Data provided for the CDP Cities 2013 Report

New York City
CDP, C40 and AECOM are proud to present results from our third consecutive year of climate change reporting for cities. It was an impressive year, with 110 cities reporting on their climate change data (a 50% increase from 2012), making this the largest and most comprehensive survey of cities and climate change published to date by CDP. City governments from Dallas to Hanoi to Ouagadougou participated, including over 80% of the membership of the C40 – a group of the world’s largest cities dedicated to climate change leadership.

Approximately two thirds of reporting cities measure city-wide emissions. Together, these cities account for just over 1 billion tonnes of greenhouse gas emissions, putting them on par with Japan, the world’s third largest economy and fourth largest emitter of greenhouse gas emissions. Over 70% of all reporting cities now have a plan for adapting to the effects of climate change. And cities reported over 1,000 individual actions designed to reduce emissions and adapt to a changing climate.

CDP salutes the hard work and dedication of the world’s city governments in measuring and reporting these important pieces of data. With this report, we provide city governments the information and insights that we hope will assist their work in tackling climate change.

The data presented here conveys information about every aspect of climate change measurement and management in New York.

This document contains the questionnaire data provided to CDP from New York City as part of its 2013 CDP submission.

To see all of the results for all participating cities, visit cdpcities2013.net
New York in context

Number of cities responding per year

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>48</td>
</tr>
<tr>
<td>2012</td>
<td>73</td>
</tr>
<tr>
<td>2013</td>
<td>110</td>
</tr>
</tbody>
</table>

New York participation
New York City in Context

Total population of cities responding in 2013

296,471,000

Where New York fits

27 cities with less than 600,000 people

33 cities with 600,000 to 1,600,000 people

50 cities with greater than 1,600,000 people

New York 8,336,697 people
New York in focus

Year reported
2013

Area
790 km²

Population
815,358

Inventory method
US Community Protocol for Accounting and Reporting.
69 cities reporting emissions in 2013

New York

44,284,675
metric tonnes CO₂e

29,460,000
metric tonnes CO₂e

19,780,964
metric tonnes CO₂e

9,813,932
metric tonnes CO₂e

36 cities reporting emissions of less than 10,000,000 metric tonnes CO₂e

17 cities reporting emissions of 10,000,000 to 20,000,000 metric tonnes CO₂e

6 cities reporting emissions of 20,000,000 to 30,000,000 metric tonnes CO₂e

10 cities reporting emissions of greater than 30,000,000 metric tonnes CO₂e
Governance

The City of New York completes an annual greenhouse gas inventory, detailing progress it is making toward achieving its targeted greenhouse gas emissions reductions (30% below fiscal year 2006 levels by 2017 for government operations greenhouse gas emissions and 30% below 2005 levels by 2030 for community greenhouse gas emissions). Detailed analyses are also completed and reported in the annual PlaNYC Progress Report, which details the progress of specific greenhouse gas mitigation initiatives. The first update to PlaNYC was released in April 2011.
New York City does provide incentives for management of climate change issues, including the attainment of greenhouse gas (GHG) reduction targets.

**Recognition (monetary)**

**Who Benefits: City agencies/departments**

The Energy Incentive Alignment Program holds seven of the largest agencies to their electricity budget by allowing them to keep energy budget surpluses but also requiring them to pay back budget deficits to the central budget office.
Current and/or anticipated effects of climate change present significant physical risks to New York:

### Seriousness

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

### Timescale

- **Current**: Short-term ( Immediate)
- **Short-term**: Medium-term ( Near future)
- **Medium-term**: Long-term ( Distant future)
Increased risk of storm surges

Risk: ⚠️⚠️⚠️ Timescale: 🔶

An increased risk of storm surges has the potential to seriously impact buildings; critical infrastructure, including water supply and treatment, energy generation and distribution, solid waste management, communications/telecommunications; natural systems; and human health.

Sea level rise

Risk: ⚠️⚠️⚠️ Timescale: 🔶

Sea level rise has the potential to impact buildings; critical infrastructure, including water supply and treatment, energy generation and distribution, solid waste management, communications/telecommunications; natural systems; and human health.

