SUCCESSFUL PARTNERSHIPS TO ACCELERATE EFFICIENCY

NYC Retrofit Accelerator

PUTTING DATA TO WORK

CASE STUDY

IMT
INSTITUTE
FOR MARKET
TRANSFORMATION

ABOUT IMT

The Institute for Market Transformation (IMT) is a national nonprofit organization focused on increasing energy efficiency in buildings to save money, drive economic growth and job creation, reduce harmful pollution, and tackle climate change. IMT ignites greater investment in energy-efficient buildings through hands-on expert guidance, technical and market research, policy and program development and deployment, and promotion of best practices and knowledge exchange. For more information, visit imt.org.

ABOUT PUTTING DATA TO WORK

Putting Data to Work is a three-year pilot project aimed at using building performance data and asset information to help efficiency program implementers better target their outreach to building owners and increase the number of projects executed within these programs. The project used building performance data collected through city energy policies to improve energy efficiency program design and delivery in the District of Columbia and New York City, and developed a toolkit of resources to enable local governments, utilities, and program implementers to learn from activities to replicate successes.

This case study looks at how city and utility energy efficiency program implementers can use building performance information proactively to identify energy efficiency upgrade opportunities and accelerate investments by building owners in their jurisdiction. It also explores a successful example of partnership between local government and utilities.

Other jurisdictions with local benchmarking and transparency or energy audit laws may use the Retrofit Accelerator as a model for deploying the building performance and asset information available to them through these policies.

About the NYC Retrofit Accelerator

In September 2014, New York City (NYC) committed to reducing citywide greenhouse gas (GHG) emissions by 80 percent by the year 2050 (80x50) as compared to 2005 levels, with an interim target to reduce emissions by 40 percent by 2030. These commitments are in alignment with the targets that the United Nations Framework Convention on Climate Change agrees are necessary for developed countries to achieve in order to mitigate the worst impacts of climate change. Building energy use reduction will play a significant role in achieving NYC's 80x50 goals, as buildings account for nearly 70 percent of NYC's annual GHG emissions.

To help achieve the City's climate goals, in 2015 the New York City Mayor's Office of Sustainability created the NYC Retrofit Accelerator to identify and assist privately owned buildings in implementing energy efficiency upgrades using information collected through the City's building energy laws. The Retrofit Accelerator deploys the City's extensive datasets collected through those laws, primarily the City's benchmarking data (from Local Law 84 of 2009 [LL84]) and auditing data (from Local Law 87 of 2009 [LL87]) to identify and prioritize building upgrades. By 2025, the Retrofit Accelerator is expected to cut GHG emissions by one million metric tons of carbon dioxide equivalent and reduce annual utility bills by $360 million per year.

In addition, the Retrofit Accelerator uses City datasets to identify buildings and provide assistance to affordable housing, enhance building resiliency, and improve local air quality. The program helps to preserve affordable housing by assisting building owners in lowering utility costs and gaining access to low-interest financing in exchange for a commitment to affordability. Assistance provided to buildings also incorporates resiliency measures to help NYC buildings become both energy efficient and resilient against extreme weather events.

Using the Data

New York's benchmarking and audit policies produce a trove of data and the Mayor's Office of Sustainability is committed to putting that data to work in ways that accelerate investments in energy upgrades in buildings. As cities nationwide rapidly adopt their own benchmarking and audit policies, NYC's Retrofit Accelerator is testing and refining analysis and outreach that effectively

The Retrofit Accelerator is a program funded by the City of New York and administered through the New York City Mayor's Office of Sustainability. It offers building owners and decision makers free, personalized advisory services that streamline the process of making energy efficiency improvements to buildings. The program's "Efficiency Advisers" work directly with building owners, managers, and other decision makers to provide free guidance throughout the entire building retrofit process, which includes selecting projects, accessing available financing and incentives, selecting contractors, and ongoing support through project completion.

