

Getting 97 Done

A Plan to Mobilize New York City's Large Buildings to Fight Climate Change



**The City of New York
Mayor Eric Adams**

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Executive Summary

The most important thing New York City can do to reduce our impact on climate change is reduce citywide greenhouse gas (GHG) emissions. Because buildings account for 70% of NYC emissions, in 2019 the City enacted the Climate Mobilization Act, whose centerpiece, Local Law 97 (LL97), requires about 50,000 large buildings to cut emissions 40% by 2030 and 100% by 2050. The State has similar goals of achieving 70% clean energy by 2030 and 100% by 2040, goals that are strongly supported by LL97 mobilization in New York City. NYC government operations are also subject to LL97, with even stricter emission reduction targets than those for private-sector buildings. This plan describes the City's current and future actions and the ways that coordinated action among City, State, and Federal officials could achieve LL97's goals by helping building owners secure financing, access incentives, and reduce expenses.

Analysis by the City demonstrates that buildings are coming into compliance with LL97 but that the path to compliance is not easy for all buildings. The Department of Buildings (DOB) used building energy benchmarking data to examine how many buildings that were over their emissions limits in 2019 moved into compliance by 2022. These data revealed that about half of non-compliant buildings in 2019 have since moved into compliance, for a total of 89% compliance with 2024 targets. However, a majority (63%) of large buildings are currently over 2030 targets. Buildings that moved into compliance were generally in relatively advantaged communities (i.e., outside State-defined disadvantaged communities, or DACs), suggesting that building owners, especially those in DACs, may need additional support to achieve compliance.

New financial analysis conducted by the City reveals that roughly 15,000 buildings will need an investment of \$12-15 billion to comply with 2030 LL97 emissions limits at current costs and with current technology. Of that, only \$5-6 billion would pay for itself through energy savings. Roughly 25% of buildings that have to make investments will find their costs fully covered by energy savings. If undertaken, this work would generate up to 140,000 jobs.

The City's analysis suggests that with a combination of State and utility company energy efficiency (EE) incentive programs and reasonable investments from building owners, virtually all multifamily buildings and most commercial buildings could achieve their 2030 targets. This will require the City, State and Federal governments to align various programs to target assistance towards buildings needing significant upgrades to comply with LL97.

Buildings that have to do work to comply with LL97 could receive \$625 million in Federal tax refunds and subsidies from the Inflation Reduction Act. Further, the opportunity exists to use the J-51 tax abatement approved by the New York State Legislature to help low- and moderate-income rental buildings, coops, and condos comply with the law. Close to 1,300 coops and

condos across the City currently over their 2030 limits could be eligible to receive the J-51 tax abatement. Finally, the New York State Public Service Commission (PSC) recently directed utilities and the New York State Energy Research and Development Authority (NYSERDA) to propose plans for offering \$5 billion in EE programs for 2026-2030. A reasonable share of this funding should be directed towards LL97 compliance in multifamily buildings that must undertake deep retrofits to comply with LL97.

Achieving LL97 will require a comprehensive mobilization involving decarbonization of central systems; financing and funding; technical advice and innovation; and enforcement. To accomplish it, the City is working as follows:

Decarbonization of Central Systems:

- **Supporting** the on-time achievement of the State's historic Climate Leadership and Community Protection Act (CLCPA) targets for renewable electricity, which would lower New York City's GHG emissions and make compliance easier for all buildings;
- **Collaborating** with Con Edison on the decarbonization of its steam system, including exploring the potential use of biogas produced within the City from sewage and food waste;

Financing and Funding:

- **Asking** the PSC to ensure that a large share of the \$5 billion that will be invested statewide in EE directly support LL97 compliance for buildings that will not be able to cover costs with energy savings;
- **Ensuring** that City property tax programs, most notably J-51 tax abatements, the Industrial & Commercial Abatement Program, and the NYC Industrial Development Agency's Manhattan Commercial Revitalization Program, can be fully leveraged to assist with deep retrofits;
- **Ensuring** that building owners know how to access the \$625 million in Inflation Reduction Act (IRA) tax credits that this analysis shows can be claimed as part of LL97 compliance work;
- **Working** with the US Department of Energy to create a loan program dedicated to those buildings that must comply with LL97, especially buildings that might have difficulty accessing market-rate loans in the current interest rate environment.

Technical Advice and Innovation:

- **LL97 Mobilization Council:** Creating an ongoing LL97 Mobilization Council to monitor how mobilization is proceeding, and to foster collaboration among building owners and managers, financing sources, retrofit companies, and the city's workforce.
- **Enhanced Technical Assistance:** Enhancing NYC Accelerator, the City's LL97 technical assistance program, to be a one-stop-shop to help building owners understand retrofit and financing options and navigate program requirements. This work will include partnering with City Council members to bring technical assistance in their districts directly to building owners who need to do work to comply with LL97.

Enforcement:

- **Rules:** Publishing the next LL97 rule package, which maintains strong compliance incentives while providing out-of-compliance buildings with a clear and enforceable path to achieve compliance and avoid penalties.
- **Streamlined Compliance and Reporting:** Collaborating with City Council to bring other City energy-related regulations into alignment with LL97, reducing paperwork and streamlining compliance timelines.

Mobilizing New York City's large buildings to reduce their emissions and fight climate change requires an all-hands-on-deck approach. The City, State (NYSERDA, PSC), Federal government, utilities, financing institutions, advocates, labor, nonprofit partners, design and engineering firms, building owners, and communities can work together to meet the ambitious and essential goals of LL97.

Introduction

Climate change is the greatest challenge facing our planet this century. Most of us can remember when we needed to read the science pages to learn about climate change; today, we see it in the daily weather report. Canadian wildfires, heat waves, and record-setting storms have all affected New York City directly.

The most important thing New York City can do to reduce our impact on climate change is reduce GHG emissions. Buildings account for 70% of GHG emissions in New York City and 40% of GHG emissions in New York State.

To take bold action on buildings' role in emissions, in April 2019 the City Council passed the Climate Mobilization Act, the single largest emissions reduction policy in any city in the world and one of New York City's most important sustainability initiatives. Its centerpiece, LL97, requires most privately-owned buildings over 25,000 square feet ("large buildings" hereafter) to meet new GHG emissions limits by 2024, with stricter limits in 2030 and subsequent compliance periods. Approximately 50,000 buildings are subject to LL97. Most of these buildings must cut emissions 40% by 2030 and be carbon neutral by 2050.

