NYC Climate Mobilization Act
OneNYC 2050

30 initiatives across 8 goals to secure our city’s future
Achieve carbon neutrality and 100% clean electricity
Require buildings to cut their emissions
Hydro-power City government
LOCAL LAWS 92 AND 94
requiring that the roofs of certain buildings be covered in green roofs or solar PV systems

LOCAL LAW 95
a building energy efficiency grade

LOCAL LAW 96
establishing a sustainable energy loan program (ie. PACE)

LOCAL LAW 97
the commitment to achieve certain reductions in greenhouse gas emissions by 2050
NYC emissions: 51.7 MtCO$_2$e

By 2030, the Climate Mobilization Act will achieve:

- 6 million tons of CO$_2$e reduced
- 26,700+ jobs created
- 150 hospitalizations avoided per year
- 50 to 130 deaths prevented per year
LOCAL LAW 92 & 94
requiring that the roofs of certain buildings be covered in green roofs or solar PV systems

New construction and substantial renovations required to install solar PV, green roofs, or both
LOCAL LAW 92 & 94
requiring that the roofs of certain buildings be covered in green roofs or solar PV systems

- Applies to all new buildings, building expansions, and structural roof work.
- All available roof space must be covered in green roofs, solar or both.
- Roofs will have a required reflectance & emittance to mitigate urban heat island effect, including pitched roofs.
- Affordable housing has alternative compliance for 5 years while HPD studies the bills’ impacts.
- Feasibility exemptions available.
- State, local and federal incentives for solar and flexible ownership models
Energy grades to be posted on buildings larger than 25,000sf in size, beginning October 2020
LOCAL LAW 95
a building energy efficiency grade

A
100-85

B
84-70

C
69-55

D
54-1

NYC Median
LOCAL LAW 96
establishing a sustainable energy loan program (ie. PACE)

Financing for energy efficiency and renewable energy projects with long terms and little or no money down
LOCAL LAW 96
establishing a sustainable energy loan program (ie. PACE)

- Loans are made using private funds through pre-qualified capital providers
- Loans are repaid as a charge on a building’s property tax bill
- Debt service is sized to the savings from the efficiency/clean energy project
- Debt remains on the property and is transferrable upon sale of the property
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the commitment to achieve certain reductions in greenhouse gas emissions by 2050

BUILDINGS LARGER THAN 25,000SF IN SIZE:
Greenhouse gas emissions limits must be met starting in 2024
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- Creation of a DOB “Office of Building Energy and Emissions Performance”
- Convening of an advisory group on future limits
- Prescriptive energy conservation measures for rent regulated housing
- Study for a building carbon trading scheme
- City operations GHG reductions of 40% by 2025 and 50% by 2030
- NYCHA properties need to meet GHG reductions of 40% by 2030
By May 1, 2025, building owners must report emissions from CY 2024

Emissions are reported every year for each full calendar year

The emissions target is more stringent beginning in CY 2030

The 2030-2034 target aligns buildings with the City’s 40X30 goal

For 2035 and beyond, targets will be set by DOB rulemaking based on recommendations from an advisory committee
GHG Intensity in 2016 (tCO$_2$e/sf)
GHG Intensity in 2016 (tCO$_2$e/sf)
GHG Intensity in 2016 (tCO$_2$e/sf)

2030 GHG Target
GHG Intensity in 2016 (tCO$_2$e/sf)

2050 GHG Target
# LOCAL LAW 97

the commitment to achieve certain reductions in greenhouse gas emissions by 2050

## 2024-2029 Targets

<table>
<thead>
<tr>
<th>Use Group</th>
<th>GHG target (tons/sf)</th>
<th>GHG Target (kg/sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I-2 – Hospital, Group B – Laboratories, Group H – High Hazard,</td>
<td>0.02381</td>
<td>23.8</td>
</tr>
<tr>
<td>Group B – Civic Emergency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group M - Mercantile</td>
<td>0.01181</td>
<td>11.8</td>
</tr>
<tr>
<td>Group I-1 – Senior Assisted Living</td>
<td>0.01138</td>
<td>11.3</td>
</tr>
<tr>
<td>Group A - Assembly</td>
<td>0.01074</td>
<td>10.7</td>
</tr>
<tr>
<td>Group R-1 – Hotels and Dormitories</td>
<td>0.00987</td>
<td>9.8</td>
</tr>
<tr>
<td>Group B - Business</td>
<td>0.00846</td>
<td>8.7</td>
</tr>
<tr>
<td>Group E – Education, Group I-4 - Daycare</td>
<td>0.00758</td>
<td>7.6</td>
</tr>
<tr>
<td>Group R-2 – Residential, multifamily</td>
<td>0.00675</td>
<td>6.8</td>
</tr>
<tr>
<td>Group F – Factory &amp; Industrial</td>
<td>0.00574</td>
<td>5.7</td>
</tr>
<tr>
<td>Group S – Storage, Group U - Parking</td>
<td>0.00426</td>
<td>4.3</td>
</tr>
</tbody>
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### 2030-2034 Targets

