

Mayor's Carbon Challenge for Multifamily Buildings Program Design for Self-Managed Co-Ops and Condos

Overview

Background

In 2007, Mayor Bloomberg launched *PlaNYC*, a comprehensive set of strategies to create a greener, greater New York City. Recognizing the threat that global climate change poses to public health, safety, and the environment, *PlaNYC* sets the ambitious goal to reduce citywide emissions by 30% by the year 2030. Because the energy used in New York City's buildings contributes roughly 75% of the city's annual GHG emissions, increasing the energy efficiency of our buildings represents the greatest opportunity to meet this goal.

Residential buildings account for the largest source of New York City's emissions, making up 37% of citywide emissions and 48% of the emissions from buildings. Significant opportunities exist to increase the efficiency of these buildings. The City's first benchmarking report shows that the highest energy-consuming residential buildings consume nearly 4.5 times more energy than their energy efficient counterparts. If all of New York City's large buildings were brought up to the median energy use intensity (EUI) in their category, it would reduce the total energy use of large buildings by 18% and cut GHG emissions by 20%.

There are roughly 10,000 residential cooperative (co-op) and condominium (condo) buildings in New York City. These co-ops and condos represent just 1% of the city's total number of residential buildings, but they account for 17% of the residential square footage. Because of their size, addressing energy use in co-op and condo buildings is an important part of achieving significant reductions from the residential sector.

Strategies to increase the energy efficiency of multifamily residential buildings are well understood. Opportunities include upgrades to outdated heating, ventilation, and air conditioning (HVAC) systems, installation of energy efficient lighting and controls, and improvements to the building envelope. Case studies from NYSERDA's Multifamily Performance Program routinely demonstrate energy savings of 30% or more from these and other strategies, generating thousands of dollars in cost-savings as a result. Moreover, meeting the emissions reduction target will build on the work many buildings are already required to undertake under current law, including mandatory benchmarking of energy use, energy audits, and retro-commissioning of building systems under NYC Local Laws 84 and 87, and heavy heating oil conversions under the NYC Department of Environmental Protection's heating oil regulations.

The Mayor's Carbon Challenge is a voluntary challenge to match City government's own goal to reduce GHG emissions by 30% in ten years. Currently, 17 of the leading universities, the 11 largest hospital systems, and 10 global corporations with commercial office space in New York City have partnered with the NYC Mayor's Office to reach this goal. Property management firms and self-managed co-op and condo buildings now have the opportunity to join these organizations the Mayor's Carbon Challenge. This program design details the Challenge for self-managed co-ops and condos. For more information, please visit www.nyc.gov/carbonchallenges.

The Challenge

The New York City Mayor's Office invites New York City's co-ops and condos to join universities, hospitals and commercial offices to reduce their greenhouse gas (GHG) emissions per square foot by 30% in ten years.

- **The 30% Challenge:** To meet the 30% reduction goal, each participating co-op or condo building must reduce its greenhouse gas emissions, measured in terms of emissions of carbon dioxide equivalent per gross square foot (CO₂e/sq ft), by 30% from a base year of 2010 or later within ten years of their start year in the Challenge.
- **The 30+10% Challenge:** If a co-op or condo building has already achieved significant emissions reductions, the building can be part of the "30+10% Challenge" to achieve 40% emissions reduction per square foot from a base year of 2005 or later.

Benefits of the Challenge

The Mayor's Carbon Challenge offers participating co-ops and condos the opportunity to demonstrate leadership in energy efficiency and be recognized for their efforts. Co-ops and condos will have access to a diverse forum of industry experts to provide technical assistance and information about financial incentives to realize reductions in energy use, costs, and GHG emissions.

Structure of the Program

The Mayor's Carbon Challenge consists of the following (described in detail later in the document):

1. **Accept the Challenge:** To accept the Challenge, each self-managed co-op or condo must sign a participation letter confirming their commitment to reduce their emissions by 30% over ten years and submit it to the NYC Mayor's Office.
2. **Track Carbon Emissions.** Participating co-ops and condos will submit an annual carbon emissions inventory using NYC Local Law 84 energy use benchmarking data and report strategies for meeting the Challenge goal using a standard template provide by the Mayor's Office. To accurately measure energy consumption, participating co-ops and condos must collect whole-building data for electricity, steam, and natural gas use as well as heating fuel oil purchases for each of the buildings in their Challenge portfolio.
3. **Attend Meetings and Webinars.** The Mayor's Office will organize regular meetings and webinars with Challenge participants to provide updates and encourage the exchange of ideas.
4. **Working Groups.** OLTPS will convene voluntary working groups as needed to help develop new initiatives and/or to resolve issues as they arise.
5. **Access to Resources and Technical Expertise.** The Mayor's Office and NYSERDA will provide direct access to staff and information to connect participants with financial

incentive programs. Additionally, a Technical Advisory Group (TAG) will provide technical assistance to OLTPS and the Challenge participants.

