



NY - G E O 2 0 2 4

October 22-23 | Brooklyn, NY



NY-GEO ANNUAL DINNER

Welcome: Zachary Fink / *ZBF Geothermal / NY -GEO*

Dinner Sponsor: Kyle Sweeney / *Allied Geothermal*

GeoStar Top Job Awards: John Thomas / *Water Furnace International*

A National Perspective: Jack DiEnna / *Board Chair, IGHSPA*

NYSERDA Community Thermal Update: Ryan Dougherty / *President, GeoExchange Organization*

Donovan Gordon / *NYSERDA*

NY-GEO 10th Anniversary: Bill Nowak Introduction + NY-GEO Board Members

Dinner Keynote: Sadie McKeown / *President, CPC*



NY - GEO 2024

APRIL 8-9 | ALBANY NY



DINNER SPONSOR



GEOTHERMAL WELL DRILLING

NY-GEO TOP JOBS



JOHN THOMAS

PRESIDENT AND CEO



RESIDENTIAL TOP JOB WINNER

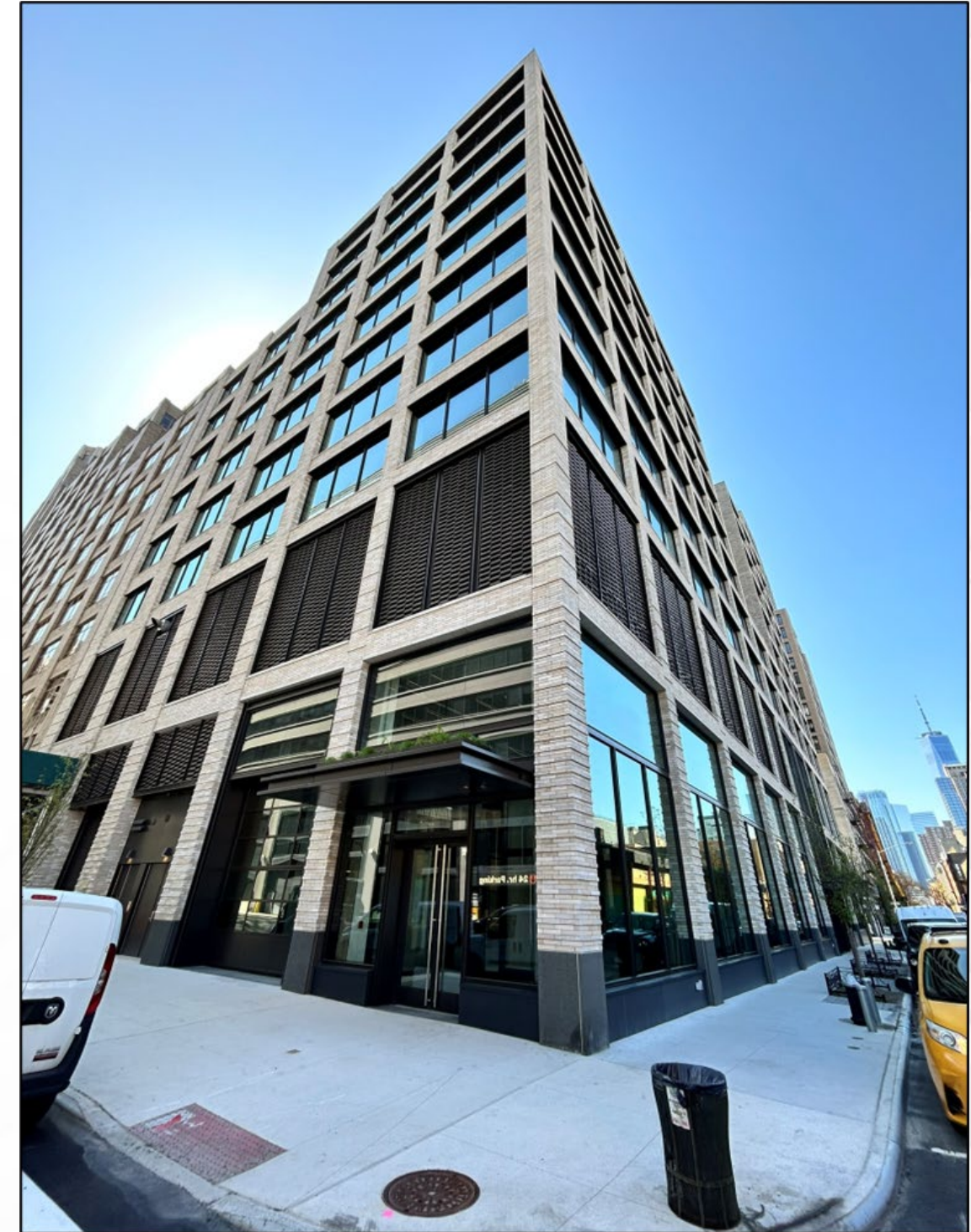
The Smith Residence Matt Dennis / *Halco Energy*



