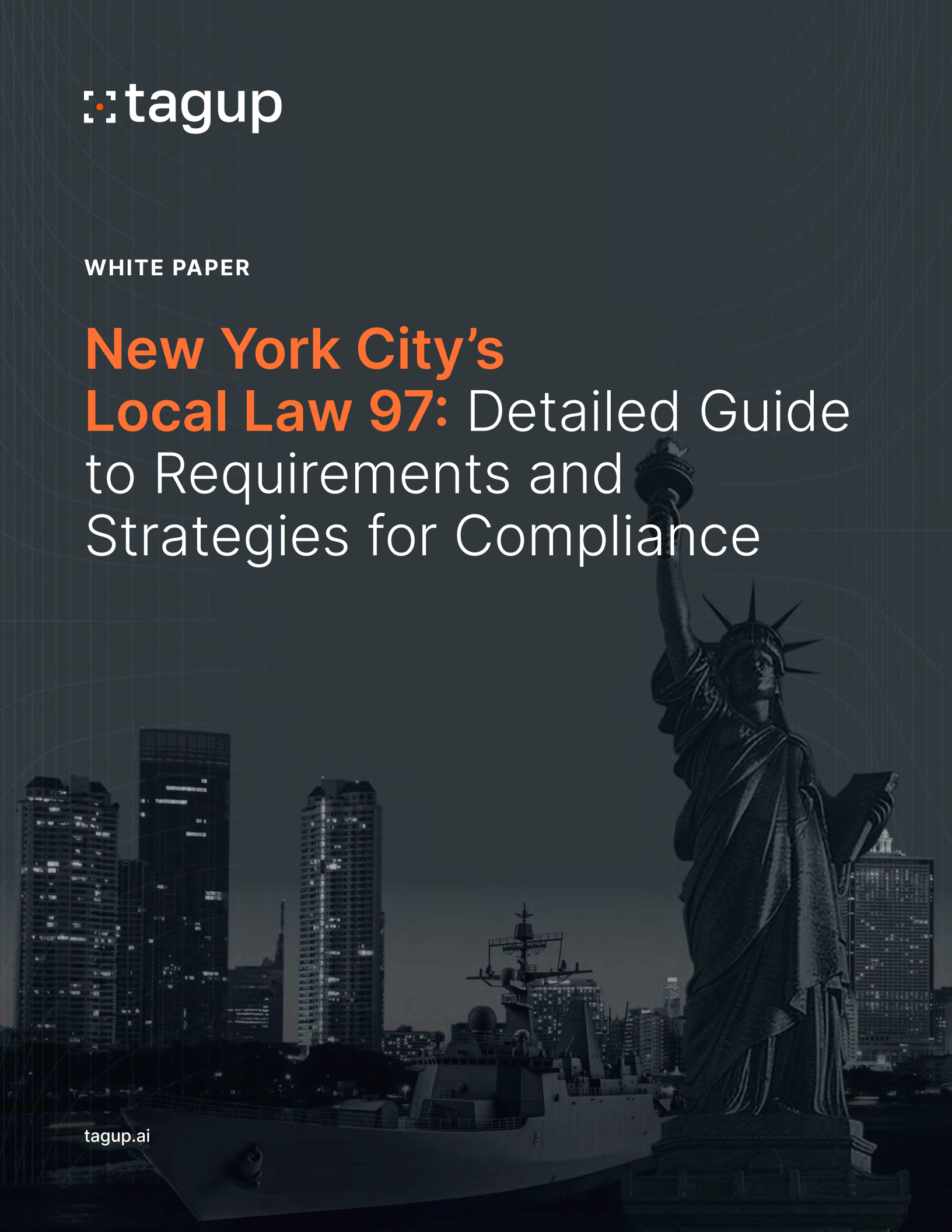




WHITE PAPER

# New York City's Local Law 97: Detailed Guide to Requirements and Strategies for Compliance



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# Executive Summary

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New York City's Local Law 97 (LL97) sets the city on a path towards carbon neutrality by 2050 through progressively tightening emissions limits on its largest buildings. However, the road to compliance presents challenges for building owners, who must not only understand the law's intricate provisions, but also invest in energy efficiency improvements and reporting mechanisms. Not only has LL97 been amended multiple times since it was originally enacted in 2019 (including LL147 of 2019, LL95 of 2020, LL116 of 2020, LL117 of 2020, LL126 of 2021, and LL77 of 2023), but it also features several nuances that alter requirements for certain buildings.