target building decision makers, securing their participation in City- and utility-sponsored programs, and building a lasting retrofit market. The NYC Retrofit Accelerator uses energy benchmarking and audit data to compare buildings to their peers to determine which buildings have the greatest energy- and water-saving opportunities, and to identify specific projects to recommend during conversations with building decision makers.
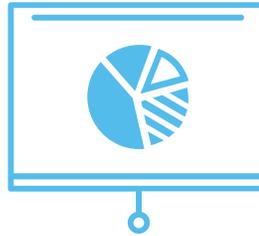
DATASETS AT WORK

The NYC Retrofit Accelerator uses a combination of publicly available and non-public datasets to identify priority buildings for assistance. Jurisdictions looking to replicate the efforts of the NYC Retrofit Accelerator should identify comparable datasets for their local building stock.

Data Sources and Use

- *NYC Local Law 84 of 2009 Benchmarking Data:* Since 2010, the City has required all owners of buildings over 50,000 square feet to annually benchmark their energy and water use and submit this information to the City. The Retrofit Accelerator uses this dataset to identify high energy and water consumers as an indicator of high savings potential.

- *NYC Local Law 87 Audit Data:* Since 2013, the City has required owners of all buildings over 50,000 square feet to conduct energy audits once every 10 years and submit this information to the City, which includes an inventory of physical building systems and attributes, as well as recommendations of energy conservation measures. The Retrofit Accelerator uses both the inventory and the recommended measures to identify potential project opportunities.

- *Other City Datasets:* Other datasets include the NYC Department of Housing Preservation and Development and the NYC Housing Development Corporation program data on affordable housing; neighborhood resiliency data on flood, heat, and wind risk; and neighborhood health vulnerability data related to pollution and health risks.

Building Types

- All privately owned buildings in NYC can receive assistance from the Retrofit Accelerator, but the program is currently geared toward those owners who own or manage buildings 50,000 square feet and larger that must comply with LL84 benchmarking and LL87 energy audits and retrocommissioning requirements. In 2016, the City passed an ordinance adding buildings larger than 25,000 square feet to the benchmarking law, but data collection for those smaller buildings had not yet begun at the time of this case study's publication. Collection will begin in 2018 and will be incorporated into the Retrofit Accelerator's analysis in future years.

The Retrofit Accelerator's team of Efficiency Advisors conduct outreach and provide free help to building owners and decision makers to explain energy and water efficiency opportunities in their buildings, to select projects, to identify available financing and incentives, to choose contractors, and to provide ongoing support through project completion.

During the first year of operation, the Efficiency Advisors used benchmarking and energy audit information to determine which buildings would be the highest priority for assistance. Once Efficiency Advisors were working with a building decision maker, they also used the data to help select projects that improve the energy efficiency of the buildings, and prioritize buildings for upgrades within portfolios. The NYC Retrofit Accelerator used City data to develop indicators to identify the following opportunities within all potential program participants.

- **Energy, water, and GHG emissions reduction potential:** Properties that are high consumers of energy or water and those that have opportunities for upgrades with significant energy-saving and emissions-reduction potential.

- **Financial need:** Properties that may have financial hardship as indicated by factors such as rent regulatory agreements, arrears, or low neighborhood income levels.

- **Resiliency opportunities:** Properties that may benefit from upgrades that can increase resilience against extreme weather events such as flooding, high heat, or high winds.

- **Neighborhood health:** Properties that are in neighborhoods with high incidence of pollution-related illnesses, such as asthma or pulmonary disease.

The outreach strategy during the first year of the NYC Retrofit Accelerator involved program staff using statistical analysis to develop indicators for these four key opportunities. Those indicators were used to identify properties with a high opportunity for energy savings and those that have a high need for assistance based on financial need, opportunity to increase resilience, and neighborhood health.

IDENTIFYING TOP CONCERNS

The Retrofit Accelerator team undertook market research to understand how to tailor its messaging to explain program offerings and the benefits of investing in efficiency projects. This research was particularly needed to help reach new participants with whom the Retrofit Accelerator team did not already have existing relationships. The City contracted a market research firm to identify potential participants' top concerns related to managing or owning buildings, as well as their motivators and barriers to investing in energy efficiency. In addition, the firm tested existing marketing materials and messaging to understand reactions from potential participants.

