Harlem Renaissance Bond

Investment Thesis

The Harlem Renaissance Bond is a green and social impact bond financing solar green roofing to combat the Urban Heat Island (UHI) effect in Harlem. By integrating renewable energy, urban cooling, and public health benefits, it generates revenue through Medicaid value-based contracts, carbon credit sales, PPA agreements, and tax incentives. This scalable model attracts family and community investors, impact, and retail investors, to enable climate resilience with financial viability, and advance environmental justice for a vibrant New York community.

The Challenge: Harlem's Urgent Heat Crisis

Extreme heat, worsened by the UHI effect, raises inner-city temperatures, disproportionately impacting low-income communities. Harlem scores highest on the heat vulnerability index, due to:

Extreme	Heat Disparities	Income Inequality					
>5.5°C	hotter in Harlem due to the UHI effect, intensifying health risks.	of NYC public housing residents lack AC, increasing heat vulnerability					
Heat-Rel >570	ated Mortality annual heat-exacerbated deaths in NYC, 7 heat-stress deaths, with Black residents	Energy Insecurity spike in electricity demand >30% during heat waves, leading to power outages and risin					
	having 2× higher mortality.	costs.					
Scalabl	e Financial Solution fo	or Climate Resilience					

A \$6 million green & social impact bond will finance the design, installation, and maintenance of solar green roofs on 20 Harlem buildings (150,000 sq. ft.), reducing extreme heat while generating financial, environmental, and health returns.

The proceeds will fund engineering, materials, labor, and resilience upgrades, ensuring long-term performance and maximizing tenant benefits such as lower cooling costs, improved air quality, and urban greening. Structured as a Special Purpose Vehicle (SPV), the bond aligns climate resilience with investor profitability, leveraging carbon credits, tax incentives, and energy savings for financially viable returns and isolates any financial and operational risk. The bond targets commercial and impact investors, including CDFIs, community lenders, family offices, retail investors, municipal green bond buyers, and healthcare-aligned investors.

Financially Viable Investment	Climate Resilience & Social Impact					
Stable, Risk-Adjusted Returns Delivers 7.3% IRR and 4% fixed	Cooling Cost Savings & Energy Resilience					
bond interest over 15 years, making it attractive to institutional investors.	Lowers tenant cooling costs during heat waves by 20%, reducing energy poverty, improving grid stability, and reducing heat-related illnesses.					
Diverse Revenue Streams	Stronger Housing & Community Benefits					
Generates cash flow from carbon						
credits, tax incentives, healthcare savings. Ensuring long-term financial sustainability.	Extends building lifespan, reduces pollution, heat-related illnesses, and enhances climate resilience for Harlem's heat-vulnerable residents.					

Policy & ESG Backing

Supported by Local "Roof" Laws 92 & 94, LL97 Greenhouse Gas Emissions Reduction, Inflation Reduction Act (IRA) incentives, and strong ESG investor demand, ensuring long-term stability.

Scalable, Replicable Model

The SPV structure enables a scalable, repeatable financing model, allowing for the issuance of successive bond series. Future bond series will include retrofitting services such as heat pumps to provide holistic energy management

Due Diligence Process: We confirm rooftop feasibility, formalize PPA agreements, secure Medicaid value-based contracts tied to verified health outcomes, run scenario analyses on carbon and solar assumptions, engage the local community, and provide regular performance reports—ensuring robust risk mitigation and transparent returns.

What are Solar Green Roofs?



Solar green roofs integrate vegetation and solar panels to reduce urban heat, improve energy efficiency, and generate renewable power.

- Reduced Heat by Vegetation: Through evapotranspiration cooling, plants release moisture, lowering rooftop temperatures by up to 31°C and ambient air temperatures by 11°C, reducing heat stress and energy demand.
- Clean, affordable & efficient electricity: Solar panels reduce reliance on carbon intensive energy sources. The vegetation cools the solar panels, improving energy output while panels shade plants.

Market Assessment

- Harlem Potential: Harlem's dense, flat-roofed buildings and 2,656 annual sunlight hours make it an ideal location for solar green roofs, benefiting 116,000+ residents, 31% of whom live in poverty. Solar installations can reduce energy costs by 20-45%, alleviating financial strain while promoting sustainability.
- Expansion Potential: NYC has 40,000 acres of untapped rooftop space, with <0.1% currently green. The next bond series will focus on south Bronx.
- Market Growth: The global green roof sector is projected to grow 12.67% CAGR, reaching \$7.5B by 2033.

Bond Structure & Timeline



Retail Investors

We are allocating a portion of the bond to everyday New Yorkers—enabling them to invest directly in climate and health resilience in their own communities. Inspired by the model of "war bonds," this strategy builds local ownership and offers a lowbarrier, mission-aligned investment opportunity through regulated platforms like Raise Green or CNote.

Bond Structure Details

Bond Overview

Bond Type: Green & Social Impact Bond Bond Size: \$6 million Fund Life: 15 years

Asset Revenue

Value-based contracts with Medicaid tied to healthcare outcomes

Asset Class

Fixed-income bond with social

and environmental impact.

- Revenue from carbon credit sales via LL97 compliance market
- PPA agreements with landlords
- Tax incentives, including green roof abatements and solar credits

Taget IRRFee Structure7.3%%1.75%Projected annual return over 15 yearsSyndication fee4%Fixed bond interest rate for investors

Location

Initial launch in **Harlem, New York**, with potential expansion to other NYC boroughs and major urban centers nationwide.

