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CHPC
NEW YORK CITY

ALL GREEN BUILDINGS GREAT & SMALL

10 INDUSTRY RECOMMENDATIONS TO IMPROVE THE ENERGY EFFICIENCY OF OUR RENTAL HOUSING STOCK

ALL GREEN BUILDINGS GREAT & SMALL

How can the energy efficiency programs for New York City rental buildings become more effective?

10 RECOMMENDATIONS BY THE INDUSTRY FOR THE INDUSTRY

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We are indebted to our **Green Building Committee** for all of their insight and practical expertise on this topic.

The CHPC Green Building Committee reviews, analyzes and testifies on proposed regulatory changes that relate to the energy efficiency of residential buildings in New York City. They also develop research projects that investigate the most effective public policy methods and financial arrangements for achieving energy efficient buildings.

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ALL GREEN BUILDINGS GREAT & SMALL

BACKGROUND

In recent years, CHPC has been working to better understand the efficacy of New York's residential energy efficiency programs in practice - and how their application could become far more widespread.

This study began through extensive conversations with members of CHPC's Green Building Committee, which includes practitioners in architecture, development, planning, finance, and engineering.

Committee members agreed that there are many good programs and talented practitioners with substantial technical expertise working to make greener and more sustainable housing stock a reality. There was general consensus that many owners of larger buildings (those over 50,000 sq. ft.) have access to existing programs, technical capacity and the financial wherewithal to undertake energy upgrades.

However, there was a shared concern among Committee members that owners of small to mid-size buildings (5-49 units) were failing to take advantage of many of the well intended energy efficiency programs, resulting in a limited number of energy retrofits being undertaken. As one committee member put it, "**the programs are there, but almost every program offered is not operating at capacity**".

The question has to be why?

We conducted extensive interviews and site visits to better understand what programs are available to small to mid-size multi-family building owners and what barriers these owners face in tapping existing resources.

We then followed up on these conversations with interviews with officials at Con Edison, the New York State Energy Research and Development Authority (NYSERDA) and the New York City Energy Efficiency Corporation (NYCEEC) who provided feedback on our findings and offered us insight into their own priorities and perspectives. We reviewed the city's legislative initiatives and reviewed current literature to identify available programs in other jurisdictions.

CHPC's research identified numerous barriers the small to mid-size property owners face in greening their buildings:

- These owners are often deterred from implementing energy retrofits by a lack of information, misaligned financial incentives, or insufficient capital.

- The benefits of energy efficiency retrofits often remain unclear to owners of the small to mid-size buildings, who do not see the benefits of taking on the necessary time and expense of greening their buildings.

- The public and private organizations that develop and promote energy policies are not coordinated with the government housing programs that work with building owners. Energy policy is siloed from housing policy, leaving small to mid-size building owners out in the cold.

- This also means that most existing programs are not designed with the specific operational needs of small to mid-size rental building in mind.

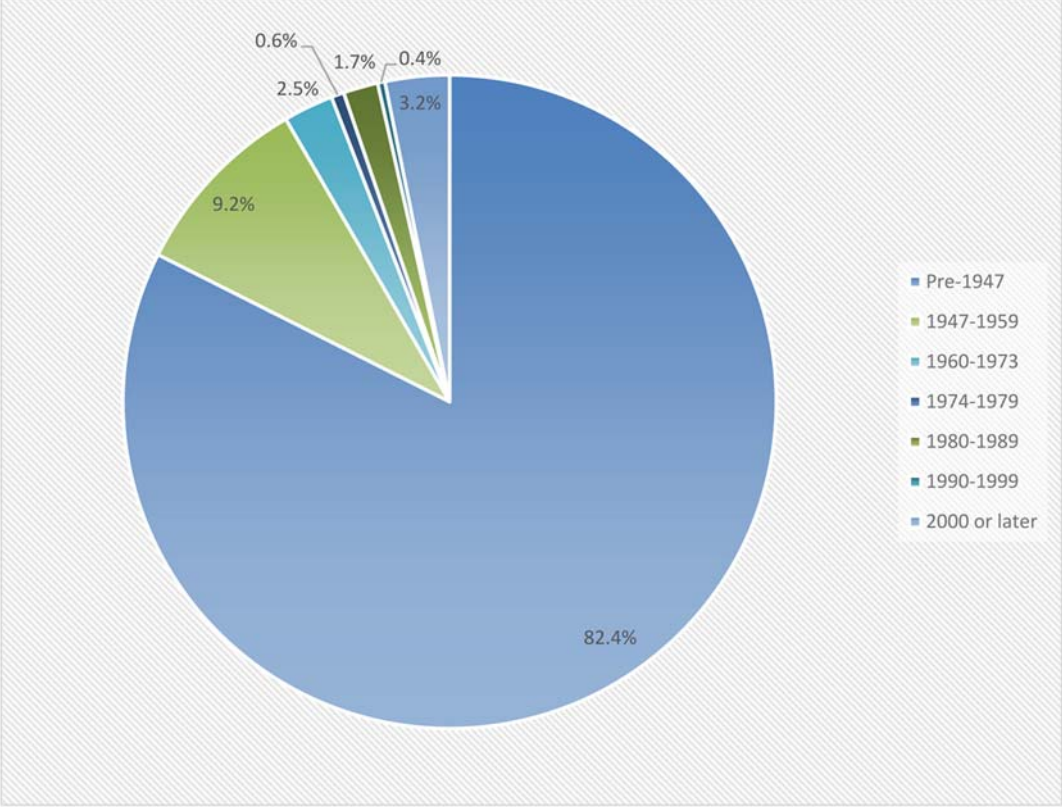
To move this topic forward, we then worked with our committee to develop **10 practical and realistic recommendations** to increase the participation by owners of small and mid-sized multi-family properties in programs that encourage energy efficiency.

