

# Integrating Energy Efficiency into Mortgage Financing: Promising Efforts in the New York City Multifamily Building Sector

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When McKinsey & Company first released its global cost curve for greenhouse gas abatement in 2007, proponents of energy-efficient retrofits of buildings rejoiced. Here was a respected analytical framework that supported what they understood intuitively: that simple, tried-and-true measures associated with building retrofits could be implemented at net-present value “negative cost.”<sup>1</sup> In other words, using relatively mundane technologies (such as insulation, air sealing, efficient boilers) would not only reduce carbon emissions but would pay for themselves in savings over time. At least one aspect of the massive greenhouse gas reduction challenge appeared to be easy low-hanging fruit.

Unfortunately, this fruit has not been as low-hanging as policy wonks once thought. Market demand has yet to propel energy efficiency into the mainstream, and the reasons for its limited uptake are as myriad as the types of buildings that make up the potential retrofit marketplace.

From the vantage point of Deutsche Bank’s community development activities, we see some promising initiatives that treat energy efficiency upgrades not as a separate, stand-alone transaction, but as a component in existing transactional frameworks, namely the multifamily mortgage refinancing process.

## **Focusing on the New York City’s Multifamily Submarket**

If it could be aggregated, the investment potential for energy efficiency is huge. A study by Deutsche Bank Climate Change Advisors and The Rockefeller Foundation estimates a \$279 billion investment opportunity in the United States across the residential, commercial, and institutional market segments, saving \$1 trillion over 10 years.<sup>2</sup> However, in the same paper, the authors identified a taxonomy of 17 separate market segments within three broad

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1 McKinsey & Co., “Reducing US Greenhouse Gas Emissions: How Much At What Cost?” (New York: 2007). Available at [http://www.mckinsey.com/client\\_service/sustainability/latest\\_thinking/reducing\\_us\\_greenhouse\\_gas\\_emissions](http://www.mckinsey.com/client_service/sustainability/latest_thinking/reducing_us_greenhouse_gas_emissions); and McKinsey & Co., “The Impact of the Financial Crisis on Carbon Economics” (New York, 2010). Available at: [http://www.mckinsey.com/~media/McKinsey/dotcom/client\\_service/Sustainability/cost%20curve%20PDFs/ImpactFinancialCrisisCarbonEconomicsGHGcostcurveV21.ashx](http://www.mckinsey.com/~media/McKinsey/dotcom/client_service/Sustainability/cost%20curve%20PDFs/ImpactFinancialCrisisCarbonEconomicsGHGcostcurveV21.ashx).

2 Rockefeller Foundation & Deutsche Bank Climate Change Advisors, “United States Building Energy Efficiency Retrofits: Market Sizing and Financing Models” (New York: March 2012), p.3. Available at <http://www.rockefellerfoundation.org/news/publications/united-states-building-energy-efficiency>.

categories of residential, commercial, and institutional. (As a further indication of the industry's complexity, this taxonomy does not include 21 different industrial sub-segments not covered in the paper.)

Each submarket demonstrates different energy use characteristics and varying ownership and leasing structures that drive decision-making. Each submarket thus may require a different technical and marketing approach to a retrofit solution. Tapping the aggregated opportunity involves many individual decisions at the building level to take on the cost and hassle of these transactions, for a payoff that is perceived to be limited and uncertain.

A number of factors make the New York City multifamily sector a promising submarket for scaling energy efficiency. Multifamily buildings compose a significant share of the city's housing stock, with 64 percent of its housing units in buildings with more than four units.<sup>3</sup> Because of the city's scale and density, there is a rich community development ecosystem, composed of highly sophisticated local government, nonprofit, and financial stakeholders who are fairly united in recognizing the alignment between carbon reduction and community development goals. After all, not only do the retrofit measures—such as air sealing, upgrading boilers and heating systems, adding insulation—reduce greenhouse gas emissions, but they are associated with outcomes that improve the lives and living conditions of low- and moderate-income New Yorkers. These include greater resident comfort and improved health and more financial stability for housing assets. In New York City, there is a critical mass of local actors who are willing to put shoulder to grindstone to deliver these outcomes.

