended airtightness = 1.0 ACH*
  - → *Whole Building U-valve: x.xx Btu/hr.ft2.F*

Flexible Technical Assistance (FlexTech)

Cost-shared technical assistance services

- 50% cost share of energy audit and other studies
- Can be combined with most program incentives
- Use a FlexTech Consultant OR Independent Service Provider

Coming Soon:
Low Carbon Capital Planning Support

Higher cost-share available for studies focused on electrification or electrification-readiness building improvement measures

> Transition at least one heating/cooling or DHW system to a high-performance electric technology

> OR significantly reduce heating/cooling load and can enable future electrification (e.g. envelope improvements, ventilation improvements, building electrical infrastructure, etc.)

All participants required to work with a FlexTech Consultant

Depth of analysis varies depending on type of study

> **Portfolio-level studies**: ASHRAE Level 1+ or above

> **Building-specific studies**: ASHRAE Level 2 or above

Low Carbon Capital Planning Support
Cost-Share Levels

Type	Energy Analysis	Cost-share	Cost-share Cap per project
Portfolio-level Study	**ASHRAE Level 1+ or above**	**Up to 75% of total study cost**	**2% of total portfolio annual energy expenditure for the buildings in study, up to $100k**
Building-specific Study	**ASHRAE Level 2 or above**	**Up to 75% of total study cost**	**10% of annual building energy expenditure of buildings in study, up to $500k**

- Customers can do a portfolio-wide planning study AND building-specific study
- Some pre-implementation assistance activities (e.g. RFP development, bid review) would be eligible to be included in building-specific study cost-shared scope

On-site Energy Manager (OsEM)

Hire On-site Energy Manager & NYSERDA will subsidize the salary

> **Provides up to 75% cost share for having an on-site energy manager**
  - Up to $200,000 for facilities with >$1M annual energy spend
  - Up to $100,000 for facilities with <$1M annual energy spend

> **Can manage multiple buildings**

> **Minimum requirements: 20 hours per week, 1 year engagement**

Implementation Support

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Multifamily Performance Program (MPP)

Technical support and incentives to improve your building through energy efficiency upgrades

> Must achieve min. 15% energy savings relative to the building's current energy use to qualify for incentives

> Incentives range from $700-1500/dwelling unit depending on % energy savings achieved (15% to 35%+ savings tiers)

> Must work with Multifamily Building Solutions Network Provider

Low Carbon Pathways: How It Works

Open to market-rate AND affordable buildings

Participant Eligibility: Targeting for replication

> Portfolio owners/managers with 10+ buildings **OR**

> Owners who are active members in real estate associations (e.g. REBNY, CNYC, UHAB, RSA, etc.)