COMMERCIAL TOP JOB WINNER

555 Greenwich
Tony Amis / Endurant Energy

endurant 



DRILLING TOP JOB WINNER

Framingham Networked Geothermal Pilot

Johnny Fry / *Celsius Energy*
Eric Bosworth / *Eversource Energy*





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October 22 -23 | BROOKLYN, NY



A NATIONAL PERSPECTIVE

JACK DIENNA

BOARD CHAIR, IGSHPA

RYAN DOUGHERTY

PRESIDENT, GEOEXCHANGE ORGANIZATION



NYSERDA

LARGE-SCALE THERMAL

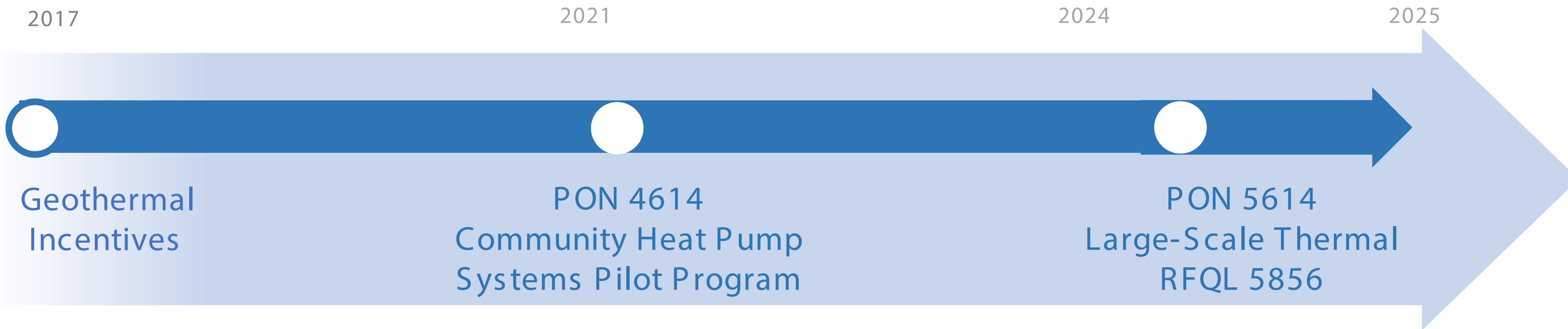
Donovan Gordon

Director, Community Thermal Networks

October 22, 2024

- NYS Geothermal Industry Support
 - Clean Energy Fund Established in 2015
 - \$5 Billion Fund over 10 years
 - NYSERDA Geothermal Incentives (2017 – 2020)
 - Launched and Administered “Ground Source Heat Pump Incentive Program” (2017-2020)
 - NYS Clean Heat Incentive Program (2020 – present)
 - Utility administered Heat Pump Incentive Program (2020-present)
 - PON 4614 Community Heat Pump Systems (February 2021 – September 2023)
 - Supported feasibility studies, Detail Engineering Design, & Construction of TENs
 - **PON 5614 Large-Scale Thermal Program (June 2024 - 2025)**
 - Funding for large-scale thermal design projects
 - Single or multiple buildings, (networked or individual installations)
 - **RFQL 5856 Request for Qualifications (June 2024 - 2025)**
 - Technical, Regulatory, and Market expertise for Clean & Resilient Buildings and Large-Scale Thermal

Funding Support for Geothermal



Geothermal Incentives

PON 4614
Community Heat Pump
Systems Pilot Program

PON 5614
Large-Scale Thermal
RFQL 5856

Geothermal Incentives

- NYSERDA administered 2017 - 2020
- Utility administered 2020 - present

Funding support for a wide range of:

- (1) Feasibility studies
- (2) Design projects
- (3) Construction projects

- Funding support for design projects:
 - single or multiple buildings, in particular existing buildings and single-owner campuses
- RFQL 5856:
 - Market Development Support

