

[Company Name] Climate Action Plan

Please remove this photo and replace with an image of your own company.



Produced by [Name of Lead Author, Department]

[Submission Date, Year]



Produced with assistance from the NYC Mayor's
Office of Long-Term Planning and Sustainability

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Instructions:

To fill out this Climate Action Plan (CAP) template, please follow the instructions, designated in blue text, at the beginning of each section. Please be sure to delete the instructions before submitting the final plan. Black text can remain in the CAP, bolded text needs to be replaced with your company-specific information, and gray text is suggested text that should be replaced with your own information.

To replace standard text, you can use the “Find and Replace” function (Ctrl F) for the following:

- [Company Name] – Replace with your company’s name
- [30%/40%] – Replace with your company’s emissions reduction goal
- [Commercial tenant/owner-occupier] – Replace with your company’s participation type
- [Square foot/employee] OR [square foot/FTE] – Replace with your normalization factor
- [New York City/tri-state area] OR [New York City/the tri-state area] – Replace with your area
- [Base Year] – Replace with your company’s base year
- [Start Year] – Replace with your company’s start year (2013)
- [End Year] – Replace with your company’s end year (2023)

Executive Summary

The following is sample text—please remove and insert your own text in its place.

[Company Name]’s Commitment to the Mayor’s Carbon Challenge

The NYC Mayor’s Carbon Challenge is a voluntary program for universities, hospitals, and commercial offices in New York City to reduce their building-based greenhouse gas (GHG) emissions by 30% or more in ten years. City Hall Inc. accepted the NYC Mayor’s Carbon Challenge to Commercial Offices in 2013, committing to reduce emissions from its buildings in New York City by 30% from 2011 levels by 2023. This Climate Action Plan lays out City Hall Inc.’s strategy to meet this goal.

Current Reduction in Emissions

Since accepting the Mayor’s Carbon Challenge, City Hall Inc. has reduced both its carbon intensity and energy use intensity per employee by about 6% from its 2011 base year levels. The reduction came almost entirely from electricity reductions except for a small amount of diesel used for backup generation during Hurricane Sandy. Overall, City Hall Inc.’s Manhattan Municipal Building property contributed the greatest absolute energy use and carbon emissions, but the Flushing Building has the greatest carbon and energy use intensity.

Reduction in Emissions Intensity

	Carbon Intensity (lbs CO2e / FTE)	Energy Use Intensity (MMBtu / FTE)
2011 (Base)	6,647.79	68.09
2012 (Current)	6,245.46	63.90
		6.15%

Please insert Table 1 from your Climate Action Plan Tool Kit here.

Completed Projects

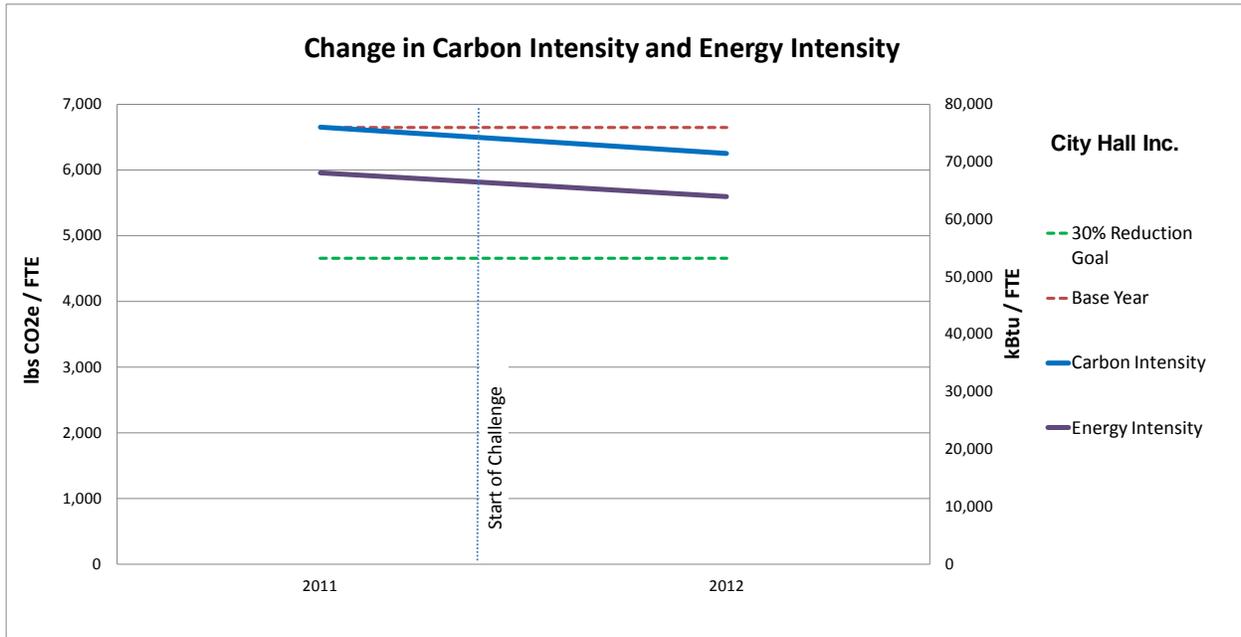
Since accepting the Mayor’s Carbon Challenge, City Hall Inc. has completed several projects to reduce carbon emissions, increase building efficiency, and decrease its operational costs. These include lighting replacements and installation of occupancy sensors in the Manhattan Municipal Building, the completion of a server virtualization project in the Flushing Building, and space densification in the City Hall Building and 253 Broadway. As a result, in 2012 the firm saved an estimated 5,011 MMBtus, 222 metric tons of carbon dioxide equivalent, and a total of \$99,450 in reduced energy costs.

Planned Projects and Next Steps

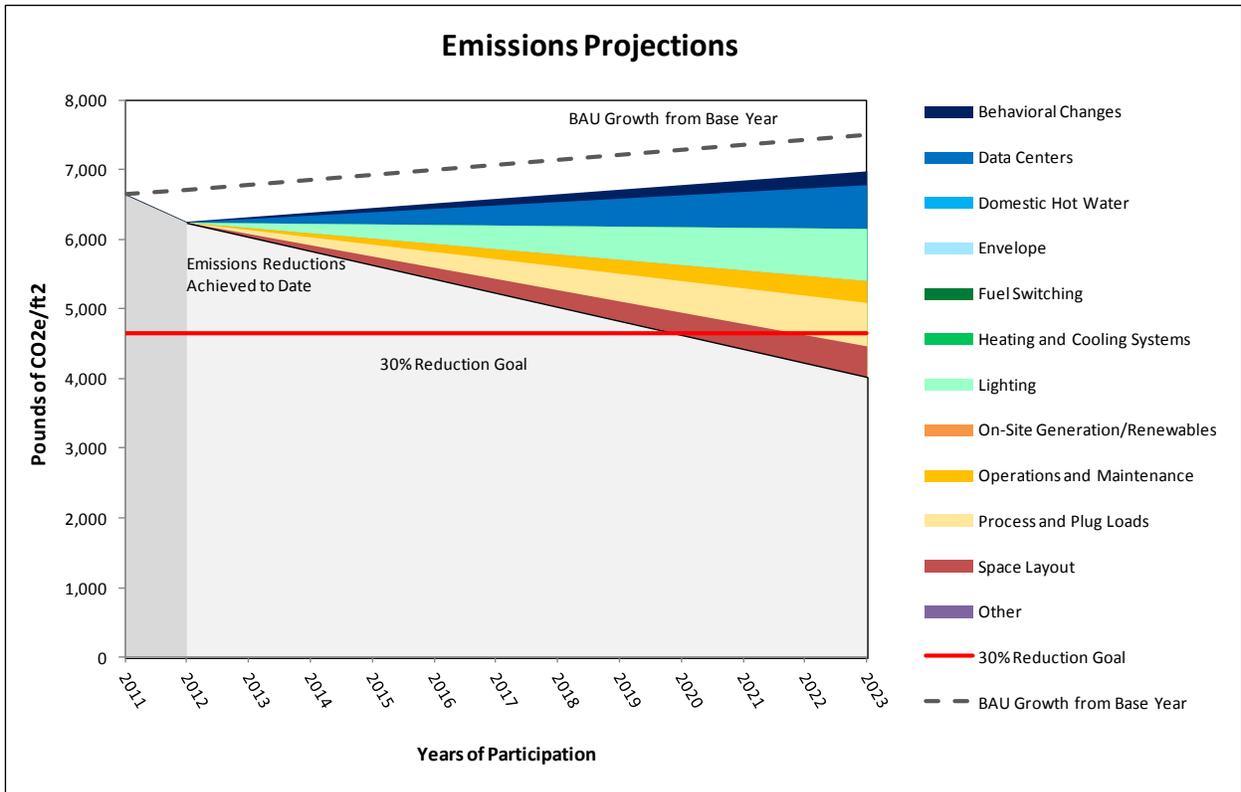
Building on City Hall Inc.’s progress, the firm has developed a road map to achieve the remaining carbon reductions needed to meet the Mayor’s Carbon Challenge goal. City Hall Inc. has identified projects and strategies across the areas of lighting, plug load reductions, and data center improvements. Projects have already been identified that are projected to reduce GHG emissions by roughly 780 metric tons of carbon dioxide equivalent and will save the firm \$314,500 in energy costs based on current electricity prices.

Over the next ten years, City Hall Inc. will continue to evaluate projects and monitor progress. By committing to the Mayor’s Carbon Challenge goal, City Hall Inc. will demonstrate its commitment to environmental sustainability and help New York City reduce citywide emissions 30% by 2030.