If we work together to meet all public- and private-sector LL97 targets, we can expect to reduce GHG emissions by 6 million tons of carbon dioxide, the equivalent of taking more than 1 million cars off the road by 2030. We can avoid 150 hospitalizations per year and prevent 50-130 deaths. We can create up to 140,000 jobs,ⁱ expand the retrofit market to \$20 billion (thirteen times its current size), and drive energy cost savings to buildings.

New York State's CLCPA, passed shortly after LL97, mandates 70% clean energy by 2030 and 100% by 2040. LL97 is critical to achieving not only the City's climate goals, but also New York State's.

This plan begins with a brief review of much of the work the City has done to date to implement LL97 and mobilize private-sector buildings to reduce emissions. It explains the Adams Administration's approach to LL97 mobilization and proposes specific achievable actions that the City will take, and that State and Federal partners can take, to enable buildings to achieve ambitious emissions reductions while we minimize financial burden and create local jobs. It provides key findings from a City-led analysis of the actual costs, energy savings, and incentive programs for LL97 compliance. This financial analysis reveals that the right combination of City, State, Federal and private action would make it possible for most multifamily residential buildings to comply with the law's ambitious 2030 emissions reduction targets and recoup their investments through available tax credits, incentives, and energy cost savings. Furthermore, commercial buildings leveraging available resources could be expected to incur manageable levels of expense to come into compliance.

This plan focuses on residential and commercial buildings. There are also more than 1,000 other buildings with industrial, manufacturing, or hospital uses that will need to reduce emissions to comply with LL97. The City has undertaken several studies, including an energy use needs study

in partnership with NYSERDA, convening a working group on co-generation, and participating in a task force on hospitals. Although not the focus of this plan, the City continues to work with these owners and to develop policy and implementation options aligned with their specific characteristics.

The Adams Administration Approach to LL97 Implementation

The Adams Administration’s approach is grounded in its core values, including addressing the climate crisis with urgency, creating pathways to good jobs for New Yorkers, growing and supporting businesses of all sizes, and focusing on equity and support for disadvantaged communities. To that end, there are several principles driving our mobilization approach:

- **The City is leading by example.** NYC government operations are also subject to LL97 — in fact, City government buildings are required to meet stricter limits than private-sector buildings: a 50% reduction in GHG emissions from all City government operations by 2030 with an interim reduction of 40% by 2025. City-owned buildings have been on the forefront of decarbonization. The NYC Department of Citywide Administrative Services (DCAS) leads city government emissions reduction efforts, and in partnership with other agencies, has completed more than 13,000 energy conservation measures across 2,300 buildings over the past decade. This includes the installation of 22 megawatts (MW) of solar photovoltaics (PV) on City properties. These projects have enabled the City to reduce annual energy usage by 4.4 million British thermal units (MMBTus) and between FY2006 and FY2021 the City has reduced GHG emissions 26%, equivalent to removing 83,000 cars from city streets.ⁱⁱ



A contractor commissions the solar panels at NYPL’s Charleston Branch Library in Staten Island, the first library in New York City designed for net-zero energy.
Source: DCAS

- **Building owners must recognize that reducing GHG emissions is now a responsibility of property ownership.** Property ownership brings with it a set of rights and responsibilities. Just as building owners have long been responsible for compliance with regulations that ensure their occupants’ health and safety, they now must also comply with regulations that protect everyone from the impacts of climate change. Building owners have a long history of stepping up to the plate to comply with City regulations to protect New Yorkers — ranging from sprinkler installations to façade safety programs — and, with support, they are doing so again to comply with LL97.

- **Penalties provide a necessary motivation for buildings to reduce their emissions; however, they are only one piece of overall mobilization.** Mobilization requires not only motivation in the form of penalties, but also funding, financing, and technical support. The City's mobilization effort is designed to ensure that owners know what they need to do, know how to achieve it, and have access to the resources they will need. Beyond penalty avoidance, there are benefits to better building performance, which include healthier and more comfortable buildings, increased market value, and lower future operating costs.
- **Compliance will be easy for some, difficult for others.** This plan recognizes that some building owners will have far more difficulty than others in complying with the law, either because their building requires more work, or because they have less access to funding, or because they have less technical and managerial capacity.
- **Given the disruptions from the COVID-19 pandemic and the scope of work required in some buildings, some flexibility is warranted for buildings that will not meet the 2024-2029 emissions limits.** This is reflected in the draft rules recently released by DOB. Demonstrated action toward compliance will be required for owners seeking penalty mitigation in advance of the 2030 emissions targets.
- **City policy must continue to be grounded in what's happening on the ground.** The City must continue to be in constant dialogue with stakeholders, including building owners and managers, retrofit providers, labor, technology companies, and financing institutions, to ensure we are working together to share best practices and troubleshoot challenges.

The Adams Administration Mobilization to Date

The Adams Administration is fully committed to implementing LL97. Since Mayor Adams took office in January 2022, the Adams Administration has been deeply invested in implementing LL97 and mobilizing building owners and has done so in the following ways:

- **Stakeholder Input.** The City has continuously engaged with stakeholders to advance LL97 implementation. Key aspects of this engagement include working with the LL97 Advisory Board to issue findings and recommendations in December 2022 and meeting with stakeholders to discuss implementation progress.
- **Rulemaking.** DOB published and finalized the first major LL97 rule in early 2023. This rule included establishing GHG coefficients and other technical aspects of compliance, such as the conversion of building occupancy types to Energy Star Portfolio Manager property types (pursuant to Section 28-320.3.1 of the law) and giving building owners the information they need to calculate emissions under the law.
- **Compliance Financial Analysis.** The City has conducted a detailed analysis of the current costs of compliance with the 2030 emissions targets, accounting for energy cost savings and available incentive programs.
- **Supporting New York State's Implementation of the CLCPA.** A cleaner grid and a cleaner Con Edison steam system are key components of the LL97 mobilization effort. The State and the City are investing in renewable energy projects and infrastructure to supply New York City with clean electricity in order to meet the State's CLCPA goals of 70% clean energy by 2030 and 100% by 2040. As part of this partnership, New York City committed to procuring its yearly electric load (after its proportional share of offshore wind renewable energy credits) in Tier 4 RECsⁱⁱⁱ generated from the Clean Path NY and Champlain Hudson Power Express projects, which will help fund these projects that will deliver clean, renewable solar, wind and hydroelectric power from upstate New York and Canada to New York City's grid. Tier 4 represents the largest transmission projects contracted for in New York State in 50 years and will allow the City to meet its goal of having 100% renewable power for City government operations. Many buildings in New York City, especially those that rely more heavily on electricity for total energy consumption, will benefit from New York State's electricity grid and Con Edison's steam system becoming cleaner over time. Additionally, the City is investing \$191 million to grow the offshore wind industry locally, with the City's first offshore wind hub coming to the City-owned South Brooklyn Marine Terminal.
- **Technical Assistance.** Since March 2021, NYC Accelerator, a free, one-on-one program that provides resources, training, and expert guidance, has completed compliance assistance for about 5,000 buildings. This includes explaining potential compliance pathways with LL97, identifying appropriate energy conservation measures, and connecting buildings with service providers, utility and state incentive programs, and additional financing options.