Four measure packages available for MF buildings

> Participants can choose ANY package to implement

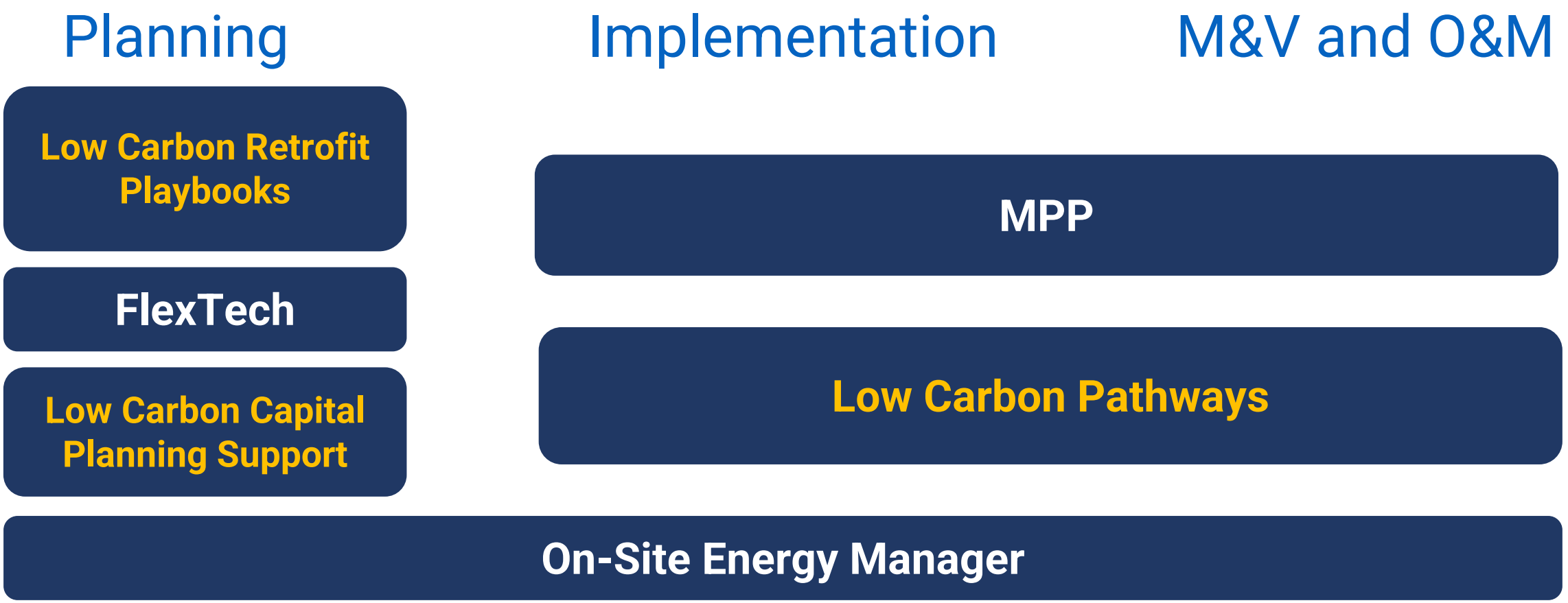
> Incentives can be stacked if more than one package is implemented

> Packages include recommended measures with bonus incentives

Low Carbon Pathways: Measure Packages and Incentives Overview - *Incentive levels are not final*

	Envelope Package		Ventilation Package		Heating and Cooling Package		Domestic Hot Water (DHW) Package
Required	❑ **Meet specified area weighted U-value target based on climate zone and building typology.** Owner to select which envelope upgrades to make to reach this goal. ❑ **Provide code-compliant mechanical ventilation** for each bathroom and kitchen. (Can also choose to comply with the ventilation track for additional funding.)		❑ **Provide balanced ventilation** to each apartment, including heat/energy recovery.		**Select at least one of the heating/cooling options below to install:** ❑ Variable Refrigerant Flow (VRF) ❑ Low-temperature hydronic with Air-to-Water Heat Pump (AWHP) ❑ Packaged Terminal Heat Pump (PTHP) ❑ Mini/multi-split Air-Source Heat Pump (ASHP) ❑ Water-to-Water Heat and Ground Source Heat Pump		❑ **Buildings with existing unitized DHW systems:** provide 100% DHW load via heat pumps. **OR** ❑ **Buildings with existing central DHW systems**: use displacement approach to provide at least 30% of total DHW usage via heat pumps.
Required Measure Incentives	**$3,750/dwelling unit (DU)** **+ Bonus $1,250/DU** if this is first package implemented		**$750/DU**		**$750/DU** In addition to NYS Clean Heat incentives		**$700-$750/DU** In addition to NYS Clean Heat incentives
Recommended Measure Bonus Incentives	Air sealing	**$50/DU**	Air sealing	**$50/DU**	Air sealing	**$50/DU**	
	Steam heating system upgrades	**$250/DU**			Convert existing gas stoves to induction stoves	**$100/DU**	

Quick Recap: When to use our programs



How to get started

Please email us at MultifamilyInfo@nyserda.ny.gov to get more information about any of these programs or to get updates when new programs launch.