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<th>GHG target (tons/sf)</th>
<th>GHG Target (kg/sf)</th>
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<tr>
<td>Group I-2 – Hospital, Group B – Laboratories, Group H – High Hazard,</td>
<td>0.01193</td>
<td>11.9</td>
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<tr>
<td>Group B – Civic Emergency</td>
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<tr>
<td>Group M - Mercantile</td>
<td>0.00403</td>
<td>4.3</td>
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<tr>
<td>Group I-1 – Senior Assisted Living</td>
<td>0.00598</td>
<td>6.0</td>
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<tr>
<td>Group A - Assembly</td>
<td>0.00420</td>
<td>4.2</td>
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<tr>
<td>Group R-1 – Hotels and Dormitories</td>
<td>0.00526</td>
<td>5.3</td>
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<tr>
<td>Group B - Business</td>
<td>0.00453</td>
<td>4.5</td>
</tr>
<tr>
<td>Group E – Education, Group I-4 - Daycare</td>
<td>0.00344</td>
<td>3.4</td>
</tr>
<tr>
<td>Group R-2 – Residential, multifamily</td>
<td>0.00407</td>
<td>4.1</td>
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<tr>
<td>Group F – Factory &amp; Industrial</td>
<td>0.00167</td>
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<tr>
<td>Group S – Storage, Group U - Parking</td>
<td>0.000110</td>
<td>1.1</td>
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<table>
<thead>
<tr>
<th>GHG coefficients</th>
<th>Energy Source</th>
<th>2024-2029 (tons CO₂e/kBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Utility electricity</td>
<td>0.00000847</td>
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<tr>
<td></td>
<td>Additional rules for campus-style electricity systems that share on-site generation, but make use of the utility distribution system and for buildings not connected to the utility distribution system to come</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Natural gas combusted on-site</td>
<td>0.00005311</td>
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<tr>
<td></td>
<td>#2 fuel oil combusted on-site</td>
<td>0.00007421</td>
</tr>
<tr>
<td></td>
<td>#4 fuel oil combusted on-site</td>
<td>0.00007529</td>
</tr>
<tr>
<td></td>
<td>District steam</td>
<td>0.00004493</td>
</tr>
<tr>
<td></td>
<td>Other, including distributed energy resources</td>
<td>TBD</td>
</tr>
</tbody>
</table>
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- Each property has a “GHG budget” based on the occupancy classifications of the spaces within the property.
- A registered architect or engineer will need to calculate the building’s GHG budget and report annual GHG emissions total for the property.
- GHG emissions that exceed the building’s GHG budget is subject to penalty at $268 per metric ton of CO2e.
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CALCULATING A BUILDING’S GHG BUDGET - 2024

EXAMPLE: Mixed-use building, 230,928 sf in size
30,034 sf retail space on ground floor
200,894 sf residential and accessory spaces

- The bill sets GHG building emissions intensity limits by occupancy classification in 2024:
  Group M (mercantile) limit is 0.01181
  Group R (residential) limit is 0.00675

- The 2024 GHG budget for the building is calculated as:
  \[(30,034 \times 0.01181) + (200,894 \times 0.00675) = 1,711 \text{ metric tons CO}_2\text{e}\]
CALCULATING A BUILDING’S GHG BUDGET - 2024

EXAMPLE: Mixed-use building, 230,928 sf in size

**The 2024 GHG budget for the building is 1,711 tCO₂e**

- In 2024, the building reports energy consumption as:
  - 4,145,742 kbtu of Gas
  - 15,214,348 kbtu of Electricity

- The 2024 GHG budget for the building is calculated as:
  \[(30,034 \times 0.01181) + (200,894 \times 0.00675) = 1,711 \text{ metric tons CO}_2\text{e}\]

- Portfolio Manager applies GHG coefficients to the electricity and gas consumption to generate a total of **1,632 metric tons CO₂e for 2024**
CALCULATING A BUILDING’S GHG BUDGET - 2030

EXAMPLE: Mixed-use building, 230,928 sf in size

30,034 sf retail space on ground floor
200,894 sf residential and accessory spaces

- The bill sets GHG building emissions intensity limits by occupancy classification in 2030:
  