6. ***Promotion and Recognition.*** OLTPS will provide promotion and recognition of participating co-ops and condos, including press conferences, news releases, social media outreach and information posted on the PlaNYC Green Buildings & Energy Efficiency website.

Completing the Challenge

To complete the Mayor's Carbon Challenge, each participating co-op or condo must achieve a 30% or 40% reduction in emissions, subject to verification by the Mayor's Office and NYSERDA.

Details of the Program

1. Accept the Mayor's Carbon Challenge

To accept the Mayor's Carbon Challenge, a self-managed co-op or condo must sign a participation letter committing to reduce emissions by 30% or 40% from their base year over ten years and submit it to the NYC Mayor's Office.

2. Tracking Carbon Emissions and Reporting an Emissions Reduction Strategy

Each participating co-op or condo must measure all building-based energy use and associated emissions to track progress toward the emissions reduction goal.

- **Carbon Emissions Inventory.** Participating co-ops and condos will submit an annual carbon emissions inventory using Local Law 84 benchmarking data to measure energy use and emissions from each building. Participating co-ops and condos will input this data into a carbon emissions inventory calculator tool provided by the Mayor's Office to track progress toward the goal.
- **Carbon Emissions per Square Foot.** The Challenge uses carbon dioxide equivalent per gross square foot (CO₂e/sq ft) as its metric to track emissions. Measuring emissions per square foot allows for the possibility that buildings may be added or removed from the Challenge portfolio over the ten-year timeframe.
 - **Carbon Dioxide Equivalent.** The level of carbon dioxide (CO₂) that would have the same climate impact as a given concentration and type of greenhouse gas.
 - **Gross Square Feet.** The total number of square feet measured between the exterior surfaces of the enclosing fixed walls of all of the Challenge participant's buildings. This includes spaces such as vent shafts, stairs, basements, etc.
- **Data and Disclosure.** All building-based energy use and associated emissions data will be received and kept confidentially by the Mayor's Office and NYSERDA. Any disclosed information will be anonymized and/or aggregated, unless a participant gives explicit approval to the Mayor's Office and NYSERDA to release their data. When a Challenge participant reaches the 30% or 40% goal, the Mayor's Office and NYSERDA will assist with promotion of this progress.

Methodology for the Carbon Emissions Inventory

Participants will aggregate their whole-building annual energy use by fuel type and amount and input the data into the carbon emissions inventory calculator for each calendar year, from the base year until the end year. The inventory calculator automatically applies carbon coefficients, fixed at 2005 levels, to each fuel type to calculate the participant's total emissions. The calculator then divides this value by gross square feet to find carbon emissions per gross square foot (CO₂e/sq ft). Note that the energy use data required for the carbon emissions inventory is the same data that required for NYC Local Law 84.