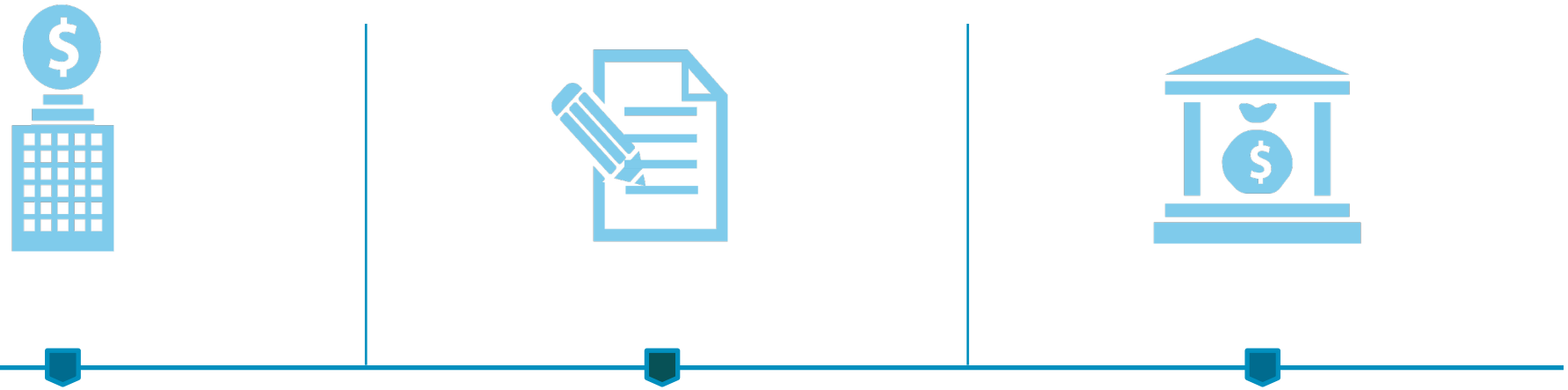
Thank you!

GREENWORKS LENDING
from nuveen

C-PACE as a Powerful CRE Solution

Crystal Smith: Director, NY Originations

C-PACE as a Powerful CRE Solution



Financing secured by senior real estate lien, underwritten by building value

Repayment via property tax bill, transfers on sale and survives foreclosure

Allows for capital markets to provide long-term fixed rate financing to asset class at attractive advance rates

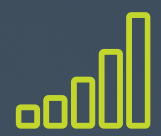
Greenworks and C-PACE unlock the massive CRE mid-market for clean energy improvement and construction

GREENWORKS LENDING
from nuveen

Greenworks Lending

- Leading provider of C-PACE financing nationally with **strong policy roots and capital markets expertise**
- Founders designed and ran the first successful C-PACE program in the country for the Connecticut Green Bank before forming Greenworks in 2015
- Balance sheet lender with full underwriting and legal control
- Completed the industry's first rated (AA) securitization
- In-house policy team advises public sector administrators as new programs come online
- **Acquired by Nuveen in April 2021**

GREENWORKS LENDING
from nuveen



National Coverage:

Greenworks and its founders have closed 400+ C-PACE loans across the country

Policy Roots:

Founded by the architects of the first successful C-PACE program (CT)

Access to Capital Markets:

Closed another $150M of committed capital in April 2020

Projects We Finance

New Construction and Gut Rehabs

→ Reduces cost of capital

→Fixed rate construction through perm

→ Tax assessment structure may allow pass-through on NNN leases, room surcharges

→Non-recourse after construction completion

→ Works well with new market and historic tax credits

Solar and Renewables

→100% financing

→Allows building owner to take advantage of all tax credits and incentives

→Financing transferable upon building sale

→Cash flow positive from day one

→Financing can cover roof and related installation costs

Energy Efficiency & Deferred Capital Expenditure

→Preserves capital expenditure using C-PACE financing to replace old equipment

→New equipment boosts NOI and increases property value

→Tax assessment structure may allow pass-through on NNN leases and room surcharge

→Measures include automated building controls, HVAC, boilers, chillers, furnaces, high efficiency lighting, water heating systems, variable speed drivers, water conservation, resiliency and building envelope.