This white paper outlines everything you need to know to comply with current and future emissions and reporting requirements under LL97. This white paper also delves into the various strategies you can take to improve energy efficiency, including emerging technologies such as artificial intelligence (AI) and machine learning (ML). AI and ML solutions – such as our Manifest platform's AI-powered HVAC optimization technology – offer new strategies for achieving energy efficiency goals that do not require the high upfront costs and operational disruptions associated with most energy-savings measures. With solutions like Manifest, building owners can turn compliance into a competitive advantage.





# What is Local Law 97?

New York City has set the ambitious goal to be carbon neutral by 2050.<sup>1</sup> Buildings are crucial to achieving this goal as they account for two-thirds of greenhouse gas (GHG) emissions in NYC and 90% of these buildings will still be standing in 2050.<sup>2</sup>

In 2019, the New York City Council passed LL97 to reduce GHG emissions from the city’s largest buildings by 40 percent by 2030 and to reach carbon neutrality by 2050. LL97 requires owners of “covered buildings” to file an annual emissions report detailing the building’s compliance with established emissions limits or, if the building is not in compliance, by how much it exceeded the emissions limit. LL97 is expected to reduce emissions by 6 million tons (equivalent to taking over 1.5 million cars off the road for one year), prevent 150 hospitalizations and 50-130 deaths per year, and create 26,700-141,000 jobs.<sup>3</sup>

## Requirements by Covered Building Type

LL97 is made up of two articles that apply to different groups of buildings: Article 320,<sup>4</sup> which applies to most covered buildings, and Article 321,<sup>5</sup> which applies to certain rent regulated accommodations and houses of worship. Compliance pathways and coverage timelines vary based on the type of covered building both within and across articles.

Article	Covered Building	Preliminary Covered Buildings List	Coverage Timeline	Compliance Pathway
Article 320 (corresponding Rule 1 RCNY §103-14 <sup>6</sup> )	Buildings that exceed 25,000 gross square feet  Two or more buildings on the same tax lot that together exceed 50,000 gross square feet  Two or more buildings governed by the same board of managers and that together exceed 50,000 gross square feet	A building on the <a href="#">complete LL97 list</a> that is not on any other list	2024 and later	Meet annual emissions limits and file an annual emissions report

(continued on next page)

Article	Covered Building	Preliminary Covered Buildings List	Coverage Timeline	Compliance Pathway
Article 320 (corresponding Rule 1 RCNY §103-14 <sup>6</sup> ) <i>(continued)</i>	Buildings with at least one and no more than 35% of units subject to rent regulation	<a href="#">List</a>	2026 and later	Meet annual emissions limits and file an annual emissions report
	Certain income-restricted housing <sup>7</sup>	<a href="#">List</a>	2035 and later	
Article 321 (corresponding Rule 1 RCNY §103-17 <sup>8</sup> )	<div>Buildings meeting Article 320 size thresholds that have over 35% of units subject to rent regulation</div> <div>Buildings meeting Article 320 size thresholds that are Housing Development Fund Corporation cooperatives (HDFC coops)<sup>10</sup></div> <div>Buildings meeting Article 320 size thresholds that have one or more units that participate in project-based federal housing programs<sup>11</sup></div> <div>Buildings meeting Article 320 size thresholds that are primarily used as a house of worship</div>	<a href="#">List</a>	2024 <i>only</i>	Two pathways: (1) Meet 2030 emissions limit and file a one-time emissions report or (2) File a one-time report demonstrating completion of prescriptive energy conservation measures <sup>9</sup>

Certain buildings are excluded<sup>12</sup> from LL97, including industrial buildings that primarily produce electrical power or steam, garden style apartments, and city buildings.

Note that the size type used to identify if a building is covered by LL97 is **gross square feet**, not **gross floor area**. Your building's gross square feet per the records of the Department of Finance is used to determine if your building meets the 25,000 gross square foot threshold.