PON 4614: Community Heat Pump Systems

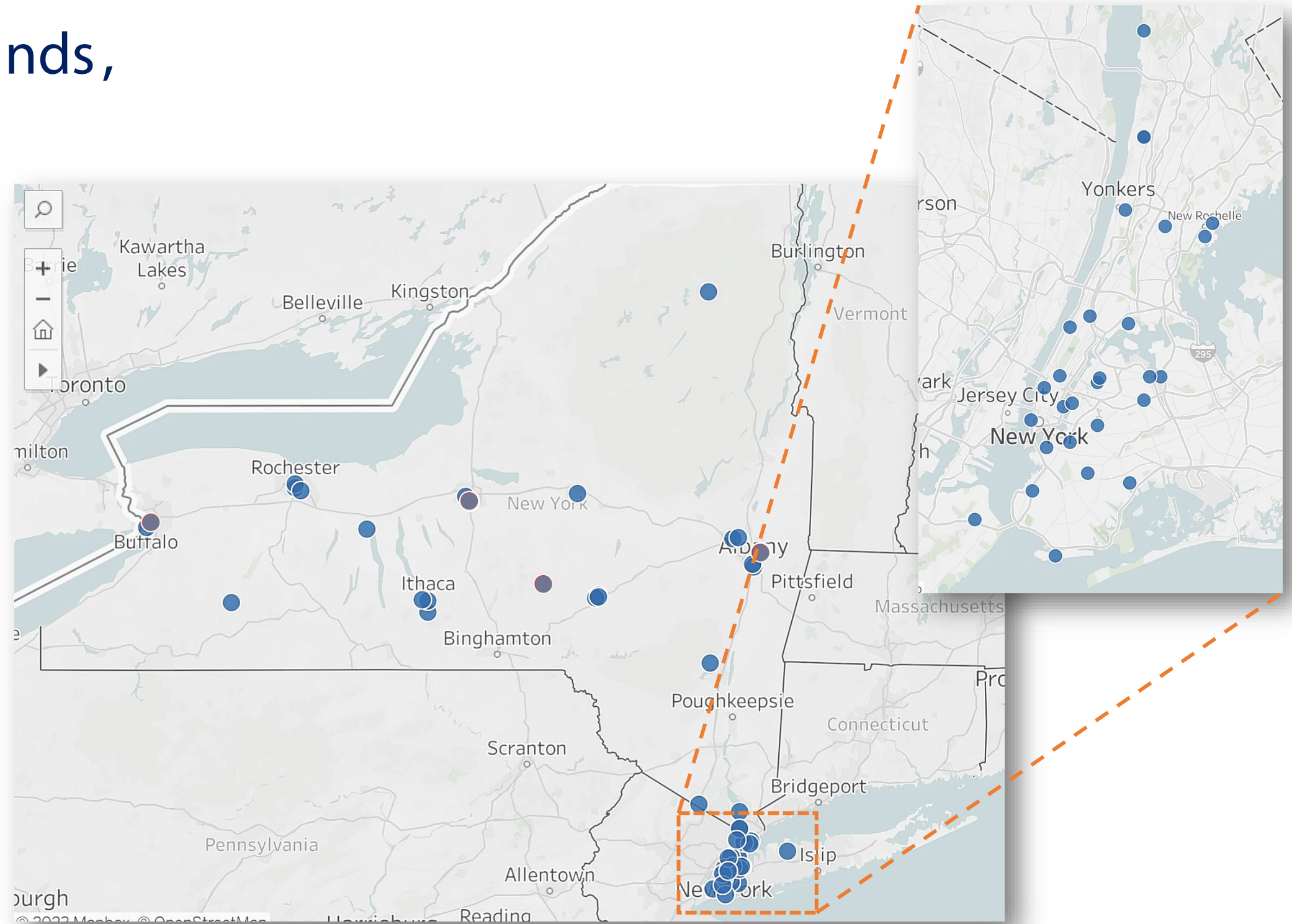
PON 4614 included 10 funding rounds, from Q1 2021 to Q4 2023:

Funded 50+ project sites:

- 48 Category A: Feasibility
- 12 Category B: Design
- 6 Category C: Construction

>60% of funded projects are single-owner sites:

- College/university campuses
- Medical campuses
- Multi-family residential complexes
- Commercial real estate



More information available at:

<https://www.nyscrda.ny.gov/All-Programs/Large-Scale-Thermal/Winners>

The Two Largest Geothermal Residential Projects in NY

1515 Surf Ave, Coney Island



1 Java St, Greenpoint





PON 5614: Large-Scale Thermal Program

Funding for replicable large-scale thermal system design projects that significantly reduce GHG from heating, cooling, and DHW primarily in existing buildings in NYS

\$10 million is available in two funding rounds:

