BANKING ON CLIMATE:

The Mortgage Lending Opportunity in Building Decarbonization

NYC EDC

NYU STERN Center for Sustainable Business | Chen Institute for Global Real Estate Finance

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INTRODUCTION

Authored by the NYC Economic Development Corporation (NYCEDC), NYU Stern Center for Sustainable Business (NYU Stern CSB), and the Chao-Hon Chen Institute for Global Real Estate (NYU Stern Chen Institute), this report summarizes research by NYU Stern and synthesizes recommendations and feedback from participants in the Building Decarbonization Finance Task Force – a group of lenders, building owners, policymakers, and non-profits convened by NYCEDC and NYU Stern.

The Task Force met from January to June 2024 and discussed opportunities and challenges that the US mortgage industry faces as a result of efforts to decarbonize the built environment. Including various opinions and perspectives, this report presents a set of recommendations to help mortgage lenders seize the market opportunity created by the need to reduce real estate's greenhouse gas emissions and play a part in decarbonizing the built environment. This report focuses on New York City as a proving ground for decarbonization finance investments that are expected to see significant growth throughout the United States.

"The need to act remains as **strong** as ever."

Mobilizing capital requires stakeholders across the building decarbonization value chain to make these investments feasible. To that end, the Task Force included a broad range of stakeholders, including:

- **Building owners** - Empire State Realty Trust, The Real Estate Board of New York (REBNY)
- **Mortgage lenders** - M&T Bank, Community Preservation Corporation, TD Bank (former), Freddie Mac, Fannie Mae, the Mortgage Bankers Association, the New York Bankers Association
- **Specialty green lenders** - New York City Energy Efficiency Corporation (NYCEEC), Nuveen Green Capital
- **Government** - New York State Energy Research and Development Authority (NYSERDA), NYC Mayor's Office of Climate and Environmental Justice (MOCEJ), New York City Economic Development Corporation
- **Utilities** - ConEdison
- **Non-Profit and Academics** - New York University, Urban Green Council, NYC Accelerator

Beyond the Task Force participants, the Community Development Team of the Federal Reserve Bank of New York, Wells Fargo, New York Bankers Association participated as observers.

The Task Force came together through five roundtable discussions, numerous conversations with industry experts, and smaller working groups focused on case studies and mortgage portfolio analyses. We thank the participants for their time and insights. The recommendations included here should not be interpreted as formal recommendations of the government entities or any other organizations represented by the participants.

This white paper was prepared prior to the 2024 presidential election. The incoming administration will bring new policies and shifts to national climate initiatives. The opportunity for mortgage lenders to reduce investment risks and achieve financial returns through innovative lending strategies to decarbonize our built environment, however, remains unchanged.

The need to act remains as strong as ever.

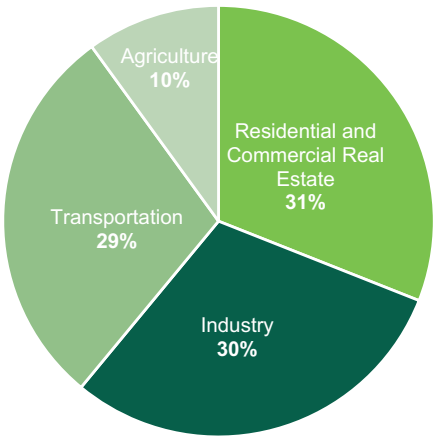
EXECUTIVE SUMMARY

Building Decarbonization is the Largest Climate Investing Opportunity

In the United States, the narrative around addressing climate change and investing in a green economy centers around shifting energy production to renewables and to a lesser degree, moving transportation to electric vehicles (EVs). The sleeping giant of emissions reduction, however, is the country's real estate stock. The EPA's most recent GHG inventory shows that residential and commercial real estate are the largest sources of end-use emissions at 31% compared to 29% for transportation, and 30% for industry.[1] This picture becomes even more skewed in dense urban environments, with New York City as the prime example, where more than two thirds of carbon emissions come from buildings.

The decarbonization paths for energy generation, transportation, and real estate sectors look very different. Clean energy is largely reliant on new renewable sources to replace fossil fuel generation[2] and new EVs are needed to replace gas-powered cars. Real estate will require transition rather than replacement. Inefficient buildings will be retrofitted to require less power and fossil fuel heating and cooling will need to be converted

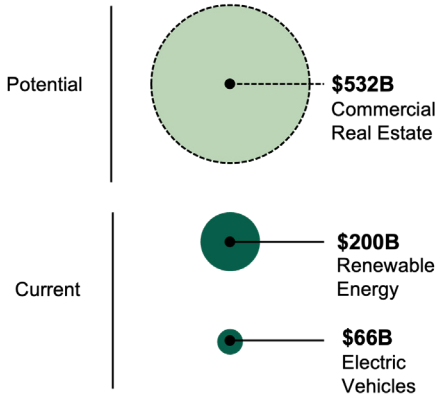
Total U.S. Greenhouse Gas Emissions by Economic Sector and Electricity End-Use in 2022



Source: United States Environmental Protection Agency

US Green Investment Markets 2023

Commercial Real Estate require transition rather than replacement, as with Renewable Energy and EVs.

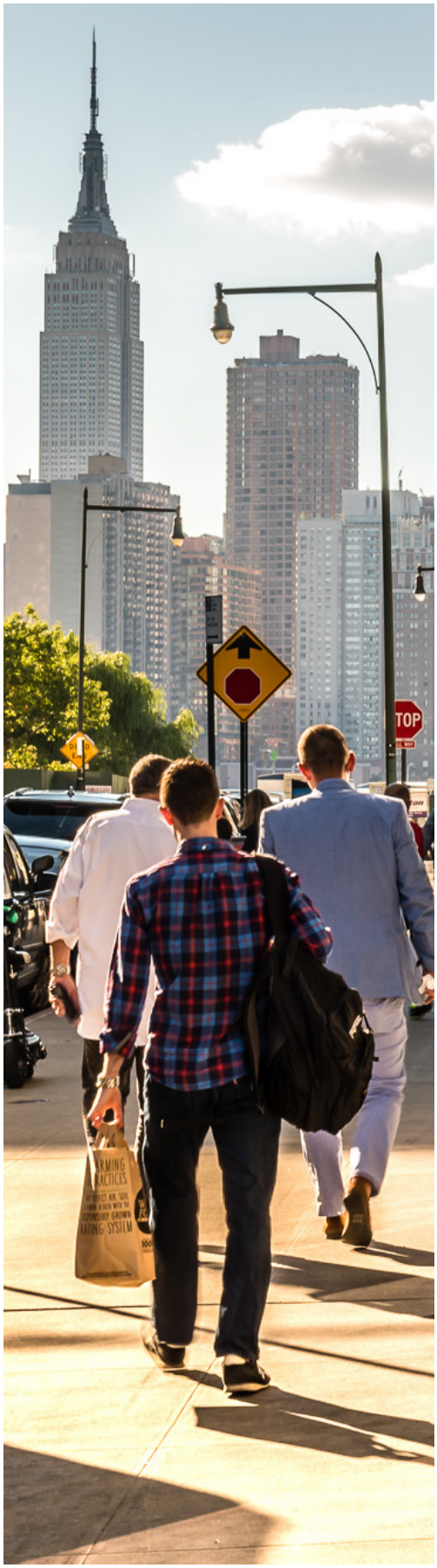


Sources: BloombergNEF, Atlas Public Policy, Mortgage Bankers Association. See endnotes 3,4,5

to systems that run on electricity. This fundamental difference of transitioning assets versus replacing them also makes for a more attractive climate investing value proposition–an investment into decarbonized real estate can capture the total value of an asset, not just the "green" portion. From this perspective, building decarbonization suddenly becomes a much larger market for climate investment. In 2023, the US markets for renewable energy generation, transmission, and storage market attracted nearly $200 billion[3] of investment and the auto industry saw $66 billion[4] of new commitments to EV manufacturing. By comparison, in that same year $532 billion of commercial real estate mortgages came due, with similar volumes coming to maturity every year for the next several years.[5] To realize opportunity, building owners, investors, and importantly lenders, must look at building decarbonization as an essential part of any real estate investment.

Mortgage Lenders Can be Leaders of Building Decarbonization Investing

Decarbonizing the country's real estate stock will require coordinated action by owners, investors, builders, and policymakers. Mortgage lenders hold an influential and connective role among these stakeholders and crucially are positioned to look at the total value of the asset. Taken together, the mortgage industry has a tremendous opportunity to catalyze the growth of US building decarbonization. Lenders have the opportunity to support improvements in energy efficiency, resiliency and sustainability, and as a result increase the long term value of the asset.



- **Large-Scale Market:** The total value of the US commercial real estate market (inclusive of multifamily) is $22.5 trillion and is supported by $5.9 trillion of commercial mortgages.[6] Commercial real estate (CRE) is the fourth largest asset class in the US and CRE debt is a highly structured market, offering a unique investment opportunity compared to other niche and fragmented climate growth sectors.

- **Climate Disclosure Requirements:** The finance industry, specifically regulated banks, have come under increasing scrutiny from their investors and federal, state, and local regulators to inventory, disclose, and ultimately to reduce their climate risk and Scope 3 ("financed") emissions, which includes the emissions from buildings in their portfolios. California is requiring Scope 3 disclosure in 2026 and New York's Senate and Assembly have introduced similar legislation. Beyond regulators, institutional investors such as the NYC Comptroller's Office, which controls $242 billion in assets, are also requiring emissions benchmarking and reduction goals.

- **Growing Risk of Stranded Assets:** More than 13 cities, counties, and states across the US have implemented legislation requiring public, commercial, and/or multifamily buildings to meet performance standards based on energy use, with more than 56 other jurisdictions requiring various forms of energy benchmarking reporting. As the market increasingly requires sustainable and energy efficient buildings, assets with poor sustainability credentials are likely to suffer from a "brown discount," a reduction in their value due to their poor sustainability performance, making those assets more expensive to finance and insure.[7]

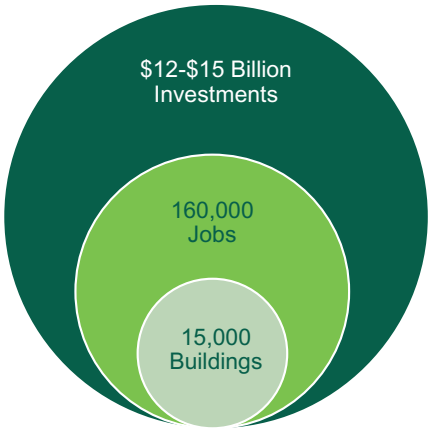
- **Opportunity to Move from Risk Mitigation to Value Realization:** Investing in building decarbonization can provide benefits to lenders beyond risk mitigation and may increase asset values. As an example of this, an analysis of 42 studies showed that green certifications for real estate on average yield a rent premium of 6.0% and a sales premium of 7.6%.[8] These certifications are also associated with reduced vacancy rates and lower operating expenses for properties.[9]

New York City will be a Proving Ground for Building Decarbonization Finance

US mortgage lenders face many challenges in building their decarbonization lending practices, including a fragmented regulatory framework, conflicting building performance metrics, and uncertain value propositions. However, there is movement within individual institutions, new federal programs, and one-off transactions. But the nascent building decarbonization finance industry would grow with a model market that shows the climate and financial benefits of green lending at scale. As the home of Wall Street, America's most notable building performance standards law in Local Law 97 (LL97), and one of the world's most valuable real estate markets, New York City is the ideal proving ground to catalyze that growth.

