



MAKING THE FINANCIAL CASE FOR ENERGY EFFICIENCY UPGRADES

NYCEEC efficienSEE™ Tool

PUTTING DATA
TO WORK

CASE STUDY





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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 gathered through local 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 examines how jurisdictions that have collected whole-building energy benchmarking data may leverage the modeling and development of NYCEEC's efficienSEE™ tool to provide their stakeholders with tools to make the financial case for energy efficiency upgrades.



Driving Efficiency Investments through Data

In September 2014, New York City (NYC) committed to reducing its greenhouse gas (GHG) emissions 80 percent by the year 2050 (80x50), with an interim target to reduce emissions 40 percent by 2030. These commitments are in alignment with the targets that the United Nations Framework Convention on Climate Change agreed 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 the city's annual GHG emissions. The efficienSEE™ tool from NYCEEC, a nonprofit specialized lender, supports these goals by helping building owners and property managers to realize the importance of energy and water efficiency investments in saving energy and cost. As a financier, NYCEEC developed the tool to drive interest in its products by demonstrating the financial opportunities resulting from energy efficiency investments. By showing how a building would perform if improved to the top of its peer group, decision makers can evaluate the potential savings and payback of energy-efficient upgrades—making the opportunity and its benefits more concrete, relatable, and compelling.

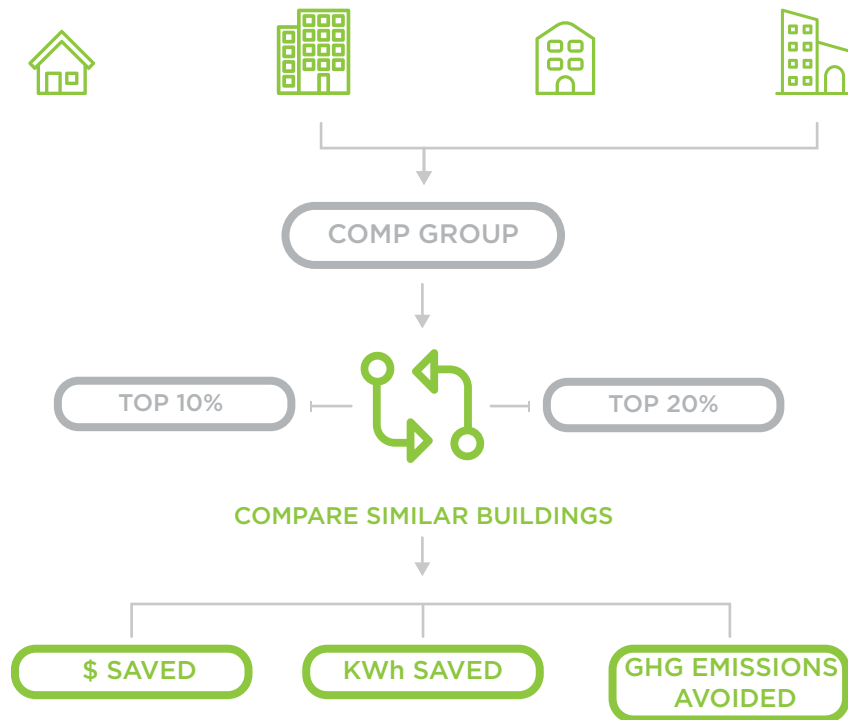
efficienSEE™ provides building owners and property managers with a high-quality, rapid estimate of energy and water savings, and, where applicable, cogeneration potential. The online tool is now available for large multifamily buildings in New York City (greater than 50,000 square feet). Users can search by their building's address or Borough-Block-Lot (BBL) number.

The efficienSEE™ Calculator uses owner-generated reports submitted under New York City's energy benchmarking regulation (Local Law 84), which requires building owners to report their building's annual energy and water usage. Each building is grouped with comparable New York City buildings based on age and height—factors that the data has demonstrated are statistically relevant in more precisely determining the optimal energy use profile of a given building. Each building's energy and water performance is also then compared to the top 10th and 20th percentile-performing building in its comparable group.



NYCEEC is a nonprofit specialized lender that finances energy efficiency and clean energy projects in buildings that save energy and reduce greenhouse gases. NYCEEC uses innovative financing tools to scale up climate action in sectors with the greatest opportunities and remove barriers through lending partnerships with like-minded partners. NYCEEC finances energy efficiency, high-performance buildings, renewables, clean fuel conversions, cogeneration, and demand management across all building types and neighborhoods.