The research identified the three top concerns for multifamily building owners, managers, and co-op board members as:

- managing finances;

- maintenance and emergency repairs; and

- tenant satisfaction.

The research also highlighted the need for simple messages to explain both program services and the specific upgrades participants could consider that would yield tangible benefits in terms of reducing costs and improving building comfort and quality.

CREATING A COMPREHENSIVE CAMPAIGN: BETTER STEAM HEAT

As one example of targeted outreach and assistance, NYC's campaign approach is focused on implementing comprehensive steam heat system upgrades through four main strategies.

1. **Defining the recommended upgrades based on engineering best practices and stakeholder input.** Building on the work performed by the New York City Buildings Technical Working Group, a City-led panel of dozens of industry leaders, experts, and advocates that provide key expertise and perspective, the Mayor's Office of Sustainability developed a scope of work to comprehensively upgrade steam heating systems and define what services should be offered by the qualified service providers. It ensured that the measures comprehensively address these outdated systems in order to maximize the potential energy savings and occupant comfort benefits of the upgrades.

2. **Developing the local contractor network to ensure that market can handle increased project demand.** Prior to the campaign, most heating contractors only addressed boiler equipment and did not provide solutions to upgrade the heating distribution system. The Retrofit Accelerator team reached out to contractors who had the skills to provide a more comprehensive set of services that include the distribution system and provided them with both classroom and field training to ensure that they could adequately undertake the work.

3. **Generating demand through an engaging marketing campaign.** Most building decision makers with whom the team spoke in New York City did not know that solutions were available to fix overheating problems with the steam heating systems. To build demand among building decision makers, the NYC Retrofit Accelerator developed an engaging marketing campaign that taps into New Yorkers' love-hate relationships with their radiators and highlights issues of comfort and energy waste. Efficiency Advisor communications and marketing collateral also prioritize plain-language explanations of the upgrades and the comfort benefits of investing in them.

4. **Providing ongoing technical guidance.** The team of Efficiency Advisors provide ongoing, third-party guidance throughout project completion that includes assistance in choosing a contractor, applying for appropriate incentives, training building staff on how to operate steam systems, and tips and resources for engaging with residents to complete upgrades in apartment units. The Retrofit Accelerator staff does not recommend specific vendors, and recommends that building owners get several quotes. Many of the qualified heating firms have existing service contracts with buildings, so the Accelerator leverages these contracts to reach buildings for potential participation.

Initially, program staff believed direct, targeted outreach to building owners based on savings potential and need for assistance would generate a large number of properties to participate in the Retrofit Accelerator. However, upon further outreach, staff found that the most productive relationships were those that resulted from a building decision maker's past involvement in the NYC Clean Heat program or NYC Carbon Challenge, public events, and word-of-mouth referrals. The data proved more important to provide assistance once Efficiency Advisors established contact with a building decision maker to begin identifying and selecting projects for buildings. Efficiency Advisors found that the more specific project recommendations they could make, the more likely decision makers were to move forward with the program.

> Efficiency Advisors found that the more specific project recommendations they could make, the more likely decision makers were to move forward with the program.

Based on this finding, the Retrofit Accelerator team developed additional indicators to flag specific energy efficiency upgrades that may be of interest to building decision makers, such as steam heating distribution system upgrades, solar PV, combined heat and power, and lighting upgrades. These indicators serve as conversation starters to begin discussion with building decision makers about options they can consider for their buildings, and served to inform the development of targeted campaigns

Deploying Targeted Campaigns

During the second year of program implementation, the City launched a targeted outreach and assistance campaign for steam heating distribution system upgrades as a way to generate interest for energy efficiency projects in a simple and engaging way. The City is planning to replicate campaigns for additional upgrades to educate the market, encourage more comprehensive upgrades, and simplify the implementation of these projects. Campaigns are also designed to build off of one another, with the steam heating campaign to be followed by a campaign focused on building envelope and air-sealing improvements.