Two recent reports from New York City government crystallize the market opportunity to invest in building decarbonization. First, is the NYC Mayor's Office of Climate Environmental Justice (MOCEJ) **Getting 97 Done**, a mobilization plan for how building owners and lenders can reduce covered building emissions by 40% by 2030. The report estimates that $12-$15 billion of building retrofits will need to be completed between now and 2030[10] to reach the emissions reduction requirement under LL97. Next, NYCEDC's **Green Economy Action Plan** analyzed how the City's economy and employment will grow as a result of climate action. The plan found that the buildings and green finance sectors were the greatest source of industry and job growth, together adding over 160,000 new jobs by 2040.[11] This market growth will be driven by the retrofitting of buildings to comply with LL97 and the construction of new, all-electric buildings which, beyond the retrofit market, will account for an estimated value of $16-20 billion per year.[12] Capital providers are a major part of the equation to unlock this green economy growth. Many are in the early stages of identifying investment opportunities in building decarbonization and this paper outlines the opportunities and practical first steps. This paper provides NYC-specific regulations, opportunities, and case studies **highlighted in green** as examples of how lenders can kickstart their decarbonization lending practices.

Size of NYC retrofit market by cost and number of associated jobs



Source: Getting 97 Done and MOCEJ

Recommendations for Mortgage Lenders To Kickstart Building Decarbonization Lending

To help accelerate decarbonization lending activities, the task force developed several recommendations to help institutions familiarize themselves with policy and market landscape, evaluate their current portfolios, begin developing green loan products, and eventually build decarbonization into their loan making processes. The task force recognizes that many institutions are in the early days of building this practice, so these recommendations outline some basic steps and also provide direction to available resources that provide greater detail on each of these steps.

Understand, Evaluate, Build, and Embed

1. **Understand the evolving climate and building decarbonization regulatory landscape,** including building performance standards laws and Scope 3 carbon disclosure requirements to educate both internal teams and borrowers on risks and benefits.
2. **Evaluate the market for green lending** by reviewing existing mortgage portfolios and their carbon emissions, engaging borrowers on their building decarbonization needs, and assessing precedent products and policies from green finance experts.
3. **Build green finance offerings** by increasing availability of mid-cycle products and developing green mortgage products for existing and prospective borrowers.
4. **Embed climate risk and decarbonization considerations into the loan-making processes,** including applications, underwriting, origination, and compliance.

WHY MORTGAGE LENDERS SHOULD CARE . . . NOW

The Opportunities: Untapped Value of Climate Lending

A SLEEPING GIANT IN GREEN TRANSITION INVESTMENT

As the world increasingly focuses on climate risks green real estate lending presents a significant business opportunity for banks and financial institutions. The energy and automotive industries are seeing increasing investment in the transition to a green future. But these investments require replacing those assets powered by fossil fuels, rather than transitioning them. By comparison, the real industry must retrofit its existing assets for efficiency and electrification. In 2023, the US clean energy market attracted $200 billion of investment,[13] while electric vehicles/EV batteries saw an additional $66 billion[14] of new commitments to manufacturing. While clean energy and EVs are booming markets in the shift to a decarbonized economy, the sleeping giant of emissions reduction and investment opportunity is the country's real estate stock.

When looking at carbon emissions by sector, residential and commercial real estate represent a significant source of carbon emissions at 31%, compared to 29% for transportation, and 30% for industry.[15] According to RMI, 70% of the buildings in the US will still be in use in the year 2050, meaning that emissions reductions from real estate will largely happen through investment into existing assets. The scale of the emissions reduction challenge is matched only by the scale of the investment opportunity. The total value of the US commercial real estate market

(inclusive of multifamily) is $22.5 trillion and is supported by $5.9 trillion of commercial mortgages.[16] This is the fourth largest asset class in the US behind equities, residential real estate, and Treasury securities and it is a highly structured market. With hundreds of billions of dollars going into US real estate every year, building decarbonization represents the largest opportunity for climate investing.

Catalyzing Lenders as Climate Champions

The US is playing catch up with global efforts to reduce direct and indirect emissions from finance. Recognizing the power of financial institutions to make a significant impact on reducing global greenhouse gas emissions, the UN convened the Net Zero Banking Alliance (NZBA) to catalyze and support banks to achieve net zero targets.[17] To date, over 140 banks overseeing $74 trillion in assets have committed to "transition the operational and attributable greenhouse gas (GHG) emissions from their lending and investment portfolios to align with pathways to net-zero by 2050 or sooner."[18] By setting intermediary targets for 2030 and 5-year intermediary targets from 2030 to 2050,[19] and providing guidance on how to set those targets, the NZBA has catalyzed financial institutions to become climate champions. The NZBA's 2023 Progress Report is evidence of this: over two thirds of NZBA banks had set science-based sectoral 2030 targets by December 2023, which is a significant increase from zero banks with science-based sectoral 2030 targets when the NZBA launched in April 2021.[20] And 45% of NZBA banks had set targets for the real estate sector.[21]

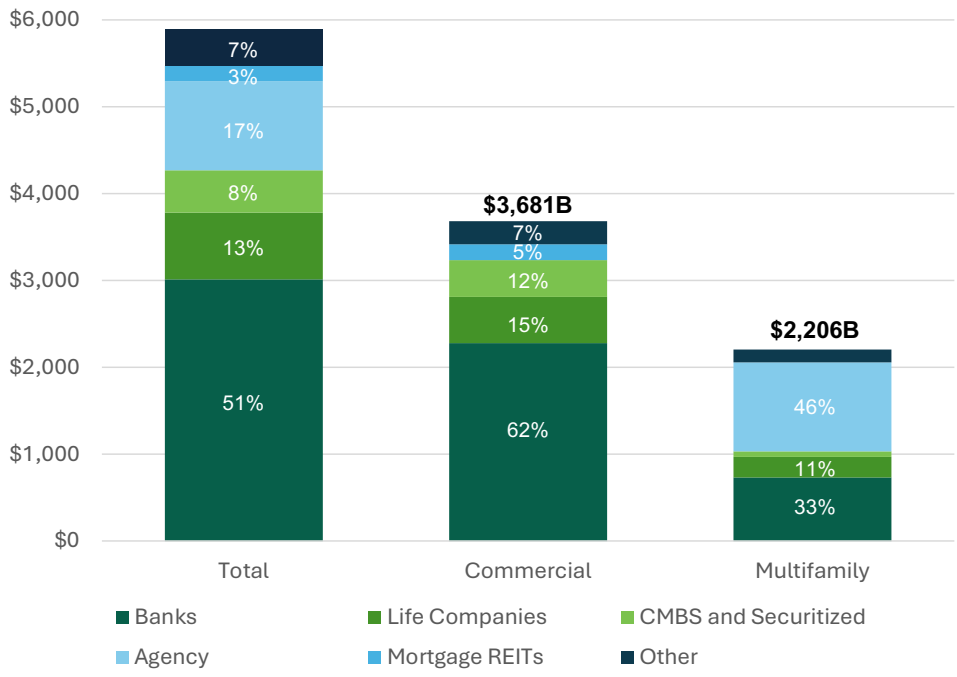
The Mortgage Industry Opportunity

To achieve emissions reduction goals and mitigate the effects of climate change, all real estate industry participants need to play an active role in decarbonization. While owners will need to initiate and carry out the retrofits needed to reduce building emissions, several factors make mortgage lenders crucial players in catalyzing building decarbonization. Real estate is a highly leveraged asset class, providing mortgage lenders powerful input into a building's operations and capital planning at the time of mortgage origination. Furthermore, as senior lien holders, lenders have rights over what other sources of financing may be added to a property.

In addition to the outsize role that mortgage lenders play in a building's finance and capital planning, they are also highly regulated institutions, making their lending practices very responsive to federal, state, and local laws, including climate risk regulations and new municipal laws mandating building performance standards. With significant control of real estate capital, mortgage lenders can help create a clear value proposition for building decarbonization, align existing lending products, catalyze new lending products, and provide technical assistance to their borrowers.

"We can't ignore the **power of a lender** to drive what happens in a building."

Mortgages by property type, originator and lender



Source: Federal Reserve Financial Accounts of the United States

This essential role, together with the scale of the mortgage industry, makes it a critical player in decarbonizing buildings. As of Q1 2024, there was approximately $5.9 trillion in commercial mortgages outstanding in the United States, with $2.21 trillion of that total in multifamily mortgages.[22] These mortgage are principally held on the balance sheets of banks, life insurance companies, and private lenders, while many are securitized in the commercial mortgage-backed securities (CMBS) market and through Fannie Mae and Freddie Mac, the government-sponsored enterprises chartered to support housing outcomes alongside Housing and Urban Development (HUD).

As shown in the table above, banks account for the largest share of total lending, with Fannie and Freddie portfolios and securitizations also playing an outsize role in the multifamily market. While the lending market has been buffeted in recent years by an abrupt increase in interest rates and the challenging refinancing environment, the Mortgage Bankers Association reports that total debt outstanding increased in the first quarter of 2024. Notwithstanding a rising level of distress in commercial real estate, with high office vacancy rates, there are indications of some easing in underwriting standards and a more favorable outlook based on recent interest rate cuts.

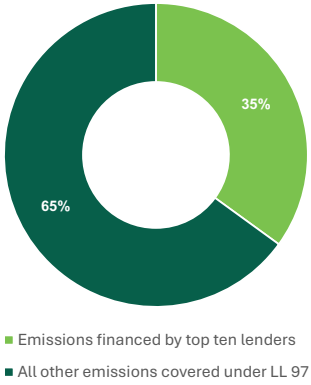
"Creative solutions are needed to **increase capital availability** for building decarbon-ization"

Top 10 Private Mortgage Lenders in NYC in 2023 (by Dollar Volume)

1. Apollo Global Management
2. Wells Fargo
3. Deutsche Bank
4. Valley National Bank
5. M&T Bank
6. JPMorgan Chase
7. Citibank
8. Webster Bank
9. Morgan Stanley
10. AIG

Source: PincusCo

NYC LL97 Emissions by Top 10 Mortgage Lenders



Source: 2023 II84

Despite this challenging financing environment, now is the time to act. As the world faces increased climate threats, continued pushes for new regulation, and approaching deadlines for emissions reductions. Creative solutions are needed to increase capital availability for building decarbonization as interest rates moderate and bank lending standards begin to normalize. The recommendations in this task force report reflect the essential role of banks and non-bank lenders in facilitating private and public decarbonization goals.