Other factors make New York City a promising multifamily submarket to go to scale with energy efficiency. Tenants, for example, usually pay their in-unit electricity bills, while the owner typically pays heat, hot water, and common area electricity. This arrangement helps to mitigate the split incentive that has bedeviled retrofit efforts in multi-tenanted commercial office buildings where building owners bear the cost of much of the energy usage. Approximately one-half of a building's energy cost (heat, hot water, and common area electricity) is borne by the owner. As a result, significant potential savings are aggregated in a single decision-maker.

Furthermore, the City of New York has taken significant policy steps to integrate environmental standards into its housing policies. In 2011, NYC's Department of Housing Preservation and Development (HPD) adopted Enterprise's Green Communities Criteria for all HPD-financed housing. Local laws passed by the Bloomberg administration's Greater Greener Buildings Plan in 2011 require building owners whose properties are over 50,000 square feet to report their energy use annually and make the information publicly available, as well as undergo an ASHRAE Level II audit every 10 years. These disclosure rules and auditing requirements are making building owners more attentive to their energy use.

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3 Statistic provided by Elizabeth Greenstein from New York City Department of Housing Preservation and Development (HPD), citing HPD's "New York City Housing and Vacancy Survey" (New York: HPD, 2011). Available: <http://www.nyc.gov/html/hpd/html/pr/vacancy.shtml>.

## The Limitations of the Stand-Alone Retrofit Model

As stand-alone transactions, energy efficiency upgrades appear insufficiently compelling to most multifamily owners. The hassle and transaction costs (particularly auditing and engineering) are relatively high in relation to the potential savings. Multifamily incentive programs at the New York State Energy Research and Development Authority (NYSERDA) have penetrated approximately 6.7 percent of the multifamily marketplace in New York City since the program's launch in 2007.<sup>4</sup> Lindsay Robbins, Project Manager at NYSERDA, told me that it was rare that building owners initiated stand-alone energy efficiency improvements. Rather, they come to NYSERDA when their buildings require significant capital improvements (such as a new boiler), and it is sensible to access NYSERDA technical assistance and incentives to accomplish a broader building upgrade in the most effective and cost-efficient manner.

A number of key players in the city's multifamily sector have been attempting to integrate energy efficiency into typical financing that building owners are familiar with rather than stand-alone transactions. Aligning energy efficiency with the mortgage refinancing process is one option that they see as integral to making energy efficiency a more mainstream practice. However, doing so brings its own challenges because organizations must manage multidisciplinary efforts and adapt their ways of doing business. As has been typical in community development in the past, nonprofits and quasi-public organizations are leading the way for the private sector, bringing in new interdisciplinary teams that can balance the idealistic goals of carbon reduction and community development benefits with practical knowledge of how the engineering and financing expertise can be brought to bear.

The case studies below share the belief that the best way to get building owners to retrofit their buildings is to retrofit the mortgage refinancing process to incorporate energy efficiency.

## Community Preservation Corporation: An Organization Retrofits Itself

Community Preservation Corporation (CPC) is 39-year-old nonprofit specialized mortgage lender that provides financing and technical assistance to affordable and rent-stabilized buildings. CPC has achieved significant scale. Since its inception, the organization has deployed more than \$8 billion in the New York tri-state area and financed the construction or preservation of more than 93,000 units of housing in New York City. In 2008, CPC management began to see a market niche in expanding its energy efficiency offerings. According to executive vice president Sadie McKeown, mission and self-interest drove this renewed focus at CPC. Since the buildings that composed the bulk of CPC's clients were rent stabilized and only marginally profitable, they were particularly vulnerable to spikes in utility costs. "Identifying ways our borrowers could manage costs, and by extension continue to make mortgage payments, was in our own interest," says McKeown.<sup>5</sup>

4 Author interview with Lindsay Robbins, June 17, 2013.

5 Author interview, June 27, 2013.

CPC management recognized that ramping up the use of third-party consultants would be insufficient for this new strategy. The organization had to retool its own way of doing business. They would need to educate their clients, and in order to take on that task, they had to educate their loan officers. The company hired F. L. Andrew Padian as its first vice president for energy initiatives. Previous to CPC, Mr. Padian had a 30-year career in building efficiency, managing the Multifamily Buildings Division for the building systems consulting firm Steven Winter Associates Inc. (SWA) and serving on the boards national, regional, and local industry associations and affinity groups such as Northeast Sustainable Energy Association and GreenHome NYC.