More hot days

Risk: ⚠️⚠️⚠️ Timescale: 🔶

More hot days have the potential to impact buildings; critical infrastructure, including water supply and treatment, energy generation and distribution, solid waste management, communications/telecommunications; natural systems; and human health.

Increased average annual rainfall

Risk: ⚠️⚠️⚠️ Timescale: 🔶

Increased average annual rainfall has the potential to impact buildings; critical infrastructure, including water supply and treatment, energy generation and distribution, solid waste management, communications/telecommunications; natural systems; and human health.
Compounding factors may worsen the physical effects of climate change in New York.

New York City has 520 miles of coastline, which make it susceptible to effects of sea level rise and increased storm surges. The city also has aging infrastructure, which may be more vulnerable to climate change effects. Climate change effects may also impact New York City’s vulnerable populations.
New York considers that the physical impacts of climate change could threaten the ability of businesses to operate successfully.

The ability of businesses to operate successfully could be impacted by climate change if business facilities were impacted by climate change effects such as sea level rise and exacerbated flooding from coastal storms, or if critical infrastructure components were impacted by sea level rise, coastal flooding, or increased temperatures (e.g. power-outages or transportation delays). Increased costs for energy and water may also impact businesses.
The City uses state or region vulnerability and risk assessment methodology to evaluate the physical risks to New York City.

Cities use a variety of methodologies to evaluate physical risks from climate change. Many of these methodologies are based on or heavily influenced by the IPCC’s risk assessment guidance, including ADAPT and UKCIP.
New York has a plan for increasing its resilience to the expected physical effects of climate change.

Actions New York is taking to reduce the risk to infrastructure, citizens, and businesses from climate changes include the following:

**Increased risk of storm surges**
- Community engagement/education
- Projects or policies targeted at those most vulnerable
- Crisis management including warning and evacuation systems
- Crisis planning and practice exercises
- Storm water capture systems
- Tree planting and/or creation of green space
- Building resilience and resistance measures

**Sea level rise**
- Projects or policies targeted at those most vulnerable
- Crisis management including warning and evacuation systems
- Crisis planning and practice exercises
- Storm water capture systems
- Tree planting and/or creation of green space
- Community engagement/education
More hot days

- White roofs
- Tree planting and/or creation of green space
- Community engagement/education

Public health impacts

- Air quality initiatives
- Community engagement/education
- Projects or policies targeted at those most vulnerable

Increased average annual rainfall

- Storm water capture systems
- Tree planting and/or creation of green space

The City of New York has developed a comprehensive Continuity of Operations Plan to ensure core government services are delivered during disruptive events — including weather.
New York faces social risks as a result of climate change.

### Top five social risks

**By region, # of cities**

<table>
<thead>
<tr>
<th>Cities reporting social risks from...</th>
<th>Increased risk to already vulnerable populations</th>
<th>Increased incidence and prevalence of disease</th>
<th>Increased demand for public services (including health)</th>
<th>Increased resource demand</th>
<th>Fluctuating socio-economic conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>East Asia</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Europe</td>
<td>12</td>
<td>6</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Latin America</td>
<td>15</td>
<td>10</td>
<td>6</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>North America</td>
<td>15</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>South Asia / Oceania</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

New York
Climate change action presents economic opportunities for New York.
New York is positioning itself to take advantage of opportunities from taking climate change action.

**Green jobs**
The city’s sustainability efforts are creating green jobs.

**Development of new business industries (e.g. clean tech)**
Energy efficiency initiatives will result in new clean tech businesses.

**Infrastructure investments**
The city is investing in infrastructure to increase its climate resilience.

**Green Infrastructure**
The city is expanding the use of green infrastructure to manage stormwater.

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**Cities that report climate change presents an economic opportunity**

<table>
<thead>
<tr>
<th>Yes</th>
<th>98 cities (91%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>4 cities (4%)</td>
</tr>
<tr>
<td>Don’t know</td>
<td>6 cities (6%)</td>
</tr>
</tbody>
</table>

New York
New York is reporting a GHG measurement inventory for a period of one year.