Recapitalization

→Retroactively finance recently completed projects

→Fund construction cost overruns

→Replenish operating reserves

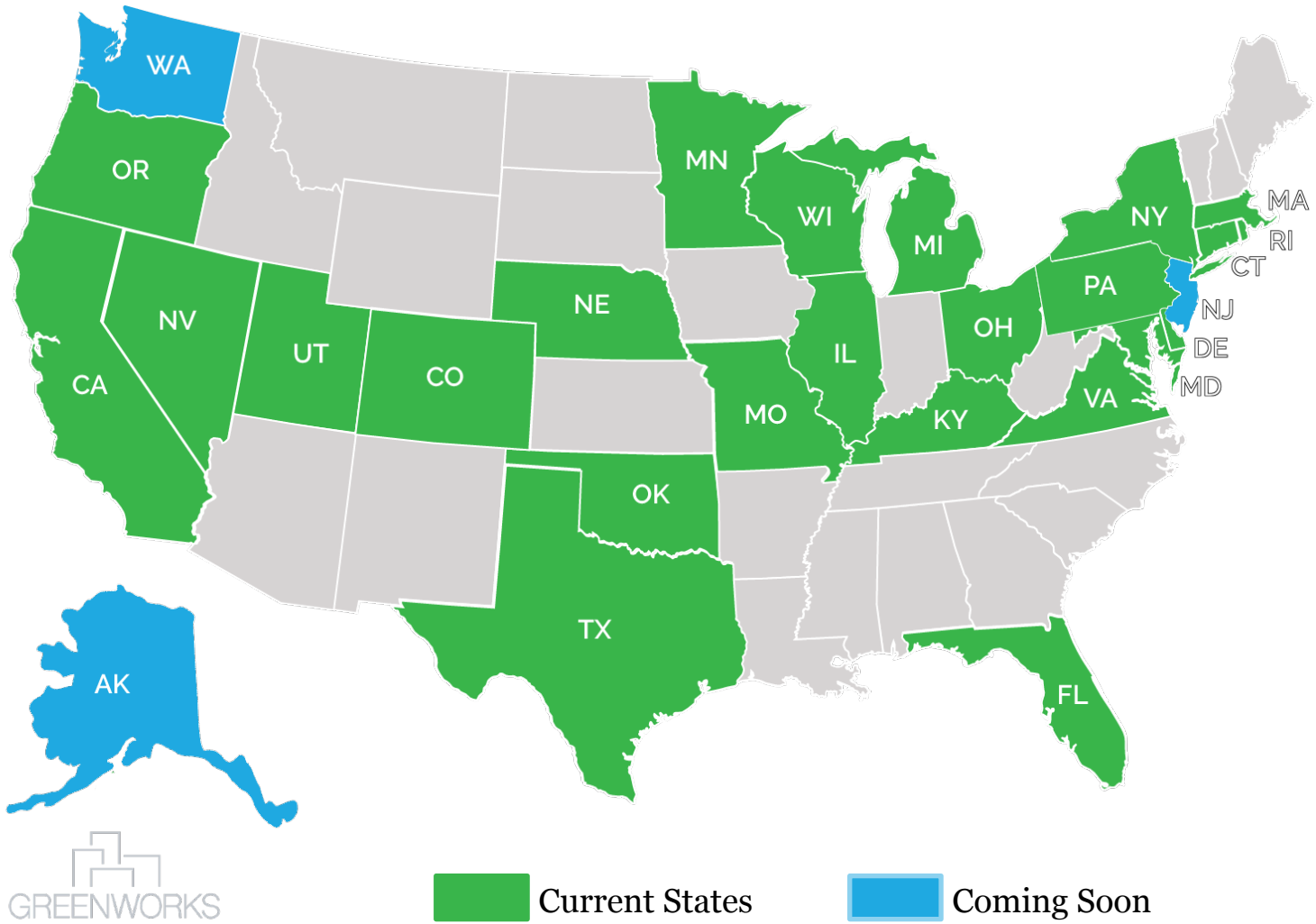
→Cover existing lender debt service

→Pay down existing leverage

→Delayed first repayment 24 months post-closing

GREENWORKS LENDING
from nuveen

Where We Lend



GREENWORKS LENDING
from nuveen

Public Sector Benefits

Encourages economic development while supporting climate mitigation and resiliency

Creates local jobs without the use of government funds

No financial risk to taxpayers

Popularity of ESG accelerates political momentum; win-win proposition for public and private sectors

Revenue Generating Solar

PROPERTY SUMMARY

An owner-occupied light industrial building located about an hour outside of NYC turned their roof into an income generator.