Round 1: due Sept. 26, 2024
Round 2: due Jan. 30, 2025

Single Building 	Multiple Buildings 
150,000 sq. ft. Minimum conditioned space	250,000 sq. ft. Minimum conditioned space
Maximum NYSERDA funding per award: up to \$500,000 (existing buildings) or	

Request for Qualifications (RFQL) 5856

Clean & Resilient Buildings and Large-Scale Thermal



- NYSERDA seeks pools of qualified firms that have technical, regulatory, and market expertise in the following categories:
 - A. Supply Chain Support
 - B. Project Design, Development, Permitting, Operations and Commissioning
 - C. Program Design and Technical Support
 - D. Data Collection, Analysis, and Measurement & Verification Services

- NYSERDA Sponsorship of Conferences
 - Top sponsor of the NY-Geo Conference for the last 8 years
- Consortium Agreement
 - Multi-year Agreement to develop a business plan to grow membership, revenue, and services to advance Geothermal in NY.
- Conference Planning
 - Member of the Conference Planning Committee for the last 7 years
 - ❖ Together we've advanced the industry from \$50k residential to \$20M and above large-scale thermal projects
 - \$100M - \$Billion-dollar projects are in the future



Happy 10th Anniversary!

**Continued Growth and Success
for the next Decade and Beyond!!!**

Thank You...





NY - G E O 2 0 2 4
October 22 -23 | BROOKLYN, NY



NY-GEO 10th ANNIVERSARY



geopalooza

First NY-GEO Conference
March 18, 2015

[Geopalooza NY-GEO 2015](#)



NY - G E O 2 0 2 4
October 22 -23 | BROOKLYN, NY



Sadie McKeown
President

The Community Preservation Corporation



THE COMMUNITY PRESERVATION CORPORATION: Mission-driven Since 1974

The Community Preservation Corporation (CPC) is a 50-year-old housing finance nonprofit providing construction loans, permanent loans, and equity investments for multifamily housing. We provide **flexible capital solutions, fresh thinking and a collaborative approach to the complex issues facing communities.**

CPC uses our unique expertise in housing and public policy to:



Expand housing access and seek new ways to lower the cost of producing affordable housing



Invest in closing the racial wealth gap, and increase diversity and equity in the development industry



Commit to and expand investment in the green economy and lessen the impact of climate change



President Jimmy Carter & Rep. Bella Abzug Visit South Bronx, NY



THE COMMUNITY PRESERVATION CORPORATION: Our Mission at Scale

Over five decades lending and investing in communities, CPC has:

- Made **\$15 billion in mission-driven investments**
- Created or preserved **230,000 units** of affordable and workforce housing for more than **1 million people**

Recent Achievements, Awards, and Partnerships:

- \$12 billion in assets under management
- Only nonprofit-owned mortgage bank in the US: licenses with Freddie Mac, Fannie Mae and FHA
- AA- S&P Global Rating
- Servicing more than \$9.5 billion in loans including NYC and State subordinate debt
- The FDIC selected a CPC-led partnership to acquire equity interest in a \$5.8 billion portion of the portfolio formerly held by Signature Bank, with CPC servicing the 800+ permanent loans secured by nearly 35,000 units of primarily rent-regulated housing
- Climate United Coalition partner receiving \$2.42 billion in Greenhouse Gas Reduction Fund capital for multifamily decarbonization
- *CPC is a Carbon Neutral company since 2020*
- *\$1.34 billion invested in sustainable projects since 2015*

CPC'S SUSTAINABILITY INITIATIVE



CPC's *Sustainability Initiative* is integrated into the overall CPC businesses

- CPC's stand-alone dedicated Sustainability Department was formed in 2008.
- The platform's mission is to promote energy and water conservation measures as a means to improve the financial and physical quality of the buildings.
- Help our customer base understand decarbonization benefits in the era of regulation
- Collaborate with affordable housing partners in their efforts to bolster green financing programs.
- Explore new financing incentives that add value to the market.
- Aggregate performance data across different levels of energy efficiency (ex. Passive House).
- Develop underwriting standards that monetize savings/performance to generate additional NOI.
- Influence the first mortgage markets to integrate decarbonization into the loan closing process.

CPC'S DEFINITION OF SUSTAINABLE HOUSING



Reorienting capital and finding products which prioritize housing that is both sustainable AND affordable is the largest challenge for small and subsidized multifamily housing needing to comply with new regulation.