# Emissions Limits, Factors, and Coefficients

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The maximum emissions your building can generate is referred to as your building's **emissions limit**. Your building's emissions limit is calculated using the following formula:

$$\text{Emissions limit} = \text{gross floor area} * \text{emissions factor}$$

**Gross floor area** is equal to the total square feet of all floors and spaces in your building. Gross floor area includes vent shafts, elevator shafts, flues, pipe shafts, vertical ducts, stairwells, light wells, basement space, mechanical/electrical rooms, and interior parking; gross floor area excludes unroofed courtyards and unroofed light wells.

Note that your building's **gross floor area** may be different from its **gross square feet**. While your building's gross square feet is used to determine coverage under LL97, your building's gross floor area is used in all emissions calculations. To obtain or verify your building's gross floor area, the Department of Buildings recommends having drawings prepared by a surveyor or registered design professional.

Your building's **emissions factor** is the emissions intensity limit allowed for your building. While the original emissions factors were based on NYC building code occupancy groups, these factors have since been revised based on property types from the US Environmental Protection Agency's Energy Star Portfolio Manager (ESPM) tool.<sup>13</sup> The ESPM tool reflects actual energy consumption patterns in New York City buildings, which results in more equitable and fair emissions limits while maintaining high compliance rates and reduction targets.

For calendar years 2024 and 2025, you have the flexibility to use whichever emissions limit is more lenient for your building. From 2026 onward, you must use the factors based on ESPM property types.



The below table outlines emissions factors by article and time period.

Article	Time Period	Emissions Factor Type	Emissions Factors
Article 320 (corresponding Rule 1 RCNY §103-14)	2024-2025	Factors based on ESPM property types or original factors based on NYC building code occupancy groups <i>if higher</i> than the ESPM limit (i.e., whichever is more lenient)	<a href="#">Factors</a>
	2026-2029	Factors based on ESPM property types	<a href="#">Factors</a>
	2030-2034	Factors based on ESPM property types	<a href="#">Factors</a>
	2035-2039	Factors based on ESPM property types	<a href="#">Factors</a>
	2040-2049	Factors based on ESPM property types	<a href="#">Factors</a>
	2050 and later	Net zero	Net zero
Article 321 (corresponding Rule 1 RCNY §103-17)	2024	Factors based on ESPM property types <b>for 2030</b> (for performance-based pathway only)	<a href="#">Factors</a>

The standard calculation methodology for your building’s emissions is to multiply each energy type’s annual quantity consumed by the established **emissions coefficient**.

Coefficients have been released for calendar years 2024 through 2034 and are accessible in the table below. Coefficients for 2035 and beyond will be released at a later date.

Time Period	Emissions Coefficients
2024-2034	<a href="#">Coefficients</a>
2035 and later	TBD

Note that alternate emissions calculations<sup>14</sup> are possible if a building is not compliant under the standard methodology. For example, building owners can request adjustments due to excessive emissions, use hourly emissions coefficients, and more.



# Reporting Deadlines

Report type, deadline, and frequency vary from Article 320 to Article 321 as outlined below.

Article	Report	Frequency	Deadline	Considerations
Article 320 (corresponding Rule 1 RCNY §103-14)	Energy compliant buildings report	Annual	May 1 of following year	Report must be certified by a registered design professional
Article 321 (corresponding Rule 1 RCNY §103-17)	Pathway 1 (performance-based pathway): Energy compliant buildings report	One-time	May 1, 2025	Report must be certified by a registered design professional
	Pathway 2 (prescriptive pathway): Prescriptive energy conservation measures report	One-time	May 1, 2025	Report must be prepared and certified by a retro-commissioning agent







# Penalties for Noncompliance

Penalties vary both in terms of article and compliance violation as outlined below.

Article	Compliance Violation	Penalty
Article 320 (corresponding Rule 1 RCNY §103-14)	Failure to file a building emissions report within 60 days of reporting deadline	Gross floor area multiplied by \$0.50 for each month report is not submitted
	Exceeding building emissions limits	Difference between the building emissions limit established for a calendar year and the actual emissions reported for such calendar year in the building emissions report multiplied by \$268
	False statements	Up to \$500,000 penalty, imprisonment no more than 30 days, or both
Article 321 (corresponding Rule 1 RCNY §103-17)	Failure to file report by May 1, 2025	\$10,000 penalty
	Failure to meet emissions limits or complete prescriptive energy conservation measures	\$10,000 penalty

Note that penalty mitigation may be granted if a building exceeds its emissions limit, but provides documentation demonstrating good faith efforts<sup>15</sup> towards compliance.