OPPORTUNITY

The owners utilized $1.724M in C-PACE financing for the installation of a 739 kW community solar project. Community solar will allow them to turn their previously empty roof into a **revenue generating asset**, resulting in an average **NOI of $72,000 per year**. The solar array will also provide **significant tax implications** as well as **rental income of $2.14 PSF with 3% escalation for 25 years**. The owners are expected to realize **$5.4M of net income** over the life of the solar array, all with **$0 out of pocket**.

GREENWORKS LENDING
from nuveen

Rooftop Solar: Long Island, NY

Building Type:	Measures:	Term:	Financed Amount:	Rental Income PSF:	Year 1 Tax Savings:
Light Industrial	Solar (739 kW)	25 years	$1,724,000	$2.14, escalating 3%/year for 25-years	$700,000

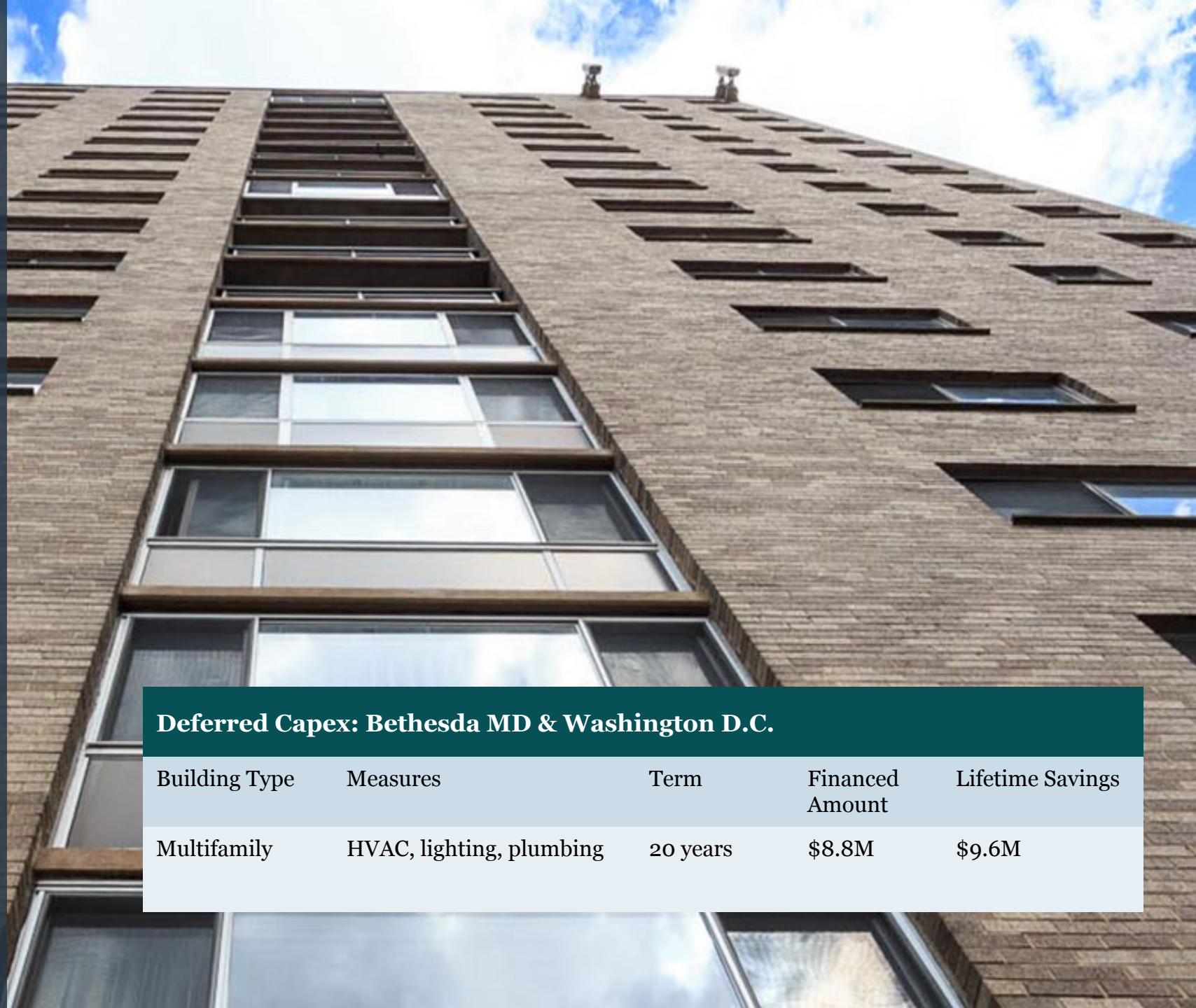
Multi-family Portfolio

PROPERTY SUMMARY

Twelve multifamily buildings averaging 60 years in age in Washington, DC and Maryland suburbs.

OPPORTUNITY

Owner faced with per-asset deferred HVAC, lighting, and plumbing CapEx of $350k-$1.5M ($8.8M total) across 18 assets. 100% financing and long amortization let energy savings pay for expensive capital expenditures projects with no disruption to equity holder distributions.



Deferred Capex: Bethesda MD & Washington D.C.

Building Type	Measures	Term	Financed Amount	Lifetime Savings
Multifamily	HVAC, lighting, plumbing	20 years	$8.8M	$9.6M