**Sat 01 Jul 2011 - Sat 31 Dec 2011**

Boundary typology used for New York’s GHG emissions inventory:

**Companies, entities or departments over which operational control is exercised.**
New York has used the following major sources of emissions in the municipal GHG emissions inventory:

- Buildings
- Landfills
- Municipal vehicle fleet
- Street lighting and traffic signals
- Waste Collection
- Wastewater treatment
- Water supply
The primary protocol used for calculating GHG emissions is the Local Government Operations Protocol (ICLEI/The Climate Registry/California Climate Action Registry/California Air Resources Board).

New York City used the Local Government Operations Protocol (LGOP) for its local government operations inventory. The City elected to report additional sources of emissions associated from the transportation of residential solid waste to landfill and other disposal facilities outside the city, although as a contracted service this is not required by the LGOP. Additionally, New York City uses custom emissions coefficients for greenhouse gas emissions from electricity and steam.
Fuel consumption for New York’s local government this year:

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Gigajoules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural gas</td>
<td>12,264,775</td>
</tr>
<tr>
<td>Residual fuel oil</td>
<td>2,584,925</td>
</tr>
<tr>
<td>Distillate fuel oil No 2</td>
<td>2,512,925</td>
</tr>
<tr>
<td>Distillate fuel oil No 4</td>
<td>1,195,213</td>
</tr>
<tr>
<td>Diesel/Gas oil</td>
<td>4,423,801</td>
</tr>
</tbody>
</table>
### LGO Energy Data

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Energy Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor gasoline (petrol)</td>
<td>1,723,787 gigajoules</td>
</tr>
<tr>
<td>Propane</td>
<td>105,174 gigajoules</td>
</tr>
<tr>
<td>Jet kerosene</td>
<td>26,567 gigajoules</td>
</tr>
<tr>
<td>Biodiesels</td>
<td>84,234 gigajoules</td>
</tr>
<tr>
<td>Biogasoline</td>
<td>599 gigajoules</td>
</tr>
<tr>
<td>Kerosene</td>
<td>4 gigajoules</td>
</tr>
</tbody>
</table>
Electricity and heat consumption purchased by New York’s local government this year:

Electricity
15,419,431 gigajoules

Steam
2,267,840 gigajoules
Total (Scope 1 + 2) emissions for New York:

3,295,720 metric tonnes CO$_2$e

Breakdown of New York’s GHG emissions by scope:

Scopes are a common categorization method. Scope 1: All direct GHG emissions (with the exception of direct CO$_2$ emissions from biogenic sources). Scope 2: Indirect GHG emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling.

Total Scope 1 activity

1,892,389 metric tonnes CO$_2$e

Total Scope 2 activity

1,403,332 metric tonnes CO$_2$e
New York measures Scope 3 emissions.

Employee commute

189,618 metric tonnes CO₂e

Employee generated solid waste

170,055 metric tonnes CO₂e
Breakdown of emissions by department, facility, greenhouse gas, etc.

Buildings, Scope 1
983,052 metric tonnes CO$_2$e

Buildings, Scope 2
1,128,670 metric tonnes CO$_2$e

Transportation, Scope 1
422,289 metric tonnes CO$_2$e

Streetlights and traffic signals, Scope 2
64,422 metric tonnes CO$_2$e

Wastewater treatment, Scope 1
77,516 metric tonnes CO$_2$e
Wastewater treatment, Scope 2
196,272 metric tonnes CO₂e

Water supply, Scope 1
11,046 metric tonnes CO₂e

Water supply, Scope 2
13,967 metric tonnes CO₂e

Solid waste facilities, Scope 1
92,969 metric tonnes CO₂e

HFCs - municipal fleet, Scope 1
10,638 metric tonnes CO₂e
Emissions have decreased from last year.

A number of factors combined to result in a reduction of emissions of 2.4% from 2010 levels. A less carbon-intensive electricity supply resulting from lower natural gas prices was the principal driver, followed by a reduction in the number of employees, milder weather, improved wastewater treatment operations, increased landfill methane capture, and improved efficiency of solid waste transportation.
The GHG emissions data New York is currently reporting has been externally verified or audited in part or in whole. The government inventory was audited in 2012 by a consultant to evaluate consistency of application of the LGOP and to make recommendations for any future methodology improvements. The consultant found that the government inventory is completed in accordance with guidance outlined in the LGOP.
New York is reporting a GHG measurement inventory for a period of one year.