City Hall Inc.'s Progress



City Hall Inc.'s Plan



About the Challenge

In this section, please provide an introduction that summarizes:

- **The need for action**
- **Background on PlaNYC, the Greener, Greater Buildings Plan and the Mayor's Carbon Challenge**
- **Your company's commitment to the Mayor's Carbon Challenge**
- **Scope of the Climate Action Plan**
- **An explanation of standard units**

Please take what is useful from the following text.

Background

Tackling global climate change is one of the most significant challenges we face today. Projected impacts of climate change include rising sea levels, increased heat and heat waves, and more frequent and intense droughts and storms, all of which pose serious threats to public health, safety, and continued economic development. Given the over-whelming proof that man-made greenhouse gas (GHG) emissions are the cause of global climate change, bold action is needed to mitigate these harmful emissions.

PlaNYC

Although climate change is a global problem, its effects are often felt locally. Recognizing the need for action, in 2007 New York City released PlaNYC, a comprehensive sustainability plan that sets an ambitious goal to reduce the city's GHG emissions 30% from 2005 levels by the year 2030.

Green Buildings and Energy Efficiency

Because roughly three-quarters of New York City's emissions come from the energy used in buildings, almost double the proportion within the U.S. as a whole, the City has focused on reducing energy use from its buildings to meet the PlaNYC goal. A key component of this effort is a package of legislation called the Greener, Greater Buildings Plan (GGBP), which updates the city's energy codes and requires owners of large buildings to measure their energy performance annually, conduct energy audits and undergo retro-commissioning of building systems every ten years, upgrade to more energy efficient lighting, and provide all large commercial tenants with energy sub-meters by 2025. Together, these laws are projected to reduce citywide GHG emissions by roughly 5%.¹

The NYC Mayor's Carbon Challenge

The New York City Mayor's Carbon Challenge builds on these initiatives by engaging leaders in the private and institutional sectors to achieve accelerated GHG reductions in their buildings. Following City government's pledge to cut its own emissions by 30% in just ten years (30x17), New York City Mayor Michael R. Bloomberg issued a "challenge" to leaders in the private and institutional sectors to match this goal. Since then, 17 of New York City's leading universities, the 11 largest hospital systems, and 10 global companies with office space in the city have accepted the challenge to reduce their GHG emissions per person or per square foot by at least 30 percent in ten years.

¹ NYC Mayor's Office of Long-Term Planning & Sustainability.

Together, these participants make up more than 140 million square feet of space and contribute roughly 4 percent of New York City's total emissions—meaning that their efforts are expected to reduce citywide emissions by more than 1 percent by the end of the Challenge.²

The Challenge to Commercial Offices

[Company Name] is one of ten anchor companies that joined the Mayor's Carbon Challenge to Commercial Offices in April of 2013. Together, these ten companies occupy over 20 million square feet of office space in New York City and employ nearly 50,000 New Yorkers. With their voluntary commitment to reduce their building-based emissions by 30 percent or more, these companies are demonstrating leadership in sustainability and making a powerful contribution to help New York City achieve its PlaNYC goal.

Within the Mayor's Carbon Challenge to Commercial Offices, there are two sub-groups: commercial tenants, who primarily lease office space in New York City, and commercial owner-occupiers, who own and occupy the majority of their office space in the city. Commercial tenants report the majority of their energy use from leased spaces, which does not include energy use from base building systems where they do not have operational control. Owner-occupiers, on the other hand, report energy use from properties they own and occupy, including energy use from base building systems where they have operational control. Both groups have the choice to normalize emissions either per full time-equivalent employee (FTE) or per square foot, which standardizes emissions levels for companies of different sizes.

² NYC Mayor's Office of Long-Term Planning and Sustainability. Based on 2005 emissions levels.

[Company Name]'s Commitment to the Mayor's Carbon Challenge

[Company Name] accepted the NYC Mayor's Carbon Challenge to Commercial Offices in [Start Year] and is participating in the program as a [commercial tenant/owner-occupier]. By accepting the Challenge, [Company Name] has committed to reduce its building-based GHG emissions per [square foot/employee] from its [New York City/tri-state area] offices by [30%/40%] from [Base Year] levels by [End Year].³

What Is a Climate Action Plan?

This Climate Action Plan is [Company Name]'s roadmap for achieving a [30%/40%] reduction in building-based GHG emissions per [square foot/employee] from its [New York City/tri-state area] properties by [End Year]. This Plan puts forward a framework to develop and implement strategies to meet this goal and allows us to track our progress on the Mayor's Carbon Challenge.

Scope

This Climate Action Plan includes:

- Background information about [Company Name] and its New York City properties;
- A description of additional commitments to environmental sustainability;
- **OPTIONAL FOR COMMERCIAL TENANTS:** Energy use benchmarking information for all New York City-based properties over 50,000 square feet, as required by Local Law 84 of 2009;

³ All GHG emissions for the Challenge are measured in terms of carbon dioxide equivalent (CO₂e) per [square foot/capita] and are calculated using 2005 carbon coefficients. Please see the explanation of standard units on the following page and the methodology of the Challenge in Section 6 for more information.

- An inventory of annual greenhouse gas emissions from the firm’s New York City properties using the Mayor’s Carbon Challenge reporting methodology;
- A description of completed projects and strategies the firm has undertaken to reduce its building-based energy use and emissions;
- Highlights of the firm’s completed projects;
- An explanation of the strategy moving forward that will enable **[Company Name]** to meet its **[30%/40%]** emissions reduction goal by **[End Year]**.

Standard Units

The NYC Mayor’s Carbon Challenge and the U.S. Environmental Protection Agency’s Portfolio Manager Tool (used to complete energy use benchmarking for NYC Local Law 84 of 2009) require energy reporting in standard units. Below is a list and full explanation of these standard units, which will be used throughout the Climate Action Plan.

Standard Units for the NYC Mayor’s Carbon Challenge

Measure	Units	Abbreviation	Description
Greenhouse Gas Emissions	Carbon dioxide equivalent	CO ₂ e	The level of carbon dioxide (CO ₂) that would have the same climate impact as a given concentration and type of greenhouse gas.
Energy Use	Million British thermal units	MMBtu	A standardized measure of total energy use to compare energy use across different fuel types. For purposes of the Challenge, energy use is measured in terms of <i>source energy</i> , or energy use that takes into account weather fluctuations or transmission, delivery, and production losses of an energy source.
Floor Area (Owned Space)	Gross Square Feet	GSF	Includes the total number of square feet measured between the <i>exterior</i> surfaces of the enclosing fixed walls, including spaces such as vent shafts, stairs, basements, etc. Gross square footage is used to measure the floor area of properties that are owned and occupied by a Challenge participant.
Floor Area (Leased Space)	Rentable Square Feet	RSF	Includes the total number of square feet measured between the <i>interior</i> surfaces of the enclosing fixed walls within a commercial office space. Rentable square footage is used to measure the floor area of properties that are leased by a Challenge
Employees	Full Time-Equivalent Employees	FTE	The average monthly number of full time-equivalent employees in one year, which normalizes for seasonal variation in employment. All employees who work less than 80% of a full-time workweek are counted as half of an employee.
Carbon or Emissions Intensity	Pounds of carbon dioxide equivalent per full time-equivalent employee or per square foot	lbs CO ₂ e/FTE or lbs CO ₂ e/SF	A measure of the intensity of carbon emitted per person or square foot, which standardizes emissions levels for companies of different sizes.
Energy Use Intensity	One thousand British thermal units per per full time-equivalent employee or per square foot	kBtu/FTE or kBtu/SF	A measure of the intensity of energy used per person or square foot, which standardizes energy use for companies of different sizes.

Standard Units for EPA's Portfolio Manager

Measure	Units	Abbreviation	Description
Site Energy Use Intensity (Site EUI)	One thousand British thermal units per gross square foot	kBtu/SF	A measure of the on-site energy use per square foot in a building (does not take into account weather fluctuations or source energy losses).
Weather-Normalized Source Energy Use Intensity (Source EUI)	One thousand British thermal units per gross square foot	kBtu/SF	A measure of energy use per square foot that takes into account weather fluctuations and all transmission, delivery, and production losses of the energy source.

About [Company Name]

Please provide a narrative description of your company's properties that includes, at a minimum:

- A brief description of your company
- Your company's participation as a commercial tenant or owner-occupier
- A brief description of your company's covered properties (NYC or tri-state area), including the owned, occupied, and leased square footage of each property, as well as the square footage of any owned space that is leased to a third party
- A general description of the activities that each property supports
- A map of each property by geographic location
- Tables 2 and 3 from your Climate Action Plan Tool Kit
- A description of any planned or recently completed expansions and the projected impact on your energy use and carbon emissions

The following is sample text—please remove and insert your own text in its place.

Background

City Hall Inc. was founded in 1963 as a consulting firm specializing in public policy research. Since then, City Hall Inc. has grown into a global company headquartered in New York City, with 5,000 employees around the world and offices located in Paris, Shanghai, and Sao Paulo.

Properties Included in the Challenge

City Hall Inc. is participating in the NYC Mayor's Carbon Challenge as a commercial tenant and includes the GHG emissions from all five leased properties in New York City. These five properties include four leased properties clustered in the Civic Center neighborhood of lower Manhattan and one satellite property in Flushing, Queens (see map below). The Civic Center properties include office space, conference room space, and a data center, while the Flushing property includes additional office space and a new data center.

City Hall Inc. has 2,050 full time-equivalent employees located in New York City and 850,000 rentable square feet of leased space that constitute its New York City headquarters. Together, these properties make up roughly 700,000 square feet of office space, 100,000 square feet of conference room space, and 50,000 square feet of data center space.