MISSED OPPORTUNITIES

MISSED OPPORTUNITIES

With 45% of the city's multifamily housing units located in buildings between 5 and 49 units, and 82% of these buildings built prior to World War II, New York City is missing an important opportunity to advance its environmental sustainability objectives[1]. The smaller and older a building is, the more likely that greater energy savings per unit can be achieved through energy efficiency improvements.

Small and mid-sized rental buildings (5-49 units) in NYC by age



1 Statistics from the 2011 New York City Housing and Vacancy Survey

The city's 2012 Benchmarking Report, conducted under Local Law 84 which requires all buildings greater than 50,000 sq. ft. to benchmark their energy usage, found that larger buildings used less energy per unit than smaller buildings, as measured by the Energy Use Intensity (EUI)[2].

Likewise, a 2012 study by Steven Winter Associates and HR&A advisors found that the buildings with the highest energy use per unit were the smallest multi-family buildings. Because smaller buildings use more energy per unit to start with, it is easier to obtain more savings per unit when small to mid-size buildings undergo energy upgrades. Older buildings are also likely to use more energy than newer buildings. Newer buildings tend to have more modern equipment, such as highly efficient boilers and sophisticated energy management systems, and many were built under more stringent energy codes adopted over the last decades.

The Winter/HR&A study also found that in addition to the type of fuel used, age is one of the most reliable predictors of energy savings in retrofitted buildings.

Greening the city's small to mid-size buildings isn't just good energy policy, it's good housing policy. Reducing building costs associated with gas, oil, electric, and water usage increases cash flow to owners and reduces tenant expenditures on electricity. Improved cash flow to owners can help stabilize building expenses and help fund capital improvements. Because utility expenses represent 18-20% of a building's operating expenses, energy programs that promote sustainability are also important housing preservation policies[3].

2 Energy Use Intensity is a standard measure that expresses a building's energy use as a function of its size and other characteristics. The report only analyzed buildings over 50,000 sq. ft.

3 Fuel, light and power represent 18% of the average operating and maintenance costs in pre-War buildings with 11-19 units and 20% in pre-War buildings with 20-99 units. Adding water and sewer charges brings these percentages to 26% and 28%, respectively. Source: 2013 Income and Expense Study, New York City Rent Guidelines Board (data from 2011).

NEW OPPORTUNITIES

NEW OPPORTUNITIES

The good news is that our study found that more can be done with existing resources, and the administration has expressed the desire to make this happen. We were delighted that our work on this topic so far was incorporated into ***Mayor De Blasio's Housing New York: A Five-Borough Ten-Year Plan,*** which identifies energy cost reduction programs as an important preservation strategy for non-assisted housing and proposes to implement new pilot programs targeting this stock[4].

Our study has identified a number of areas where better planning, policies, and coordination could remove many of the barriers preventing owners from taking advantage of available resources and knowledge. The 10 recommendations focus on four broad (sometimes overlapping) themes:

- **Information**

Coordinate information so it is easier for owners to act;

- **Program Design**

Design programs that take advantage of the typical life cycle of residential buildings and best practices in residential management;

- **Marketing**

Simplify and diversify the marketing strategy and message to account for the different types of multi-family housing and differing motivations of owners;

- **Program Coordination**

Coordinate financing and incentive programs to eliminate overlapping and confusing financing and compliance requirements.