# Strategies to Improve Energy Efficiency

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There are a number of strategies you can implement to improve your building's energy efficiency to meet LL97 emissions limits:

- **Improve building envelope:** Add or upgrade insulation in walls, seal gaps and cracks, replace old windows and doors with energy efficient ones, etc.;
- **Upgrade building systems:** Replace old HVAC units with new high-efficiency systems, add advanced thermostats and ventilation controls, switch to LED or other energy efficient lighting, etc.;
- **Install renewable energy systems:** Install renewable energy systems such as solar panels to generate clean energy; and
- **Adopt emerging technologies:** Use AI and ML to optimize energy consumption, such as through our Manifest platform's AI-powered HVAC controls optimization.

While each of these strategies will reduce your building's emissions, a number of them can be costly and disruptive, namely improving the building envelope, upgrading building systems, and installing renewable energy systems. These projects often require significant upfront investment, lengthy installation processes, and may necessitate temporary shutdowns or disruptions to normal building operations. Consequently, these projects may not be an option for many building owners.

In contrast, Manifest's AI-powered HVAC optimization is neither costly nor disruptive and has been proven to improve energy efficiency by as much as 30%.







## Manifest: Artificial Intelligence for HVAC Optimization

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HVAC systems account for more than half<sup>16</sup> of the energy used in buildings, making energy-efficient improvements to HVAC systems crucial to emissions reduction efforts. However, HVAC systems are often tremendously inefficient as they don't sufficiently adapt operations in response to factors such as weather or load, leading to increased emissions and higher operating costs.

Manifest's AI-powered HVAC optimization technology uses ML to dynamically optimize and automate HVAC control setpoints in real-time in response to internal and external factors, including component interactions, weather conditions, and utility rates. Manifest uses AI to interpret available data and simulates how changes in weather conditions and demand would affect the operation and efficiency of the HVAC system. Using these simulations, Manifest identifies the setpoint strategy that leads to the lowest energy usage and, consequently, highest emissions reductions. Manifest has been shown to reduce energy consumption, emissions, and operating costs by up to 30% without sacrificing building comfort.

In contrast to other energy efficiency upgrades, Manifest is both cost-effective and accessible. Manifest integrates directly with your building automation (BAS) or management system (BMS) with no additional hardware and no costly downtime. For owners looking to keep costs down but comply with LL97, Manifest represents a proven, cost-effective way to lower emissions and avoid fines.



# Bringing It All Together

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Now that we've outlined the key components of LL97, let's examine what these components mean in practice with a well-known New York City landmark: Carnegie Hall, located at 881 7th Avenue.