DOB and NYC Accelerator have been offering information sessions on LL97 compliance in collaboration with other stakeholders, including City Council members. Fifty-five percent of active NYC Accelerator buildings subject to LL97 are affordable.

- **Renewable Energy Credits Market Research.** In partnership with NYSERDA, the City reviewed research on the future market for RECs, including the costs and availability of Tier 4 RECs from the Champlain Hudson Power Express and Clean Path NY renewable energy projects. This research indicated that the price of RECs is expected to be close to or higher than the costs of paying LL97 penalties. When the likely alternative course of action would be paying penalties, building owners' purchase of RECs, as authorized in LL97, is the outcome that is most supportive of LL97 and CLCPA goals because it generates funding for important renewal energy projects.
- **Data Acquisition.** The City has been working with other City and State partner agencies to obtain building-level data about rent-regulation and income-restriction programs. This will enable the City to determine each building's compliance path under the law, including which buildings are subject to Article 321 of LL97, which creates a distinctive set of compliance pathways for affordable housing and houses of worship.
- **Biogas.** The City has been exploring the use of locally-generated biogas from sewage and food waste to decarbonize difficult-to-electrify buildings and the Con Edison steam system. If fully captured and digested, and targeted appropriately, the City estimates that sewage and food waste could generate enough renewable biogas to replace 7-20% of the current Con Edison steam system's methane consumption.

This work, along with other efforts, has been essential to providing clarity to building owners, ensuring the City has the data and processes in place to assess compliance with the law, and the clean generation infrastructure in place to translate building investments into GHG emissions reductions. Stakeholder input and financial analysis directly informed this mobilization plan.

Key Analytical Findings

Using data from building energy benchmarking and data on retrofit costs from two previous studies, Pathways to Carbon-Neutral NYC (2021) and One City Built to Last Technical Working Group Report (2016), the City conducted a new detailed financial analysis of costs for the retrofits and upgrades buildings would likely need to complete to meet 2030 limits. The analysis examined emissions target overages and the necessary types of work to reduce energy and emissions enough to bring those buildings into compliance. The types of retrofits range from low-effort EE measures, such as lighting and control upgrades, to comprehensive building system upgrades and heat-pump equipment. Costs for these retrofits range from \$2 per square foot to over \$45 per square foot and were verified to be within the range of current estimates based on feedback provided by industry stakeholders.

The analysis primarily focused on multifamily and commercial buildings, which make up nearly 90% of buildings projected to be out of compliance in 2030. Multifamily and commercial buildings covered by Article 321 were included in the analysis to understand their costs if they chose to pursue compliance under Article 320. This scenario would provide greater emissions reduction and energy savings than those achieved by the prescriptive energy conservation measures required for compliance with Article 321.

In addition to retrofit costs, this new analysis takes into account energy cost savings resulting from EE work and available incentives from utility, State, and federal programs. The combination of these inputs provides a high-level overview of the total cost of compliance for 2030 and reveals both the opportunities and limitations of existing incentives.

The City also conducted this financial analysis segmented by buildings located within and outside DACs. This layer of analysis enables the City and other stakeholders to target resources to communities who may need particular support achieving compliance.

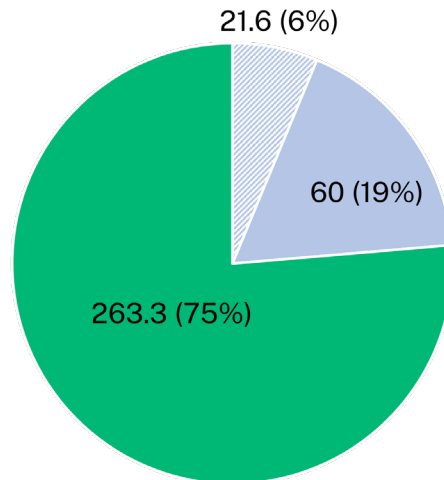
The new financial analysis, combined with other LL97 analyses, generated the following key findings:

Climate Impacts and Progress to Date

- **LL97's success matters far beyond New York City.** As of 2020, the most recent year for which we have complete data, NYC citywide emissions made up 25% of State emissions. (See Figure 1.) NYC's large buildings account for 6% of state emissions. That means that LL97 mobilization would accomplish 6% of the State's entire GHG goals. LL97 is also a model for other cities who are making policy on building performance standards.

**Figure 1: Emissions as Share of NY State Emissions, 2020
(Million Metric Tons CO₂e)**

▨ LL97 Covered Sources
▨ Other NYC Sources (other buildings, transportation, waste)
■ Rest of NY State Sources



- **Many buildings that would have been non-compliant with 2024 limits when LL97 became law have since made reductions that put them into compliance.** In 2019, 20% of buildings were projected to be out of compliance with limits for 2024-2029. Since then, nearly half of them have moved into compliance. This demonstrates that many buildings are already mobilizing. It should be noted that these buildings were generally (a) over their limits by smaller amounts (20% or less), and (b) in relatively advantaged communities (i.e., outside of DACs). Only 39% of newly compliant buildings are in DACs. This suggests there may be structural challenges to compliance and that many buildings, especially those in DACs, need greater support to achieve compliance.
- **Achieving the broader, deeper 2030 reductions is both more difficult and more important than the 2024 reductions, both in terms of environmental benefits and job creation.** The 2024 limits are a first step toward emissions reductions. Based on 2022 data, 89% of properties are already below their 2024 limits. In a sense, 2024 is a “warm-up period” ahead of the more ambitious and important reductions that are required by 2030. (See Figures 2 and 3.) Only a minority (37%) of large buildings are below the 2030 limits, while 63% are currently over them. Mobilizing these buildings to make significant reductions as soon as possible is essential to combating climate change.