The Challenges: Developing Regulations and Markets

CLIMATE REGULATIONS AND CARBON DISCLOSURE REQUIREMENTS

The world's understanding of how different industries contribute to global carbon emissions has grown more sophisticated and so have accompanying climate regulations. The finance industry, specifically regulated banks, have come under increasing scrutiny from their investors and regulators to inventory, disclose, and ultimately to reduce their climate risks and their Scope 3 ("financed") emissions. As the urgency to mitigate climate risks increases with every storm, disclosure of emissions will also shift away from simply identifying emissions in a given portfolio to focus on disclosing the *reduction* in emissions achieved through investments. A series of recent federal, state, and local regulations in the US have advanced reporting requirements on direct and indirect emissions that should drive lenders to not only inventory their emissions, but invest to actively decarbonize their portfolios.

NYC's Real Estate Market

While there are significant challenges facing commercial real estate over the next several years, worst-case scenarios for the city's financial situation and the broader economy are unlikely to transpire. Office space occupancy has reached 74% of pre-pandemic levels, adversely affecting rents and commercial real estate market values. **Citywide office vacancy declined in Q2 2024, falling from 15.0% to 14.8%**. NYC OMB forecasts office vacancy to peak in 2024, suggesting a future recovery. New York City office space is holding value better than office space in other metro areas; re-appraisal of delinquent properties shows little to no markdowns. REBNY estimated office visitation metrics at 77% of pre-pandemic levels in June 2024, a new post-pandemic record high.

Nonetheless, New York City's multifamily market remains resilient. Rents are forecast to increase 2.2% in 2024, compared to 0.9% increase in 2023, and vacancies remain low at 1.4%.[66] In New York City, more than 100 lenders support the broad range of the real estate market's needs, ranging from relatively short-term construction financing to bridge loans, senior loans, and mezzanine financing.[67] Most importantly, the City is seeing an increase in both the number of transactions and the dollar volume.[68]

Federal Regulations

While federal regulation on climate will change under a new presidential administration, the physical and transition risks of climate change are still being considered by financial regulators. The Federal Reserve recently conducted an exercise[23] with six of the largest US banks to assess their current risk management practices related to climate physical and transition risk and to size their potential financial exposure. This exercise revealed many of the challenges with predicting risk, a lack of standard measurements across institutions, and the reliance on insurance to mitigate many of the potential financial losses. While this was just a preliminary study, it represents a step toward standardizing the measurement of climate risk and mitigants, and integrating them into standard risk management at financial institutions.

State Regulations

California, which is the fifth largest economy in the world, enacted and signed into law the Climate Corporate Data Accountability Act in October 2023.[24] This landmark disclosure rule supports California's goal to be carbon neutral by 2045 and requires both public and private companies that do business in California with revenues of $1 billion or more to disclose Scope 3 emissions beginning in 2026.

Similar legislation has been introduced in the New York State Senate and Assembly.[25] The Climate Corporate Accountability Act, introduced in January 2023, would require US-based businesses with annual revenues greater than $1 billion, including revenues received by all the business entity's subsidiaries that do business in this state, to report GHG emissions annually from their business, including direct emissions, electricity use, and indirect emissions from the supply chain and other sources.

In December 2023, the New York State Department of Financial Services (NYSDFS) issued "Guidance for New York State Regulated Banking and Mortgage Organizations Relating to Management of Material Financial and Operational Risks from Climate Change."[26] While not specifically calling for measurement and reporting of Scope 3 disclosures, the guidance defines climate-related financial risk as consisting of physical risks and transition risks, and provides that New York institutions "should consider the effects of each of these types of risks on their operational resilience and their safety and soundness, as well as the particular consequences these risks may pose to their customers."[27] The guidance covers *all New York State regulated institutions,* most notably including mortgage bankers and mortgage servicers which have not historically been faced with the same scrutiny of climate related risk reporting as banks.

International Regulations

The most comprehensive climate regulation can be found in the European Union (EU). The Corporate Sustainability Reporting Directive (CSRD)

requires EU companies, non-EU companies meeting certain thresholds for net turnover in the EU, and companies with securities listed on a regulated EU market to disclose their Scopes 1, 2, and 3 greenhouse gas emissions. Certain large EU and EU-listed companies were required to start reporting as of January 1, 2024, and the rules will apply to all CSRD-covered companies by January 1, 2028.[28] The CSRD also requires companies to have a climate transition plan and includes many more sustainability requirements than the CA law or the proposed NY law. For global banks and mortgage lenders, many of whom have large US mortgage portfolios, these regulations should serve as an opportunity to be early movers and take advantage of the need for climate-aligned lending.

The Sustainable Finance Disclosure Regulation (SFDR), which came into effect in March 2021, complements the CSRD by providing a framework for financial market participants in the EU to disclose the sustainability risks of their investment activities. It requires financial firms to report on how their investment decisions impact sustainability goals, integrating ESG factors into their risk management and decision-making processes. Compliance with the SFDR is necessary for financial institutions to align with broader EU sustainable development objectives and avoid potential reputational or regulatory penalties.[29]

Institutional Investors

Institutional investors are also beginning to require Scope 3 carbon disclosure. For example, pension funds in New York have publicly committed to divesting from carbon intensive assets in the future and reallocating capital toward sustainable investments.[34] Evaluation will be based on carbon disclosures. The NYC Comptroller's Office, with $242 billion in assets as of November 2023,[35] has made clear, "[w]e cannot manage what we don't measure. We will set measurable goals and benchmarks across all investments and operations, including specific interim emissions reduction targets by asset class, and disclosure of Scopes 1, 2, and 3 emissions."[36]

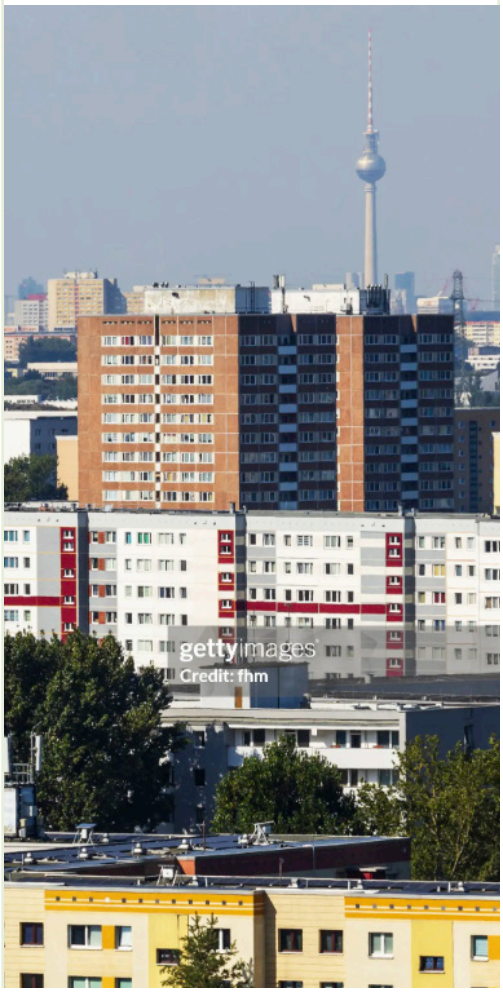
INCREASING BUILDING PERFORMANCE STANDARDS

New York City has led the charge in the US in enacting legislation requiring public, commercial, and multifamily buildings to meet performance standards based on energy use. More than 13 cities, counties, and states across the US have followed suit and implemented similar building performance standards (BPS),[37] with more than 56 jurisdictions requiring various forms of energy benchmarking reporting.

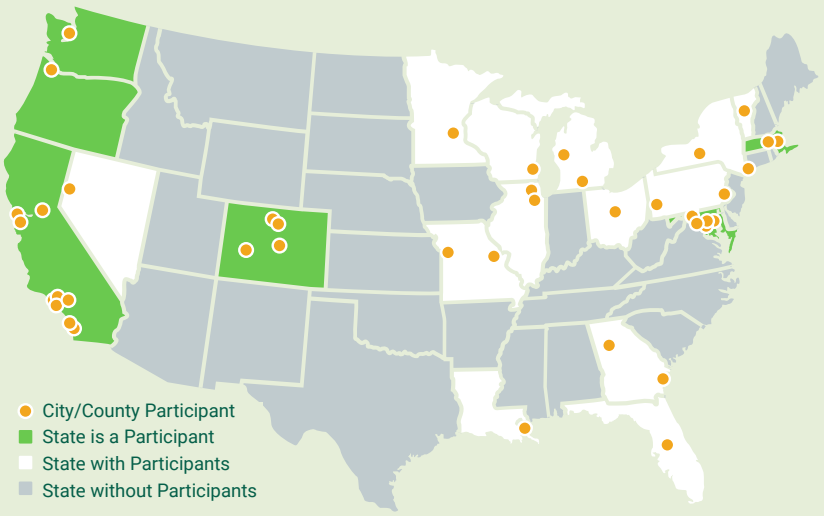
While each of these BPS laws has a different performance methodology and penalty structure, they all share the goal of reducing the carbon emissions from existing buildings. Launched by the White House in 2022, the National Building Performance Standards Coalition is catalyzing legislative action and Wells Fargo predicts that "a significant portion of the United States is expected to have some type of building performance legislation within the next 2-3 years." As one of its first of these laws, LL97 has a

Lender Leadership Example from Europe:

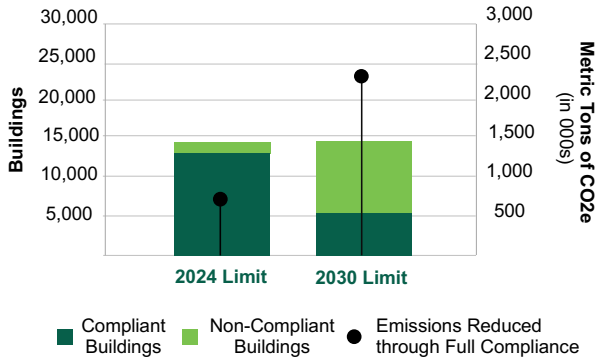
One leader in the EU is Deutsche Bank, which in March 2023 became the first bank in the EU to disclose its financed emissions in its residential real estate loan portfolio and propose a plan to decarbonize.[30] These disclosures followed similar ones in its corporate loan book in 2022.[31] The bank has now published financed emissions data for approximately 60% of its total loan book.[32] Deutsche Bank's management board has set a target to generate a cumulative €500 billion in sustainable financing and investments by 2025.[33]



State of the Building Performance Standards in the U.S.



Projected Impact of Buildings with LL97 Emissions Limits



Source: https://climate.cityofnewyork.us/wp-content/uploads/2023/09/Getting-_LL97Done.pdf

developed enforcement framework and the first compliance submissions are due in 2025. This combination of immediacy, predictable emissions limits, and standardized carbon pricing makes LL97 an ideal BPS law for lenders to begin integrating into their asset management and loan-making processes, so they can prepare themselves as similar laws come into effect and impact their real estate portfolios across the country.