## Carnegie Hall

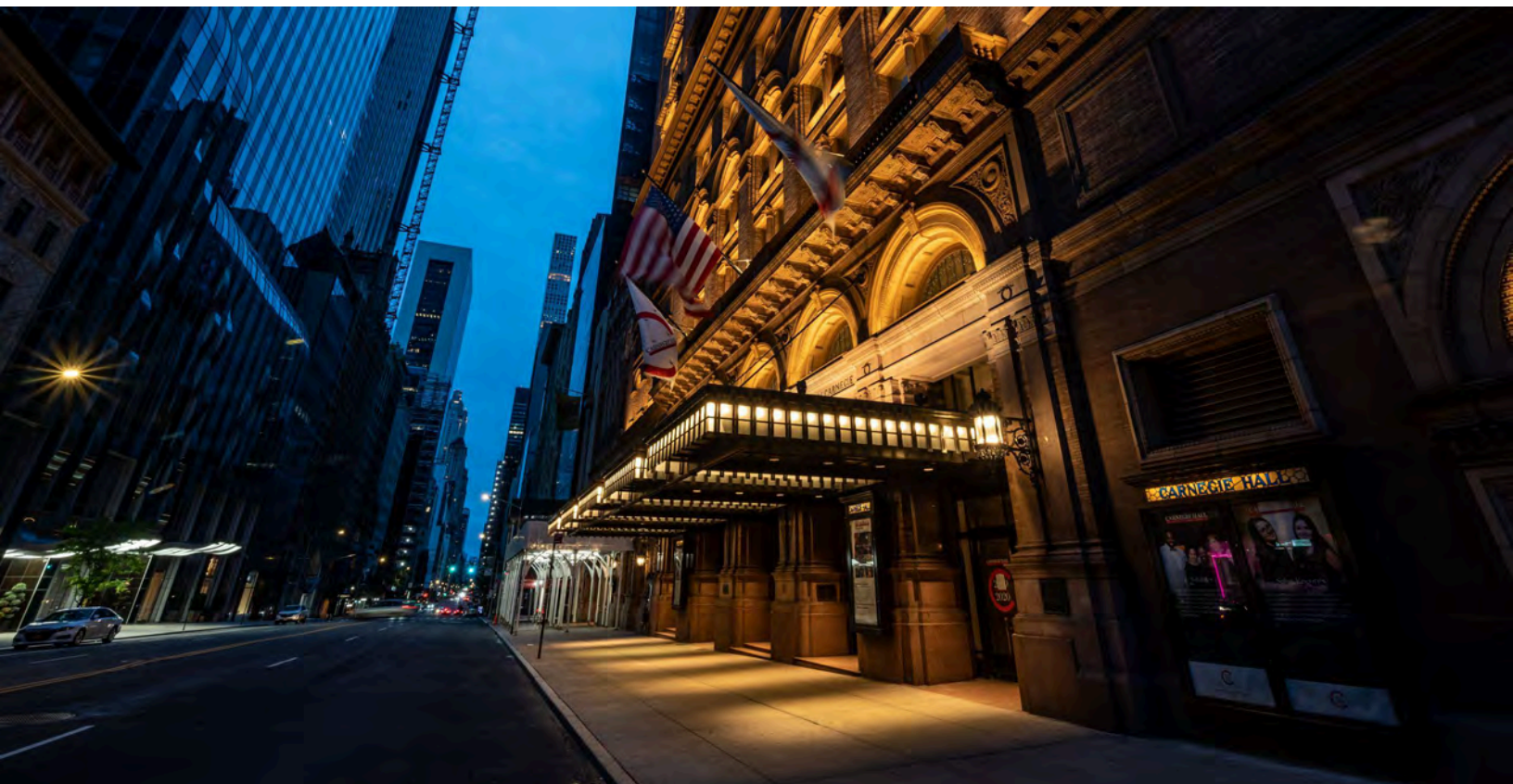
**881 7th Avenue**  
address

As outlined in NYC Accelerator's building energy snapshot tool,<sup>17</sup> Carnegie Hall comprises 304,000 total square feet. For the purposes of this example, we will use this figure for both the building's gross square feet and gross floor area. Thus, Carnegie Hall is above the 25,000 gross square feet threshold and is subject to the requirements of LL97.

**304,000**  
total square feet

**0.00846**  
2024-2029 emissions factor

Carnegie Hall's emissions limit is equal to the building's gross floor area multiplied by an emissions factor. As a concert hall, Carnegie Hall falls under the performing arts ESPM property type, which has an emissions factor of 0.00846 for calendar



**2,572**

2024-2029 annual emissions limit  
 $304,000 * 0.00846$

**\$13,300**

2024-2029 projected annual  
penalty

**\$108,398**

annual bill savings from 10%  
reduction in electricity use

**\$65,039**

annual bill savings from 10%  
reduction in cooling electricity use  
 $\$108,398 * 60\%$

years 2024 through 2029 (recall that for calendar years 2024 and 2025, building owners can use the emissions factors based on NYC building code occupancy groups instead of factors based on ESPM property types if more lenient; we are using factors based on ESPM property types for the purposes of this example). Carnegie Hall's annual emissions limit for 2024 through 2029 would then be equal to 2,572 metric tons of CO<sub>2</sub>e (304,000 square feet multiplied by an emissions factor of 0.00846).

Using 2022 energy data, the building energy snapshot tool projects Carnegie Hall will exceed its emissions limit and face a penalty of \$13,300. The tool also outlines that the building's most used energy type is electricity and that if Carnegie Hall were to reduce its electricity consumption by 10%, it would fall below its emissions limit, thereby eliminating its projected LL97 penalty. In fact, the tool projects this 10% reduction in electricity consumption would save Carnegie Hall over \$100,000 in annual energy costs.