City Hall Inc. is also in the process of expanding its real estate in New York City to incorporate 300 employees from an existing property in New Jersey. To support these employees, City Hall Inc. has added an energy-intensive data center since 2011 and is in the preliminary stages of expanding into one additional 100,000 square foot property located in Tribeca. City Hall Inc. is expected to complete its move into the Tribeca property in the spring of 2014.

Please include a map of your company and Tables 2 and 3 from your Climate Action Plan Tool Kit. If you have properties in multiple geographic locations, please provide separate maps and data tables for each location.

Please note that a labeled map is preferable, but if one is not available, you may also create a map using an online mapping tool such as Google Maps.

Property Map

City Hall Inc. – Civic Center Properties



City Hall Inc. – Civic Center Properties

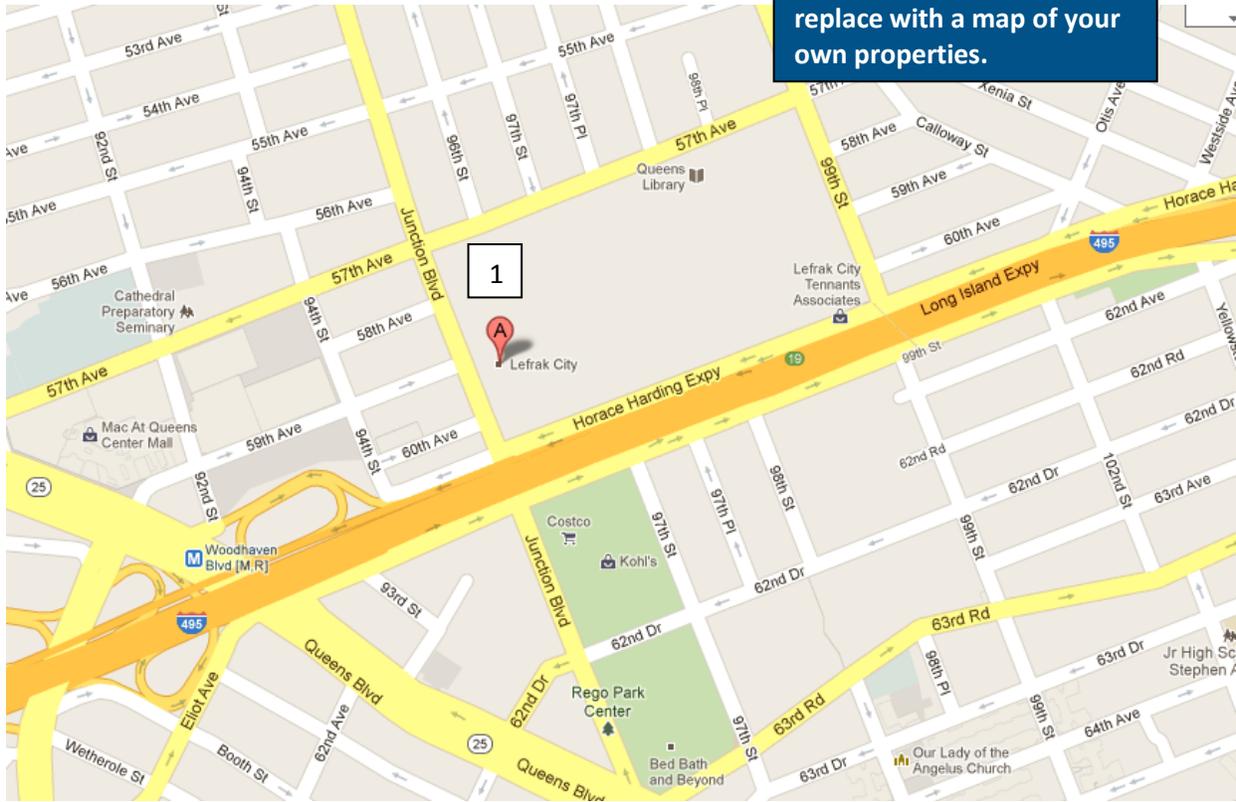
	Property Name	Address	Owned vs. Leased	Occupied Floor Area	Owned Floor Area	FTE	Property Type	Space Types
1	City Hall Building	260 Broadway	Leased	25,000 RSF	N/A	50	Office	Office
2	Manhattan Municipal Building	1 Centre Street	Leased	400,000 RSF	N/A	1,000	Mixed Use	Conference Room, Data Center, Office
3	250 Broadway Building	250 Broadway	Leased	175,000 RSF	N/A	100	Office	Conference Room, Office
4	253 Broadway Building	253 Broadway	Leased	100,000 RSF	N/A	100	Office	Office

Please fill out Tables 2-3 in your Climate Action Plan Tool Kit and insert them in this section.

Total Properties	4
Total Area	700,000
Total FTE	1,650

City Hall Inc. – Flushing Property

Please remove this map and replace with a map of your own properties.



City Hall Inc. – Flushing Properties

Property Name	Address	Owned vs. Leased	Occupied Floor Area	Owned Floor Area	FTE	Property Type	Space Types
1 Flushing Building	59-17 Junction Blvd.	Leased	150,000 RSF	N/A	400	Office	Office, Data Center

Flushing Campus Subtotals

Total Properties	1
Total Area	150,000
Total FTE	400

Please fill out Tables 2-3 in your Climate Action Plan Tool Kit and insert them in this section.

Additional Commitments

Please include a description of any additional commitments to environmental sustainability that your company has made.

The following is sample text—please remove and insert your own text in its place.

[Company Name]’s Additional Commitments to Sustainability

In addition to its commitment to the Mayor’s Carbon Challenge, City Hall Inc. has made other internal and external commitments to reduce its global environmental footprint and increase the sustainability of its operations.

Corporate Commitments to Sustainability

In 2012, City Hall Inc. completed a comprehensive assessment of its global GHG emissions using the World Resources Institute’s Corporate Standard GHG Accounting Protocol. The same year, City Hall Inc. publicly committed to cutting these emissions in half by 2030 (from 2011 levels) and report emissions to the Carbon Disclosure Project annually. To reach this goal, City Hall Inc. has focused on increasing the energy efficiency of its building systems, invested in renewable generation such as solar PV and wind power, and created ride share programs for employees in each of its global offices. City Hall Inc.’s commitment to the NYC Mayor’s Carbon Challenge is therefore a natural step on the path to achieving its internal corporate commitment.

In addition to City Hall Inc.’s commitment to cut its GHG emissions in half, the firm has also

focused on a number of other sustainability goals, including a commitment to cut its global water usage in half and achieve a 100% waste diversion rate by 2030. Not only do these commitments shrink City Hall Inc.’s environmental footprint, they also reduce operating costs and increase profitability – which is good for the firm, good for its shareholders, and good for the planet.

Philanthropic Contributions

City Hall Inc. also makes generous philanthropic contributions to both local and global causes. These include a \$100,000 contribution to the NYC Cool Roofs program in New York City in 2011 to support the City’s efforts to paint nearly 4 million square feet of rooftops white, which helps reduce energy use and lowers GHG emissions from the city’s one million buildings.

City Hall Inc. employees, however, are at the heart of the firm’s philanthropic efforts, dedicating their time, effort, and resources to these and other causes. Through City Hall Inc.’s Matching Funds program, the firm has donated more than \$150,000 to its employees’ chosen charitable causes since the program was launched in 2010.

Taken together, City Hall’s commitments to environmental sustainability and philanthropy demonstrate that the firm is ready and willing to take on the challenge to create a healthier environment and a better quality of life for future generations.

Benchmarking Information

IF YOU ARE AN OWNER-OCCUPIER:

Please provide your company's Local Law 84 energy use benchmarking information, as submitted to the NYC Department of Buildings for the year that corresponds to the most recently submitted Mayor's Carbon Challenge carbon emissions inventory. Reporting any benchmarking information for your company's base year is optional.

IF YOU ARE A COMMERCIAL TENANT:

Reporting the Local Law 84 benchmarking information for buildings where your company leases space is optional, but encouraged. If you choose to complete this section, all benchmarking information is available online at www.nyc.gov/l184.

To complete this section, please include:

- Background information on benchmarking under NYC Local Law 84
- The total number of buildings your company was required to benchmark in the year of your last inventory
- Data Table 4 from your Climate Action Plan Tool Kit, with all benchmarking results from the most recent year
- **OPTIONAL:** The total number of buildings your company benchmarked in its base year
- **OPTIONAL:** Data Table 4 from your Climate Action Plan Tool Kit

Please take what is useful from the following text.

Background

New York City's Local Law 84 of 2009 is the first in a package of four local laws collectively called the Greener, Greater Buildings Plan (GGBP). Local Law 84 requires owners of all buildings over 50,000 square feet in gross floor area and in lots with more than 100,000 square feet of built floor area to report their buildings' annual energy use through a process called benchmarking. Benchmarking measures a building's total energy use by fuel type and adjusts for other factors, which allows owners to compare building energy performance to other similar buildings and helps determine whether systems are operating efficiently.

Language for Owner-Occupiers:

[Company Name] benchmarked its owned properties in New York City for **[Most Recent Year]** to comply with Local Law 84 using an online tool developed by the U.S. Environmental Protection Agency called Portfolio Manager. Using **[Company Name]**'s monthly energy use by fuel type, Portfolio Manager produces a measure of energy use intensity (EUI), or energy use per square foot per year, for each building and an ENERGY STAR score for certain building types.