CPC's first step with their Green Initiative was launching the Neighborhood Energy Loan Program, a special \$50 million loan fund capitalized by Deutsche Bank, HSBC, Morgan Stanley, and Goldman Sachs to make energy efficient construction loans for moderate rehabs that were undergoing refinancing anyway. The program was developed in consultation with CPC's permanent lender partners, New York City and state pension funds, and the State of New York Mortgage Agency (SONYMA), which provides mortgage insurance.

Loan officers were initially somewhat resistant. For many years, when loan officers calculated the amount of debt that could be supported by a property, they used standard industry averages of utility costs in their assumptions, along with standard annual cost escalations. Now they were being asked to dig deeper into each building and use more accurate estimates that were rooted in the experience of a particular building. Five years into CPC's green initiative, the company is building a track record of data on how retrofit financing activity has performed. Mr. Padian meets regularly with loan officers to discuss case studies of particular buildings so lenders have a better understanding of the technical aspects of how these buildings operate. As a result, loan officers and credit officers are now more comfortable making downward adjustments to utility costs to reflect anticipated savings, particularly for the buildings that start out as very wasteful. "Underwriting has always been more art than science," said McKeown, "and CPC's learning curve on energy efficiency is beginning to inform our lending practices."<sup>6</sup>

Under CPC's Green Initiative, 44 buildings containing 3,126 units of affordable multifamily apartments have been retrofitted. These units represent just under \$31 million of private debt in conjunction with \$18.7 million in public subsidy and incentives. The Green Initiative was bolstered when CPC was selected as a NYS Weatherization Assistance Program (WAP) agency to deploy American Recovery and Reinvestment Act (ARRA) stimulus funds.

### **The Deutsche Bank–Living Cities Study: An Interdisciplinary Learning Table**

At the same time that CPC was demonstrating leadership in incorporating energy efficiency into underwriting, Deutsche Bank embarked on a field-building initiative to accelerate this adoption. Our hypothesis was that if we could address a key bottleneck—the lack of

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6 Ibid.

confidence in dependable savings for lenders to underwrite against—more lenders would be willing to incorporate projected savings into their underwriting decisions. Over 18 months, Deutsche Bank funded a study of 230 retrofit projects representing 21,000+ units, with additional support from New York City’s Department of Housing Preservation and Development (HPD), which repurposed a grant from Rockefeller Brothers Fund toward this project. Staff from Living Cities, the collaborative of 22 leading foundations and financial institutions, provided additional guidance and helped disseminate the study. The report, “Recognizing the Benefits of Energy Efficiency in Multifamily Underwriting,” was released in 2012.<sup>7</sup>

**Member organizations of the multi-sector, multi-disciplinary advisory committee that provided guidance to the DB-Living Cities study included:**

Consolidated Edison	Community Preservation Corporation
Deutsche Bank	Enterprise Community Partners
Local Initiatives Support Corporation	Low Income Investment Fund
National Grid	Natural Resources Defense Council
NYC Department of Housing Preservation & Development	NYC Economic Development Corporation
NYC Energy Efficiency Corporation	NYC Housing Development Corporation
New York City Investment Fund	NYC Office of Long-Term Planning and Sustainability
New York State Energy Research and Development	Authority (NYSERDA)
NYS Homes & Community Renewal	Rockefeller Brothers Fund
Seedco Financial Services	

The initiative benefitted from a stakeholder group composed of mission-oriented organizations that were also interested in cracking this problem for New York City multifamily housing: city and state housing agencies, key community development intermediaries, utilities, energy program incentive providers, and other mission-driven nonprofits. (See the box above for a full list of organizations.)

A key insight that this group provided was that the data to prove the reliability of savings probably already existed. An enormous amount of work had already been done retrofitting multifamily buildings in New York City, instigated by the New York State Weatherization Assistance Program (WAP) and programs of the New York State Energy Research and Development Authority (NYSERDA). However, the pre- and post-retrofit performance data were scattered in file cabinets and spreadsheets throughout the boroughs, and it would be no small task to aggregate, analyze, and learn from them.