How can Carnegie Hall realize these energy savings and avoid this projected penalty? Let's take the cooling system as an example. If we assume Carnegie Hall uses natural gas for heating and electricity for cooling, then approximately 60% to 75% of the building's electricity consumption comes from operating the cooling system. This means the annual projected savings associated with the cooling system alone are conservatively equal to about \$65,000 (\$108,398 in projected savings multiplied by 60%). However, these savings are achieved with just a 10% reduction in electricity consumption. Manifest has been shown to reduce HVAC energy consumption up to 30%, which not only would help Carnegie Hall achieve these energy savings and avoid LL97 fines in the law's initial compliance period, but also realize even greater energy savings and emissions reductions as LL97 limits tighten over time.



CARNEGIE HALL



# Programs Offering Technical and Financial Support

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There are a number of programs offering both technical and financial assistance to building owners. A sampling of these programs is explored below.

## **NYC Sustainability Help Center**

The NYC Sustainability Help Center<sup>18</sup> is a free resource for New York City's major building sustainability laws that offers virtual classes and training on sustainability in NYC. The center aims to help building owners navigate city regulations and achieve sustainability goals for their properties.

## **NYC Accelerator**

NYC Accelerator<sup>19</sup> is a city-sponsored program that offers technical guidance, financial resources, and support to help building owners improve energy efficiency and reduce carbon emissions. The program connects building owners with a network of pre-qualified service providers to help implement energy efficiency and sustainability projects; in fact, Tagup joined the NYC Accelerator Service Provider program in 2024, making Manifest available through a city-sponsored program.

Additionally, NYC Accelerator provides a valuable building energy snapshot tool<sup>20</sup> to help building owners identify their building's energy use, track compliance with emissions limits, and view projected penalty amounts and savings opportunities.

## **Property Assessed Clean Energy (PACE) Program**

Property assessed clean energy (PACE) is a financing mechanism that allows building owners to finance sustainability and energy efficiency improvements that are a permanent part of a property. In contrast to traditional financing, PACE loans are repaid in installments through a charge on the property tax bill, meaning that PACE loans automatically transfer when a property is sold.

The NYC Accelerator Property Assessed Clean Energy (PACE) program<sup>21</sup> is administered by New York City Energy Efficiency Corporation (NYCEEC) and offers up to 100% long-term, fixed rate financing for energy efficiency upgrades with no upfront costs to building owners.







## Conclusion

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LL97 establishes an ambitious framework for reducing New York City's emissions from the city's largest source: buildings. While the law imposes strict requirements, it also offers a significant opportunity for building owners to modernize their operations, enhance energy efficiency, and build a cleaner, healthier future. Through strategic planning and the adoption of energy-saving measures, building owners can turn compliance into a competitive advantage – owners can support the city's sustainability goals while lowering operating costs, improving property value, and attracting and retaining increasingly environmentally conscious tenants.

However, many traditional strategies for improving energy efficiency are costly and disruptive to building operations, including improving the building envelope, upgrading building systems, and installing renewable energy systems. In contrast, Manifest's AI-powered HVAC optimization technology reduces energy consumption, emissions, and operating costs by up to 30% without the need for costly upgrades or operational interruptions. Manifest makes implementing energy-saving measures faster and more financially accessible than ever before.

*For an in-depth walkthrough of Article 320, refer to NYC's Article 320 info guide [here](#). For an in-depth walkthrough of Article 321, refer to NYC's Article 321 filing guide [here](#).*

### About Tagup

Tagup is a Boston-based defense technology company founded at MIT that is redefining logistics superiority with next-generation AI. The company's platform, Manifest, combines human expertise with proprietary Generative Reinforcement Learning™ to optimize complex, high-stakes decision-making across the public and private sector, delivering a decisive operational advantage in mission-critical environments.