Language for Commercial Tenants (OPTIONAL):

The owners of the buildings in which **[Company Name]** leases its New York City office space benchmarked energy use for these buildings for **[Most Recent Year]** using an online tool developed by the U.S. Environmental Protection Agency called Portfolio Manager. Using the

energy use information for each building, Portfolio Manager produces a measure of energy use intensity (EUI), or energy use per square foot per year, for each building and an ENERGY STAR score for certain building types.

The EUI reported for Local Law 84 in the buildings where **[Company Name]** leases space is not equivalent to the energy use that **[Company Name]** reports for the Mayor's Carbon Challenge. Benchmarking under Local Law 84 requires building owners to report whole building energy use, including energy use from all common areas, base building systems, and from any additional tenants with leased space in the building. As a commercial tenant in the Challenge, **[Company Name]** reports only the energy use over which it has direct operational control from its leased spaces. Still, it is useful to know the energy use of buildings where **[Company Name]** leases space to understand the contribution of energy use from its leased spaces to the total energy use and to identify potential opportunities for coordination with the building owner.

Please take what is useful from the following text.

A building's EUI can be expressed in several ways. Portfolio Manager generates site EUI and the weather-normalized source EUI for each benchmarked building. The site EUI provides the on-site energy use per unit of gross building area, while the weather-normalized source EUI incorporates weather fluctuations and losses from production, transmission, and distribution of the energy source into the final number.

The ENERGY STAR score is a number on a scale of 1-100 assigned to each eligible building that compares the efficiency of energy use across

similar facilities. For example, an ENERGY STAR score of 75 indicates that a building performs better than 75% of all comparable buildings nation-wide. The score is based on the Commercial Building Energy Consumption Survey (CBECS), which is conducted every four years by the U.S. Department of Energy's Energy Information Administration. ENERGY STAR scores are only available for certain building types and at least 50% of the gross floor area must be one of these eligible building types to receive a score. The lack of an ENERGY STAR score for a building therefore does *not* indicate poor energy performance in a building.

[Company Name]'s Benchmarking Information Language for Owner Occupiers:

[Company Name] has submitted benchmarking information for its owned buildings to comply with NYC Local Law 84 since 2011. In **[Most Recent Year]**, **[Company Name]** was required to benchmark **[Number of Benchmarked Buildings]** buildings. Below is a table that includes the benchmarking results for these buildings in **[Most Recent Year]**.

OPTIONAL: Benchmarking energy use for these **[Number of Benchmarked Buildings]** buildings for the base year of **[Base Year]** is also included below for purposes of comparison.

Language for Commercial Tenants:

Benchmarking information is included below for the **[Number of Benchmarked Buildings]** buildings that were required to comply with Local Law 84 where **[Company Name]** leases office space.

OPTIONAL: Benchmarking energy use for these **[Number of Benchmarked Buildings]** buildings for the base year of **[Base Year]** is also included below for purposes of comparison.

Benchmarking Results – 2011

Building Name	Address	BIN	BBL	Site EUI (kBtu/ft2)	Source EUI (kBtu/ft2)	ENERGY STAR Score	Reported Gross SF	Notes:
City Hall Building	260 Broadway	1001473	1-00135-7501	150	125	61	30,000	
Manhattan Municipal Building	1 Centre Street	1001394	1-00121-0001	100	75	74	1,000,000	
250 Broadway Building	250 Broadway	1001408	1-00124-0024	200	175	37	600,000	
253 Broadway Building	253 Broadway	1082757	1-00134-7501	175	150	48	500,000	
Flushing Building	59-17 Junction Boulevard	4047310	4-01918-0001	125	100	70	1,500,000	

Benchmarking Results – 2012

Building Name	Address	BIN	BBL	Site EUI (kBtu/ft2)	Source EUI (kBtu/ft2)	ENERGY STAR Score	Reported Gross SF	Notes:
City Hall Building	260 Broadway	1001473	1-00135-7501	140	115	60	30,000	
Manhattan Municipal Building	1 Centre Street	1001394	1-00121-0001	102	76	74	1,000,000	
250 Broadway Building	250 Broadway	1001408	1-00124-0024	180	165	39	600,000	
253 Broadway Building	253 Broadway	1082757	1-00134-7501	175	150	48	500,000	
Flushing Building	59-17 Junction Boulevard	4047310	4-01918-0001	130	105			

Please fill out [Table 4](#) in your Climate Action Plan Tool Kit and insert it here. Note that it is optional to report benchmarking information for your company's base year.

Carbon Emissions Inventory

In this section, please include information from your Carbon Emissions Inventory, including:

- Background information on the emissions sources, GHG accounting methodology, and carbon coefficients used for the Mayor's Carbon Challenge
- Your company's participant type and Challenge metrics
- Your company's reported energy use, emissions, and square footage or FTE for the base year
- Your company's reported energy use, carbon emissions, and square footage or FTE for the most recent year
- The reduction in carbon intensity achieved in the most recent year
- Any major changes in fuel sources since the base year
- Tables 5 and 6 from your Climate Action Plan Tool Kit
- Graphs 1-5 from your Climate Action Plan Tool Kit
- OPTIONAL: A description of your emissions by property and Graphs 6 and 7 from your Climate Action Plan Tool Kit

Please take what is useful from the following text.

Background

All Mayor's Carbon Challenge participants complete a portfolio-wide carbon emissions inventory to calculate their energy use and associated carbon emissions for all New York City-based properties for each year of the Challenge, beginning with a selected base year

and ending with the last year of the Challenge. The Mayor's Carbon Challenge reduction goal is measured based on the participant's level of GHG emissions in the base year.

Emissions Sources

The Mayor's Carbon Challenge covers all building-based emissions from the energy use over which participants have direct operational control. These include emissions that are attributable to the on-site energy use from participants' properties as well as emissions that result from offsite generation of energy sources. It is important to note, however, that emissions reported for the Mayor's Carbon Challenge do not include the full profile of each participant's emissions. For one, the Mayor's Carbon Challenge only includes emissions from properties that are located in New York City or the tri-state area (all of New York, New Jersey, and Connecticut). In addition, emissions include only what the World Resources Institute (WRI) labels "Scope 1" and "Scope 2" emissions.

According to the WRI's Greenhouse Gas Protocol, a company's full profile of emissions consists of: Scope 1 emissions, which include emissions that are physically produced on a company's property (for example, fossil fuels used in boilers); Scope 2 emissions, which are indirect emissions from the offsite generation of energy sources that are used on-site (for example, electricity or district steam); and Scope 3 emissions, which are emissions that are not produced on-site or from offsite generation but are nonetheless attributable to the

company's activities (for example, from air travel or solid waste disposal). The Mayor's Carbon Challenge includes Scope 1 and Scope 2 emissions but does not include Scope 3 emissions, both because Scope 3 emissions are not always produced within city boundaries and because there is a lack of general agreement on proper accounting methodologies for these emissions sources.

Mayor's Carbon Challenge participants track energy use in all owned and leased properties that are greater than 10,000 square feet, are occupied at least 50% of the year, and are located in the participant's choice of New York City or the tri-state area. Properties that are less than 10,000 square feet and retail spaces are both optional to include in the Challenge.

Data center energy use is an important component of a participant's emissions profile, but in some cases, a company expects a level of data center load growth that would engulf potential energy reductions from other efforts. If for this reason a participant chooses not to include data centers located in New York City or the tri-state area in its inventory, the participant will track the data center energy use on a separate metric, such as power usage effectiveness (PUE), and work with the Mayor's Office to create an alternate data center goal.

Because there are major differences in participants' control over energy use in owned versus leased spaces, energy use in these spaces is also measured in different ways. Leased spaces include all the direct metered or sub-metered energy use in interior spaces where the participant has operational control over energy use. This generally does not include energy use from the base building systems, although it may include some common areas

and amenity space, such as gyms. In leased spaces where energy use is not direct metered or sub-metered, participants may be permitted to allocate the whole building energy use proportionally by square footage provided that the participants have a valid reason for not installing meters (ie, the firm plans to vacate the property in less than ten years) and the combined floor area of these spaces does not make up more than 10 percent of the participant's total square footage.

Owned and occupied properties, on the other hand, must encompass the whole building energy use, including the energy use from base building systems and common areas. Energy use in a property that is leased to a third party may be subtracted from the total energy use of the owned space provided that the participant has direct metered or sub-metered energy use for these spaces.

GHG Accounting Methodology

As a Mayor's Carbon Challenge participant, **[Company Name]** agrees to track its carbon emissions according to the methodology of the Mayor's Carbon Challenge. Under this methodology, participants report their non-weather normalized source energy use for all covered properties by fuel type and aggregate it annually for every year of the Challenge, beginning in the base year and ending in the end year. Participants enter this energy use into a carbon emissions inventory calculator tool, provided by the NYC Mayor's Office of Long-Term Planning and Sustainability, which multiplies energy consumption by a "carbon coefficient" to find the associated level of carbon dioxide equivalent (CO₂e).

All carbon coefficients for the Mayor's Carbon Challenge were developed by the NYC Mayor's

Office of Long-Term Planning and Sustainability and are in compliance with the 2012 United States Community Protocol for Accounting and Reporting Greenhouse Gas Emissions (USCP). The Mayor’s Carbon Challenge uses New York City-specific carbon coefficients for electricity and steam, which are calculated by the Mayor’s Office of Long-Term Planning and Sustainability based on power plant data. All coefficients for natural gas and heating fuel oils No. 2, 4, and 6 were developed by the U.S. EPA.