- **Base Year.** Each Challenge participant must choose a base year from which the 30% or 40% reduction goal is measured.
 - **Base Years for the 30% Challenge.** Participants who choose the 30% reduction goal must use the first year for which they have full energy data as their base year, which can be no earlier than 2010.
 - **Base Years for the 40% Challenge.** Challenge participants who choose the 40% goal can choose any year after 2005 as their base year.
- **Start Year.** The start year of the Challenge is the first calendar year after which the participating firm accepts the Challenge.
- **End Year.** The end year is ten years from the start year of the Challenge. To meet the Challenge goal, participating firms must reduce portfolio-wide carbon emissions per square foot by 30% or 40% by December 31 of that year. For example, participating firms that have a start year of 2013 must complete the Challenge by December 31, 2023.
- **Calendar Year.** Energy use information for all Carbon Emissions Inventories must be aggregated on a calendar year basis (January 1 – December 31).
- **Fuel Types.** All participating co-ops and condos measure whole-building energy use by fuel type and amount. Energy use is reported using the following metrics:
 1. Electricity: Kilowatt-Hours (kWh)
 2. Natural gas: Thermal Units (Therms)
 3. Heating oil distillates No. 2, No. 4 and No. 6: US Gallons (US Gal)
 4. Steam: Thousand Pounds (Mlbs)
 5. Propane or other fuels used for backup generation: US Gallons (US Gal)
- **Scaling Up Energy Use.** Before 2012, ConEd’s billing system was unable to combine energy use from two accounts where apartments changed occupants, meaning that ConEd’s building-level energy data included energy use from an average of just 70-90% of the units in the building. If a participating firm selects a base year of 2010 or 2011 for their Challenge portfolio, they will be required to “scale up” energy use for their buildings to adjust for this discrepancy in ConEd data. NYSERDA will provide participants with a simple tool that automatically scales up the energy use data.
- **Commercial Leased Space.** All space greater than 10,000 square feet leased from a third party property owner by the co-op board, condo board, or residents of buildings in the Challenge portfolio. If these spaces are separately sub-metered, they are not required to be included in the Challenge.

- **Carbon Emissions per Square Foot.** The Challenge uses carbon dioxide equivalent per gross square foot (CO₂e/sq ft) as its metric to track emissions. Measuring emissions per square foot allows for the possibility that buildings may be added or removed from a Challenge portfolio over the ten-year timeframe.
 - **Carbon Dioxide Equivalent.** The level of carbon dioxide (CO₂) that would have the same climate impact as a given concentration and type of greenhouse gas.
 - **Gross Square Feet.** The total number of square feet measured between the exterior surfaces of the enclosing fixed walls of all of the Challenge participant's buildings. This includes spaces such as vent shafts, stairs, basements, etc.
- **Carbon Coefficients.** A carbon coefficient determines the level of carbon dioxide equivalent (CO₂e) associated with a given amount of fuel or energy use. All carbon coefficients for the Mayor's Carbon Challenge were developed by the Mayor's Office and are in compliance with the 2012 United States Community Protocol for Accounting and Reporting Greenhouse Gas Emissions (USCP).
 - **Electricity and Steam.** The Mayor's Carbon Challenge uses New York City-specific carbon coefficients for electricity and steam, fixed at 2005 levels. Because the coefficients for electricity and steam can vary significantly across years, fixing the coefficients at 2005 levels ensures that Challenge participants receive credit for their efforts, and not for exogenous changes to the supply.
 - **Natural Gas, Propane, and No. 2, No. 4, and No. 6 Heating Oils.** The Mayor's Carbon Challenge uses the nation-wide carbon coefficient for natural gas, propane, and No. 2, No. 4, and No. 6 heating oils, which were developed by the U.S. Environmental Protection Agency (EPA).

3. Regular Partner Meetings

OLTPS will organize meetings and webinars several times per year. At least one representative from each participating co-op or condo should plan to attend each meeting.

Meetings will include, but are not limited to:

- An update from the Mayor's Office staff
- Presentations by Challenge participants
- Presentations by technical experts and guest speakers of interest
- Open discussion

4. Working Groups

The Mayor's Office will organize volunteer working groups of Challenge participants to discuss and develop solutions to any additional issues as they arise. These working groups will be convened on an as-needed basis. Potential points of discussion include clarifying

accounting methodologies for mixed use space, leased space, and buildings that are added or removed from the Challenge portfolio.

5. Access to Resources and Technical Expertise

The Mayor's Office and NYSERDA will provide direct access to staff and information to connect participants with financial incentive programs. In addition, there is a Technical Advisory Group (TAG) to support the Challenge. The TAG includes the following:

- OLTPS
- NYSERDA
- New York City Energy Efficiency Corporation (NYCEEC)
- NYC Clean Heat
- Urban Green Council
- Leading engineering and consulting firms

6. Promotion and Recognition

The Mayor's Office will recognize the efforts and achievements of the participating co-ops and condos. Promotion and recognition will include, but is not limited to:

- Press event with NYC officials and staff
- Individually tailored PlaNYC and GreeNYC promotional materials, including an official plaque recognizing participation in the Challenge
- Inclusion of co-op or condo building name, logo and profiles on official NYC documents, website, and social media outlets
- The ability to self-promote participation in the Challenge, including the use of the Mayor's Carbon Challenge logo on vetted documents, collateral, web pages, social media, or other informative media.