CLIMATE POLICY FOR NY STATE

Climate Leadership and Community Protection Act (CLCPA) passed in 2019

- DEC is required to establish statewide emission limits for 2030 and 2050
- Mandates 40% greenhouse (GHG) emissions reduction by 2030 and 85% GHG emissions reduction by 2050 (compared to 1990 levels)
- 100% zero-carbon electricity grid by 2040
- Puts NY on a path to carbon neutrality by mid-century and codifies clean energy targets
- First statutory Climate Action Council
- ~40% of funds to be directed toward designated Environmental Justice areas to spur investment in communities disproportionately affected by climate change

Investments in buildings needed to achieve emissions reduction goal!

CLIMATE POLICY FOR NY STATE

Energy Efficiency



- Codes and standards improve efficiencies
- High adoption rates of efficient building shell & weatherization measures
- Behavioral conservation & smart devices

Switching to Low Carbon Fuels



- Electrification of space heating (e.g., efficient cold climate heat pumps)
- Electrification of domestic hot water
- Bioenergy

Decarbonizing Electricity Supply

- Zero-emissions electricity reduces indirect emissions of electrified heat and hot water
- Flexible building loads improves grid management

CLIMATE CHALLENGES FOR NY MULTIFAMILY STOCK

- **Existing housing stock across the state is old and predominantly heated with fossil fuel**
 - In NYS, 92% of the housing stock is over 40 years old; more than one third is over 80 years old (*U.S. Census Bureau, American Housing Survey, 2017*)
 - In NYC, only about 8% of the housing stock was built after 2000, and only ~36% was built after 1960 (*NYU Furman Center, 2018*)
 - 80%+ of the building stock that will be here in 2050 is already built today
 - ~85% of homes are heated with fossil fuels today (60% utility gas, 20% fuel oil)
 - ***Less than 3% of homes are primarily heated by electric heat pumps – but this is changing!***

CLIMATE FRIENDLY HOMES FUND



Homes and
Community Renewal

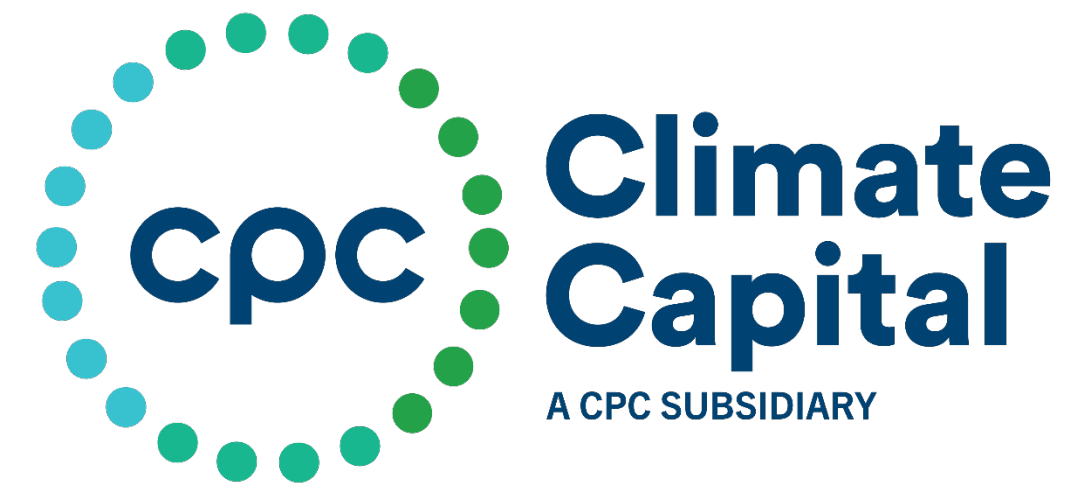
As part of the 2022 approved Housing Plan 2.0, The \$250MM Climate Friendly Homes Fund was established to electrify 10,000 units of existing housing by 2027.

CFHF will provide up to \$25,000/unit for mid-cycle, regulated and unregulated affordable multifamily housing, between 5 and 50 units, for Full and Partial Electrification, including:

1. Replace existing fossil-fuel burning or electric resistance heating systems with high-efficiency heat pumps
2. Replace fossil-fuel burning or inefficient electric domestic hot water heating systems with heat pump HWH
3. Perform limited energy conservation work on building envelopes and ventilation systems to optimize new system performance.