Figure 2: Projected Compliance for LL97-Covered Buildings

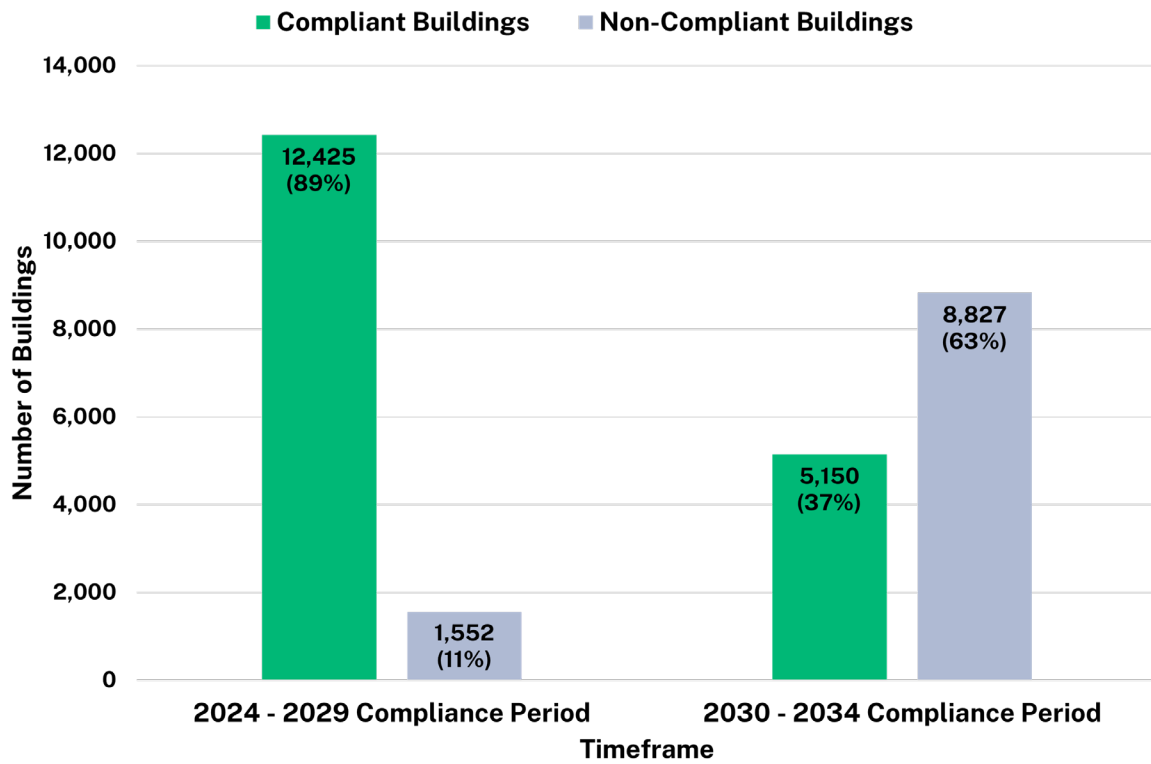
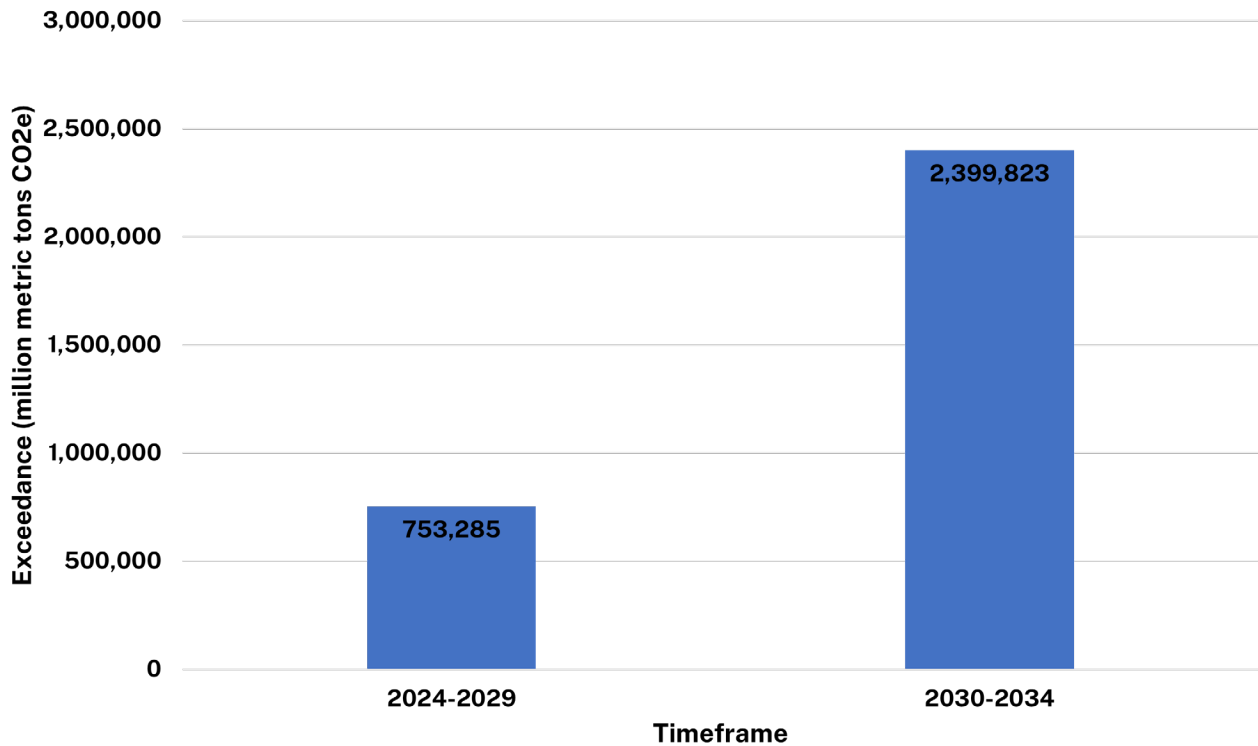