THE BROWN DISCOUNT

As the market moves toward sustainable and energy efficient buildings, assets with poor sustainability credentials could suffer from a "brown discount," a reduction in their value due to their poor sustainability performance, making those assets more expensive to finance and insure.[40] A study published in Emerald Insight analyzed environmentally conscious

NYC BPS Law - Local Law 97

In 2019, New York City passed the Climate Mobilization Act (CMA),[38] which included two signature policies Local Law 96 (LL96) which authorized Commercial Property Assessed Clean Energy (C-PACE) lending, and Local Law 97 (LL97) which mandates emissions reduction for buildings over 25,000 square feet. In the five years since the legislation passed, New York City's government has written the enforcement rules, released a mobilization framework, launched a multi-million dollar technical assistance program, while the buildings covered by the law have entered their first year of compliance. LL97 requires covered buildings to meet declining emissions caps, eventually requiring net zero by 2050.[39] Buildings that do not meet their emissions limit are fined $268 per ton of excess carbon. Nearly 90% of buildings will be in compliance with the 2024 limits, but only 33% are expected to be in compliance with the 2030 limits, which require the aggregate of covered buildings to have reduced their emissions by 40%.

heating methods across 400,000 properties revealing a 4.2% "brown discount" for buildings with outdated heating technology.[41] A 2023 study of the Canadian real estate market indicated that the "brown discount" is becoming larger than "green premiums" for buildings because of the aging of assets and infrastructure.[42] Investors seeking to avoid stranded assets[43] can look to the European Union, which funded the Carbon Risk Real Estate Monitor (CRREM) to help reduce stranding risk exposure. CRREM has developed a toolkit that helps companies use energy and emissions data, along with an analysis of regulatory requirements in the EU, to evaluate the risk of a property becoming a "stranded asset."

To further highlight the potential financial loss from commercial properties, Deepki, a European ESG data intelligence firm, conducted research in 2022 of 250 European pension fund managers, managing a total of €402 billion in assets. Notably, 61% of pension fund managers expect brown discounting of commercial real estate to negatively impact the value of assets by approximately 20 to 40 percent. The green premium for commercial real estate, however, is seen as a significant value add: 68% of fund managers expect to increase allocation to commercial real estate over the next three years because of ESG factors, noting that commercial real estate with ESG credentials is likely to provide better returns over the next five years than traditional real estate investments.[44]

MARKET PREMIUM FOR GREEN BUILDINGS

Growing evidence shows that green buildings[45] represent a lower-risk investment. Energy efficient properties tend to command higher valuations, known as "green premium." Research conducted by JLL shows an average green premium of 7.1% across eight major cities in North America and even higher values in Asia Pacific and the UK.[46] In addition, in a review of primarily U.S. commercial real estate building rentals and purchases between 2013 and 2018, buildings with a green certificate (typically LEED or ENERGY STAR certified) show a 23% rental premium, 17% higher occupancy, and a 46% higher sale price compared to their uncertified counterparts.[47] A more contemporary study using data collected in 2020 found that Western European markets consistently exhibit a statistically significant green building premium, with operating income and transaction prices higher than their non-green counterparts by about 12% and 10% respectively.[48] This study focused on the European market because a significant amount of worldwide investment in building efficiency has come from a small number of European countries.

A comprehensive study examining the relationship between environmental performance and financial indicators in the real estate sector found that environmentally-conscious REITs produce returns with lower variance than generic REITs.[49] These findings suggest that the market efficiently incorporates environmental risk into the pricing of real estate debt. REITs with a higher concentration of environmentally certified buildings are associated with improved operational performance and reduced systematic risk, additional factors that yield lower bond spreads. The positive correlation between environmental certification and financial performance is further supported by empirical evidence indicating that certified buildings tend to exhibit higher and more stable occupancy rates, increased marginal rents, and transaction prices.[50]

TASK FORCE RECOMMENDATIONS:

What Mortgage Lenders Can Do to Kickstart Decarbonization Lending

Task Force Recommendations: What Mortgage Lenders Can Do to Kickstart Decarbonization Lending

Through a series of discussions, the task force identified several key themes and challenges that hold back the building decarbonization financing market. Present on both the supply and demand side of the market, these issues spurred the following recommendations:

	#1	#2	#3	#4
Recommendations	**Understand the evolving climate and building decarbonization regulatory landscape**	**Evaluate the market for green lending**	**Build green finance offerings**	**Embed climate risk and decarbonization considerations into the loan-making processes**
Challenges	• Local and state BPS laws lack standardized sustainability measurements and definitions. • Broad net zero commitments lack specific building emissions reduction targets.	• Building decarbonization work may happen incrementally • Green financial product standardization is nascent.	• Longer payback periods and unfamiliar cash flows associated with decarbonization work hinder underwriting. • Evidence for the value proposition of sustainability has not been integrated into valuations	• Silos within lending institutions. • No consensus on measurements for building performance.
Steps to Take	• Review the current building performance standard (BPS) laws in states and municipalities where buildings are required to report on performance standards • Understand increasing climate risk assessments and Scope 3 carbon disclosure requirements from states, EU, and institutional investors.	• Review your existing mortgage portfolio to understand the aggregate carbon emissions • Review existing mid-cycle products that are being used to finance building decarbonization measures to understand the role of mortgagee in reviewing and providing consent. • Review US green financing specialist practices to understand how they are integrating their products into the capital stack • Study green financing leaders in Europe for precedents in market transformation.	• Create a C-PACE and mid-cycle financing consent framework • Develop green mortgage products	• Establish uniform standards for the measurement and reporting of building performance. • Include a green borrower questionnaire in the underwriting process for existing buildings to assess a potential borrower's decarbonization financing needs. • Ensure underwriting for new loans on buildings subject to BPS laws include costs and benefits of building decarbonization • Work with the third parties consulted during the loan-making process to ensure their evaluation of properties accounts for building decarbonization measures

Recommendation

#1

Understand the evolving climate/building decarbonization regulatory landscape, including building performance standards laws and Scope 3 carbon disclosure requirements to educate both internal teams and borrowers on risks and benefits.

The Challenges:

- **Local and state BPS laws lack standardized sustainability measurements and definitions**. In the absence of federal regulation of building emissions reductions, cities and states have stepped in to create their own laws. More than 13 cities, counties, and states across the US have implemented legislation requiring public, commercial, and/or multifamily buildings to meet performance standards based on energy use, with more than 56 jurisdictions requiring various forms of energy benchmarking reporting. The lack of national building performance standards and so many different state and local regulations and policies makes it difficult for lenders to assess the environmental performance and compliance needs of the assets and the associated risks of fines or other income impairment.

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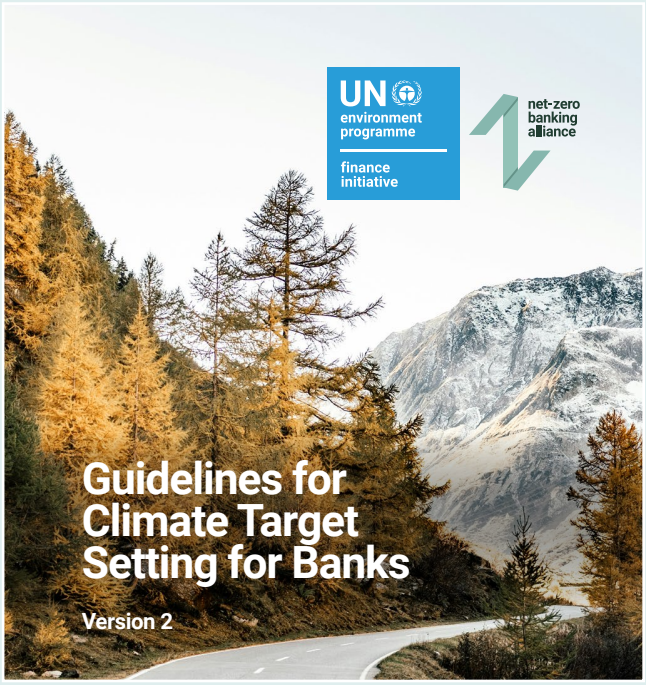
Jurisdictions requiring energy benchmarking

- **Broad net zero commitments lack specific building emissions reduction targets**. Led by the Net Zero Banking Alliance (NZBA) and other industry groups, more and more banks are setting greenhouse gas emissions reductions targets for their institutions at large and for specific sectors they invest in. Yet only 45% have set emissions reductions targets for real estate.[51] In April 2024 NZBA released guidelines on how to set targets that cover Scope 3 emissions (including emissions related to real estate capital markets and underwriting services).[52] This guidance is a good starting point, yet the lack of cohesive Scope 3 regulation in the US will mean disclosure will be difficult to compare between different sectors and institutions.

The Steps to Take:



a. **Review the current building performance standard (BPS) laws in states and municipalities where buildings are required to report on performance standards**. Before diving into individual city or state mandates, refer to the National BPS Coalition–an initiative that consolidates these local efforts–and their partner Institute for Market Transformation (IMT) to see the full landscape of participating municipalities. While rulemaking and enforcement varies by market, BPS laws are often administered by local building departments or environmental agencies.

b. **Understand climate risk assessments and Scope 3 carbon disclosure requirements from states, EU, and institutional investors.** Risks associated with climate change are broadly categorized as physical risks (such as flooding or extreme heat) and transition risks (such as fines imposed by new regulation or outdated infrastructure). Banks that are not already including these types of risk in standard risk assessment may be required by law in the near future, as evidenced by recent guidance from NYS DFS and the Fed's climate risk exercise with large US banks. Begin by reviewing this guidance and the exercise report to understand the types of risks that are being considered for future regulation.

c. **Evaluate different emissions benchmarking standards to decide what is right for your portfolio and practice.** Benchmarking creates the baseline against which carbon reduction goals can be measured. Most importantly, benchmarking allows mortgage lenders to see the level of carbon emissions in their mortgage portfolios and move to finance decarbonization of those mortgages. Start by reviewing the NZBA's overviews of target setting and the disclosure checklist to become familiar with different emissions measurement methods and basic terminology.

Resources:

- Federal reserve climate risk exercise with six large US banks
- KPMG study on the state of financial disclosures
- NZBA guidelines for climate target setting
- NZBA Disclosure Checklist
- Wells Fargo policy brief on existing BPS laws
- IMT's Building Performance Standard initiative

NYCERS
NYC EMPLOYEES' RETIREMENT SYSTEM

NYC Pension Plans to Reach Net Zero

NYCERS Net Zero Implementation Plan - In 2023, the NYC Comptroller released their plans for reaching net zero by 2040 in the investment portfolios of their three largest retirement funds (NYCERS, TRS, and BERS). The plans offer useful precedents for banks and other investors as they lay out how the funds will measure and publish the current emissions in its portfolio. As the Comptroller is at the beginning of the process, their published reports offer useful guides for banks that are also early in devising their own disclosure plans.

Recommendation

#2

Evaluate the market for green lending by reviewing existing mortgage portfolios and their carbon emissions, engaging borrowers on their building decarbonization needs, and assessing existing products and policies from green finance experts.