EPA'S GREENHOUSE GAS REDUCTION FUND AND CPC CLIMATE CAPITAL



In August of 2022, the Inflation Reduction Act was passed with \$27 **BILLION** dollars from the EPA in the Greenhouse Gas Reduction Fund (GGRF)

Capital dedicated to non-profit lenders to use to animate the transition to a clean energy economy by driving private capital markets transformation with investment in Justice 40 communities

CPC created a subsidiary to make an application for grant funds in support of our approach

CPC Climate Capital will provide **low-cost debt financing** to decrease the overall cost of mortgage capital while increasing proceeds **to cover the higher upfront costs of meeting energy efficiency and decarbonization standards.**

Capital will be **subordinate to the first mortgage** similar to other affordable housing programs, provided at **significantly below market interest rates**, **coterminous** with the first mortgage, and **pre-payable** at any time without penalty.

Climate United is a collaboration of experienced mission-driven lenders and investors dedicated to bringing clean energy solutions to Justice40 communities across the country.



A COALITION OF:



CLIMATE UNITED IS AN AWARDEE OF THE NCIF, ONE OF THREE GREENHOUSE GAS REDUCTION FUND (GGRF) PROGRAMS

National Clean Investment Fund

\$14 BILLION
3 AWARDEES

- Focused on providing financial assistance to aid in the development and deployment of Qualified Projects
- Prioritizing scaled deployment, continued operability, and market transformation

Clean Communities Investment Accelerator

\$6 BILLION
5 AWARDEES

- Focused on providing grant capital to support local project development
- Prioritizing seeding the market across geographies to enable and develop qualified projects