4 CHPC's recommendations for the new administration can be seen at: http://chpcny.org/2014/03/steering-the-new-course/

It should be noted that CHPC's research did not include the barriers related to access to capital for energy retrofits, although lending and underwriting practices along with an owner's financial wherewithal can be a significant impediment. A number of organizations in the city are already looking at financial barriers to energy retrofits, including the city's Economic Energy Efficiency Corporation, Enterprise Community Partners, and Community Preservation Corporation (CPC), among others. Therefore, this study focused on the other barriers owners face in greening small to mid-size buildings. Our recommendations, along with improved access to financial products, could help to transform how owners invest in energy efficiency and improve the greening of all buildings, great and small.

10
RECOMMENDATIONS

10 RECOMMENDATIONS

1. Consolidate and clarify information to make it easier for owners to access available programs by providing a "one-stop shop" for services.

There is an excessive amount of information, coming from too many sources, regarding a large number of programs, with little guidance to make it usable for many owners of small buildings. Our review found over 200 websites that might be relevant to owners of buildings in New York City researching energy efficiency!

New York City has launched websites to inform building owners of various initiatives to improve energy efficiency, such as nyccleanheat.org and nycgreenhouse.org. Other organizations, such as NYSERDA, Urban Green, and Enterprise, provide excellent reference information and resources. However, none of these websites are designed to streamline information and guide owners through a decision-making process to help them chose the most suitable programs for their buildings. While these websites are helpful in publicizing the products, methods, and subsidies that are available, their usefulness is limited by their fragmentation and the sheer volume of information they provide.

As a result, implementing even relatively small or low-cost interventions demands more time and resources than many owners are willing or able to invest. Owners of larger buildings and those with sufficient financing generally hire energy consultants or build expertise in-house, but small building owners do not have such capacity. Owners can get overwhelmed by the information and paralyzed by the choices, which frequently leads to inaction.

We can overcome this inaction by consolidating and streamlining information and guiding owners through the process of deciding which interventions are most appropriate to their buildings.

For example, a one-stop website could ask owners for information on their building (such as age, size, energy usage, HVAC systems, financial information, etc.) and return information about the programs that best fit their needs and budget. This approach exists in California, where the State Energy Commission's Energy Upgrade California Multifamily Program runs a pilot one-stop website in five counties for building owners looking to upgrade their buildings. Owners of multi-family housing complete an online questionnaire asking about income eligibility, planned upgrades, and physical characteristics of the property, and the website provides a list of tailored funding opportunities for energy upgrades.

The California State Energy Commission's one-stop website for building owners

The website also connects owners with technical assistance and qualified contractors. In Illinois, Elevate Energy maintains a similar website and also provides direct one-stop shopping services through which owners can ask for a building assessment, access subsidies and financing, find contractors to do the work, and then evaluate their savings through a second, post-retrofit, assessment. An average over 6,000 units are retrofitted through this program every year.

It is also worth exploring whether incentives for energy efficiency would have a greater impact if they were directed to the contractors and the purveyors of equipment rather than to the building owners. Building owners could purchase equipment and access contractors through a one-stop shop, knowing they will get the most energy efficient products. A boiler company, for example, would receive an incentive for selling and installing a more energy efficient boiler model, rather than the building owner receiving the incentive for making the decision to purchase it. This approach would place the burden of understanding the more technical aspects of energy efficiency incentives with the expert manufacturers and contractors, leaving building owners with a greater offer of energy efficient upgrades at more competitive pricing.

2. **Design programs that make it easy for an owner to install energy improvements concurrent with other work that is part of their standard operations.**

Programs should reach owners during trigger events in the usual lifecycle of a building which may create opportunities to introduce energy performance improvements. These trigger events - such as apartment turnover, capital upgrades, refinancing, and sale - provide a window of opportunity to conduct energy upgrades alongside work that is already being undertaken.

For example, the City could encourage or require building owners to replace all apartment light fixtures with CFLs or LEDs at apartment turnover. Since only a small percentage of units per building turn over on an annual basis, such a requirement would not impose a significant financial burden on a small building owner.

Similarly, small building owners may not have the financial resources to undertake a full rehabilitation or major renovation project, but they might consider introducing energy efficient options while undertaking other capital replacement projects.

For example, replacing a boiler that has reached the end of its useful life for a more energy efficient model may be more feasible than expending considerable financial resources to replace a boiler in good working condition. Introducing energy efficient upgrades during trigger events when owners are willing, ready and able to spend time and money on capital improvements will better align energy efficiency goals with the financial realities of small and mid-size building owners.