The approach had to be interdisciplinary, bridging the worlds of building science and finance, which tended to speak past each other. To that end, the advisory group selected

<sup>7</sup> Full report is available at [https://www.db.com/usa/content/en/ee\\_in\\_multifamily\\_underwriting.html](https://www.db.com/usa/content/en/ee_in_multifamily_underwriting.html)

through a competitive process a consultant team, Steven Winter Associates (SWA) and HR&A Advisors, which brought together these worlds. SWA brought decades of building science and engineering experience. HR&A combined expertise in running energy efficiency programs with a broader policy and finance expertise. According to Candace Damon of HR&A Advisors, the strength of this team combined not only experts on financing and building science, but “people who love getting their hands dirty with the data and see what you can learn from it. We put together a team that has the insights to know how to approach this work and what kinds of questions to ask.”<sup>8</sup>

Ms. Damon also credits the ongoing engagement of the working group, which provided guidance and feedback throughout the process, reviewed early findings and asked detailed, provocative questions. Candace Damon said that the working group kept the team on their toes. “We really had to have our game on. Most of the hard work presenting to that group was done in the preparation, putting together slides, pushing each other to see what we could do with the data.”

The study represented the most comprehensive study of multifamily buildings in New York City to date, and provided valuable information to the field. The report stated emphatically that “building retrofits save energy,” reducing fuel consumption by 19 percent and common area electricity consumption by 7 percent. Also of relevance to practitioners was the finding that fuel measures saved more (and that savings were more predictable) compared with electricity. The study examined a number of variables to determine whether they were statistically significant predictors of post-retrofit performance. These variables included building characteristics (such as age, size, heating system, and fuel types) and retrofit measures (such as boilers, heating controls, windows, air sealing). The analysis concluded that only one variable reliably correlated with statistical significance to predicted savings: pre-retrofit fuel use intensity. In other words, the biggest “energy hogs” had the greatest (and most predictable) potential to save.

The study also suggested some implications and strategies for incorporating energy efficiency projections into underwriting, which the New York City Energy Efficiency Corporation is now advancing.

### **New York City Energy Efficiency Corporation: A New Intermediary Combining Technical with Financial Expertise**

The release of the Deutsche Bank–Living Cities study got some attention from policy experts and energy efficiency specialists, but mainstream financial institutions are still in the early stage of adopting it. The New York City Energy Efficiency Corporation (NYCEEC) has acted as a catalyst, piloting several innovative financial transactions using the study’s findings. In all of its work NYCEEC’s mission goes beyond simply financing projects; it is also

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8 Author interview with Candace Damon, June 24, 2013.



intentionally and proactively trying to determine which approaches are replicable and have the potential to scale.

NYCEEC was launched in 2011 at the instigation of the NYC Mayor's Office for Long Term Planning and Sustainability, with advice from Natural Resources Defense Council (NRDC), and Deutsche Bank, who jointly recognized a gap in the marketplace for energy efficiency finance. The city had received federal stimulus funds through ARRA, and with the guidance of Deutsche Bank and NRDC, the Bloomberg administration capitalized a new quasi-public intermediary that could facilitate retrofit financing transactions through credit enhancement and direct lending. With philanthropic support from Deutsche Bank Americas Foundation, Surdna Foundation, Rockefeller Foundation, Kresge Foundation, Doris Duke Charitable Foundation, Rockefeller Brothers Fund, and Living Cities, NYCEEC has achieved a capitalization of \$40 million.

NYCEEC's governance and staff reflect the cross-sector, cross-disciplinary role that the entity was envisioned to play. The board consists of representatives from city government (including representatives from the Mayor's Office), the financial sector (including Deutsche Bank and Citigroup), real estate (including Related Companies and the nonprofit Enterprise Community Partners), and the energy sector. Under the leadership of CEO Susan Leeds, NYCEEC has assembled a 10-person cross-disciplinary staff, including engineers, credit underwriters, and business development professionals. Leeds states, "We knew that to address clean energy lending challenges and the specific needs of NYC buildings, NYCEEC would have to become a nexus where multiple stakeholders could effectively collaborate."<sup>9</sup>

To date, NYCEEC has committed \$28 million of its \$37.8 million ARRA funds along a range of energy efficiency transactions, including providing credit enhancement for Energy Service Agreements on commercial and multifamily properties and direct lending for hotel retrofits.

On the multifamily side, NYCEEC was funded by Living Cities to engage with the SWA/HR&A team from the Deutsche Bank–Living Cities study and Forsyth Street Advisors to begin to put the findings from the study into practice. NYCEEC has accomplished this goal by working with two public purpose institutions each with significant market share in multifamily mortgage lending: The New York City Housing Development Corporation (HDC) and the Federal National Mortgage Association (Fannie Mae).