NYCEEC efficienSEE™ Modeling Process

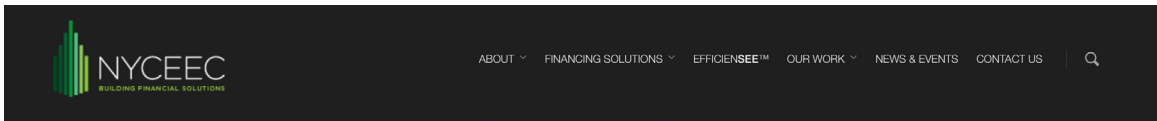
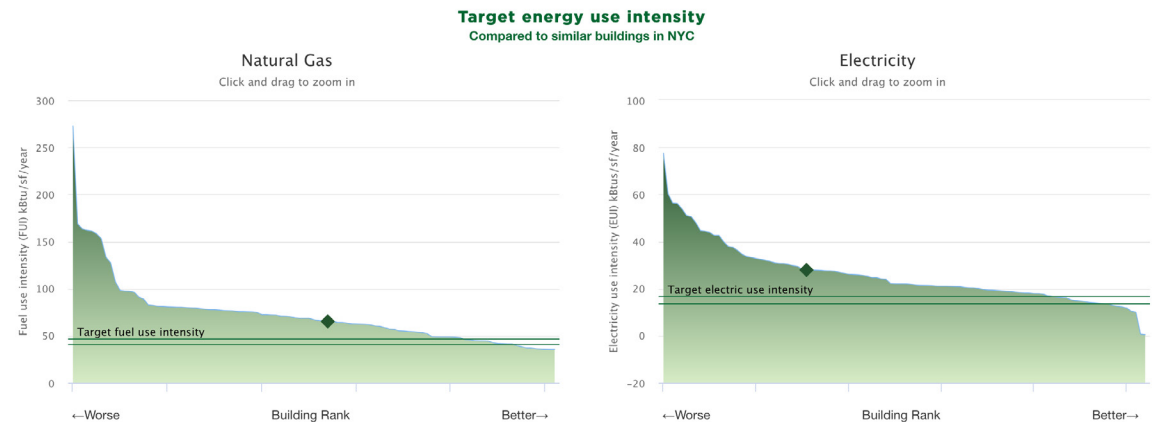
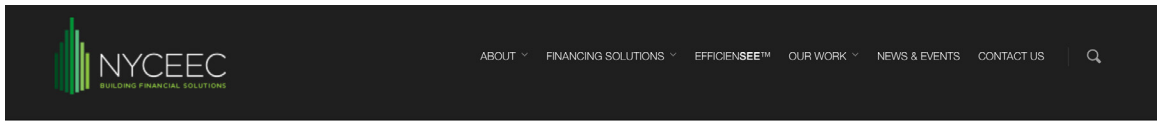


Using the Data

NYCEEC used the annual whole-building benchmarking data collected by NYC under Local Law 84 to power the model underlying its efficienSEE™ tool. Buildings were grouped with comparable buildings based on age and height and divided into “comp groups.” Aspirational targets, based on a combination of data from NYC’s 80x50 Technical Working Group, basic building science, and existing high-performing buildings, were set for each comp group. Searched buildings are each compared to the top 10th and 20th percentile-performing building in their comp group. Savings potential is shown in terms of estimates of dollars saved, energy reduced, and greenhouse gas emissions avoided.

efficienSEE™ has the capability to break out savings between fuel, electric, and water, so the user can better see where cost savings from efficiency improvements can be found. In addition, efficienSEE™ can help users determine whether to further pursue cogeneration as a smart investment.

[Case studies compiled by NYCEEC](#) for multifamily, commercial, and industrial buildings that have undertaken energy-efficient retrofits representing each comp group incorporated into the efficienSEE™ tool show annual cost savings, projected energy and GHG savings, as well as project-specific details, including detailed information on the financing involved in each project.



Building information

Address	2 GOLD STREET
BBL	1000690018
Year built	2003
Stories tall	51
Number of buildings	2
Number of residential units	650

Your results

Based on your 2015 submitted benchmarking data under Local Law 84, your building's estimated energy savings potential is: **\$562,612 - \$695,077** per year.

WHAT'S NEXT? NYCEEC can help you get your project started to conserve energy, save money and reduce greenhouse gases. [Contact us](#) today to get started!

Sample Screenshots from NYCEEC's efficienSEE™ tool.