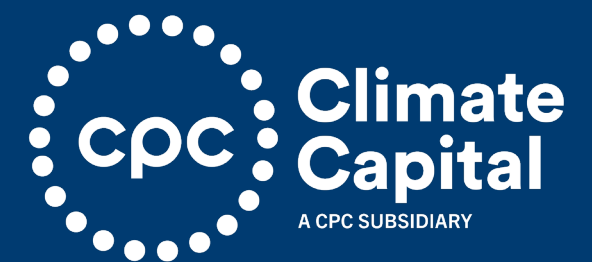
Solar for All

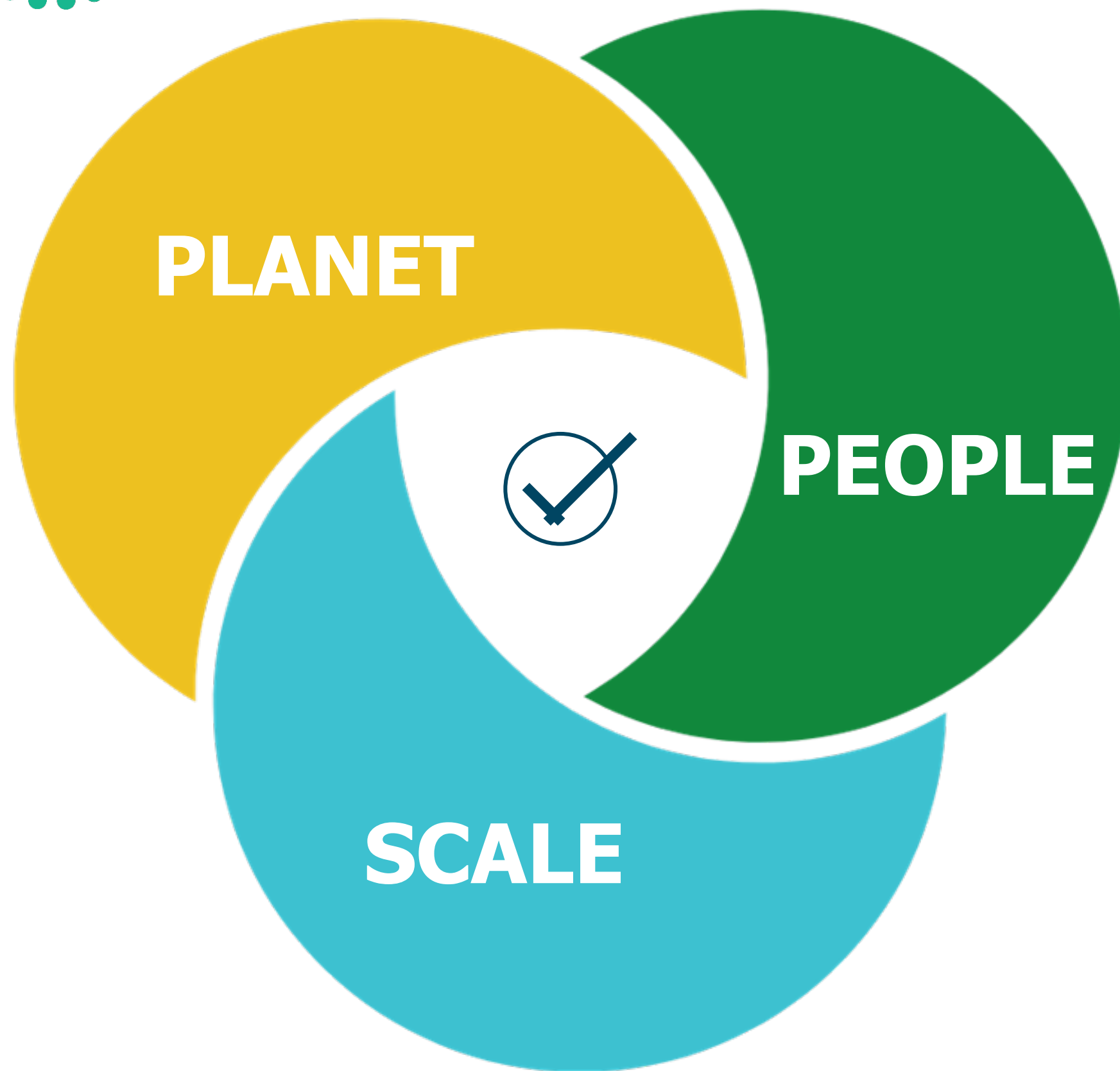
\$7 BILLION
60 AWARDEES

- Focused on funding rooftop solar in disadvantaged communities (“Solar for All” programs) with/through state and local governments



Approach: Decarbonizing Multifamily Housing





Looking to optimize investments that:

- ✓ Significantly reduce GHG emissions and other air pollutants
- ✓ Deliver direct, tangible benefits to people's lives
- ✓ Educate and transform the private markets to scale adoption

Building Decarbonization: What Does it Actually Mean?

CPC Climate Capital's environmental performance standards set projects up to meet the U.S. Department of Energy's Zero Emissions standard, or they will need to demonstrate a phased plan to get to zero emissions over time.

Energy Efficient

Reducing energy consumption is key to decarbonization especially in areas with strained power grids

All Electric

Converting fossil fuel equipment to efficient electric equipment (i.e. heat pumps) eliminates on-site emissions

Clean Power

Generated through onsite renewables or from a clean power supply

CLIMATE UNITED'S MULTIFAMILY PERFORMANCE STANDARDS

To qualify for CPC Climate Capital sub-debt, buildings must achieve one of the following performance standards. Loans will be sized by the modeled amount of Carbon reduced or avoided (\$8,000 per ton).

Retrofits of Existing Buildings

New Construction

20% Energy Reduction OR 1 Ton Carbon reduction per unit annually

No new fossil fuel systems or appliances*

Must submit a "Zero Over Time" Plan (details forthcoming)

Save a Ton

35% Energy Reduction OR modeled Energy Star Score of 75+

All-Electric*

Clean Air

35% Energy Reduction OR modeled Energy Star Score of 75+

All-Electric*

Powered solely by renewable energy

Clean Air Boost
(Zero Emissions Building)

Modeled energy use at least 10% better than the latest model energy code and meets the DOE definition for Zero Emissions Buildings

All-Electric*

Powered solely by renewable energy

Clean Air Boost
(Zero Emissions Building)

**Allowable exemptions include onsite backup power generation and Domestic Hot Water for multifamily buildings 7 stories and above.*

MULTIFAMILY RESIDENTIAL FINANCIAL PRODUCTS

Predevelopment Loan

- 5% interest predevelopment loans to **support pre-construction activities** that result in projects meeting Climate United's Multifamily Performance Standards.
- Borrower must have acceptable site access agreement and/or site control.
- Eligible for projects located in LIDAC.
- Access prioritized to **emerging developers** from Priority Communities

Subordinate Construction or Rehab Loan

- Subordinate debt, originated by CPC Climate Capital, behind existing first mortgage providers **to fund construction or rehab of projects that meet one of the performance standards.**
- Coterminous with first mortgage loan and provided at up to 3% interest subject to market conditions.
- **Will be subject to Davis-Bacon and Related Acts.**

Subordinate Perm Loan for Completed Projects

- Subordinate debt originated by CPC Climate Capital behind existing first mortgage providers to eliminate funding shortage of a **project that has been completed to one of the performance standards.**
- Coterminous with first mortgage loan and provided at up to 3% interest subject to market conditions.



Climate Capital

A Subsidiary of The Community Preservation Corporation

LOAN SIZING: \$8,000/TON OF CARBON REDUCED/AVOIDED

- CPC Climate Capital will fund \$8,000 per annual ton of projected carbon reduced
- Ground Up New Construction will be based on modeled design vs current local codes.
- Retrofits will be based on modeled design vs historical baseline. The projected carbon reduced will be based on an Energy and Decarbonization Assessment provided by an approved, 3rd party Technical Assistance Provider.