3. **Help owners and managers to integrate good green practices into their existing management practices by providing training for maintenance staff and providing them with easy to use templates as they carry out their routine work.**

Most building owners and managers have developed standard practices for the day to day management of their buildings. Meanwhile, green improvements can provide solutions in response to the regular maintenance and operational needs of buildings. Providing owners with information on how to identify greener protocols can help owners, managers, and superintendents integrate these measures into standard management practices. They will also be able to integrate energy savings measures into their planning process.

Additionally, owners should be encouraged to conduct monthly and annual reviews of energy performance in their properties. Building staff can help identify small problems and opportunities for changes, and monitor and report which of the new "green" upgrades have been successful. Enterprise Community Partners' PartnerPREP program adopts this holistic approach to building management and encourages owners to become independent performance managers who can identify maintenance and operations deficiencies.

This program and others, such as Elevate Energy in Illinois, should inform the pilots implemented under Mayor de Blasio's new housing plan to improve building performance as a means of reducing operating costs and preserving non-assisted affordable housing. The plan encourages training programs for building owners and managers and could potentially offer financial incentives for buildings that implement best practices.

4. **Create programs that encourage owners to focus on the energy performance of their entire portfolios rather than concentrate all efforts on individual building performance.**

When owners look at their entire portfolio it becomes easier to identify the building(s) in which energy consumption performance is comparatively out of range. A portfolio approach could also encourage owners to implement small measures across their entire portfolio. Individual return on the investment might be small, but the incremental savings across the entire building stock could add up to significant energy and cost savings. This becomes particularly important in small multi-family buildings, which often have operational and maintenance problems that can be easily mitigated with relatively low-cost investments and which tend to be affected by the most common energy performance problems.

A portfolio approach can also lower financing and transaction costs, as well as improve access to different types of incentives and financing programs. While it might not make sense for an owner to finance work on one building alone, if the cost of improvements is amortized over a larger number of buildings the work may become much more feasible. An interesting proposal suggested in our interviews was to create "portfolio behavior incentives" whereby programs would pay for benchmarking and portfolio monitoring in order to encourage owners to be aware of energy usage in all of their buildings and to identify the "energy hogs" in their portfolio.

5. Identify and actively promote carrot and stick approaches to energy efficiency that are well-proven, cost-effective, and easy to implement.

Achieving smart energy policy goals is not always about inventing new solutions or new programs. Sometimes the best results are achieved by simply identifying what owners are already doing to improve their buildings' energy performance and facilitating its application across the industry. The industry should investigate what is already working, and how those things can be expanded. For example, if many owners are already switching the lighting fixtures in public hallways to CFLs or LEDs, we should seek to encourage this on a wide scale. While it may be extraordinarily difficult to incentivize all owners to implement all energy efficiency recommendations, it may be feasible to get many owners to implement one action that will work towards achieving a goal.

To achieve high-priority goals it is necessary to set regulations, incentivize compliance, and provide sufficient information. This approach has been used by New York City's Department of Environmental Protection (DEP) to encourage water reduction in

multi-family housing through installation of low-flow toilets. The Multifamily Conservation program requires participants to implement certain conservation measures in order to remain on flat-rate billing. One of the requirements is to install high-efficiency water fixtures in 70% of all units by June 2016. To encourage compliance, DEP offers $125 of the cost of each new high-efficiency toilet purchased. It is expected that this initiative will pay for 800,000 new low-flow toilets and reduce water use by 3 percent a day, or 30 million gallons by 2018. The City ran a similar rebate program successfully from 1994 to 1997, replacing 1.3 million toilets and cutting water use citywide by 90 million gallons per day[5].

6. Conduct a demand-side survey of building owners to create energy efficiency programs that better respond to owners' needs, interest, and capacity.

The decision to retrofit a building and the specific improvements to be adopted correspond almost exclusively to the interests of the building owner. Most programs, however, are developed outside of the building industry and then marketed to the residential market. It is assumed that demand will follow, but too often this is not the case.

Building owners are diverse, ranging from established "mom and pop" operations to recent investors to large companies. Some have large portfolios while others own just one building. Their ownership structures, motivations and financial and technical capacity vary widely. In order to motivate owners to carry out retrofits, programs must be designed to take into account owners' needs.

Attracting customers has been an ongoing challenge for many energy-related programs and organizations are seeking to improve how they market their message, their programs, and their services. Surprisingly,

5 http://green.blogs.nytimes.com/2012/03/16/a-rebate-for-low-flush-toilets/

our research found little in the way of studies to better understand owners' interests in implementing energy efficiency improvements. We therefore recommend conducting a survey of the demand for energy efficiency programs among owners and property managers to identify the services they are interested in, which programs are working well, and where there is room for improvement. CHPC believes that better programs can be developed if the industry improves its understanding of the end-users' needs and interests.