GREENWORKS LENDING
from nuveen

Mixed Use Historic Rehab

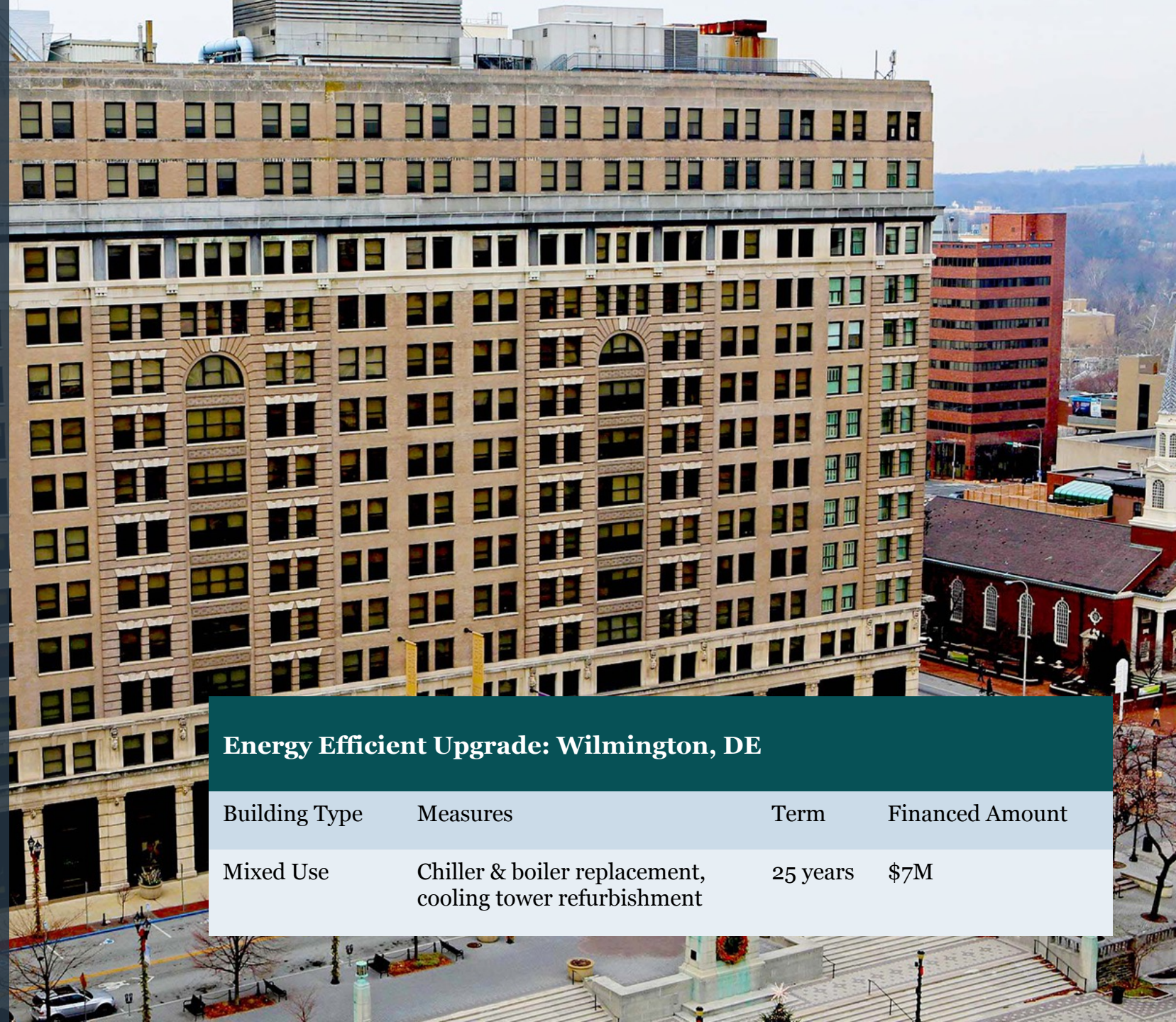
PROPERTY SUMMARY

The DuPont Building is a hallmark of downtown Wilmington, DE. Originally constructed in 1908, it was the longtime home to the DuPont Company headquarters. At approximately 1,000,000 square feet and taking up an entire city block, the building has been undergoing significant renovations which will modernize and overhaul the building to convert it into a mixed-use facility consisting of a hotel, luxury apartments, a theatre, retail space, and office space.

OPPORTUNITY

C-PACE financing has come into the project which is already underway and filled a gap in a complex capital stack, working with a CMBS mortgage, condo parcels, and historic tax credits. C-PACE will be used to cover multiple energy efficiency measures including chiller plant replacement, boiler replacement, and cooling tower refurbishment. These upgrades will save the property owner an estimated $14,217,721 over the lifespan of the equipment.

GREENWORKS LENDING
from nuveen



Energy Efficient Upgrade: Wilmington, DE

Building Type	Measures	Term	Financed Amount
Mixed Use	Chiller & boiler replacement, cooling tower refurbishment	25 years	$7M