**Sat 01 Jan 2011 - Sat 31 Dec 2011**

Boundary typology used for New York’s GHG emissions inventory:

**Geopolitical Boundary**

Physical areas over which local government has jurisdictional control.

New York has used the US Community Protocol for Accounting and Reporting.
Information reported to CDP is consistent with New York City’s greenhouse gas inventory published in December 2012. At time of publication of this protocol, the ICLEI U.S. Community Protocol for Accounting and Reporting of Greenhouse Gas Emissions was still in draft form. However, the City used the guidance of this draft document, where applicable, and any deviation from this standard was noted in this report. Of note is the recommended inclusion of scope 3 emissions from solid waste deposited in landfills outside of the city’s geopolitical border, which is included in the city’s total GHG emissions estimates. New York City also used custom emissions coefficients for electricity and steam.
Total (Scope 1 + 2) emissions for New York:

53,358,868
metric tonnes CO$_2$e

Breakdown of New York’s GHG emissions by scope:

Scopes are a common categorization method. Scope 1: All direct GHG emissions (with the exception of direct CO$_2$ emissions from biogenic sources). Scope 2: Indirect GHG emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling.

Total Scope 1 activity

34,380,300
metric tonnes CO$_2$e

Total Scope 2 activity

17,011,705
metric tonnes CO$_2$e
Breakdown of these emissions by end user, economic sector, IPCC sector, GHG or any other classification system used:

**Buildings**

39,419,470 metric tonnes CO$_2$e

**Transportation**

10,993,191 metric tonnes CO$_2$e

**Streetlights and traffic signals**

66,463 metric tonnes CO$_2$e

**Fugitive and process emissions**

2,879,744 metric tonnes CO$_2$e
Total amount of fuel consumed in New York during the reporting year:

- Residual fuel oil: 38,848,781 gigajoules
- Distillate fuel oil No 4: 13,614,402 gigajoules
- Distillate fuel oil No 2: 82,640,880 gigajoules
- Diesel/Gas oil: 22,749,575 gigajoules
- Motor gasoline (petrol): 126,637,010 gigajoules
- Natural Gas: 273,153,437 gigajoules
Electricity and heat that has been consumed by New York during the reporting year:

Electricity

\[187,803,119\] gigajoules

Steam

\[24,805,576\] gigajoules
New York measures Scope 3 emissions.

CH4 from solid waste exported to landfills outside of city

1,966,863
metric tonnes CO$_2$e

These emissions are included in the total figure for scope 1+2 emissions, per the US community protocol.

Aviation emissions

15,045,713
metric tonnes CO$_2$e

Included emissions from all planes departing from New York City's airports within the city boundary.
A number of factors combined to reduce the city’s community GHG emissions 3.3% below 2010 levels in 2011. Less carbon-intensive electricity supply resulting from lower natural gas prices was the principal driver, followed by milder weather, reduced vehicle use, and reduced solid waste generation.

The GHG emissions data New York is currently reporting has been externally verified or audited in part or in whole.

The government inventory was audited in 2012 by a consultant to evaluate consistency of application of the U.S. Community Protocol and to make recommendations for any future methodology improvements. The consultant found that the government inventory is completed in accordance with guidance outlined in the U.S. Community Protocol.
## Cities reporting city-wide reduction activities

By category, % of cities

<table>
<thead>
<tr>
<th>Category</th>
<th>% of Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport</td>
<td>60%</td>
</tr>
<tr>
<td>Energy demand in buildings</td>
<td>56%</td>
</tr>
<tr>
<td>Waste</td>
<td>42%</td>
</tr>
<tr>
<td>Urban land use</td>
<td>39%</td>
</tr>
<tr>
<td>Energy supply</td>
<td>38%</td>
</tr>
<tr>
<td>Education</td>
<td>25%</td>
</tr>
<tr>
<td>Outdoor lighting</td>
<td>18%</td>
</tr>
<tr>
<td>Water</td>
<td>14%</td>
</tr>
<tr>
<td>Finance</td>
<td>13%</td>
</tr>
<tr>
<td>Food</td>
<td>9%</td>
</tr>
<tr>
<td>Public procurement</td>
<td>8%</td>
</tr>
<tr>
<td>Other</td>
<td>17%</td>
</tr>
</tbody>
</table>