HDC is a New York City's quasi-public sister agency to the city's Department of Housing Preservation and Development, with a highly sophisticated financial capacity to make direct loans and issue tax exempt bonds in support of housing development financed with Low Income Housing Tax Credits. In 2012 HDC began to develop their new Program for Energy Reduction Loans (PERL), which sought to retrofit buildings in the agency's portfolio that needed to increase their energy efficiency. HDC required the technical assistance of

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9 Author interview, June 13, 2013

NYCEEC, which worked with HDC staff to incorporate ASHRAE Level II energy audits into their capital needs assessment. NYCEEC also developed a technical guidelines manual to articulate and provide best practice guidance from the perspective of a lending organization on every step of the energy efficiency retrofit process, including tracking and monitoring historic energy use information, audit and retrofit information (including vetting energy auditors), and post-retrofit energy use. In addition to the technical assistance, NYCEEC facilitated the roll out of this new program by providing credit enhancement on the mortgages HDC will originate under the program.

NYCEEC's unique blend of engineering expertise and financial incentives was a key factor in accelerating HDC's capacity to roll out this new program. The PERL product officially launched in October 2012, and about a dozen multifamily properties, mostly large Mitchell-Lama properties, are currently slated to be retrofitted as part of their refinance process. The first of these was the \$33.7 million refinancing of Franklin Plaza, an affordable housing cooperative in Harlem with 14, 20-story buildings. "Before NYCEEC's involvement," says HDC Executive Vice President Joan Tally, "Franklin Plaza was slated to undergo a substantial rehabilitation. NYCEEC brought an engineering expertise that brought the energy efficiency aspects to the next level."<sup>10</sup> NYCEEC "catalyzed a much larger scope change" and HDC was able to provide the borrower with financing at a lower blended rate because of the PERL program. The project achieved financial closing in July, 2013, which has allowed the construction and energy efficiency work to proceed.

NYCEEC has played a similar role with Fannie Mae Multifamily Mortgage Business (MMB), which has developed an enhancement to its existing mortgage product. This product enhancement, the NYC Multifamily Property Improvements to Reduce Energy (M-PIRE) Loan, is notable because it allows for up to 50 percent of projected energy and water cost reduction from efficiency measures to be included in the pro forma net operating income. As a result of credit enhancement provided by NYCEEC, select Fannie Mae Multifamily Delegated Underwriting and Servicing (DUS) Lenders are able to incorporate energy savings into projections and can also increase the loan-to-value ratio as high as 85 percent, from the typical 80 percent on other Fannie-supported deals.<sup>11</sup> DUS lenders can market a product to building owners that offers them increased loan proceeds for energy efficiency and water upgrades, the implementation of which supports the owner's compliance with local laws. Buildings being considered for Fannie Mae financing typically undergo a physical needs assessment to identify a building's capital needs. For its M-PIRE loans, Fannie Mae MMB is integrating an ASHRAE level II audit into its requirements for physical needs assessment. More important, in cases where M-PIRE loans are underwritten to higher cash flows than an owner would see for a conventional loan, the M-PIRE program has the potential to radically alter the decision calculus for building owners, who would now view energy efficiency upgrades as a no-brainer rather than a hassle.

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<sup>10</sup> Author interview, December 9, 2013.

<sup>11</sup> DUS lenders are private banks that are authorized by Fannie Mae to originate mortgage loans on Fannie's behalf according to agreed upon underwriting standards.



## Conclusion

Planning and implementing energy efficiency upgrades are complex and time-consuming technical tasks, and past experience suggests that when considered as a stand-alone transaction, few building owners choose to prioritize them. The aforementioned efforts by Community Preservation Corporation and NYCEEC (in partnership with HDC and Fannie Mae) are promising because they piggyback energy efficiency retrofits onto routine transactions—mortgage refinancing, which provides building owners with an opportunity to think about their properties in a holistic way. The Community Preservation Corporation, HDC, and Fannie Mae have each undergone a rigorous learning process (the latter two in partnership with NYCEEC) to integrate energy reduction opportunities into the mortgage refinancing process. The benefits to building owners include making energy efficiency transactions more routine, more efficient transactions (including less time), and better operating buildings with better cash flow. The efforts hold promise for the broader energy efficiency field as a model for how strategies to achieve carbon reduction can be successfully integrated into practice.

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