For purposes of the Challenge, the carbon coefficients for electricity and steam are fixed at 2005 base year levels because the coefficients for these fuel types can vary significantly between years. Improvements in New York City’s electricity supply, for example, would provide an advantage to Challenge participants who depend primarily on electricity, regardless of their investments in energy efficiency. Fixing

the carbon coefficients at 2005 levels therefore standardizes the competition across all the Challenge participants. Please see below for the complete list of the Mayor’s Carbon Challenge carbon coefficients.

The Mayor’s Carbon Challenge Goal

For commercial offices, the Mayor’s Carbon Challenge goal is based on a reduction in carbon *intensity*, measured either per full time-equivalent employee (FTE) or per square foot. Normalizing carbon emissions per FTE or square foot standardizes emissions levels from participants of different sizes and does not disincentivize economic growth. Participants may choose a base year of 2005 or later as the year from which the reduction goal is measured, but participants that choose a base year between 2005 and 2009 must commit to reducing their emissions by at least 40% by the end of the Challenge.

Mayor’s Carbon Challenge Emissions Coefficients

	Electricity (kWh)	Natural Gas (therms)	#2 Fuel Oil (gal)	#4 Fuel Oil (gal)	#6 Fuel Oil (gal)	Propane (gal)	Steam (Mlbs)
MT CO2e per unit energy	0.000422704	0.005315600	0.010264026	0.011016722	0.011327550	0.012413804	0.089195
MMBtu per unit energy	0.009546	0.1	0.138	0.146	0.15	0.091	1.33015

[Company Name]’s Emissions Sources

[Company Name] is participating in the Mayor’s Carbon Challenge as a [commercial tenant/owner-occupier] and is including all leased and owned properties in [New York City/the tri-state area]. [Company Name] has decided to report [Select all that apply: Properties that are less than 10,000 square feet; Retail space; Data centers].

[Company Name]’s Metrics

[Company Name] has chosen a base year of [Base Year] and will normalize its carbon emissions on a per [square foot/FTE] basis. By accepting the Mayor’s Carbon Challenge, [Company Name] has committed to reduce its carbon emissions per [square foot/FTE] by [30%/40%] from [Base Year] levels.

[Company Name]'s Goal

To measure progress toward the Mayor's Carbon Challenge goal, participants perform a baseline carbon emissions inventory to measure emissions levels in their base year. Based on this inventory, [Company Name] will reduce its [Base Year] carbon intensity of [Carbon Intensity in Base Year] lbs per [square foot/FTE] by [30%/40%], to [Carbon Intensity for Challenge Goal] by [End Year].

City Hall Inc.'s Metrics and Goal	
Participant Type	Tenant
Normalization Factor	FTE
Covered Area	New York City
Base Year	2011
Challenge Goal	30%
Base Year Carbon Intensity	
End Year Carbon Intensity	

Please fill out [Table 5](#) in your Climate Action Plan Tool Kit and insert it here.

[Company Name]'s Carbon Emissions Inventory Results

[Company Name] completed its most recent carbon emissions inventory for the Mayor's Carbon Challenge for [Most Recent Year]. Based on this inventory, [Company Name] has reduced its carbon intensity by [Reduction in Carbon Intensity] and reduced its energy use intensity by [Reduction in Energy Use Intensity]. See below for a summary of [Company Name]'s progress.

Changes in Energy Sources

In addition to reducing energy use, switching to cleaner energy sources can also significantly lower carbon emissions.

Please describe any major changes in your company's energy sources [here](#).

[Company Name]'s Carbon Emissions Reduction, [Base Year – Most Recent Year]

	2011	2012	Change
Total Emissions (Mg CO2e)	6,150	5,806	-5.59%
Average FTE	2,040	2,050	0.49%
Carbon Intensity (lbs CO2e/FTE)	6,647.79	6,245.88	-4.83%

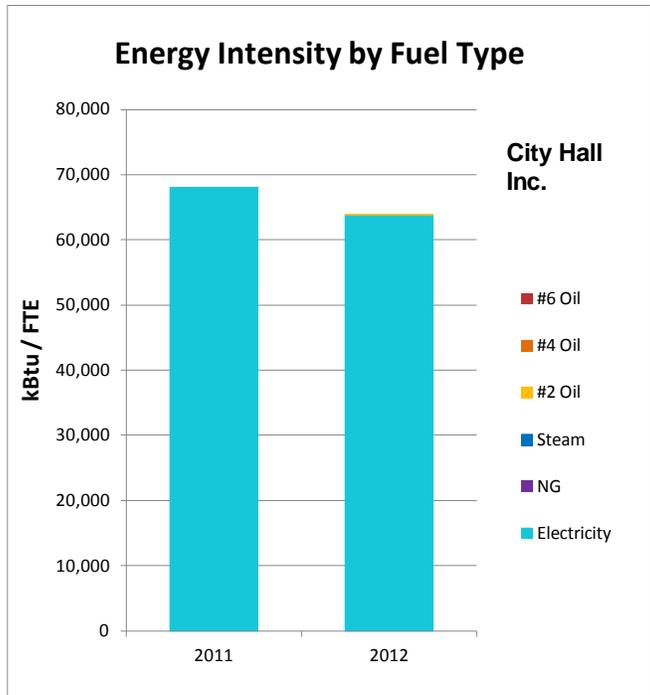
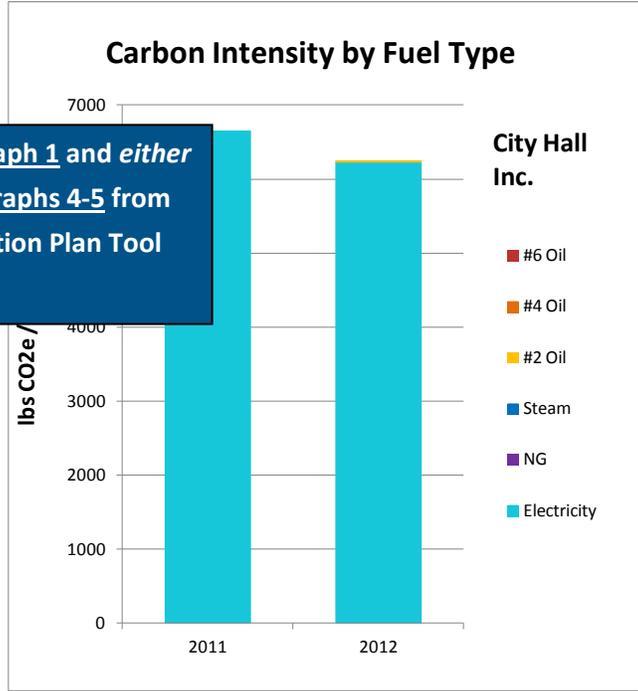
Please fill out [Tables 6 and 7](#) in your Climate Action Plan Tool Kit and insert them here.

[Company Name]'s Emissions Reduction

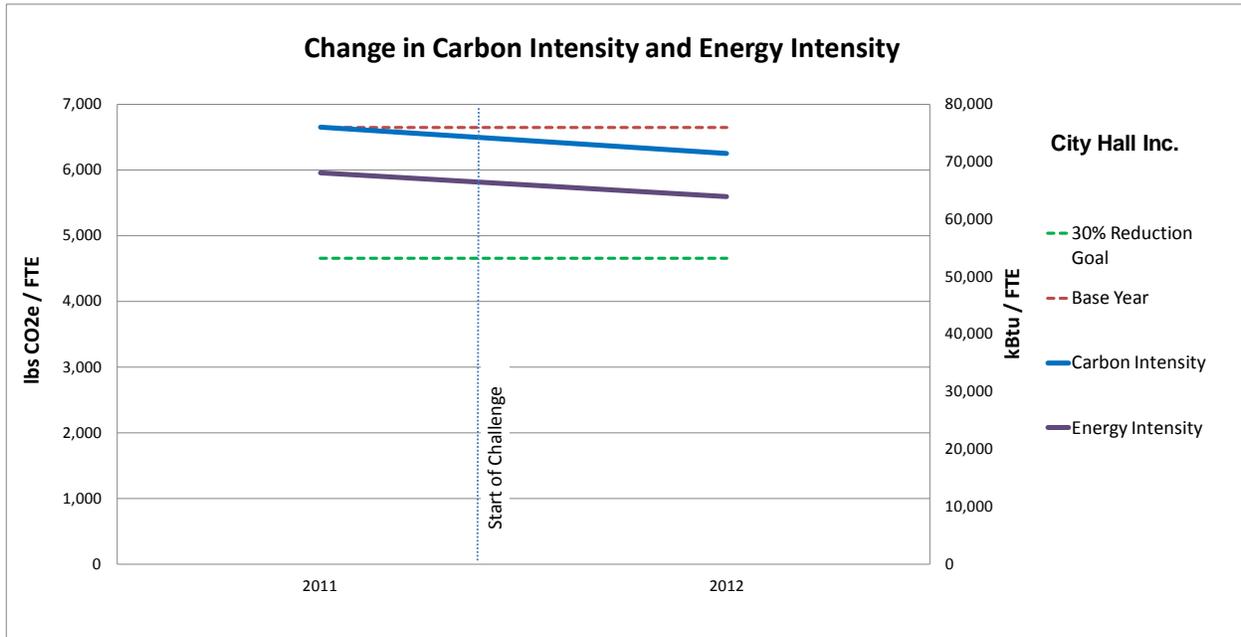
	2011	2012	Change
Total Energy Use (MMBtu)	138,894	130,987	-5.69%
Average FTE	2,040	2,050	0.49%
Energy Use Intensity (MMBtu/FTE)	68.09	63.90	-6.15%

Carbon and Energy Use Intensity by Fuel Types, [Base Year] – [Most Recent Year]

Please insert [Graph 1](#) and *either* [Graphs 2-3](#) or [Graphs 4-5](#) from your Climate Action Plan Tool Kit here.