7. **Design programs that are tailored to the subsectors within the multi-family sector.** A one-size-fits-all approach will not work for a market that includes a diversity of owners and building types, and which splits incentives between owners and renters.

The multi-family market is not homogenous. It is a conglomerate of subsectors with different access to funding, different building portfolios and different types of residents. Small walk-ups are not like moderate sized elevator buildings. Affordable housing, market rate housing, coop and condo buildings are also quite different. Retrofitting multi-family buildings includes a series of decisions which depend on the size, type and condition of the building, access to financing, and owner priorities. Some owners will want to be ahead of the green development curve and will be the first to embrace new energy efficiency technology. Others will be reluctant to adopt new technology before others have tested and vetted it.

The heterogeneity of the marketplace requires more than one program to reach small to mid-size building owners, and these need to be carefully targeted and designed so as not to create more confusion in the marketplace.

In 2012 NYSERDA conducted an audience segmentation study to

better understand the multi-family sector[6]. Although not a demand-side survey, this is a good first step towards better understanding the needs of consumers. This innovative work should be followed up to develop new programs and marketing strategies that respond to different needs and interests of various types of consumers - for example, targeting marketing of solar thermal hot water systems specifically to owners who are more likely to embrace newer, more advanced technologies.

8. Avoid jargon in marketing the message.

The language used to encourage energy efficient asset management is often inconsistent and may obscure the intended message. Energy professionals and housing specialists do not always use the same language, and the words used by both groups may limit options and drive consumers away.

For example, the term "retrofit" can have very specific regulatory implications, and is often perceived by building owners as excluding renewable energy options, or involving a larger capital investment and scope of work than they are willing to undertake.

Likewise, the term "weatherize" is typically associated with the federal Weatherization Assistance Program, which is limited to certain types of work. More general language, such as "improving operational energy efficiency" can better help owners envision improved energy performance and asset management strategies.

6 Know your Market: Audience Segmentation Study Results. NYSERDA, 2012. Available at http://nyserdampp.org/segmentation-research.

9. Coordinate financing and incentive programs to eliminate overlapping and confusing financing and compliance requirements.

Owners of affordable housing generally cannot afford to do a substantial rehabilitation without government subsidies - usually multiple subsidies from multiple funding sources (including HPD, HDC, HUD, HCR, Enterprise Green Communities, NYSERDA, Con Edison, and the Weatherization Assistance Program), each one having unique application and reporting requirements.

Owners contemplating an energy upgrade often find overlapping program requirements and reporting demands confusing and burdensome. If the incentives for participating in the programs do not outweigh the difficulty of complying with their requirements, owners will not participate in the programs. Improving coordination between housing grants, loans, and energy programs, including standardizing reporting requirements, is critical to unleash the potential in the affordable housing subsector.

10. Use consistent metrics to describe performance results.

An owner's ability to obtain accurate and reliable metrics on a building's energy performance is essential for their decision to invest in energy upgrades. Disclosing energy performance can also help underwriters and potential buyers to value buildings and portfolios more accurately.

Unfortunately, no readily-available information allows owners to track energy usage and compare their buildings with others. New York City has a variety of methods for tracking data on energy use and on the physical characteristics of buildings, and the industry has created a number of tools to help owners benchmark a building's performance.

However, these tools are not standardized and the accuracy of each tool depends on its underlying technical assumptions.

As a result, it is difficult for owners to easily benchmark their performance and compare it to that of similar buildings. It also makes it difficult for policy makers to make informed decisions or evaluate the results of existing programs. Providing definitions that are easy to understand, explaining underlying assumptions, and using consistent metrics will help owners evaluate their current performance and make smarter energy choices.

MOVING FORWARD

MOVING FORWARD

The 10 recommendations offered in this paper are not meant to be all-inclusive. Rather, we hope this paper will start the discussion and engage key stakeholders in the critical collaboration needed to create a unified energy strategy for the small to mid-size multi-family sector.

To move this process forward, CHPC and Enterprise Community Partners are convening a half day, invitation-only meeting in Summer 2014 that will to bring together a broad cross-section of industry stakeholders including senior level leaders from government, utility companies, non-profits, developers, building owners, architects, and lenders to formulate a coordinated strategy for addressing this underserved sector of the housing stock.

The workshop will be designed to allow participants to compare experiences and identify specific gaps and barriers in the current programs. The goal of the workshop will be to arrive at specific recommendations for better aligning existing resources and improving existing programs, as well as bringing about consensus on what new resources are needed and how to work together to advocate for improved participation in the greening of all buildings, great and small.

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