  Group M (mercantile) limit is 0.00403
  Group R (residential) limit is 0.00407

- The 2030 GHG budget for the building is calculated as:
  \[(30,034 \times 0.00403) + (200,894 \times 0.00407) = 939 \text{ metric tons CO}_2\text{e} \]
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CALCULATING A BUILDING’S GHG BUDGET - 2030

EXAMPLE: Mixed-use building, 230,928 sf in size

The 2030 GHG budget for the building is 939 tCO$_2$e

- If in 2030 the building generates a total of 1,632 tCO$_2$e, the building exceeds the GHG budget by 693 tCO$_2$e and does not comply

- The penalty is calculated by multiplying $268/metric ton CO$_2$e by the extent which the 2030 GHG emissions exceed the GHG budget

$268 \times 693tCO$_2$e = $185,724 penalty for CY 2030 emissions
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PRESCRIPTIVE MEASURES FOR AFFORDABLE HOUSING

- Adjusting temperature set points for heat and hot water
- Repairing all heating system leaks
- Maintaining heating systems
- Installing individual temperature controls or insulated radiator enclosures with temperature controls
- Insulating all pipes for heating and/or hot water
- Insulating steam system condensate tank or water tank
- Installing indoor and outdoor heating system sensors and boiler controls
- Replacing or repairing all steam traps
- Installing or upgrading steam system master venting
- Upgrading lighting
- Weatherizing and air sealing
- Installing timers on exhaust fans
- Installing radiant barriers behind all radiators.
SPECIAL CIRCUMSTANCES

- Variance to adjust a building’s 2024 GHG target based upon excessive emissions attributable to high-intensity uses and not the building condition.

- Alternate GHG target set for hospitals and healthcare facilities with excessive emissions.
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City operations 40% GHG reduction by 2025 and 50% by 2030

NYCHA goal of 40% by 2030
NYC Energy Efficiency Programs

Free, personalized advisory services to streamline the process of energy efficiency improvements

• Trusted advisor to buildings
• Insights into building needs
• Custom approach
• Simplified process
• Ongoing assistance
NYC Energy Efficiency Programs

Building Community
New technology, networking inspiring stories, community

Everyday Efficiency
Incremental measures, focus on systems and products

High Performance
Long term, holistic, integrated retrofit plans

Better Steam Heat
Save money, enhance comfort
Common steam heating issues can be solved by simple measures that fix hot and cold apartment problems, quiet clanging pipes, and reduce utility bills.

Park Terrace Gardens
Holistic steam system upgrades and simple air sealing measures helped this co-op complex resolve heating imbalances and save an annual average of more than $100,000.

Solar Photovoltaics & Batteries
Clean, renewable electricity generation and storage to dramatically reduce utility costs.

Mini-Split Systems
Highly efficient heat pumps for decentralized electric heating and cooling in multifamily buildings.
NYC Energy Efficiency Programs in 2019

Large and Mid-size Existing Buildings

FOCUS:
Buildings larger than 25,000sf
All affordable housing
NYC Energy Efficiency Programs in 2019

NYC Building Operator Training

FOCUS:
30-hour no-cost training on multifamily building energy equipment and operations

Maintenance Staff
Management
Superintendents
Owners
Co-op Boards
NYC Energy Efficiency Programs in 2019

Small Buildings in Targeted Neighborhoods

FOCUS:
Buildings 5,000 - 25,000sf in size
Upper Manhattan and Central Brooklyn
NYC Energy Efficiency Programs in 2019

High Performance New Construction

FOCUS:
Buildings larger than 25,000sf to exceed the Energy Code
NYC Energy Efficiency Programs in 2019

High Performance Retrofit Track

FOCUS:
High performance retrofits as part of capital planning
Deep Energy Retrofit Planning Analysis

Potential Site Energy Use Reductions for Your Building
850 WEST 553 STREET

<table>
<thead>
<tr>
<th>Package 1</th>
<th>Package 2</th>
<th>Package 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep Optimization</td>
<td>Heat Pumps for Heating</td>
<td>Package 3 + Wall Insulation</td>
</tr>
<tr>
<td>Site Energy Savings</td>
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<td>Site Energy Savings</td>
</tr>
<tr>
<td>60% to 68%</td>
<td>72% to 78%</td>
<td>76% to 80%</td>
</tr>
<tr>
<td>Major existing systems are optimized as much as possible</td>
<td>High efficiency heat pumps for heating and cooling</td>
<td>High efficiency heat pumps and added insulation where possible</td>
</tr>
</tbody>
</table>

Today
116 kBTU/S
Improvements to Existing HVAC and Lighting Systems
Adding exterior insulation, better windows, and air sealing
Conversion to Heat Pumps for Heat and Hot Water
Investments in Carbon-Free Power
Tenant Engagement and Coordination
NYC Climate Mobilization Act