The Challenges:

- **Building decarbonization work may happen incrementally**. Owners will initiate capital projects as their major building systems reach the end of their useful life. Beyond this trigger, there are certain capitalization events or system failures and emergency replacements that will mobilize decarbonization work: purchase of property, re-financing, and assessment of building performance standard law fines (such as LL97) that will harm cash flow. This incremental nature of improvements to reduce emissions creates challenges matching lending products and proceeds with decarbonization needs. Funds will likely be drawn down at unpredictable intervals and the full value of decarbonization may not be captured within the loan term.

- **Green financial product standardization is nascent**. Green building loans vary considerably across the type of credit, return profiles, and an underlying asset's sustainability attributes. A lack of historical return data and varying building performance metrics pose fundamental challenges. This fragmentation can make it difficult for investors looking for sustainable assets to evaluate different products against one another. A lack of standardization hinders originations and secondary market securitization that can bring additional capital to the building decarbonization market. The development of standards will ultimately make these types of products more competitive with standard building loans.

↘ **"When we look at our NYC portfolio and search for mortgage maturation dates, we find that we have a data problem. We need to normalize the data, allow it to be searched by address, rather than only by zip code."**

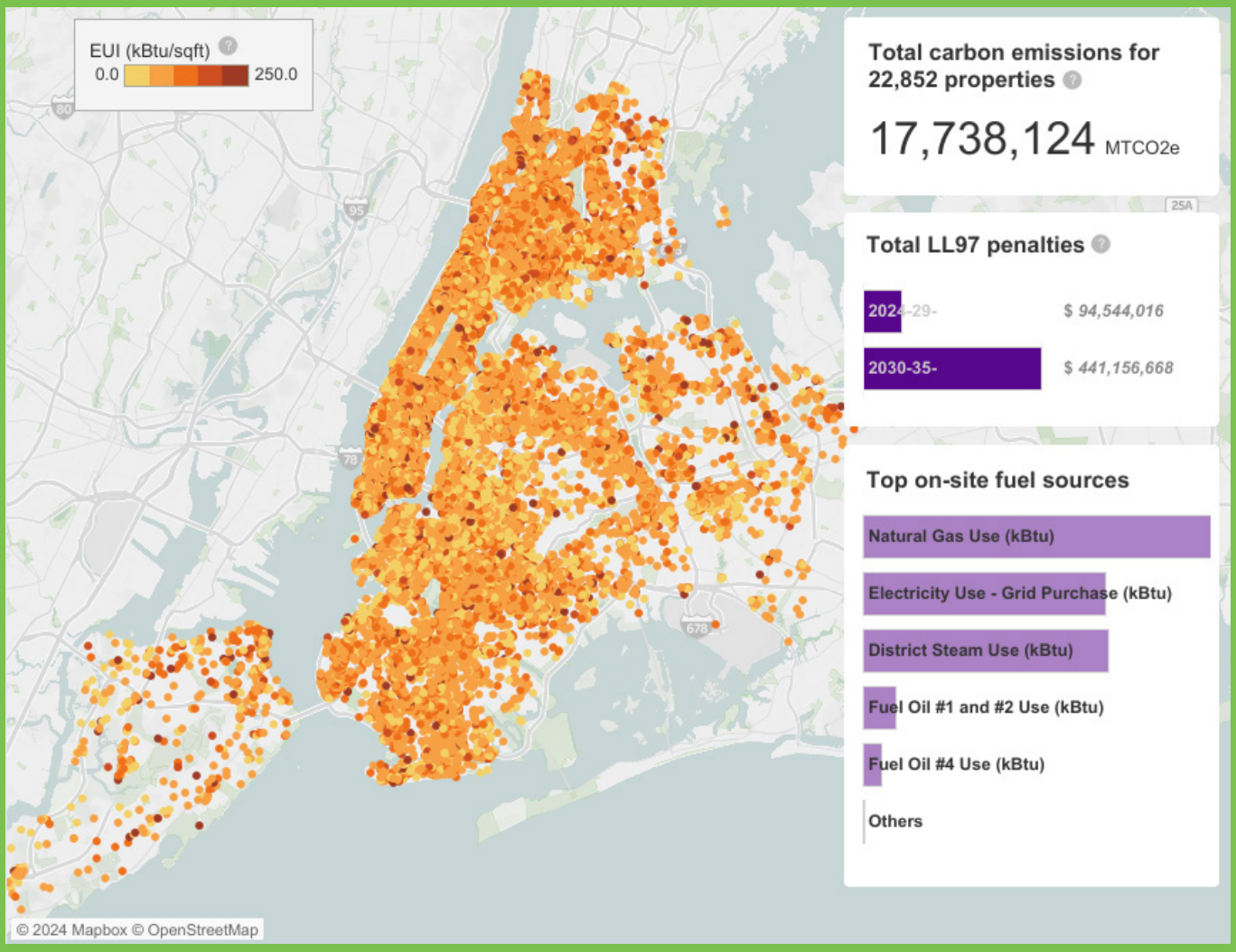
The Steps to Take:

a. **Review your existing mortgage portfolio to understand the aggregate carbon emissions, individual building emissions against BPS goals/penalties, estimated decarbonization costs, and borrower cash flow.** Merging datasets covering building physical characteristics, emissions, and financial performance is the first step to enable lenders to proactively identify new types of climate risk, from grid instability to increased exposure to fines from BPS laws. This will ultimately require updates to internal systems, but preliminary assessments can be made by targeting portfolios of assets in markets where BPS or energy benchmarking rules are already in place and thus enable you to leverage existing sustainability data to compare with more readily available building financial data.

b. **Review existing mid-cycle products that are being used to finance building decarbonization measures to understand the role of mortgagee in reviewing and providing consent.** Since decarbonization work often happens incrementally, many decarbonization financing products take the form of secondary loans that are accessed as work is needed. Different types of products include: Pre-development loans, incentive bridge loans, equipment lending, and C-PACE. As the first lienholder, mortgage lenders will typically need to provide consent for these products. Familiarize your institution with these products and their consent requirements to increase capital sources for your borrowers as you develop your own decarbonization lending products.

NYU's Decarbonization Compass Matches Mortgage and Emissions Data

In NYC, one effective strategy will be to identify buildings subject to LL97 to prioritize those that are the largest carbon emitters and those that are facing the largest penalties under the law. To assist property owners, mortgage lenders and other stakeholders, the NYU Stern Center for Sustainable Business (NYU Stern CSB) has developed the Decarbonization Compass, a data tool that maps and aggregates information on the approximately 23,000 buildings that fall under LL97 emissions reduction mandates. The tool allows users to see the carbon emissions and potential fines applicable to buildings. The data can be filtered by owner, mortgage lender, carbon emissions, potential LL97 fines, energy scores, and more. Uniquely, the tool identifies the existing mortgage holder of buildings covered by LL97, allowing a user to see the top carbon emitting buildings and aggregate carbon emissions in a lender's portfolio.[53] While the tool is still in beta, it provides a useful jumping off point for lenders to begin to dig into their portfolio's exposure to LL97 fines. Any mortgage lender should also verify the Decarbonization Compass data against its own current mortgage inventory, since NYC DOF records, publicly available in ACRIS/NYCOpenData, do not always accurately capture the mortgagor and loan status.



Fewer than

15%

of the buildings in the LL97-covered portfolio contributed more than

50%

of the total aggregated carbon

CASE STUDY: A Lender Portfolio Analysis

A prominent NYC commercial real estate lender worked with NYU Stern CSB, using the NYU Decarbonization Compass, to look at buildings in their portfolio account for that NYC public records show are subject to LL97. The purpose was to help the lender understand the impact of LL97 emissions penalties on its loan portfolio. The analysis also measured the *opportunity* – identifying high carbon emitting buildings that may have sufficient cash flow to support a greater loan amount than carried today, potentially financed through traditional or green mortgage at maturity – providing a roadmap for decarbonization.

Of the 123 buildings on which the bank held mortgages, 14% (17 buildings - 4 multifamily and 13 commercial) contributed 50% of the total 71,940 MTCO2e of carbon being emitted from the portfolio. The estimated cost to decarbonize those 17 buildings, based on cost data provided by MOCEJ, was $60,632,982. Only four of the 17 buildings are projected to receive a fine for non-compliance in 2025, suggesting that the short-term impact of the impending fines on the lender's existing portfolio is limited. A financial analysis of a sample (approximately 10%) of the same 123 buildings reinforced the conclusion that the short-term impact of the impending fines on the lender's existing portfolio would be limited.

Current Performance	Average Loan Amount	Average LTV	Average NOI	Average Current Debt Service	Average DSCR	Average Interest Rate	Average Excess Cash Flow
Commercial	$26,530,854	45%	$3,848,366	$1,904,447	2.02x	5.23%	$1,943,918
Multifamily	$12,073,180	28%	$3,439,607	$692,506	4.97X	4.01%	$2,747,101

To understand the refinance risk of the loans maturing in the next one to two years, the lender prepared two scenarios using that data: (1) the borrower increases the loan amount to pay for decarbonization; and (2) the borrower refinances with a cash neutral loan and elects to pay the LL97 penalty.

↘ Many buildings had adequate cash flow to pay for either decarbonization or LL97 fines.

Scenario 1: Borrower increases the loan amount to pay for decarbonization.
The analysis showed that, on average, the buildings had sufficient cash flow to cover the costs of a refinanced mortgage that included additional funds to pay for decarbonization.[54]

If upgrades are made…	Average GFA*	Cost of Decarb/GFA	Average Cost of Decarb	New Loan Amount	Net Operating Income	Refinance Rate	New DSCR	Excess Cash Flow
Commercial	120,499	$32	$3,869,628	$30,400,482	$3,848,366	6.95%	1.50x	$1,281,618
Multifamily	106,963	$21	$2,201,159	$14,274,339	$3,439,607	5.55%	3.52x	$2,461,649

Scenario 2: Borrower refinances with a cash neutral loan and pays the LL97 penalty.
The analysis showed that, on average, the buildings had sufficient cash flow to cover the penalties in both 2024 and 2030, not including energy cost savings or incentives.[55]

If owner pays the fine instead…	Current Market Interest Rate	NOI w/ 2024 Penalty	2024 DSCR	Excess Cash Flow	NOI w/ 2030 Penaly	2030 DSCR	Excess Cash Flow
Commercial	6.95%	$3,820,358	1.71x	$1,580,328	$3,724,667	1.66x	$1,484,637
Multifamily	5.55%	$3,406,272	4.12x	$2,579,119	$3,321,779	4.02x	$2,494,626

↘ **NOI from from scenarios of paying for decarbonization with green mortgage or paying the LL97 fines is comparable (within 15%) in sample analysis.**

The lender met with managers of two buildings within the sample to gain insight into these findings from the borrower.

- **A large class B office building in Midtown** that is not currently subject to LL97 penalties in 2024 or 2030. The borrower expects that this may change over the next few years due to anticipated new leasing that will increase carbon emissions. The borrower's own cost estimates of the required decarbonization work were lower than those projected by MOCEJ, and they had already taken improvement measures over the past several years, which would defray the cost of remaining decarbonization investment.
- **A 300-unit multifamily building.** The borrower reported having made incremental improvements, including a new boiler and smart thermostats in all apartments, reducing carbon emissions which in turn will be reflected in future penalty assessments.