Figure 3: Emissions Reduced through Full Compliance



Financial Costs and Benefits of Compliance

- **Roughly 15,000 buildings will need investment to comply with LL97 by 2030.** This work will require an estimated investment of \$12-15 billion, potentially creating up to 140,000 jobs. LL97 investments can be significant and are worthwhile. Some costs will be recouped in energy savings. Critically, mitigating climate change slows the trend toward more extreme weather, which in turns saves lives and reduces the financial and human costs of disaster mitigation and response.
- **The transition to lower carbon buildings will be easy and cost-effective for some buildings, but difficult and expensive for others.** About 25% of buildings currently projected to be over their 2030 limits would only need to complete a package of relatively low-difficulty EE measures, such as weatherization and lighting and controls upgrades to achieve compliance. The cost for this type of work is relatively low and can be recovered by energy cost savings. Approximately 40% of buildings projected to be over their 2030 limits will require much more comprehensive retrofits, including extensive EE measures in conjunction with electrification of heating and hot water systems, to come into compliance. Costs can be significant for this combination of work, and existing incentives are not sufficient to make it cost-effective for all building owners. The remaining 35% of buildings are somewhere in between. They will need to do a mix of high-and low-cost EE work to meet their limits. For these buildings, the combination of incentives and resulting energy savings make doing the work worthwhile from an economic standpoint. (See Figure 4.)
- **There are many buildings — both residential and commercial — where the cost of compliance is likely to be entirely recovered by energy savings.** A total of 529 commercial and 2,946 multifamily buildings — including 1,345 buildings covered by Article 321 — fall into this category. For these owners, the primary barrier to compliance is the availability of capital. Property-Assessed Clean Energy (PACE) financing — low-cost financing for commercial buildings that is paid back through property tax bills — can provide an effective solution for commercial buildings. However, work must be done to ensure that multifamily building owners — especially those in DACs — can access financing.
- **Some funding gaps exist today, and many of them can be addressed through targeted programs.** In reviewing funding and financing resources to support compliance, the City identified gaps between costs of compliance and cost savings from energy savings and identified which existing programs can fill those gaps. The analysis identified various cases in which existing programs are not yet filling those gaps. This finding informed this plan’s recommendations (discussed in “Our Plan”) for action the City, State and other stakeholders can take to help fill those gaps.
- **With current costs and today’s technology, there are hundreds of commercial buildings where the cost of compliance, even after accounting for energy savings, is particularly high.** These buildings generally have on-site energy cogeneration or are powered by the steam system. In the near term, these building owners may purchase RECs to comply with LL97. Going forward, the City will (1) work with the LL97 Mobilization Council and other stakeholders to support development of technological innovations to enable emissions reductions at lower costs, (2) work to identify funding and financing options to support

Figure 4: Costs, Savings, and Credits for Different Buildings Types by Percentage Over Limit

Type of Work Needed to Meet Compliance	Description	Multifamily (Not DAC)	Multifamily (DAC)	Commercial (Not DAC)	Commercial (DAC)	Total
0-20% > 2030 limits Low-Effort EE	# Buildings	1,824	1,122	366	163	3,475
	# Residential Units	171,335	87,582	1,342	543	260,802
	Square Footage	200,418,465	91,064,775	95,852,193	28,147,082	415,482,515
	Compliance Costs (\$M)	380 - 470	170 - 210	290 - 350	80 - 100	920 - 1,130
	Energy Cost Savings (\$M) (15-yr. PV)	350 - 430	160 - 200	390 - 470	110 - 140	1,010 - 1,240
	Potential Fed IRA Tax Credits (\$M)	23 - 29	11 - 13	43 - 53	13 - 15	90 - 110
	Remaining Balance (\$M)	-7 - -11	1 - 3	143 - 173	43 - 55	180 - 220
	Present Value of Penalties for 2030-2050 (\$M)	240 - 290	110 - 140	60 - 70	20 - 30	430 - 530
20-50% > 2030 limits Low-Effort + High-Effort EE	# Buildings	2,245	1,971	449	171	4,836
	# Residential Units	235,205	127,836	1,560	65	364,666
	Square Footage	222,314,030	151,697,479	102,134,060	22,591,988	498,737,557
	Compliance Costs (\$M)	1,600 - 2,000	1,100 - 1,400	1,800 - 2,200	400 - 480	4,900 - 6,100
	Energy Cost Savings (\$M) (15-yr. PV)	620 - 760	430 - 510	510 - 620	110 - 140	1,700 - 2,000
	Potential Fed IRA Tax Credits (\$M)	130 - 150	86 - 110	92 - 110	20 - 25	330 - 400
	Remaining Balance (\$M)	-850 - -1,090	-580 - -780	-1,200 - -1,470	-270 - -320	-2,900 - -3,700
	Present Value of Penalties for 2030-2050 (\$M)	580 - 700	410 - 500	180 - 210	47 - 57	1,200 - 1,500
More than 50% > 2030 limits Low-Effort + High-Effort EE + Electrification for Multifamily Low-Effort + High-Effort EE Only for Commercial and Art. 321	# Buildings	1,844	2,619	615	281	5,359
	# Residential Units	173,154	182,845	2,482	622	359,103
	Square Footage	172,949,430	174,395,435	90,496,406	35,574,014	473,415,285
	Compliance Costs (\$M)	2,300 - 2,800	2,200 - 2,600	1,600 - 1,900	600 - 800	6,700 - 8,100
	Energy Cost Savings (\$M) (15-yr. PV)	1,150 - 1,410	780 - 940	450 - 560	170 - 210	2,600 - 3,100
	Potential Fed IRA Tax Credits (\$M)	130 - 160	100 - 120	80 - 100	30 - 40	340 - 420
	Remaining Balance (\$M)	-1,020 - -1,230	-1,320 - -1,540	-1,070 - -1,240	-400 - -550	-3,760 - -4,580
	Present Value of Penalties for 2030-2050 (\$M)	2,900 - 3,600	1,300 - 1,600	470 - 570	380 - 460	5,050 - 6,230

Many multifamily buildings could be eligible for the J-51 tax abatement to cover a portion of compliance costs.