Carbon and Energy Use Intensity Reduction, [Base Year] – [Most Recent Year]



Carbon Emissions by Property

OPTIONAL: If you have energy use data broken down by the property level, please:

- Describe the contribution of each property to your carbon emissions in the base year and most recent year
- Include Table 8 and Graphs 6 and 7 in your Climate Action Plan Tool Kit

The following is sample text—please remove and insert your own text in its place.

Breaking down City Hall Inc.’s carbon emissions and carbon intensity by property shows the contribution of each property to the firm’s overall New York City-based emissions profile. It also offers insight into opportunities for further reductions in emissions from each property.

Because City Hall Inc.’s 400,000 square foot leased space in the Manhattan Municipal Building is the largest property both by square footage and FTE, the absolute emissions from this property unsurprisingly made up the

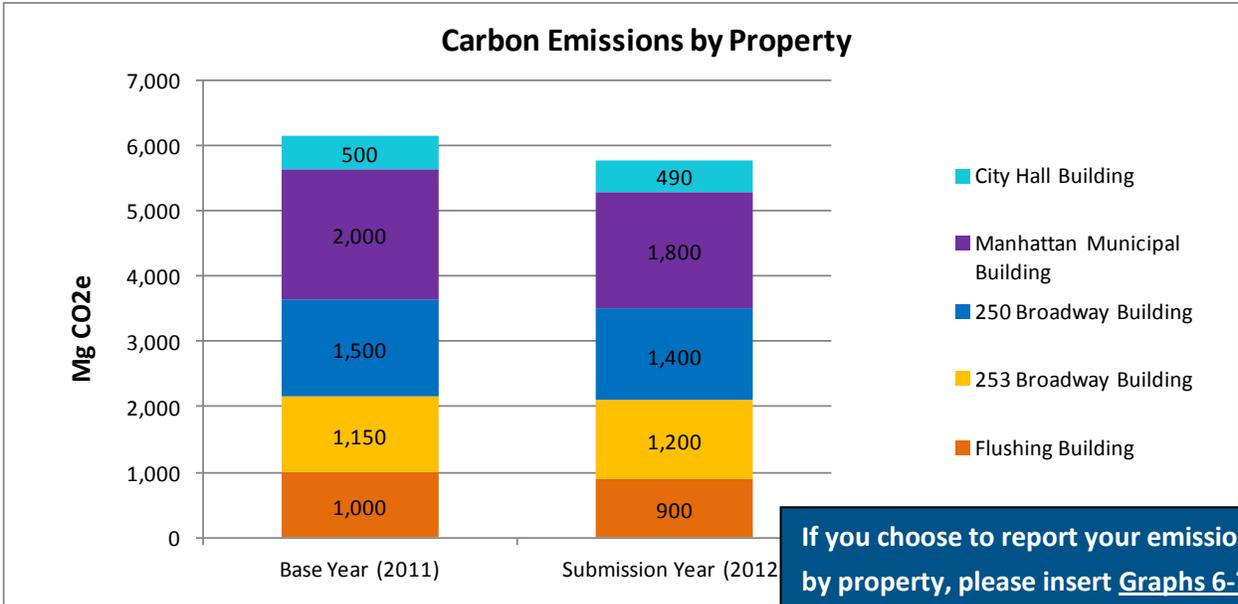
greatest share of the firm’s emissions profile in 2012. Approximately one-third of City Hall Inc.’s emissions come from its space in the Manhattan Municipal Building, meaning that energy efficiency investments in this property will have a significant impact overall. City Hall Inc.’s properties at 250 Broadway, 253 Broadway, and the Flushing Building make up the next largest contributions to the firm’s total emissions, respectively, while the City Hall Building accounts for the smallest portion.

Separating City Hall Inc.’s carbon *intensity* by property shows that the Flushing property contributes the largest proportion of carbon emissions per FTE. This is likely due in part to a large data center located at this property and City Hall Inc.’s recent installation of new energy-intensive IT equipment. Thus, energy efficiency investments at the Flushing property are an important opportunity for reducing City Hall Inc.’s carbon intensity.

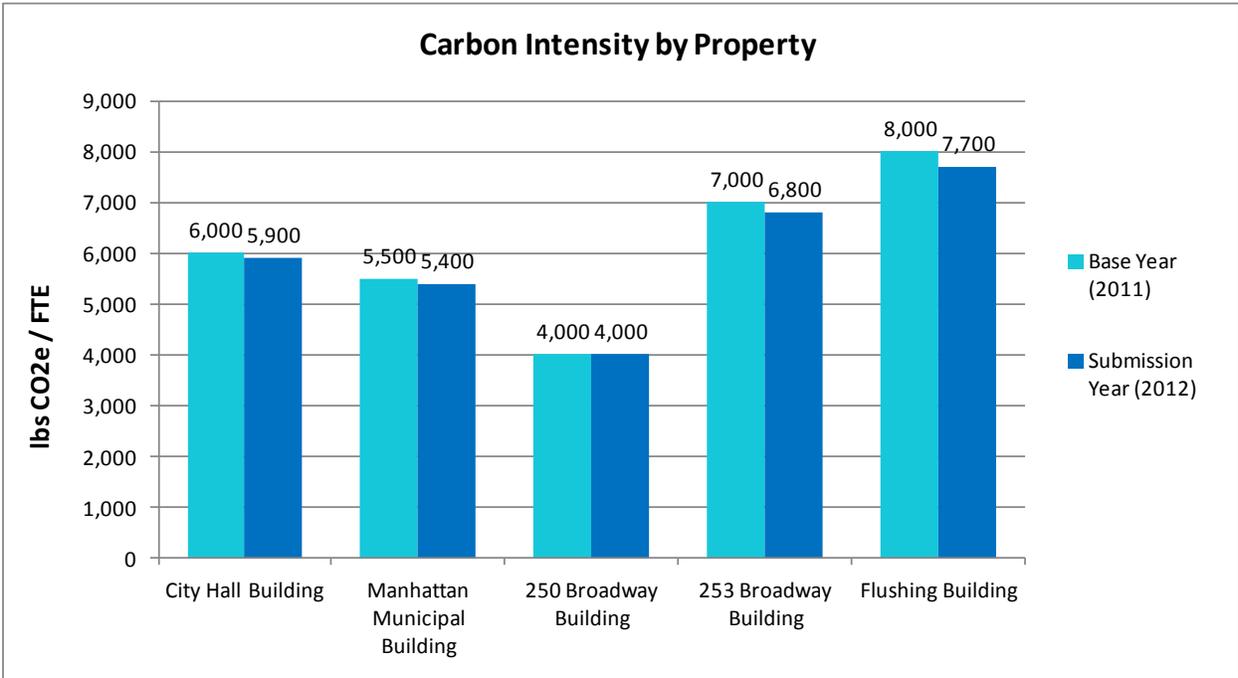
City Hall Inc.’s Carbon Emissions by Property, [Base Year] – [Current Year]

Property	Base Year (2011)		Submission Year (2012)	
	Carbon Emissions (Mg CO2e)	Carbon Intensity (lbs CO2e/FTE)	Carbon Emissions (Mg CO2e)	Carbon Intensity (lbs CO2e/FTE)
City Hall Building	500	6,000.00	490	5,900.00
Manhattan Municipal Building	2,000	5,500.00	1,800	5,400.00
250 Broadway Building	1,500	4,000.00	1,400	4,000.00
253 Broadway Building	1,150	7,000.00	1,150	7,000.00
Flushing Building	1,000	8,000.00	1,000	8,000.00

If you choose to report your emissions by property, please insert Table 8 from your Climate Action Plan Tool Kit here.



If you choose to report your emissions by property, please insert [Graphs 6-7](#) from your Climate Action Plan Tool Kit here.



Completed Projects

In this section, please include information about the projects and strategies you've completed that have contributed to your emissions reduction so far. Please include:

- A description of the projects and strategies your company has completed to date and the estimated reduction in energy use, reduction in carbon emissions, financial savings, and payback times
- **OPTIONAL:** Any operational improvements and/or additional benefits from your projects and strategies
- A description of any exogenous variables that may have affected your energy use
- Any adjustments you have made to your emissions projections
- A description of your measurement and verification process
- Table 8 from your Climate Action Plan Tool Kit

Please take what is useful from the following text.

Overview

Participants in the Mayor's Carbon Challenge can achieve reductions in carbon emissions through both investments in energy efficiency and conversions to cleaner energy sources. Investments in energy efficiency include the installation of equipment or implementation of processes that are more efficient than currently required by relevant standards and achieve a permanent reduction in energy consumption. Fuel conversions include the replacement of one energy source used by a building system

with another energy source, which can result in emissions reductions even while using the same level of energy.

Please state whether your company has completed fuel conversions.

Methodology of Estimating Energy and Carbon Reductions

To quantify the energy and carbon reductions of completed projects and strategies, [Company Name] uses a measurement and verification process that adheres to the [Your Company's M&V Protocol]. Measurement and verification includes data collection, measurements, monitoring, and analysis to determine the energy and demand savings from completed energy efficiency and fuel conversion projects. Using a tool provided by the Mayor's Office, [Company Name] applied carbon coefficients to the energy savings to find the resulting carbon reduction of each project. However, even with a robust measurement and verification process, there is always some degree of uncertainty in energy reduction estimates that may result from end use or demand changes, exogenous factors such as the weather, and/or inherent uncertainties with modeled data.