Lessons Learned

Other jurisdictions that have collected whole-building energy benchmarking data may be able to leverage the modeling and development behind the efficienSEE™ tool, and apply these elements to their own building stock. In doing so, the following lessons learned will also be useful.

- Communicate the “why” in a simple and understandable way.** As with any complex subject matter communicated to a broad audience, having the intended actions that result from the outcomes of the tool resonate with the intended audience—in other words, communicating the “why”—is a significant challenge. Tying the priorities of each individual building owner (and the messaging that resonates with them, such as financial savings and increased property values) to more expansive city goals, and how those goals contribute more broadly to bettering the global environment, are important messages to consider.

- Tailor messaging to reach the desired audience.** A significant challenge of releasing a new tool for public use is marketing it to the desired audience. In the case of the efficienSEE™ tool, this targeted audience was building owners and property managers—those with authority to make decisions on capital investments and building improvements. Building owners and managers have many demands on their time and capital, and energy efficiency is not often their highest priority. To better reach this group, it is important to tailor the marketing and messaging of the tool to fit with the needs and interest of the audience, who are often focused on saving money and increasing tenant satisfaction. Energy efficiency is a method to meet both of those goals, and the tool should be designed accordingly.
- Validate and test calculation methodologies.** The efficienSEE™ development team revised several approaches to tool development over the course of the project, including data sources and savings calculation methodologies. This underscores the importance of ensuring accurate and appropriate data and grounding projected savings calculations in real circumstances.
- Package outputs with context and next steps.** Primarily due to the low cost of energy, energy savings alone may not be sufficient to cover the improvements necessary to reach aspirational targets with a sufficient return on investment for building owners to act. Other jurisdictions should compile locally available financing programs, including utility incentive programs, so that building owners who would like to take the next step in improving their buildings have the resources available to do so. Ideally the tool could be tied to an existing financing program, or offer contact information for an efficiency program.



DATASETS AT WORK

In order to perform analysis on the financial benefits associated with building efficiency improvements, NYCEEC used several publicly available datasets in its efficienSEE™ tool. Jurisdictions looking to replicate this effort should identify comparable datasets for their local building stock.

Data Sources and Use

- NYC Local Law 84 Benchmarking Data:* The current version of efficienSEE™ is based on Local Law 84 (LL84) benchmarking data submitted for 2015. As New York City releases new public data, NYCEEC expects to continually update the information. Jurisdictions without local benchmarking policies can use nationally available data, such as those available through the U.S. Department of Energy's Building Performance Database (BPD).
- Data from NYC's 80x50 Technical Working Group:* NYCEEC also used datasets from NYC's 80x50 Technical Working Group to create the aspirational targets for energy and cost savings realized when buildings reach the 20th percentile of performance.

Building Types

- The efficienSEE™ tool currently supports the analysis of large multifamily buildings subject to LL84 and will later support commercial buildings. Within the tool, buildings are compared to other buildings of a similar size and age, as well as within the same geographic area.

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MARCUS GARVEY APARTMENTS

SUCCESS BY THE NUMBERS

- 26,268** ANNUAL COST SAVINGS
- 15%** REDUCTION IN PEAK DEMAND
- 207 kW** AVERAGE REDUCTION IN PEAK DEMAND

OVERVIEW

Demand Energy was looking to expand into new markets with their energy storage technology.

They found an opportunity to create a battery system for Marcus Garvey Apartments to take full advantage of solar and fuel-cell energy generation. Financing presented a barrier to moving forward.

NYCEEC provided a \$1.2M energy services agreement (ESA) loan.

- Project type: Energy storage
- Total project cost: \$1.3 million
- Financial product: Energy services agreement (ESA) loan

Example Case Study Compiled by NYCEEC

What's Next?

In the fall of 2016, NYC passed legislation to expand its benchmarking requirements to apply to buildings larger than 25,000 square feet (lowering the minimum square footage from 50,000 square feet). Once annual benchmarking data is available for multifamily and office buildings 25,000 square feet and larger in 2019, this data could be added to the model to expand the reach of the efficienSEE™ tool. The tool should continue to be used as an engagement tool with NYC’s building owners who would like a quick look into their building’s utility cost savings and cogeneration potential. ●

ADDITIONAL INFORMATION

[NYCEEC efficienSEE™ Tool](#)

[NYCEEC Case Studies](#)

[NYC One City: Built to Last](#)

[NYC Greener, Greater Buildings Plan](#)

[U.S. Department of Energy Building Performance Database](#)

[Putting Data to Work Toolkit](#)

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