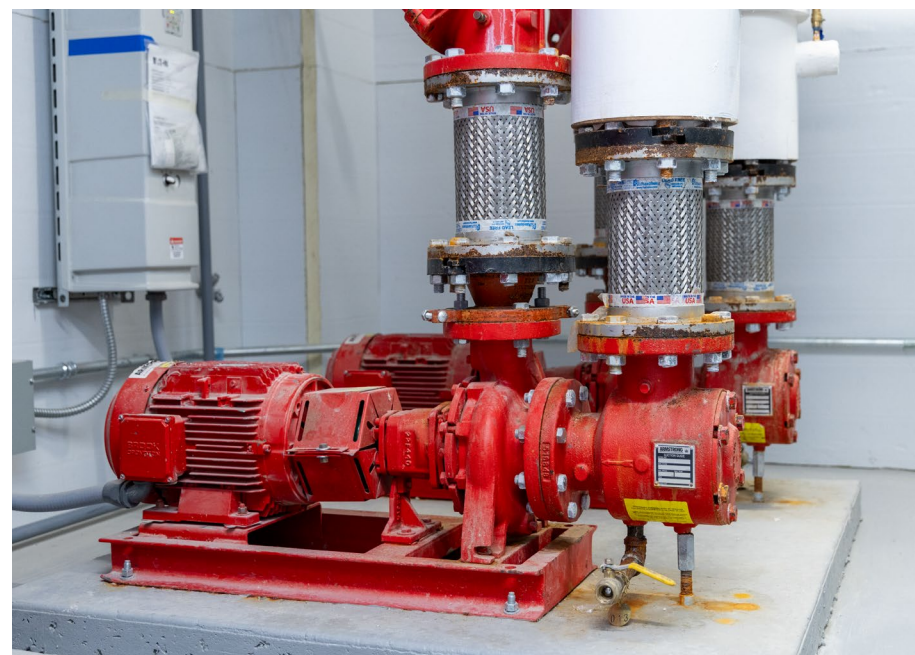


DEAL PREVIEW: HUDSON VALLEY, NY

CPC Climate Capital intends to provide a permanent subordinate loan meeting the Clean Air Performance Standard.

PROJECT SUMMARY

- **Building Type:** Adaptive reuse of the 4-story YMCA property with a 2-story addition
- **Number of Units:** 109 units
- **Year Built:** 1912
- **Affordability:** (from 30% to 80% of AMI), 80% of which are reserved for ages 55+
- **Anticipated Performance Standard:** Clean Air
- **Decarbonization Scope:** Geothermal (all-Electric) Heat, 225KW +/- solar array producing 40% of building electricity, energy recovery ventilators, EV charging and electric bike charging
- **Developer:** Experienced Affordable Developer



GREEN SUBORDINATE PERMANENT LOAN – HUDSON VALLEY, NY



PROJECT SUMMARY

Building Type: Adaptive reuse of the 4-story YMCA property with a 2-story addition

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Year Built: 1912

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Anticipated Performance Standard: Clean Air

Decarbonization Scope: Geothermal (all-Electric) Heat, 225KW +/- solar array producing 40% of building electricity, energy recovery ventilators, EV charging and electric bike charging

Developer: Experienced Affordable Developer

SOURCE	AMOUNT
LIHTC	\$17,342,075
First Mortgage Tax Exempt	\$8,470,000
ITC Geothermal	\$287,892
NYSERDA Tier II	\$218,000
ITC Solar	\$102,695
NYS HFA	\$11,360,312
HFA Subsidy	\$841,000
NHLA Grant	\$5,000,000
Subordinate Debt/Grant	\$10,000,000
Deferred Dev Fee	\$1,786,096
Westchester County HFF	\$1,233,059
Interest Earned on Bonds	\$262,642
CPC Climate Capital	\$3,472,000
Total	\$60,274,471

USE	AMOUNT
Acquisition Costs	\$6,450,000
Construction Costs	\$30,864,391
Profit	\$1,701,522
Overhead	\$509,672
General Conditions	\$1,885,586
Insurance	\$997,548
Payment and Performance Bond	\$171,063
Architecture and Engineering	\$2,130,063
Financing and Insurance	\$5,640,169
Accounting and Legal	\$683,889
Other Soft Costs	\$2,739,220
Total Reserves, Soft Cost Contingency, Fees	\$6,501,377
Total	\$59,948,273