Buildings in DACs will need targeted programs for incentives, low-cost financing, and technical assistance.

Energy cost savings and IRA tax credits will cover the cost of compliance. Only financing of upfront costs is needed.

Incentives could support more costly, deep energy retrofits, along with financing of upfront costs.

Significant incentives could support more expensive electrification work and financing of upfront costs.

The cost of paying penalties is far less than the cost of compliance. These commercial buildings might decide to only do low-effort energy efficiency work, which would pay for itself over time.

these buildings' emissions reductions, and 3) seek opportunities to collaborate with Con Edison on the decarbonization of the steam system.

The City will continue to update the analysis as new data are generated, new programs are created, and we receive additional information from stakeholders including building owners, financing organizations, and retrofit companies.

Our Plan to Get LL97 Done

Mobilizing New York City's large buildings to reduce their emissions and reduce the impacts of climate change requires an all-hands-on-deck approach. The City, State (NYSERDA, PSC), Federal government, utilities, financing institutions, advocates, labor, nonprofit partners, design and engineering firms, building owners, and communities need to work together and contribute to meeting the ambitious and essential goals of LL97.

The City will leverage its rulemaking and enforcement authority and use outreach, technical assistance, benchmarking, and policymaking tools to support compliance. Existing funding and financing resources, along with new resources that could be strategically targeted, from Con Edison, NYSERDA, NY Green Bank, New York City Energy Efficiency Corporation (NYCEEC), and programs like the Solar Tax Abatement, J-51 and ICAP, could support LL97 compliance.

The following actions will be key to LL97 Mobilization:

Financing and Funding Action

To ensure that LL97 is a success, the City will work with the State, utilities, Federal government, and other stakeholders to fill gaps in funding needs in the following ways:

- **Partner with New York State.** The City is working to craft responses to the PSC's Order Directing Energy Efficiency and Building Electrification Proposals issued on July 20, 2023. Per the order, Con Edison, NYSERDA, and National Grid must develop proposals for EE programs out of \$5 billion in statewide funding for the years 2026-2030. The July PSC order puts a focus on disadvantaged communities and low-income populations with a goal of 40% of program benefits accruing therein. The City will advocate to the PSC that Con Edison and NYSERDA programs be designed to prioritize assisting buildings that are far out of compliance with their LL97 targets;
- **Implement the J-51 tax abatement.** The New York State Assembly and Senate recently passed a renewed J-51 tax abatement. If signed by the Governor and adopted with City Council legislation, it could be used by the City to offer eligible multifamily buildings property tax breaks to cover a portion of their LL97 compliance costs. If the Governor signs the legislation, the Administration would work with City Council to introduce legislation to enact the J-51 tax abatement, after which the New York City Department of Housing, Preservation and Development (HPD) would update the Certified Reasonable Cost (CRC) schedule to ensure that retrofits for LL97 compliance are eligible. These steps could devote significant City resources to help low-and-moderate income multifamily buildings, including close to 1,300 condos and coops projected to be over 2030 limits, comply with the law;
- **Help building owners leverage Inflation Reduction Act (IRA) funding.** The IRA includes tax credits that could account for roughly \$625 million in value for buildings doing LL97 compliance work;

- **Collaborate with NYSERDA, NY Green Bank, NYCEEC, and other local nonprofit lenders** to utilize a portion of \$20 billion in funding available from the federal Greenhouse Gas Reduction Fund (GGRF) to offer low-cost financing and credit enhancement for multifamily buildings, especially in DACs;
- **Promote PACE financing**, a mechanism that allows owners to finance the up-front costs of retrofits to their property and repay them through their property tax bill. This program would be most helpful for commercial buildings that are within 50% of their emissions limits and buildings in which owners' equity, alongside cost savings, can achieve compliance at a reasonable cost. It could also be used in major renovations, in conjunction with other financing, to cover the added cost of installing more expensive, low-carbon technologies;
- **Help building owners leverage the Industrial & Commercial Abatement Program (ICAP)**, which can be used by eligible building owners to help cover retrofit costs required for LL97 compliance. The program provides abatements for property taxes for periods of up to 25 years for projects that are built, modernized, expanded, or otherwise physically improved. For eligible commercial and industrial buildings that need to complete substantial work to reduce emissions, such as modernization of HVAC systems and conversion of heating systems to heat pump equipment, ICAP can provide tax relief that helps cover these items within a large-scale renovation project;
- **Help building owners access the New York City Industrial Development Agency's (NYCIDA) Manhattan Commercial Revitalization Program (M-CORE) program.** This program will provide tax incentives to support transformative renovations of aging commercial office buildings in Manhattan south of 59th Street. It will help building owners decrease vacancy and attract world-class tenant companies. Tax incentives will apply to investments that support compliance with LL97, along with other transformative investments;
- **Work with NYSERDA and its NY Green Bank division** to encourage private-sector companies to submit proposals to the U.S. Department of Energy's Loan Programs Office's (LPO) Title 1703 Clean Energy Financing Program, and support those proposals by offering State Energy Financing Institutions support under NYSERDA's new State Energy Financing Fund. The Bipartisan Infrastructure Law and the Inflation Reduction Act (IRA) provided an additional \$40 billion of funding for the new State Energy Financing Institution (SEFI) program. SEFIs can provide financing support or credit enhancements for eligible clean energy projects and take steps to reduce financial barriers to deploying them. A loan guarantee or direct funding from the LPO could provide multiple financing options for buildings to comply with LL97 and fill gaps in the financing market, specifically for borrowers with low credit.

These actions, especially if undertaken in combination, would yield dramatic results. If the State and utilities target their incentive programs toward multifamily buildings that must comply with LL97, and these buildings combine IRA and (if eligible) J-51 programs, most of these buildings would wind up recouping LL97 compliance investments through available tax credits, incentives, and energy cost savings. The City's analysis suggests that with a combination of State and utility

company EE incentive programs and reasonable investments from building owners, virtually all multifamily buildings and most commercial buildings could achieve their 2030 targets. This will require the City, State and Federal governments to align various programs to target assistance towards buildings needing significant upgrades to comply with LL97.