↘ **While currently decarbonizing incrementally, both borrowers agreed that equipment lifespan and loan maturity were the preferred milestones to evaluate a large decarbonization investment.**

The lender concluded that conducting these analyses of existing borrowers, as well as including a similar analysis and evaluation of a borrower's plan for LL97 in the underwriting process, will provide some good first steps for lenders to help lead decarbonization efforts.

*For a complete and detailed explanation of the portfolio analysis, both process and findings, **see appendix**.*

Guide to Green Lending Products

The NYC Accelerator is the City's help desk for building owners seeking to decarbonize their buildings. They offer technical assistance to owners and connect them with service providers, contractors, and financiers. As part of their efforts to help owners access financing, they have created resources such as short lists of pre-qualified lenders and a guide to the different types of decarbonization financing products. This guide is also helpful for lenders to understand how different mid-cycle financing products may be used and how they complement first mortgages.

Resource: NYC Accelerator overview of green lending products and when to use them

Inflation Reduction Act Resources for Building Owners

Mortgage lenders can also help borrowers leverage the incentives included in the Inflation Reduction Act, the largest ever federal investment toward emissions reductions. Below is a summary of the new resources available through the IRA, how they apply to different types of building owners and lenders, and how they can be accessed.

Tax Credit/Program	Eligible Property	Purpose/Details	Incentive
New Energy Efficient Home Credit (Sec. 45L)	• New or substantially reconstructed single-family or multifamily homes that meet ENERGY STAR or Zero Energy Ready Home Program standards	• Tax credit for energy efficient properties	• $500-$5,000 per dwelling unit
Energy Efficient Commercial Buildings Deduction (Sec. 179D)	• Commercial buildings and multifamily buildings (greater than 3 stories)	• Install energy-efficient building envelopes, HVAC systems, hot water systems, or interior lighting systems	• Deduction of up to $1.00 per square foot for 25% energy savings
Energy Credit/ Investment Tax Credit (Sec. 48)	• Multifamily buildings	• Tax credit for eligible electricity generation and energy efficiency equipment (e.g., geothermal, solar)	• 30% of eligible costs, with additional benefit for domestic content and certain geographies
Home Energy Rebate	• Various residential properties	• Rebates for upgrades to heat pumps, HVAC, water heaters, circuit panels, wiring, and insulation	• State-administered rebates of up to $8,000 per unit or up to 80% of project costs
HUD Green and Resilient Retrofit Program (GRRP)	• HUD-assistend multi-family properties	• Three pathways for building retrofits to improve efficiency and resiliency including onsite renewables	• $40-80,000 per unit, up to $20M per property

Source: US Treasury summary of benefits for MF building owners

Greenhouse Gas Reduction Fund (GGRF) - The GGRF was created under the IRA, managed by the EPA, and consists of $27B in federal funding intended to mobilize private capital to address the climate crisis with three programs: the National Clean Investment Fund (NCIF) with $14 billion for affordable clean technology financing; the Clean Communities Investment Accelerator (CCIA) with $6 billion to capitalize community lenders and for technical assistance to support clean technology deployment specifically in low-income and disadvantaged communities; and Solar for All (SFA)—$7 billion for grants to expand access to solar for low-income households through funding and financing through states, territories, Tribal governments, and select municipalities and nonprofits.

Wanting to leverage significant private capital, the eight GGRF recipients that will serve as intermediaries in moving these federal funds under the NCIF and CCIA, are actively looking to work with all first mortgage lenders to provide low cost subordinate debt capital to support decarbonization of new loans.

With first investments beginning to close in Q1 2025, the Community Preservation Corporation's newly created subsidiary Climate Capital, an NCIF awardee, is developing industry standards for:

- Decarbonization of existing buildings
- Building a new carbon free building
- Operations & maintenance plans to achieve net zero over time
- Database of building performance for first mortgage lenders to adapt
- Case studies and success stories

a. **Review US green financing specialist practices to understand how they are integrating their products into the capital stack.** Building decarbonization financing has mostly been a niche market in the US, but several programs and institutions provide useful guides for lenders entering the field.

b. **Mortgages** - Green mortgages provide lower rates or higher proceeds for buildings that reach certain efficiency or performance standards. Fannie Mae provided $8.9 billion in green mortgage financing to support more climate-efficient housing in 2023 and, while important, it's only 2.4 percent of the company's $371 billion financing volume.[56] Fannie's sustainable mortgage program for multifamily buildings, Green Financing Business, provides modest rate benefits for meeting energy efficiency standards (typically 0.1 percentage points).[57] Only 14 percent of the multifamily loans that Fannie financed in 2023 were in its green program. Freddie Mac offers a Multifamily Green Advantage program for borrowers who reduce their energy consumption by at least 15% and also reduce energy and/or water whole property consumption by an additional 15% for a total of 30% reduction.[58]

i. **C-PACE** - C-PACE is a public-private financing program, enabled by state legislation, in which commercial property owners can obtain low-cost, long-term financing for energy efficiency, climate resiliency, water conservation, and renewable energy projects. The loan debt runs with the property and is repaid together with property taxes as a special assessment.More than $2 billion in projects have been financed with C-PACE, according to the U.S. Department of Energy, but almost all of these projects have taken place outside of NY. Nuveen Green Capital is one of the country's largest C-PACE lenders in the US, with $822.3M in financing in 2023.[59]

i. **Equipment and Subordinate Loans** - Many financing opportunities exist for funding energy efficiency equipment, ranging from support for purchasing, leasing, performance contracting, and purchase service agreements. Other loan products offered by many green banks include energy services agreement, power purchase agreement loans, green pre development and bridge loans. Some lenders often give these loans with favorable terms in order to demonstrate their commitments to sustainability and decarbonization.

b. **Study green financing leaders in Europe for precedents in market transformation.** A key strategy to decarbonizing Europe's existing buildings is expanding the green mortgage industry.[60] Europe's stronger regulatory regime and long history of sustainability commitments has resulted in a more mature market for decarbonization lending. Examples form the UK's Green Finance Institute and Deutsche Bank provide useful precedents:

Example 1: In the UK, data from the Green Finance Institute shows that the green mortgage industry in the UK is gaining momentum.[61] In fact, green mortgages now represent 15% of the total market in the UK[62] with 37 major mortgage lenders offering 60 green mortgage products, each with its own set of criteria.63 UK lenders offer a lower interest rate, give cash back, or increase loan proceeds to incentivize the purchase of a green building or decarbonizing an existing one. While the focus has been greatest on residential lending, several

Green Finance Institute

UK banks offer favorable interest rates on commercial green mortgages for properties with higher EPC scores. Barclay's has a special Green Loan that can be used for commercial properties with EPC ratings of B or above.67

Example 2: In Germany, Deutsche Bank (DB) has a mortgage lending portfolio of more than 1.5 million properties and offers "financing and investments related to the construction, acquisition, operation, and renovation of new and existing building (with a minimum energy-efficiency upgrade) in the commercial and residential real estate sector." Offering green mortgages (i.e. mortgages with more favorable terms or increased loan amounts for energy efficient properties or enhancements) and financing DB has capitalized on an estimated €600 billion demand for energy modernization. In addition to providing financing solutions, DB is creating a consulting practice to assist their customers with their energy retrofits.

Deutsche Bank

Resources:

- Financing High-Performance (CPC)
- Fannie Mae multifamily decarbonization lending training webinar
- CPACE for Mortgage Lenders and Mortgage Lender Consent
- Funding Your Decarbonization Project
- Energy Star Finance Energy Efficiency Projects
- NYCEEC Products
- NYC Accelerator overview of green lending products and when to use them

Recommendation

#3

Build green finance offerings by increasing availability of mid-cycle products and developing green mortgage products for existing and prospective borrowers.

The Challenges

- **Longer payback periods and unfamiliar cash flows associated with decarbonization work hinder underwriting**. Debt coverage ratio and available cash flow for loan repayment are the primary concerns for lenders, but many building decarbonization improvements may result in expense increases (such as with the shift from cheap fossil fuels to more expensive electricity), provide value through avoided costs (such as future fines or increases insurance), and have long payback periods. Any financing solution must preserve adequate cash flow for the full lending term and take into account the full spectrum of inputs on the expenses (energy costs, insurance, BPS fines) and revenues (efficiency, on-site power production) that will impact cash flow available for debt service and reserves.

- **Evidence for the value proposition of sustainability has not been integrated into valuations.** High efficiency, low emissions buildings have been shown to have higher valuations. Lenders lack historical data on sustainable real estate or sustainable financial products, however, as they conduct underwriting. The data that is available has not been widely circulated or incorporated into common practice, meaning that the "green premium" is not considered in determining an asset value. More loan proceeds for building decarbonization will come with higher appraised values and increased net operating income that results from more efficient buildings. Of course, that efficiency can only be achieved when capital is made available for the required improvements to building systems.

The Steps to Take:

a. **Create a C-PACE and mid-cycle financing consent framework and standardize loan documents to streamline institution's approval of secondary financing for building decarbonization work.** Some mid-cycle financing for decarbonization improvements such as C-PACE require sitting in a first lien position on the property. In the case of C-PACE this can enable longer terms that capture the longer payback periods of certain improvements. As senior lienholders, mortgage lenders must provide consent for these types of products. While one solution is for your institution to become a C-PACE lender to layer in these types of products, the more common scenario will be for your institution to provide consent for this additional financing. Review existing materials from the C-PACE Alliance on how to create consent frameworks to enable more predictable processes for your borrowers.

b. **Develop green mortgage products that include features such as additional proceeds for efficiency and electrification capital work and rate benefits for reaching emissions reduction or efficiency standards.** Most building decarbonization lending currently takes the form of secondary loans for specific improvements, but a green mortgage can capture the full value of the impact decarbonization work can have on a building's efficiency, operations, resiliency, and asset appreciation. Linking efficiency and emissions performance with loan features such as rate reductions or additional proceeds can align lender and borrower incentives to improve the value of the asset while mitigating against the risk of exposure to increasingly stringent BPS laws and other climate regulation. At present, the primary benefit many green mortgages offer to lenders is their classification as sustainable assets, opening up the universe of investors willing to invest in the product. As climate regulations increase and decarbonization costs come down, however, it is expected they will become a more mainstream part of the market, similar to their growth in Europe.

Resources:

- CPACE Alliance policy brief on C-PACE consent considerations overview and precedents
- Overview of Fannie Mae's Green Rewards program that offers rate and proceeds benefits for building efficiency improvements
- Financing Your Building Upgrades: Find Ways To Pay for Energy Improvements

Wells Fargo Green CMBS

In 2024, Wells Fargo issued a Green-labled $450 million CMBS secured by a 958 unit residential building in Long Island City that achieved LEED Platinum. The issuance received a second party opinion from Sustainalytics that verified the issuance conformed with green and sustainability bond principles. The loan includes covenants that require the property to remain in compliance with NYC building regulations, including Local Law 97. This type of loan is representative of the opportunity for green financing for high performance buildings and that local building regulations were specifically highlighted in the second party opinion as environmental risk controls.