The following is sample text—please remove and insert your own text in its place.

Completed Projects and Estimated Impacts

In the past year, City Hall Inc. has implemented several projects have enabled the firm to

achieve a 6 percent reduction in its carbon emissions per FTE in just one year.

Lighting Replacements and Occupancy Sensors:

In 2012, City Hall Inc. began replacing of light fixtures and installing lighting occupancy sensors in its Manhattan Municipal Building property. So far, 20% of the lights have been replaced with more energy efficient LED lights with reflective fixtures and have been outfitted with occupancy sensors. City Hall Inc. estimates that the LED lights save 125,000 kWh of electricity and the occupancy sensors save 60,000 kWh of electricity annually, which translates to a GHG reduction of roughly 87 metric tons of carbon dioxide equivalent per year. As a result of the lighting upgrades, City Hall Inc. has saved an estimated \$31,450 with a payback of 2.5 years.

Server Virtualization: City Hall Inc. completed a server virtualization project this year in its data center in the Flushing Building, consolidating 50 independent servers into just 5 to increase utilization rates of individual servers. As a result, City Hall Inc. reduced electricity consumption from the servers in its Flushing building data center by about 240,000 kWh, translating to roughly 100 metric tons of carbon dioxide. City Hall Inc. is saving an estimated \$40,800 in electricity costs from this project annually, with a payback time of 3.7 years.

Space Densification: City Hall Inc. has also undertaken densification in its City Hall Building and 253 Broadway properties. The firm added 25 new employees into these spaces and consolidated the office space into a smaller area to decrease overall lighting use and plug loads. As a result, City Hall Inc. has reduced electricity use in these spaces by an estimated 100,000 kWh of electricity per year and is saving an

estimated \$17,000 annually. Moreover, this change cost the firm just \$10,000 to implement, resulting in a payback of just 6 months. The impact on City Hall Inc.'s progress toward the Challenge goal is even greater, however, because the additional employees further reduces carbon intensity per FTE.

As a result of these projects, in 2012 the firm saved an estimated 5,011 MMBtus, 222 metric tons of carbon dioxide equivalent, and a total of \$99,450 in reduced energy costs with a simple payback of 2.6 years. Moreover, staff training associated with the server virtualization project has further reduced the firm's operating costs and improved maintenance levels in the data center.

Exogenous Impacts

Exogenous factors can significantly impact building-level energy use and therefore affect City Hall Inc.'s progress in the Mayor's Carbon Challenge. In 2012, Hurricane Sandy caused a two-week power outage in the City Hall Building, 250 Broadway, 253 Broadway, and the Manhattan Municipal Building, reducing annual electricity consumption in these properties. City Hall Inc. brought in diesel generators to power these buildings for one week of the power outage, which partly, but not completely, offset the decrease in energy use and emissions.

Measurement and Verification

Based on City Hall Inc.'s measurement and verification process, the lighting upgrades and space densification projects are generally consistent with original energy projections. The server virtualization project, on the other hand, exceeded original expectations, demonstrating the potential effectiveness of future efficiency projects for City Hall Inc.'s data centers.

City Hall Inc.'s Completed Projects and Strategies

Completed Project Information			Energy Savings	Cost Savings			GHG Reductions
Energy Conservation Measure (ECM) Category	Measure Name	Project Description	Est. Electricity and Fuel Savings (MMBTU/yr)	Dollars Saved Annually (\$/yr)	Installation Cost (\$)	Simple Payback (Years)	Est. Emissions Reduction (Mg CO2e/yr)
Lighting	Upgrade to LED	Upgraded 20% of lights in Manhattan Municipal Building property to LED with reflectors	1193.25	\$31,450.00	\$80,000	2.54	52.84
Lighting	Install Occupancy/Vacancy Sensors	Installed occupancy sensors on 20% of lights in Manhattan Municipal Building property	572.76	\$10,200.00	\$20,000	1.96	25.36
Data_Centers_and_Server_Rooms	Server Virtualization	Increased server virtualization in Flushing property data center	2291.04	\$40,800.00	\$150,000	3.68	101.45
Space	Densification	Added employees and consolidated office space into a smaller area	954.60	\$17,000.00			

Please fill out Tables 9-10 in your Climate Action Plan Tool Kit and insert them in this section.

Total Energy Savings (MMBTU/yr)	Total Dollars Saved Annually (\$/yr)	Total Cost of ECMs (\$)	Simple Payback (Years)	Est. Emissions Reduction (Mg CO2e/yr)
5011.65	\$99,450.00	\$260,000	2.61	221.92

Highlights

If your company is using a base year of 2009 or earlier, please highlight at least one project of particular interest.

If your company is using a base year of 2010 or later, this section is OPTIONAL. However, please consider highlighting a planned project of interest instead.

The following is sample text—please remove and insert your own text in its place.

Manhattan Municipal Building Competition

In 2014, City Hall Inc. plans to launch a pilot energy use competition among the five floors it leases in its Manhattan Municipal Building property, which will provide cash rewards for the floor that reduces the most energy. Using energy sub-meters installed on each floor, the floors will compete against each other for the lowest energy use for the month of April in honor of Earth Day.

The energy savings and emissions reductions resulting from the Manhattan Municipal Building competition are expected to impact the firm's progress toward the Challenge goal by engaging a specific subset of employees in the short-term that can help lead to longer-term savings. City Hall Inc. specifically targeted the Manhattan Municipal Building for this competition after a study of plug load energy use across its properties showed that the loads in this property are disproportionately higher than other properties. Further study found that this is because employees in the Manhattan Municipal Building tend to fit into a younger

demographic and have more personal devices such as smart phones or personal music players that are plugged in at their desks. Addressing the issue through a competition will both appeal to the younger demographic and lower plug loads in this property.

To implement this pilot competition, City Hall Inc. will set up energy use dashboards that employees will use to monitor their daily energy performance. City Hall Inc. will also use employee engagement tools provided by the Mayor's Office, including an animation featuring the GreenNYC mascot Birdie who dispenses energy saving tips to employees. The goal for the month of April is to reduce energy use in this property by 2.5%, with a goal of sustaining energy reductions of 0.5% for the remainder of the Challenge through continued employee engagement.



Image: Birdie will dispense energy-saving tips to City Hall Inc.'s employees.

Next Steps

In this section, please describe your plan to reach your 30% emissions reduction goal. Please include:

- An overview of the section
- A description of Business as Usual Growth
- An estimate of remaining reductions needed to meet the 30% goal, taking into account both achieved reductions and business as usual growth
- A brief description of your company's project identification process
- A brief description of each planned project and/or strategy and the estimated energy reductions, carbon reductions, financial savings, and payback times
- A general plan to achieve the remaining reductions, broken down broadly by strategy
- A brief description of your company's measurement and verification process
- Tables 11 and 12 from your Climate Action Plan Tool Kit
- A Wedge Chart illustrating a combination of your planned projects and additional opportunities for reductions by strategy

Please take what is useful from the following text.

Overview

To achieve the Mayor's Carbon Challenge goal, [Company Name] must identify and assess the estimated energy and carbon reductions from a range of potential projects. This section includes a list of [Company Name]'s planned projects in the short term for which the firm has

completed comprehensive analysis of energy projections, as well as a broader strategy to meet the goal based on potential opportunities that have not yet been fully assessed. Taken together, City Hall Inc.'s planned projects and strategies provide a road map for meeting the Challenge goal.

"Business as Usual" Projected Growth

If you have used an alternate calculation of business as usual growth, please remove the text below and describe your own calculation here. If you assume no business as usual growth, please explain why.

To map out the strategy for meeting the Mayor's Carbon Challenge goal, participants must understand both their base year level of emissions and, to a certain degree, their "Business as Usual" projected growth if no further action is taken to reduce energy use or carbon emissions. Based on the available historical data, the Mayor's Office assumes citywide "Business as Usual" growth to be roughly a 1% increase in emissions per year. The Mayor's Office is currently revising this projection, but this analysis is not yet complete. For planning purposes, [Company Name] will assume 1% annual growth under its "Business as Usual" scenario to account for expected increases in emissions as a result of greater intensity of energy use from IT equipment, personal electronics, or other sources. This means that the firm will plan to reduce emissions by *more than* [30%/40%] in order to offset this projected growth in emissions and meet the Challenge goal.

The following is sample text—please remove and insert your own text in its place.

Remaining Reduction

City Hall Inc. has reduced the base year carbon intensity of its New York City Properties by 6% in just one year, meaning that to achieve the 30% goal, City Hall Inc. must reduce its carbon intensity per FTE by an additional 24%. However, assuming a “Business as Usual” projection of 1% growth in carbon intensity per year, City Hall Inc. would expect emissions to increase by 9.4% if the firm took no additional action. To offset this potential future growth, City Hall Inc. plans to achieve an additional 34-36% reduction in carbon intensity from its base year levels.

Project Identification Process

To identify additional projects to meet this goal, City Hall Inc. engaged a private contractor to model the energy use of its New York City-based properties to more fully understand the contribution of various end uses and design features of each property to the firm’s total energy use. After developing a baseline model, the contractor is now in the process of modeling potential energy conservation measures to understand the impact of each on total energy use, both separately and taken together. Based on this assessment, City Hall Inc. will select a portfolio of projects that will reduce energy consumption and allow the firm to meet the Challenge goal.

City Hall Inc. began its project identification process in January of 2013 and will complete the process by the end of the year. Based on the initial energy modeling, several specific projects have already been selected based their energy reduction potential.

Planned Projects and Strategies

To help achieve this remaining goal, City Hall Inc. has identified five projects and completed an assessment of potential energy reductions.