DOB Rules

In September 2023, DOB released a package of rules outlining compliance options for private-sector buildings. This includes guidance for what would be required for buildings to use LL97's Good Faith Effort clause to receive penalty mitigation. The proposed rules indicate that buildings with emissions over their limits in the first compliance period (2024-2029) would potentially have four options:

- **Prove that work to meet the emissions limits is underway**
- **Demonstrate that the building is engaged in long-term decarbonization planning** and will achieve near-term compliance with the 2024 and 2030 emissions limits (without purchasing RECs for the 2024-2029 period)
- **Purchase RECs to deduct from GHG emissions up to the amount of their electrical load**
- **Pay penalties**

The proposed rules also set forth a framework for the issuance of mediated resolutions, which will include pathways to compliance.

The Statement of Basis and Purpose of the proposed rules indicates the Administration's intention to support a Good Faith Effort pathway for 2030 that demonstrates owners must be doing work well in advance of the 2030 deadline, with appropriate time allowed to reasonably achieve compliance with the new limits.

As noted above, for the 2024-2030 compliance period, the proposed rules would not allow the purchase of RECs for buildings choosing the decarbonization plan pathway as part of good faith efforts. Buildings not pursuing this option are permitted to use RECs to cover their electricity emissions, pursuant to LL97. These proposed rules do not cover the 2030-2034 compliance period.

The proposed rules would also reward owners who do early beneficial electrification, that is, replacing fossil fuel equipment with high-efficiency electric-based equipment prior to 2030. This will expand the market for heat pumps and other electric equipment, another form of emissions reduction mobilization.

LL97 Mobilization Council

The City will create an ongoing LL97 Mobilization Council to monitor how mobilization is proceeding and foster collaboration among building owners and managers, financing sources, companies that perform retrofits, and the workforce development community. Insights and intelligence from those closest to the implementation work is essential to ensuring the City and

other partners can support owners, remain up to date on the latest developments, and work together to address challenges.

The LL97 Mobilization Council builds on the important work accomplished by the LL97 Advisory Board. It will share information with the City regarding how buildings are complying with the law and provide on-the-ground intelligence to inform policy, outreach, and partnerships.

The Council will have three key working groups:

- **Workforce and buildings retrofitters.** This group will keep the City and other stakeholders up-to-date on which sectors and professions are experiencing high demand and whether there are constraints in the labor supply, technical solutions, or investment capital. It will help identify training opportunities and service providers to connect trained workers with the firms that need them. Building retrofit companies will share insights, including those about what types of retrofits are most attractive to building owners and other insights.
- **Building owners and managers.** This group will provide feedback on City services such as NYC Accelerator. This group will also ensure the City is aware of building owners' concerns, hurdles, and successes implementing retrofits so the City and partners can address obstacles and share best practices and resources.
- **Financing organizations.** This group will be the City's pulse on who is seeking and providing



Mackenzie Kinard, Senior Manager of Energy and Sustainability at NYPL, performs a walk-through during envelope commissioning at NYPL's Charleston Branch Library in Staten Island. | Source: DCAS

financing for LL97 projects. It will illuminate opportunities for and obstacles to lenders to identifying and deploying capital for the projects and provide information on how lenders, the City, and other partners can support building owners' raising sufficient project funds.

These groups will include engineering and architecture professionals; building owners and managers; energy and utility experts; labor leaders; advocates; and firms involved in real estate, construction and technology development. They will ensure the City has up-to-date information on the state of implementation on the ground. They will troubleshoot challenges that arise, share best practices, and provide feedback on how we can continually support building owners' efforts to reduce their emissions and upgrade their facilities.

Enhanced Technical Assistance and Outreach

LL97 compliance requires long-term planning and implementation of EE measures with the end goal of reducing the city's carbon emissions, and NYC Accelerator will provide support throughout every stage of the process. The City is streamlining NYC Accelerator to be a comprehensive resource to guide building owners through necessary steps and options to achieve LL97 compliance. It will empower stakeholders to better understand retrofit and financing options, navigate program requirements, and access technical guidelines.

NYC Accelerator experts support building stakeholders by educating them on the upgrades, retrofits, financing, and financial incentives available to their specific building. They also help building decision-makers determine which options work best for their buildings' needs and connect them to available resources in the marketplace of engineers, contractors, and lenders.

The Administration and City Council have partnered on a new program offering called "Climate-Friendly Buildings: Local Law 97 in Your Neighborhood." This offering will create invitation-based one-on-one consultations hosted by City Council members at which NYC Accelerator account managers will help owners develop a plan to comply with the law by 2025, 2030, and beyond. Building off continued DOB outreach and engagement with LL97 building owners, the agency will offer "NYC Accelerator Days at DOB." These events will provide building stakeholders a hands-on opportunity to meet with their dedicated NYC Accelerator account manager for an in-person session to map out plans for LL97 compliance.

In addition to in-person events, the City is doing other targeted outreach. Recently, the City analyzed the results of the 2022 energy benchmarking data reported under Local Law 84 of 2009 and projected which buildings may be in violation of their emissions limits in 2024 and 2030. In the coming weeks, NYC Accelerator will reach out individually to buildings projected to be out of compliance, offering technical assistance and identifying funding, financing, and retrofit providers.

Streamlined Legislation

The Administration will work with City Council to bring other City energy-related mandates into alignment with LL97 to reduce the cost of compliance to building owners and managers. This is informed by a recommendation from the LL97 Advisory Board to harmonize LL97 with existing City and State laws and regulations, align City and State decarbonization and EE goals, limit confusion where multiple regulations and timelines overlap, and reduce costs for building owners who must hire third parties to prepare and submit compliance reports.

Under Mayor Adams' leadership, the Administration introduced a zoning text amendment, City of Yes for Carbon Neutrality. This is an important aspect of our LL97 strategy and addresses challenges that have prevented, slowed, or increased the costs of LL97 compliance. Building EE and decarbonization measures that will become easier under City of Yes include insulation, building electrification, rooftop solar and wind, community solar, and onsite energy storage.

Conclusion

LL97 mobilization will require a collaborative effort of building owners, the State, the City, the Federal government, the private sector, utilities, and other stakeholders. One of the boldest pieces of climate legislation ever passed requires that stakeholders work together to help building owners comply with the law and achieve climate mobilization. This report, the first of its kind from the City, has revealed that 1) it is possible for most multifamily residential buildings to comply with LL97's 2030 emissions reductions targets while recouping investments through available tax credits, incentives and energy cost savings, and 2) commercial buildings can also comply, by leveraging incentive and financing opportunities and making investments that are within reach for that sector.