#### For more information:

Visit [tagup.ai/enterprise](https://tagup.ai/enterprise)  
Email us at [info@tagup.ai](mailto:info@tagup.ai)  
Call us at +1 617 804 1401

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## Endnotes

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- 1 “Local Law 97,” City of New York, accessed September 2024,  
<https://www.nyc.gov/site/sustainablebuildings/ll97/local-law-97.page>.
- 2 “New York City’s Roadmap to 80 × 50,” New York City Mayor’s Office of Sustainability, September 26, 2016,  
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- 3 “Local Law 97 Implementation Overview, Rules Update, & Mobilization Plan,” New York City Mayor’s Office of Climate & Environmental Justice, November 8, 2023,  
<https://www.nyc.gov/assets/hpd/downloads/pdfs/services/ll97-contract-summit.pdf>.
- 4 For the full text of Article 320, visit  
[https://www.nyc.gov/assets/buildings/apps/pdf\\_viewer/viewer.html?file=2022GAP\\_Chapter3\\_MaintenanceWBwm.pdf&section=conscode\\_2022#page=31](https://www.nyc.gov/assets/buildings/apps/pdf_viewer/viewer.html?file=2022GAP_Chapter3_MaintenanceWBwm.pdf&section=conscode_2022#page=31).
- 5 For the full text of Article 321, visit  
[https://www.nyc.gov/assets/buildings/apps/pdf\\_viewer/viewer.html?file=2022GAP\\_Chapter3\\_MaintenanceWBwm.pdf&section=conscode\\_2022#page=41](https://www.nyc.gov/assets/buildings/apps/pdf_viewer/viewer.html?file=2022GAP_Chapter3_MaintenanceWBwm.pdf&section=conscode_2022#page=41).
- 6 For the full text of 1 RCNY §103-14, visit  
[https://www.nyc.gov/assets/buildings/rules/1\\_RCNY\\_103-14.pdf](https://www.nyc.gov/assets/buildings/rules/1_RCNY_103-14.pdf).
- 7 For more information on the types of income-restricted housing that are subject to requirements under Article 320 and Article 321, visit  
<https://www.nyc.gov/site/sustainablebuildings/requirements/affordable-housing.page>.
- 8 For the full text of 1 RCNY §103-17, visit  
[https://www.nyc.gov/assets/buildings/rules/1\\_RCNY\\_103-17.pdf](https://www.nyc.gov/assets/buildings/rules/1_RCNY_103-17.pdf).
- 9 For more information on prescriptive energy conservation measures, visit  
<https://www.nyc.gov/site/sustainablebuildings/requirements/affordable-housing.page>.
- 10 For more information on Housing Development Fund Corporation cooperatives, visit  
<https://www.nyc.gov/site/hpd/services-and-information/hdfc.page>.
- 11 For more information on project-based federal housing programs, visit  
<https://www.nyc.gov/site/sustainablebuildings/requirements/affordable-housing.page>.
- 12 For more information on exceptions, visit Article 320 at  
[https://www.nyc.gov/assets/buildings/apps/pdf\\_viewer/viewer.html?file=2022GAP\\_Chapter3\\_MaintenanceWBwm.pdf&section=conscode\\_2022#page=31](https://www.nyc.gov/assets/buildings/apps/pdf_viewer/viewer.html?file=2022GAP_Chapter3_MaintenanceWBwm.pdf&section=conscode_2022#page=31).
- 13 For more information on the U.S. Environmental Protection Agency’s Energy Star Portfolio Manager (ESPM) tool, visit  
<https://www.energystar.gov/buildings/benchmark/understand-metrics/property-types>.
- 14 For more information on alternate calculations, visit  
<https://www.nyc.gov/site/buildings/codes/greenhouse-gas-emission-reporting.page>.

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- 15 For more information on good faith efforts, visit 1 RCNY §103-14 at [https://www.nyc.gov/assets/buildings/rules/1\\_RCNY\\_103-14.pdf](https://www.nyc.gov/assets/buildings/rules/1_RCNY_103-14.pdf).
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- 16 “Use of energy explained: Energy use in commercial buildings,” U.S. Energy Information Administration, accessed September 2024, <https://www.eia.gov/energyexplained/use-of-energy/commercial-buildings.php>.
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- 17 To access NYC Accelerator’s building energy snapshot tool, visit <https://accelerator.nyc/building-energy-snapshot>.
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- 18 For more information on the NYC Sustainability Help Center, visit <https://cunybptraining.org/sustainability-help-center/>.
- 
- 19 For more information on NYC Accelerator, visit <https://accelerator.nyc/>.
- 
- 20 To access NYC Accelerator’s building energy snapshot tool, visit <https://accelerator.nyc/building-energy-snapshot>.
- 
- 21 For more information on the NYC Accelerator Property Assessed Clean Energy (PACE) program, visit <https://accelerator.nyc/resources/finance/PACE>.





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