Strategy 1 and 2 – Complete Lighting Replacements and Occupancy Sensors: City Hall Inc. has already replaced 20% of lighting in the Manhattan Municipal Building with energy efficient LED lights with reflective fixtures and installed occupancy sensors on them. Over the next three years, City Hall Inc. will complete the remaining lighting upgrades in the Manhattan Municipal Building, 250 Broadway, and 253 Broadway. City Hall Inc. expects to save 700,000 kWh of electricity annually as a result of the LED replacements, which translates to a GHG reduction of 296 metric tons of carbon dioxide equivalent, and 400,000 kWh of electricity as a result of installation of occupancy sensors, which translates to a GHG reduction of 169 metric tons of carbon dioxide equivalent. The payback time of each project is expected to be 3.4 years and 2.2 years, respectively.

Strategy 3 – Additional Server Virtualization: City Hall Inc.’s server virtualization project in the Flushing Building property was so successful that the firm studied and identified two additional virtualization projects. City Hall Inc. will consolidate 100 additional servers across its Flushing Building and 253 Broadway Building properties into 15 servers. As a result, City Hall Inc. projects that it can reduce electricity consumption by about 300,000 kWh, translating to 127 metric tons of carbon dioxide equivalent. As a result, City Hall Inc. projects that it will save an estimated \$51,000 in electricity costs annually, with a payback time of 2 years.

Strategy 4 – Plug Load Reductions from Energy Efficient CPUs and Monitors: City Hall Inc. plans

to replace 50% of its CPUs and monitors over the next two years and has implemented an energy efficient procurement policy that requires all new purchases are ENERGY STAR certified. This is expected to save 350,000 kWh per year, with a GHG reduction of 146 metric tons of carbon dioxide equivalent. The incremental cost above what City Hall Inc. already planned to pay for the new units is so low that this is expected to have a payback time of just 0.84 years.

Strategy 5 – Behavioral Changes through Employee Engagement: The final component of our strategy focuses on behavioral changes that can be sustained through the expansion of energy-saving competitions. City Hall Inc. will launch the Manhattan Municipal Building competition and create tools for engagement to with the goal of achieving a 0.5% reduction in emissions from this property. This will reduce City Hall Inc.’s electricity consumption by an estimated 100,000 kWh, which translates to about 43 metric tons of carbon dioxide equivalent. The strategy will reduce energy costs by \$17,000 per year but is expected cost only \$10,000 to implement, so the payback is just 0.6 years.

These five projects represent relatively simple strategies to reduce City Hall Inc.’s energy use and carbon emissions. Taken together, the strategies are projected to reduce City Hall Inc.’s total energy use by about 17,660 MMBtu and cut GHG emissions by roughly 780 metric

tons of carbon dioxide equivalent. Based on current electricity prices, this will save the firm \$314,500 in energy costs annually with a payback time of 2.26 years overall.

Additional Opportunities and General Strategy for Meeting the Challenge Goal

Based on the initial results of City Hall Inc.’s energy model, the firm estimates that it will achieve the remaining carbon reductions to meet the 30% reduction goal through six strategies:

- *Additional lighting projects:* -12%
- *Behavioral changes through employee engagement:* -3%
- *Plug load reductions through purchasing standards and software controls:* -10%
- *Improved operations and maintenance:* -5%
- *Additional space consolidation:* -7%
- *More efficient data centers and server rooms:* -10%

The projected contribution of each strategy is demonstrated by the wedge chart below, which assumed a 1% annual growth in “business as usual” emissions for planning purposes.

Measurement and Verification

Because there is a degree of uncertainty in all projections, City Hall Inc. will continue to update energy use projections over the next ten years to reflect additional evaluation, measurement, and verification of its projects using the 2010 International Performance Measurement and Verification Protocol.

City Hall Inc.'s Planned Projects and Strategies

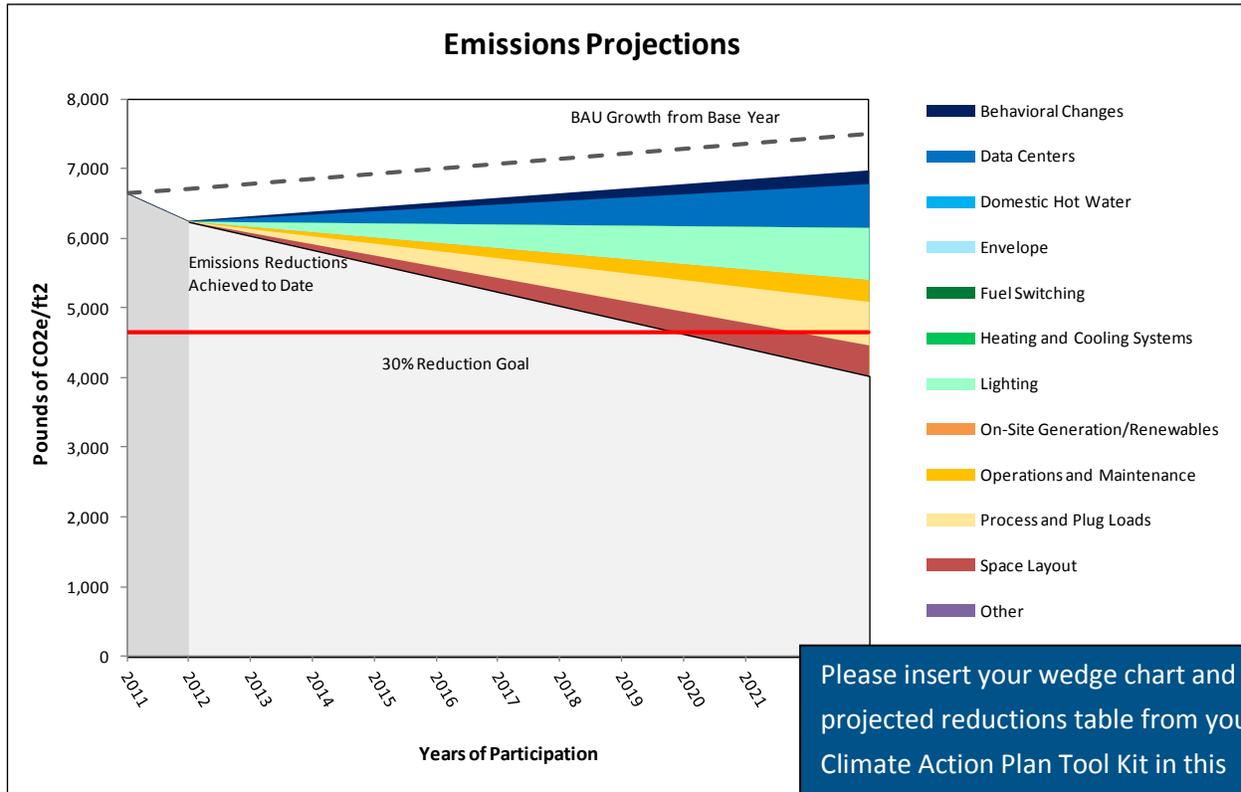
Planned Project Information			Energy Savings	Cost Savings		GHG Reductions	
Energy Conservation Measure (ECM) Category	Measure Name	Project Description	Est. Electricity and Fuel Savings (MMBTU/yr)	Dollars Saved Annually (\$/yr)	Installation Cost (\$)	Simple Payback (Years)	Est. Emissions Reduction (Mg CO2e /yr)
Lighting	Upgrade to LED	Upgrade remaining lighting in Manhattan Municipal Building, 250 Broadway, and 253 Broadway properties	9546.00	\$170,000.00	\$400,000	2.4	422.70
Lighting	Install Occupancy/Vacancy Sensors	Install remaining occupancy sensors at Manhattan Municipal Building, 250 Broadway, and 253 Broadway	4773.00	\$85,000.00	\$150,000	1.76	211.35
Data_Centers_and_Server_Rooms	Server Virtualization	Consolidate 100 servers into 15 servers	5250.30	\$93,500.00	\$220,000	2.35	232.49
Process_and_Plug_Loads	Replace IT Equipment	Replace 50% of CPUs and monitors with ENERGY STAR certified units	4295.70	\$76,500.00	\$50,000	0.65	190.22
Behavior_Change	Employee Engagement	Manhattan Municipal Building competition and engagement	954.60	\$17,000.00			

Please fill out Tables 11-12 in your Climate Action Plan toolkit and insert them in this section.

Total Energy Savings (MMBTU/yr)	Total Dollars Saved Annually (\$/yr)	Total Cost of ECMs (\$)	Simple Payback (Years)	Est. Carbon Reduction (Mg CO2e/yr)	Reduction in Carbon Intensity* (lbs CO2e / FTE)
17,660.10	\$314,500.00	\$710,000	2.26	782.00	841.13

*Estimated reduction in carbon intensity is based on current FTE levels, which are expected to change over a ten year timeframe.

City Hall Inc.'s Plan



Projected Reductions	
Energy Conservation Measure (ECM)	Reduction Target (% of current emissions)
Behavioral Changes	-3.0%
Data Centers	-10.0%
Domestic Hot Water	0.0%
Envelope	0.0%
Fuel Switching	0.0%
Heating and Cooling Systems	0.0%
Lighting	-12.0%
On-Site Generation/Renewables	0.0%
Operations and Maintenance	-5.0%
Process and Plug Loads	-10.0%
Space Layout	-7.0%
Other	0.0%
Total Projected Reductions from 2012	-47.0%
Carbon Intensity in 2012	6,245.46
Projected Carbon Intensity in 2023	3,310.09
Total Projected Reduction from 2011	-50.2%