The City is driving mobilization by enlisting partners to create a set of funding and financing opportunities for owners, ensuring owners know what is available to them and have support accessing it, and creating rules that maintain compliance incentives while putting buildings on a workable path to emissions reductions. As state and federal partners play their own part, building owners will be able to achieve GHG emissions reductions that will create a cleaner and more climate-ready city. New York City's successful mobilization will also serve as a model to other global cities as they set out to decarbonize their buildings.

Spotlights

Since LL97 was passed, a variety of building owners across all five boroughs have reached out to NYC Accelerator for assistance with decarbonization – both to comply with the law and to improve building and resident health. These spotlights show the many pathways available to building stakeholders.

Residencia Esperanza 616 West 137th Street (Hamilton Heights)

Built in 1906, this Housing Development Fund Corporation building is about 41,000 square feet and has 25 units. It currently runs on an old, inefficient, #2 fuel oil boiler with a steam distribution system. Residencia Esperanza is located in a DAC and most residents are artists, teachers, journalists, and filmmakers. The residents are interested in EE, tenant comfort, and water reuse, and feel that moving off oil to full electrification is a top priority.

After completing a NYSERDA Flex Tech Study, the board opted to postpone full electrification. There are currently no rebates associated with the \$300,000 cost of upgrading existing electrical infrastructure. The board decided to pursue the Scalable Affordable Financeable Electrification (SAFE) pilot, a NYSERDA Demo Program, and partially electrify their domestic hot water supply. They will consider full building electrification when alternative funding options become available. The board is obtaining bids for rooftop solar panels and planning to take advantage of tax credits and the Solar Property Tax Abatement, which has been passed by the New York State Legislature and is awaiting Executive action. Based on its planned partial electrification, Residencia Esperanza is expected to be LL97-compliant through 2030.



Residents in front of their building
Source: misanthropictures

8-Unit Condo (Upper West Side)

Address anonymized at owners' request

The property was built in 1885, renovated in the 1960s, and converted to its current configuration in 1988. The owners, a couple, have been sharing an inefficient #2 fuel oil boiler with the adjacent building for their space and domestic hot water heating. Because the building is under 25,000 square feet, the building is not subject to LL97. The owners were nevertheless motivated to make their building more energy efficient and comfortable for their renters and to stop relying on the neighboring property to supply fossil fuel heating.

After making contact with NYC Accelerator, they completed a NYSEDA Flex Tech Study to provide recommendations on building electrification and electrification-readiness measures. Based on the results of this study, and coordination with various contractors, electricians, and engineers, they are working to replace the building heating system with air-source heat pumps and install instantaneous electric tankless domestic water heaters. They plan to enroll in the New York State Clean Heat and Low Carbon Pathways Programs to obtain incentives for the heat pump equipment. They are also coordinating with the NYC CoolRoofs program to install energy-saving reflective rooftops to reduce roof temperatures, internal building temperatures, and carbon emissions.

While the incentives through existing utility and state programs will help pay for a portion of the overall cost, the electrical upgrades required for this work, approximately \$200,000, comprise a huge portion of the total project cost of approximately \$500,000. High costs for electrical upgrades are not currently covered by any existing incentive programs. Because of this, the owners are seeking a loan that can cover the high cost of these electrical infrastructure upgrades. They also hope they will be able to obtain additional rebates and grants to decrease the total loan amount.



Building exterior

111 4th Avenue (Greenwich Village)

This 156,000-square-foot structure was built as a garment factory in 1921 and converted to a coop in 1980. In 2017, two years before LL97 was enacted, the board began researching ways to improve aging infrastructure and resident comfort. The aging two-pipe hydronic switchover system required around-the-clock maintenance. In addition, massive steel-framed windows allow direct sun to come into some units, while others remain shaded. The board's idea was to modernize the system with equipment that would allow residents the choice to heat or cool their unit independent of other units.

NYC Accelerator connected the building's board with a reliable service provider and offered incentive information. The coop participated in the New York State Clean Heat and Low Carbon Pathways Programs and chose to install a hybrid heating plant that combined air-to-water heat pumps and a condensing boiler system to increase comfort and efficiency while reducing carbon emissions. Individual unit owners will have smart thermostats to regulate temperature. The new equipment requires less maintenance and the building is LL97-compliant through 2050.



Air-to-water heat pumps on roof of 111 4th Avenue

Costs and Savings

- \$7.7 million gross cost
- \$97,000 in estimated energy and cost savings/year (38%/year)
- \$1.65 million incentives received (22% of cost)

We wanted to allow people to control their own destiny regarding comfort. When LL97 came about, we pivoted the pieces of the puzzle to align with the law's objectives more closely.

-Eric Einstein, co-op board president

Multi-Family Mixed-Use Affordable Housing (Manhattan)

Address Anonymized at owner's request

This complex of seven pre-war buildings lacked sufficient building envelope insulation, which led to inconsistent building temperatures and occupant discomfort. In addition, several properties were facing LL97 penalties. The owner initiated contact with two trusted service providers within the NYC Accelerator program. This collaboration enabled them to access free technical assistance and financial incentives for implementing energy-saving upgrades. The owner opted to improve roof insulation, which lowered gas consumption, improved occupant comfort, and will allow for downsized heating and cooling equipment in the future. As a result, the properties have successfully reduced operational costs and are now on the path to achieving compliance with LL97.

Costs and Savings

- Total project cost: \$555,826
- Utility incentives received: \$470,752
- Net cost: \$83,074

Endnotes

ⁱ “Retrofit Market Analysis.” Urban Green Council. 2019. Jobs analysis provided by Dr. David Hsu of MIT. <https://www.urbangreencouncil.org/wp-content/uploads/2022/11/2019.06.18-Urban-Green-Retrofit-Market-Analysis.pdf>

ⁱⁱ NYC Department of Citywide Administrative Services LL97 Implementation Action Plan. https://www.nyc.gov/assets/dcas/downloads/pdf/energy/reportsandpublication/local_law_97_implementation_action_plan_2021_report.pdf

ⁱⁱⁱ A renewable energy certificate, or REC, is a market-based instrument that represents the property rights to the environmental, social and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt-hour (MWh) of electricity is generated and delivered to the electricity grid from a renewable energy source.