Decarbonization Finance Recommendations for New York Policymakers and Regulators

Although this report focuses on recommendations for mortgage lenders, the Task Force also identified several important steps that local New York policymakers can take to support decarbonization lending:

#1 Develop standards for building decarbonization planning, incentives, and loan programs to reduce barriers for building owners and lenders

a. Align building decarbonization plan requirements so that a single study can be used for multiple processes such as loan applications, BPS compliance, and incentive applications. Standard plans should incorporate existing equipment useful life analysis to encourage progressive decarbonization work.

Resources:

- NYSERDA's FlexTech Program
- Building Energy Exchange
- Integrated Physical Needs Assessment

b. Create a common application for incentives at the state and local levels to reduce redundant applications for building owners and contractors

Resources:

- The New York State Affordable Multifamily Energy Efficiency Program (AMEEP)

c. As green mortgages and mid-cycle products targeting building retrofits come to market, create standardized loan designation or branding to increase borrower awareness

#2 Better align existing incentives, explore new incentives, and make C-PACE more flexible to increase capital availability and drive down the cost of building decarbonization

a. Align existing and proposed incentives and funding sources (i.e. New Energy New York, Cap and Invest) to allow for maximum support and the potential to aggregate building decarbonization capital improvements.

b. For C-PACE loans, continue to evaluate and adjust programmatic guidelines to encourage financing for decarbonization improvements with longer payback periods, such as continuing to expand the list of prequalified measures, on which cost benefit ratio calculation is not required.

c. NYS and NYC should explore the feasibility of a local credit/certification framework for green mortgages to incentivize traditional mortgage lenders to become decarbonization lenders.

d. Consider a new property tax abatement and design existing abatements to target capital expenditures associated with LL97 compliance improvements that do not have short payback periods, such as electrification and envelope work.

e. Consider reducing mortgage recording tax rate for green mortgages that fund emissions reduction work on existing buildings

f. Share estimated LL97 fines with building owners to encourage investments in efficiency and electrification.

Recommendation

#4

Embed climate risk and decarbonization considerations into the loan-making processes, including applications, underwriting, origination, and compliance.

The Challenges:

- **Silos within lending institutions.** Lenders have a wide range of departments that operate internally with different goals, priorities, and levels of knowledge related to sustainability and climate risk, creating a core challenge to embedding climate into standard operating procedures. The underwriting, risk management, compliance, and asset management teams, for example, may not all have the same understanding of building decarbonization or its regulatory requirements. Without cohesive collaboration and communication across these departments, lenders risk making disjointed decisions, missing regulatory requirements, or failing to adequately assess climate-related risks. This fragmentation can hinder mortgage lenders' ability to integrate decarbonization strategies into their lending practices effectively.

- **No consensus on measurements for building performance.** Currently, most green loans verify building performance through third party certifications such as LEED, BREEAM, or Passive House, with a smaller number requiring borrowers to achieve certain efficiency or emissions milestones. On top of the different certifications, building owners also must comply with local building performance regulations. The lack of an industry standard for lenders, borrowers, and investors leads to fragmentation and introduces friction into the green lending market–certain investors may require one sustainability measure while lenders and building owners have another, cutting off the opportunity for a transaction.

The Steps to Take:

a. **Establish uniform standards for the measurement and reporting of building performance.** Uniform standards enable integration of sustainability and financial metrics in processes throughout the loan life cycle such as underwriting, asset management, and compliance. Integrate standard measurements into a data dictionary to flow across different processes.

   Looking forward, the US DOE has developed a national definition of a zero emissions building to provide guidance to governments and the real estate industry. While it is not enforceable, the standard was developed with input from a range of stakeholders to be broadly applicable so that it may be adopted in future federal regulation.

b. **Include a green borrower questionnaire in the underwriting process for existing buildings to assess a potential borrower's decarbonization financing needs.** To begin elevating sustainability issues with borrowers, lenders should engage borrowers early in the loanmaking process. The questionnaire should capture whether a borrower has established plans to deploy capital for decarbonization in the face of building performance standards. as well as to capture design, operations, and capital plans that contribute generally to a building's performance and emissions.

Example: In 2022, Mortgage Industry Standards Maintenance Organization (MISMO), the real estate finance industry standards organization, launched the Commercial Green Borrower Questionnaire. This is the first resource that standardizes questions for commercial lenders to ask borrowers when gathering information for originating, underwriting or servicing commercial loans. By standardizing a set of questions for borrowers to answer when applying for a commercial loan, MISMO hopes to promote a consistent set of data, thereby making it easier for lenders to measure and report their Scope 1, 2, and 3 activities.

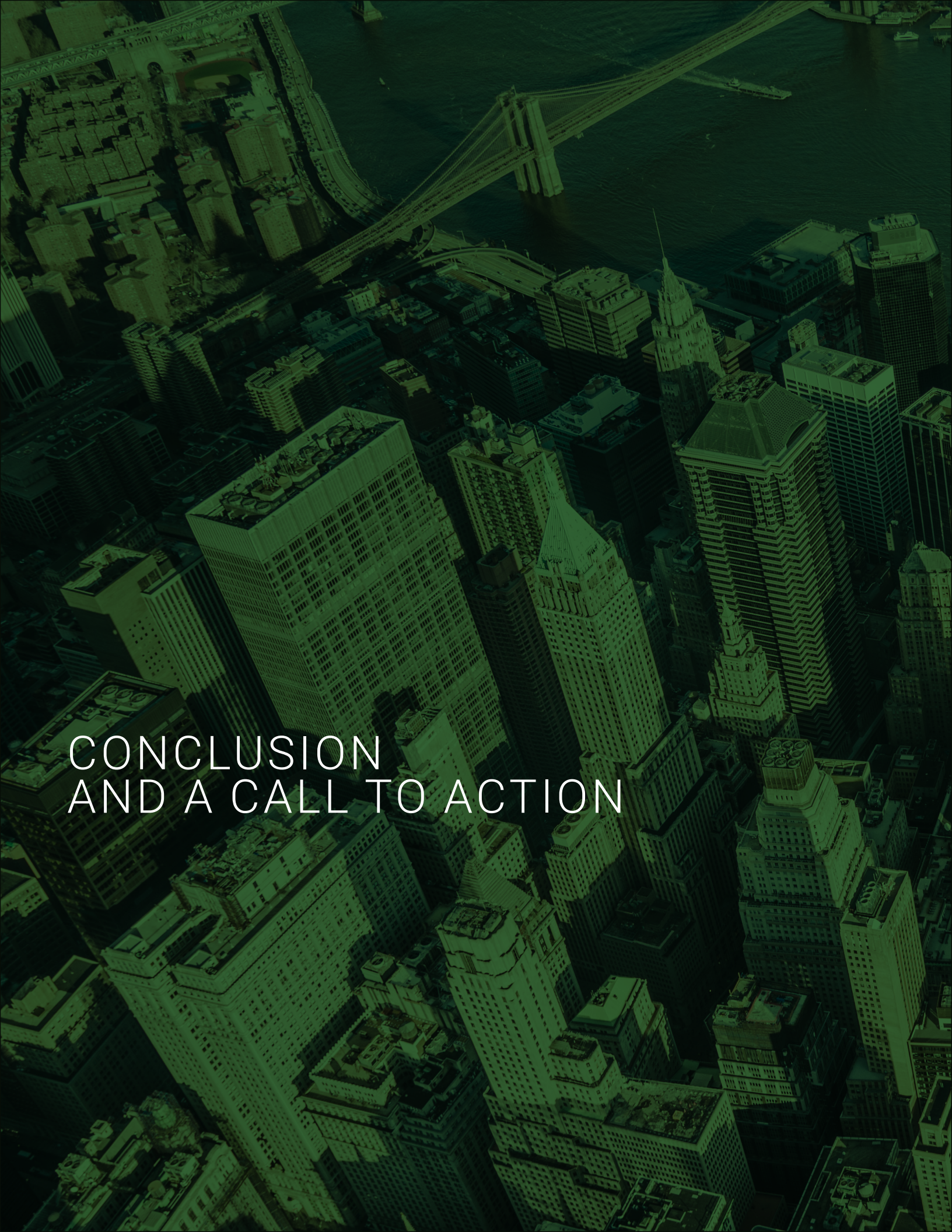
c. **Ensure underwriting for new loans on buildings subject to BPS laws include costs (capital work, utilities) and benefits (avoided fines, improved efficiency, risk mitigation) of building decarbonization capital work and an ongoing operations and maintenance plan.** BPS laws with prescribed fine or penalty schedules offer a useful starting place to begin integrating the cost of building decarbonization into underwriting. Looking at the impact of fines on future cash flows provides a simple way to size the capital plan for decarbonization work that mitigate these fines. From there, lenders can add in more nuanced inputs on utility costs, operations and maintenance, and risk mitigation that will also result from decarbonization work.

Example - CPC Underwriting Efficiency Community Preservation Corporation (CPC) is one of the nation's leading non-profit multifamily lenders. Over the last decade CPC have built out the climate lending practice, culminating in their recent $7B award through the EPA's Greenhouse Gas Reduction Fund. They have compiled their learnings on building decarbonization lending into the "Underwriting Efficiency" handbook. This guide is a practical handbook for lenders on how to incorporate energy and water efficiency opportunities in multifamily housing in order to realize higher NOI for their borrowers.

d. **Work with the third parties consulted during the loan-making process, such as engineers and appraisers, to ensure their evaluation of properties accounts for building decarbonization measures and their associated impacts.** Lenders rely on inputs from third party appraisals and building inspections to verify their own diligence and underwriting. The deliverables from these external consultants should be based on the building performance standards the lender expects the asset to reach and make appropriate recommendations to ensure the borrower has a capital and operational plan in place to meet these performance standards.

Resources:

- CPC Underwriting Efficiency handbook
- Carsey School's Practitioners' Guide to Community Lending for a Just and Equitable Energy Transition
- A new way to decarbonize buildings can lower emissions—profitably," McKinsey Quarterly, November 29, 2023.