The Retrofit Accelerator's first outreach and assistance campaign, Better Steam Heat, launched in December 2016. The City selected the focus on steam heating distribution upgrades because based on City analysis, upgrading steam heating systems across New York City would yield significant GHG reductions. Moreover, the experience of Efficiency Advisors in the first year of the program found high latent demand for solutions to fix heating distribution problems among owners and decision makers of New York City buildings—structures that are notorious for banging pipes and radiators and overheating apartments, leading to the conspicuous problem of tenants opening their windows in the middle of winter to cool off.

A Better Steam Heat Campaign Ad

Steam heating systems can be unpredictable—and that wastes energy and money. But experts from the NYC Retrofit Accelerator can check your system and help you make smart upgrades, all for free.

IT'S NOT YOU. IT'S ME.

#ONENYC   Contact the NYC Retrofit Accelerator today. nyc.gov/RetrofitAccelerator | 212.656.9202   NYC Retrofit ACCELERATOR MAKING ENERGY EFFICIENCY EASIER

Successes

As of November 2017, the Retrofit Accelerator was working with over 5,000 buildings (constituting over 2,300 properties, which is how the City's building ordinance data are reported). Across these properties, successes include the following metrics:

- Over 5,000 efficiency projects have been identified.

- If implemented, these projects could reduce annual GHG emissions by nearly 153,600 metric tons of carbon dioxide equivalent, the equivalent of taking almost 33,000 cars off of the road for a year.

The Retrofit Accelerator has also helped grow the retrofit market in NYC through its campaign approach, which includes identifying the most impactful projects, ensuring that the local contractor community is prepared for the volume and type of projects undertaken, generating demand for those projects through marketing and outreach, and providing ongoing technical guidance.

NYC Retrofit Accelerator Participants
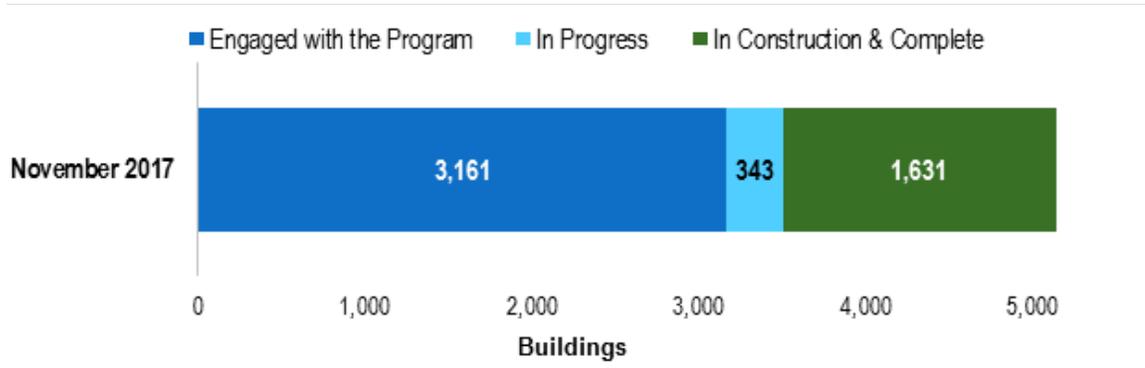
Lessons Learned

The Retrofit Accelerator is demonstrating the value of using building performance information to proactively identify energy efficiency upgrade opportunities in buildings and use this information to accelerate investments. Other jurisdictions with local benchmarking and transparency or energy audit laws may use the Retrofit Accelerator as a model for deploying the building performance and asset information available to them through these policies. This initiative also demonstrates the value of partnership between local governments and utilities, when they can pair their common goals to reduce energy use, as well as share any building performance information collected between them. Other lessons learned include:

- **Build off existing relationships.** In the Retrofit Accelerator's first year, a significant amount of time was spent developing a targeting strategy to prioritize buildings for direct outreach based on potential for GHG emission reductions, financial need, resiliency co-benefits, and local communities' health vulnerability. While it was important for the program to prioritize assistance based on those factors, participant acquisition and conversion was much higher

when using existing relationships and incoming inquiries from public outreach events, press, and word-of-mouth referrals. As a result, much of the data analysis was used for another purpose: to help existing participants decide what actions to take. Many of the Retrofit Accelerator participants manage large portfolios of buildings, so the data analysis was useful in helping them prioritize in which building they would start work. For individual buildings, the indicators developed helped decision makers select from a more manageable set of options than are often presented in energy audit recommendations. The ordinance data proved invaluable in moving participants towards action, in addition to informing prioritization for outreach.