Investor Pool

- CDFIs, family offices, impact funds, municipal green bond buyers
- Retail Investors
- ESG-focused asset managers aligned with climate and social equity goals

Key Assumptions

- Healthcare Savings: 70% shared savings in value-based contracts.
- Carbon Credits: Priced at \$268/t CO₂.
- Energy Savings: 80% of solar power used on-site at \$0.14/kWh.
- Tax Incentives: Full use of green roof and solar abatements.
- Market Adoption: Strong demand from ESG-focused investors.
- Policy Stability: Continued support from IRA, NYSERDA, and Medicaid.

Sources of Repayment

Carbon Credits ~\$950k

Revenue from selling verified offsets to compliance (LL97) and voluntary buyers.

Energy Savings & Shared Savings Agreements ~\$6mn

PPA agreements to sell solar energy directly to landlords at a discounted rate to be used in the common areas of buildings. Additionally energy will be sold back to Con-Edison.

Healthcare Cost Savings (Value-Based Contracts) ~\$4mn

Securing long term value-based payments with Medicaid under a medical serviceequivalent reimbursement model. Payments will be based upon a quantifiable reduction in heat related hospitalization as per feasibility studies conducted.

Tax Incentives & Subsidies ~\$1.8M

Leveraging incentives like the federal Investment Tax Credit (ITC), NYC's Local Laws 92 & 94, and IRA incentives to significantly offset upfront project costs.

LL97 Carbon Credit Compliance Market



LL97 will soon establish their own carbon compliance markert. Buildings that need to comply with LL97 can offset up to 10% of their emissions by purchasing credits from building projects that don't need to comply with LL97

Cash Flow Projections

Item		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Revenue - Solar (PPA)				120,000	126,000	132,300	138,915	145,861	153,154	160,811	168,852	177,295	186,159	195,467	205,241	215,503
Revenue - Solar (VDER)				230,000	241,500	253,575	266,254	279,566	293,545	308,222	323,633	339,815	356,805	374,646	393,378	413,047
Total Solar Revenue				350,000	367,500	385,875	405,169	425,427	446,699	469,033	492,485	517,109	542,965	570,113	598,619	628,550
Revenue - Healthcare PFS				90,000	99,000	108,900	119,790	131,769	144,946	188,430	244,959	318,446	413,980	538,174	699,626	909,514
Total Healthcare Revenue				90,000	99,000	108,900	119,790	131,769	144,946	188,430	244,959	318,446	413,980	538,174	699,626	909,514
Revenue - Carbon (Voluntary)				5,000	5,500	6,050	6,655	7,321	8,053	10,468	13,609	20,413	30,620	45,930	68,895	103,342
Revenue - Carbon (Compliance)				9,800	10,780	11,858	14,230	17,076	20,491	22,540	24,794	37,190	55,786	83,679	125,518	188,277
Total Carbon Credit Revenue				14,800	16,280	17,908	20,885	24,396	28,543	33,008	38,402	57,604	86,406	129,608	194,412	291,619
Total Revenue				454,800	482,780	512,683	545,843	681,592	620,188	690,471	775,846	893,159	1,043,350	1,237,895	1,492,657	1,829,682
Execute ORM				12 222	22.222	12 222	22.222	12 222	22.222	22.222	22.222	22.222	10 000	19 999	22 222	22 222
Expense - Admin & SPU One				10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total Expenses				22 222	22 222	22,222	22 222	22,222	22 222	22 222	22 222	22 222	22 222	22 222	22,222	22 222
Total Expenses				55,555	55,555	33,333	55,555	33,333	55,555	55,555	55,555	55,555	55,555	55,555	55,555	55,555
Operating Income				421.467	449.447	479.350	512,510	548,259	586,855	657.138	742.513	859,826	1.010.017	1,204,562	1.459.324	1.796.349
CapEx	-6,975,000															
Grant Funding	975,000															
CFADS	-6.000.000			421.467	449.447	479.350	512.510	548.259	586,855	657.138	742.513	859,826	1.010.017	1.204.562	1.459.324	1.796.349
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Risk	Mitigation Strategy					
Green Roofing does not significantly reduce UHI.	Conduct feasibility studies to evaluate public health benefits and energy savings					
Delays in securing tenant agreements	Engage the local community in the decision making process with the support of WE ACT and Harlem BID create fair and equitable contracts					
Medicaid Policy Changes	Secure multi-year reimbursement agreements with state Medicaid agencies before implementation					
Extreme weather events	Have regular check-ins by local community solar tech, with attention to overhanging branches, hot "spots" and dirty build up; hedge with parametric insurance					
Carbon market volatility	Secure long-term purchase agreements (PPAs) with ilandlords who need to comply with LL97					
Delays in obtaining permits	Secure pre-approvals from municipal agencies before issuing the bond.					
Caco Study						

Case Study

The New York Healthy Homes Collaborative (NYHHC) structured a \$4.75M social impact bond to fund asthma prevention for Medicaid enrollees in NYC. Led by Northern Trust and Green & Healthy Homes Initiative, it uses outcomes-based financing, with investor returns tied to Medicaid cost savings over 7-9 years. The bond enables Affinity by Molina Healthcare to fund home-based interventions, transitioning to self-funding after four years. Offering a scalable model for integrating social determinants of health into Medicaid.

SDG Targets & Impact Metric



KPI: 20% reduction in heatrelated hospital admissions Metric: Track heat related hospitalization

KPI: 20% increase in



KPI: Reduce energy costs for building by 30% Metric: Measure energy cost savings per building



Harlem Metric: Reductions in healthrelated inequities across demographic groups

affordability of energy costs

for POC LMI residents in

NO COMMUNTES

KPI: Temperature reductions of 1.1–2.2°C in surrounding areas Metric: Long-term infrastructure improvements