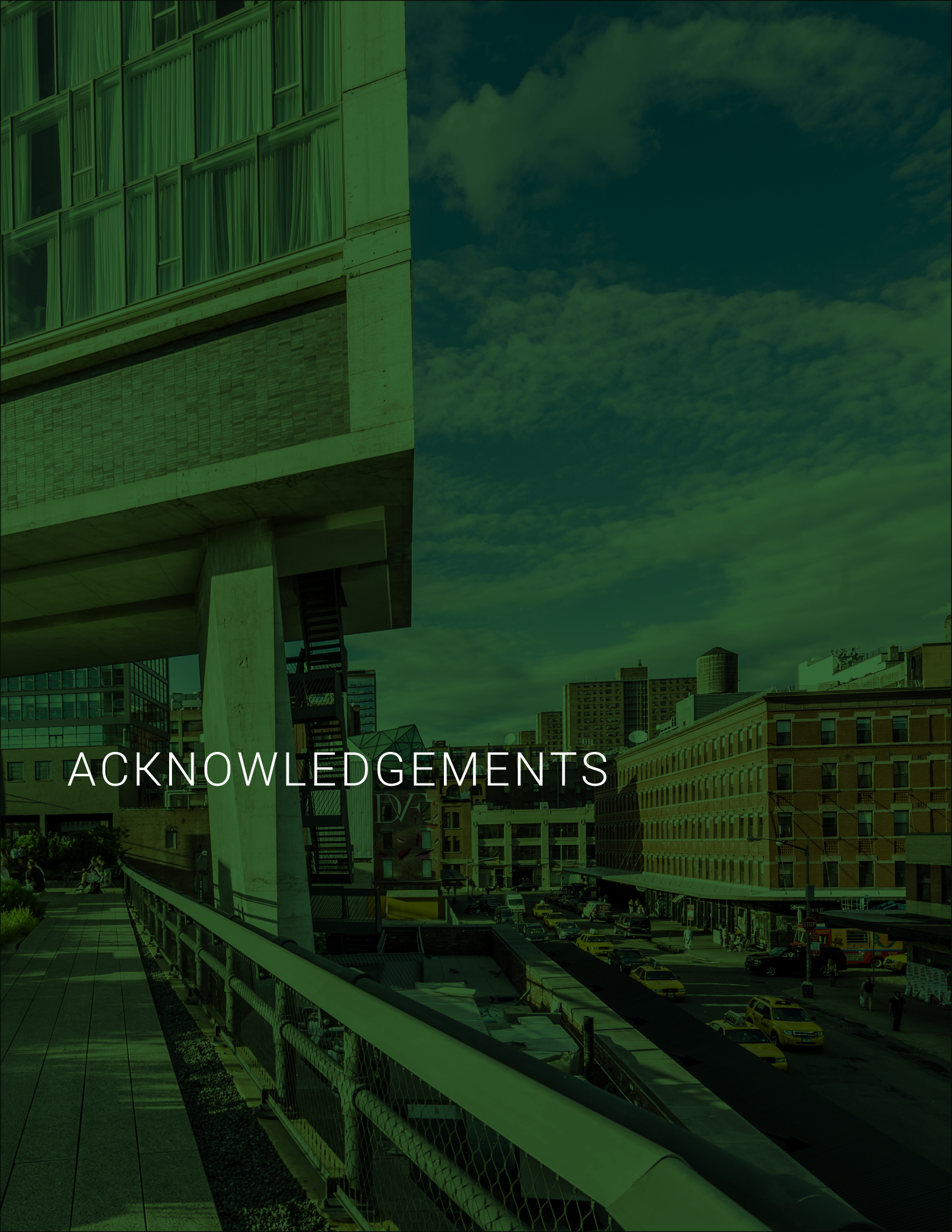
CONCLUSION AND A CALL TO ACTION

We are at the starting line in growing the US building decarbonization finance market. While climate regulation and green financing markets mature, policymakers, real estate owners, investors and lenders can act to develop the building decarbonization ecosystem and accelerate emissions reduction from the built environment. The mortgage industry will play a pivotal role. This paper provides tactical recommendations and precedents for lenders to understand how they can seize this new market opportunity, beginning with New York City, and accelerate green finance markets nationally.

"We are at **the starting line."**

NYCEDC and NYU's Continued Work on Decarbonization Finance

Beyond these recommendations, NYCEDC will support this work by continuing to engage the lending community through the NYC LL97 Mobilization Taskforce for Funding and Financing, increasing opportunities to accelerate building decarbonization and grow the local green economy. NYU CSB and NYU Stern Chen Institute will build the next iteration of the Decarbonization Compass to help mortgage lenders understand and benefit from the green finance opportunities.



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All comments are anonymous unless expressly authorized by task force members. Specific proposals are not necessarily endorsed by participating individuals or institutions. The recommendations in the report should not be imputed as formal recommendations from the New York City Economic Development Corporation, or other New York state or city agencies.

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APPENDIX

Lender Portfolio Analysis: Process and Initial Findings

A prominent New York City Commercial Real Estate lender worked together with the NYU Stern CSB team, tapping the NYU Decarbonization Compass to look at buildings in the lender's investment real estate portfolio that NYC public records show are subject to LL97. The purpose was to help the lender understand the impact of LL97 emissions penalties on its clients and existing real estate loan portfolio. Concurrently, this analysis also measured the opportunity – identifying high carbon emitting buildings that may have sufficient cash flow to support a greater loan amount than carried today, potentially financed through traditional or green mortgage at maturity – providing a roadmap for decarbonization.

The data tool showed that 618 buildings in the lender's portfolio are subject to LL97. But, it was necessary to refine the data for the subset representative of the lender's direct credit exposure, as NYC DOF records, publicly available in ACRIS/NYCOpenData, do not always accurately capture the mortgagor and loan status.[64] Given potential nuances to organization structure, public filing identification, and data homogenization, any mortgage lender conducting a similar analysis will need to verify the Decarbonization Compass data against its own current mortgage inventory. The lender reviewed the remaining list against its own mortgage records and verified that the bank held direct mortgages on 123 buildings.

Next, NYU Stern CSB and the lender utilized the list of 123 loans (45 multifamily and 78 commercial) collateralized by LL97-covered buildings and calculated the aggregate carbon emissions based on the Decarbonization Compass data. Of those 123 buildings, only 14% (17 buildings - 4 multifamily and 13 commercial) contributed 50% of the total 71,940 MTCO2e of carbon being emitted (0.0067 MTCO2e/sf). The estimated cost to decarbonize those 17 buildings, based on age data provided by MOCEJ, was $60,632,982. Moreover, just four of the 17 buildings are projected to receive a fine for non-compliance in 2024, suggesting that the short-term impact of the impending fines on the lender's existing portfolio is limited.

To analyze this transition risk further, the lender took a representative sample of 13 (10 commercial and 3 multifamily) buildings that are projected to exceed their respective carbon emissions limit in 2030, therefore facing fine exposure. It reviewed the current performance of the sample buildings, analyzing average loan amount, average LTV, average NOI, average current debt service, average DSCR, average interest rate, and average excess cash flow. This provided a high-level understanding of the financial health of the buildings and reinforced the conclusion that the short-term impact of the impending fines on the lender's existing portfolio would be limited.

Current Performance	Average Loan Amount	Average LTV	Average NOI	Average Current Debt Service	Average DSCR	Average Interest Rate	Average Excess Cash Flow
Commercial	$26,530,854	45%	$3,848,366	$1,904,447	2.02x	5.23%	$1,943,918
Multifamily	$12,073,180	28%	$3,439,607	$692,506	4.97x	4.01%	$2,747,101

The average loan maturity date was July 2025 for the commercial assets in the sample and January 2026 for the multifamily assets. To gain meaningful insight on the potential refinance risk of these loans, the lender prepared two comparison scenarios using that data: (1) the borrower increases the loan amount to pay for decarbonization and efficiency upgrades; and (2) the borrower refinances with a cash neutral loan and elects to pay the LL97 penalty.

Scenario 1: Borrower increases the loan amount to pay for decarbonization and efficiency upgrades.
Using the MOCEJ decarbonization cost estimator, the lender calculated the average, projected decarbonization costs for both the commercial ($32/sf) and multifamily buildings ($21/sf). The analysis showed that, on average, the buildings had sufficient cash flow to cover the costs of a mortgage that included additional funds to pay for the projected decarbonization costs.

Note, the average loan-to-value of the commercial sample was 45% based on the most recent appraisal data, however, cap rates on certain asset classes continue to expand, which may constrain the amount of additional leverage available.

If upgrades are made...	*Average GFA**	*Cost of Decarb/ GFA*	*Average Cost of Decarb*	New Loan Amount	Net Operating Income	Refinance Rate	New DSCR	Excess Cash Flow
Commercial	*120,499*	*$32*	*$3,869,628*	$30,400,482	$3,848,366	6.95%	1.50x	$1,281,618
Multifamily	*106,963*	*$21*	*$2,201,159*	$14,274,339	$3,439,607	5.55%	3.52x	$2,461,649

Scenario 2: Borrower refinances with a cash neutral loan and elects to pay the LL97 penalty.
Using fine projections from the Decarbonization Compass,[65] the average penalty to be incurred by the commercial properties was $28,008 ($0.23/sf) and $95,690 ($0.79/sf) in 2024 and 2030, respectively. Similarly, the multifamily properties are projected to incur average penalties of $33,335 ($0.31/sf) and $84,493 ($0.79/sf), in 2023 and 2024, respectively. Analysis of this scenario concluded that, on average, the buildings had sufficient cash flow to cover the penalties in both 2024 and 2030.

If the owner pays the fine instead....	Current Market Interest Rate	NOI w/ 2024 Penalty	2024 DSCR	Excess Cash Flow	NOI w/ 2030 Penalty	2030 DSCR	Excess Cash Flow
Commercial	6.95%	$3,820,358	1.71x	$1,580,328	$3,724,667	1.66x	$1,484,637
Multifamily	5.55%	$3,406,272	4.12x	$2,579,119	$3,321,779	4.02x	$2,494,626

Note, these simplified analyses did not include energy cost savings or discount the decarbonization costs based on applicable incentives. The analyses also did not include NOI rent growth or decline assumed that the entire loan was made a current market pricing for an office or multifamily asset. Notably NOI was assumed to remain constant, and the lender and NYU were not able to evaluate the NOI improvement from decarbonization.

Finally, while these analyses were valuable to understand the potential opportunity within a portfolio broadly, when performed on any single property in isolation, it was a best practice to request insight from its borrower. The lender met with the asset managers of buildings within the sample set to test the findings.

- For a large class B office building in Midtown, the borrower noted that they do not foresee LL97 penalties in 2024 or 2030, which they attribute to the lack of physical density currently at the property, along with the standard length of the workday utilized by its tenants. The borrower does expect that this may change over the next few years due to anticipated new leasing. The borrower conveyed that their own cost estimates of the work required were lower than the MOCEJ decarbonization cost estimator projected and that they had taken improvement measures over the past several years including a new chilled water system, which defrayed the cost of remaining decarbonization investment.
- For a 300-unit multifamily building, similarly, the borrower reported incremental improvements including a new boiler installation and smart thermostats in all apartment units that were not yet reflected in the projected annual penalty assessments, given the measurement period.

Concerns shared among the borrowers were grid capacity, reliability of electric heating and cooling technology, and future revisions to LL97 legislation. Both funded the progressive improvements with excess property cash flow and did not expect to pursue a green mortgage for future improvements, though both agreed that equipment lifespan and loan maturity were the preferred milestones at which they would evaluate a large decarbonization investment.

In conclusion, mortgage lenders may choose to use the Decarbonization Compass for insight on the LL97 readiness of its existing portfolio and can aid in the identification of additional lending opportunities. However, the data retrieved from the tool should not be used without scrutiny and direct insight from borrowers. If exercised, these monitoring measures, along with evaluation and underwriting inclusion of a borrower's plan for LL97 at loan origination provide a foundation for the leadership role of lenders in decarbonization efforts.

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