- **Target outreach to specific projects or technologies.** During the first year of the Accelerator, Efficiency Advisors realized, and market research confirmed, that providing building owners with information on all potential efficiency projects within their buildings could be overwhelming and even counterproductive for Accelerator participants, whose primary job is not necessarily energy management and who may be unfamiliar with energy efficiency technologies or programs. With this in mind, the Accelerator augmented its strategy of broad-based outreach with targeted campaigns that focus on particular upgrade opportunities, such as steam heating distribution upgrades. While high-priority properties are still identified, Efficiency Advisers now focus their outreach and assistance to these properties based on these specific project opportunities.

- **Maintain regular data updates and apply consistent methodologies.** The Retrofit Accelerator utilizes many datasets to assess the building stock in New York City and target its outreach to buildings who may benefit from its support. Consistently updating its database to the most current available data from these datasets, and applying consistent methodologies for data analysis and project assessment help to optimize the efficiency of the program. Continual evaluation of the usefulness of each dataset, indicator, and display of data is important for utilizing this data and methodologies effectively.

- **Connect the dots and leverage partners.** The Efficiency Advisors serve as objective third-party consultants to building owners, providing them with analysis that shows the opportunities for projects that will save their buildings energy and money. Efficiency Advisors also build off of work done by other City agencies, private vendors, and financers in NYC. The Advisors can refer building owners to approved vendor lists, utility incentive programs, and financing tools to help move the efficiency projects from conversation to financing to implementation.

Communicating through various channels and focusing on building relationships with building owners and decision makers results in a higher likelihood of participation.

- **Conduct regular customer engagement through multiple venues.** Communicating through various channels and focusing on building relationships with building owners and decision makers results in a higher likelihood of participation in the program. The Retrofit Accelerator staff can be found at public events, conferences, or community meetings, and featured in articles and on social media. Efficiency Advisors also communicate electronically, via phone, and facilitate in-person stakeholder meetings for the community (both hosted by the City and by partner organizations). The Retrofit Accelerator also has a recognition program for partner organizations that support and amplify the offerings of the Accelerator in return for recognition on the Accelerator website, at events, in newsletters, and have a local presence and facilitate Accelerator events.

What's next?

"Stop the Drafts" Air Sealing and Building Envelope Campaign: During the winter of 2017–2018, the Retrofit Accelerator will launch a campaign to target relatively simple building envelope upgrades. This campaign will build on and run concurrently to continued outreach to facilitate steam heating distribution upgrade projects. The new campaign will focus assistance on several replicable measures:

- elevator and stair shaft vents closures

- common area and in-unit air sealing

- air conditioning (A/C) and packaged terminal A/C insulation and covers

The Retrofit Accelerator staff will continue to use comfort as a key message for the new campaign. Program staff expects uptake from building decision makers during the winter months, when occupants are likely to experience cold drafts.

High-Performance Retrofit Track: The Retrofit Accelerator staff are also working with a pilot group of building owners and property managers that aim to phase-in deep energy retrofits as part of their long-term capital plans. These retrofits are modeled after the deep energy retrofit pathways analyzed by the NYC Buildings Technical Working Group. ●

ADDITIONAL INFORMATION

NYC Greener, Greater Buildings Plan

NYC One City: Built to Last

One City: Built to Last – Buildings Technical Working Group Report

New York City's Roadmap to 80x50

NYC Retrofit Accelerator

Retrofit Case Studies from Building Energy Exchange

IMT Putting Data to Work Toolkit

PUTTING DATA TO WORK

Institute for Market Transformation │ imt.org/PuttingDatatoWork