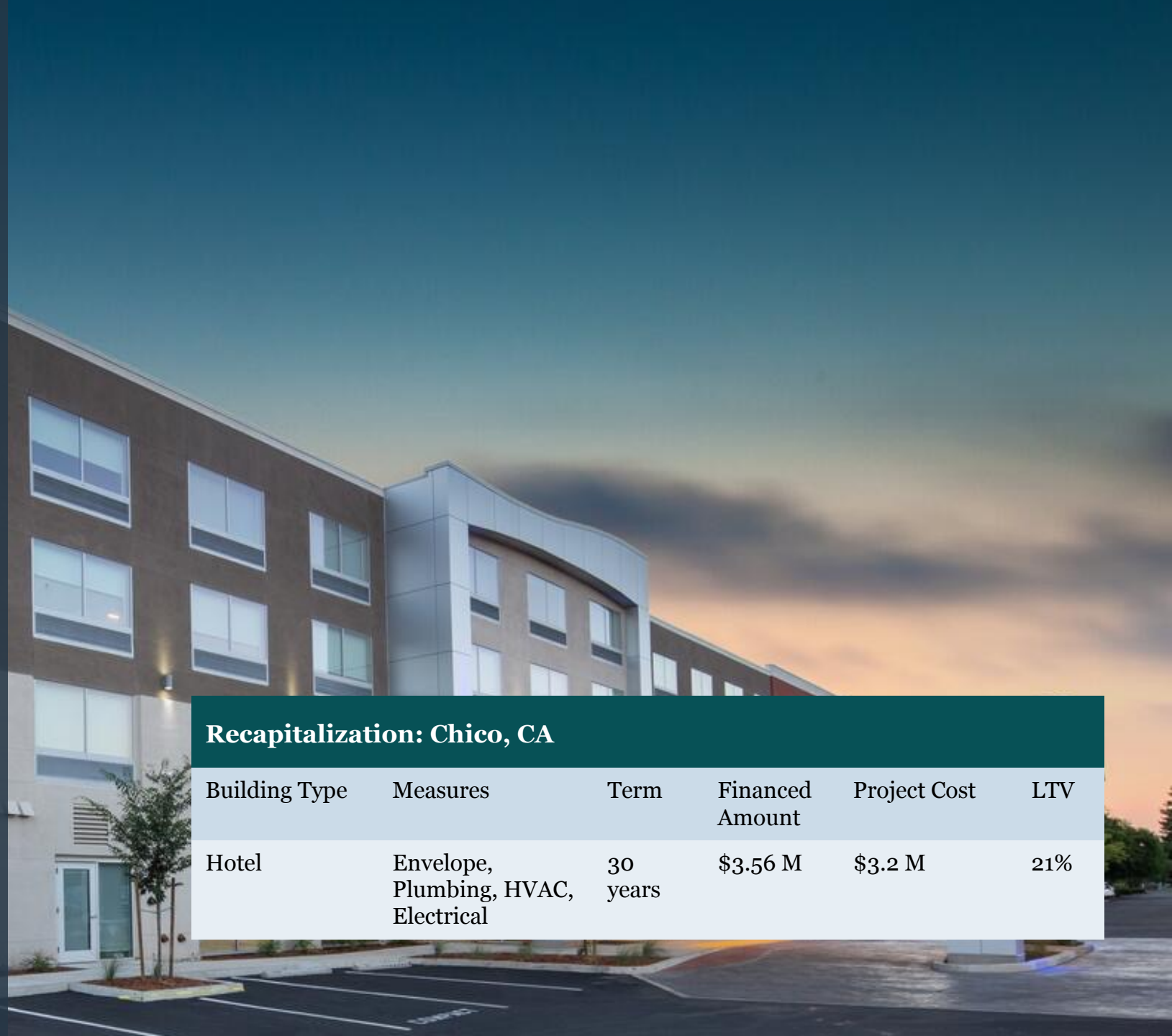
Hotel Recapitalization

PROPERTY SUMMARY

A 93 room Holiday Inn Express & Suites serving visitors to Chico and the surrounding area recently underwent a large-scale capital expenditure construction project.

OPPORTUNITY

The hotel was able to recapitalize recently completed energy and water related capital expenditure projects through C-PACE financing. The retroactively financed measures included site concrete, building envelope, elevators, plumbing, HVAC, and electrical for a total of $3,560,764 in C-PACE eligible financing which allowed the hotel to free up liquidity and replenish operating reserves.



Recapitalization: Chico, CA

Building Type	Measures	Term	Financed Amount	Project Cost	LTV
Hotel	Envelope, Plumbing, HVAC, Electrical	30 years	$3.56 M	$3.2 M	21%

GREENWORKS LENDING
from nuveen

Green Condo Construction

PROPERTY SUMMARY

The project is a 5-story, mixed-use, multi-family condominium and retail development project in Denver, CO. The 123-unit condo project will include 11,000 sq. feet of ground-floor retail space.

OPPORTUNITY

The Santa Fe Drive development is the largest C-PACE project to close in the state of Colorado and will leverage $9.9M of C-PACE financing in its capital stack. The ground-up construction project will utilize C-PACE to finance solar, roofing, windows, insulation, lighting, plumbing, boiler, chiller and elevators.

GREENWORKS LENDING
from nuveen

New Construction: Denver, CO

Building Type	Measures	Term	Financed Amount	Total Project Cost	LTV
Residential-Condos	Ground up construction	25 years	$10 M	$9.1 M	18%

Question & Answer

Please submit questions through the Zoom Q&A feature

Moderator

Sadie McKeown, Executive Vice President, Lending & Initiatives, Community Preservation Corporation (CPC)

Speakers

Fred Lee, Co-CEO, New York City Energy Efficiency Corporation (NYCEEC)

Crystal Smith, Director, New York Market, Greenworks Lending

Simona Li, Senior Project Manager, NYSERDA

Andrew Chintz, Project Finance Specialist, NYC Accelerator

Thank you!

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