**Strategy**
New York has a GHG emissions reduction target in place for local government operations.

New York’s local government operations GHG emissions reduction target in detail:

Baseline year

2005

Percentage reduction target

30%

All sources included in the City’s inventory

Target date

2017
## Activities undertaken to reduce New York’s emissions in its government operations:

*(Emissions reduction is annual reduction below baseline)*

### Energy Demand in Buildings

- Building performance rating and reporting
- Switching to low carbon fuels
- Building codes and standards

**Not Yet Calculated**

### Energy efficiency/retrofit measures

**741,000**

metric tonnes CO₂e

### Outdoor Lighting

- LED / CFL / other luminaire technologies

**52,000**

metric tonnes CO₂e
Strategy

Transport

Improve fuel economy and reduce CO₂ from motorized vehicles

89,000
metric tonnes CO₂e

Water

Methane recovery for reuse

32,000
metric tonnes CO₂e

Waste

Improve the efficiency of long-haul transport

270,000
metric tonnes CO₂e

Landfill gas capture

35,000
metric tonnes CO₂e
New York has a GHG emissions reduction target in place for its community.

New York’s GHG emissions reduction target in detail:

Baseline year

2005

Baseline emissions

63,623,769 metric tonnes CO₂e

Percentage reduction target

30%

GHG sources to which the target applies

All sources included in City’s inventory

Target date

2030
Anticipated lifetime emissions reductions reported by cities
By category (millions metric tonnes CO$_2$e)

- Energy demand in buildings: 11.95m
- Energy supply: 14.68m
- Waste: 20.92m
- Transport: 24.65m
- Other: 4.78m
- Education: 1.43m
- Food: 1.25m
- Urban land use: 0.98m
- Water: 0.11m
- Outdoor lighting: 0.05m
- Public procurement: 0.05m

Note that anticipated emissions reductions are difficult to estimate. This data therefore reflects a significant bias toward emissions reduction actions that are easier to quantify.
New York is currently undertaking the following activities to reduce emissions city-wide:

**Energy Demand in Buildings**
- Building codes and standards
- Building performance rating and reporting
- Financing mechanisms for retrofit
- Renewable on-Site energy generation
- Switching to low-carbon fuels

**Urban Land Use**
- Brownfield redevelopment programs
- Transit oriented development
- Greenspace and/or bio-diversity preservation and expansion

**Water**
- Methane recovery for reuse
- Water metering and billing

**Energy Supply**
- Low or zero carbon energy supply generation
Outdoor Lighting
   LED / CFL / other luminaire technologies

Transport
   Infrastructure for non-motorized transport
   Improve bus transit times

Waste
   Landfill gas capture
   Recycling or composting collections and/or facilities
   Waste prevention policies or programs
   Waste to energy
The City has issued a request for proposals for a private firm to develop a pilot waste to clean energy facility as part of its effort to double the amount of solid waste diverted from landfills.

New York incorporates desired GHG emissions into the masterplanning for the city.

Many initiatives in New York City’s comprehensive sustainability plan, PlaNYC, contribute toward achieving the city’s 30% GHG reduction target.
New York foresees substantive risks to its water supply in the short or long term.

Risks to New York’s water supply as well as timescale:

<table>
<thead>
<tr>
<th>Timescale</th>
<th>Current</th>
<th>Short-term</th>
<th>Medium-term</th>
<th>Long-term</th>
</tr>
</thead>
</table>

**Declining water quality**

Timescale: ![Diagram]

This is related to more intense precipitation.

The City is conducting research to identify sources of problem substances so we can develop watershed protection or remediation programs to reduce these sources. The City is also refining the operational management of flows to optimize the water that travels to the distribution system for New York City. This is mainly accomplished through numerous modeling runs for different scenarios that provide guidance for decisions on flow rates and treatment to keep water quality within regulatory limits. In 2008 the New York City Department of Environmental Protection released its Climate Change Program Assessment and Action Plan, outlining its climate adaptation strategies.