Data provided for the
CDP Cities 2014 Report

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City of Paris

Written by

CDP
DRIVING SUSTAINABLE ECONOMIES

Report analysis & information design for CDP by

AECOM

In partnership with

C40 CITIES
CLIMATE LEADERSHIP GROUP

Bloomberg Philanthropies

CDP, C40 and AECOM are proud to present results from our fourth consecutive year of climate change reporting for cities. It was an impressive year, with 207 cities reporting on their climate change data (an 88% increase from 2013), making this the largest and most comprehensive survey of cities and climate change published to date by CDP. City governments from Denver to Jakarta to Abidjan participated, including over 90% of the membership of the C40 – a group of the world's largest cities dedicated to climate change leadership.

Over half of reporting cities measure city-wide emissions. Together, these cities account for 1.2 billion tonnes CO2e, putting them on par with Japan, the world's third largest economy and fourth largest emitter of greenhouse gas emissions. 60% of all reporting cities now have completed a climate change risk assessment. And cities reported over 2,000 individual actions designed to reduce emissions and adapt to a changing climate. CDP, C40 and AECOM salute 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.

This document contains the questionnaire data provided to CDP from the City of Paris as part of its 2014 CDP submission.

To see all of the results for all participating cities, visit https://www.cdp.net/cities.

The graphics in this document are from the 2014 CDP Cities infographic and Protecting Our Capital Report

Paris in context

Number of cities responding per year

48	73	110	207
2011	2012	2013	2014
■	✓	✓	✓

Paris participation

* Cities that reported privately

Total population of cities responding in 2014

394,360,000

Paris (city proper)
2,274,880
people

Where Paris fits

91 small
>600k population

59 medium
600k-1.6m population

57 large
1.6m+ population

Year reported

2014

Area

105

km²

Population

2,274,880

Paris in focus

Inventory method

Bilan Carbone (R) Methodology

108 cities reporting emissions in 2014

0 **Introduction**

Paris is the capital city of France. It is the largest city of France for its population. With about 2,274,880 habitants (INSEE, January 2014) for a surface of about 105 square km, it is also one of the densest cities all over the world. Major destination for tourism, Paris is the most visited city in the world (29 million tourists in 2012). Paris is also characterised by a huge economic activity (300,000 enterprises), it hosts the headquarters of some major international organisations such as UNESCO, the OECD, the International Chamber of Commerce.

GDP/capita : 80,528 €

Introduction

Paris' climate is oceanic: mild (about 12.7°C mean daily temperature) and moderately wet (about 622 mm per year) throughout the year. Paris' mean height above sea level is 26 m.

Anne HIDALGO is the new Mayor of the city since March 2014. The city is itself divided into 20 municipal arrondissements.

1 **Governance**

The City of Paris has a dedicated team of five full time specialists, who manage the overall procedure for the climate and energy action plan of Paris. They rely on identified contact persons in different departments of the City of Paris as well as with the Parisian stakeholders, to get data and feedback. They realise the assessments described below, sometimes by themselves, sometimes with the help of an exterior partner.

Governance

Assessments - Reviewing progress:

A GHG inventory (government and community) and a general energy consumption assessment are realised every 5 years since 2004, both for the city as a local government and for its overall territory. 60% of the government inventories are followed every year.

In addition to these overall and quantified assessments, every year, an assessment of the implementation of the climate action plan is realised. Information on practical achievements and amounts spent are compiled into annual reports called “Bleu Climat”. Up till now, there have been 6 “Bleu Climat” for the years 2008, 2009, 2010, 2011, 2012, 2013. They are publicly available through the official Paris website: http://www.paris.fr/pratique/energie-plan-climat/le-plan-climat-de-paris/le-plan-climat-de-paris/rub_8413_stand_69591_port_19609

In 2012, the climate and energy action plan of Paris was updated and adopted by the city Council on December 2012, next pages will explain the new items.

Targets to 2020 remain the same: reduce GHG emissions by 25% for the community.

Paris provides incentives for management of climate change issues, including the attainment of GHG reduction targets.

City agencies/departments

Monetary

Paris energy department manages directly 66% of its thermal boilers. The other part is delegated to private companies. Those companies have the obligation to reduce energy consumption by 1% a year. If they do not they have penalties, if they do more we share the gain. For the 66% managed directly by the City, workers who maintain thermal boilers have the same obligation of reduction. If they succeed, they receive a monetary reward calculated on the gain. There is no penalty if they fail.

City employees

Monetary

For the 66% managed directly by the City, workers who maintain thermal boilers have the same obligation of reduction. If they succeed, they receive a monetary reward calculated on the gain. There is no penalty if they fail.

City agencies/departments

Monetary

Eco-incentive for social housings if they retrofit their flat: 20% of the global cost.

Citizens

Monetary

70% of energy efficiency diagnostic costs paid by the city of Paris and the Region.

Citizens

Recognition (non-monetary)

http://acteursduparisdurable.fr/ is a platform to connect, support and promote leader citizens and stakeholders on climate change and sustainable development. More than 110,000 Parisians involved in 2014.

Enterprises

Recognition (non-monetary)

http://parisactionclimat.paris.fr/ is a platform to support and promote companies taking action to tackle climate change in Paris.

Paris anticipates that national and/or regional climate change activities will have impacts on Paris's own climate change activities.

In 2012, Region Île-de-France and the representant of the State in the Region adopted the SRCAE, a global strategy document about air, energy and climate.

All cities in the Region must adopt now, like Paris before, a climate action plan which will respect SRCAE objectives. The President of Region and representant of state must validate the local action plans.

It was the case of the update 2012 of Paris climate and energy action plan, adopted in December 2012, and validated by Region and state in November. It was the first one of the region to be validated.

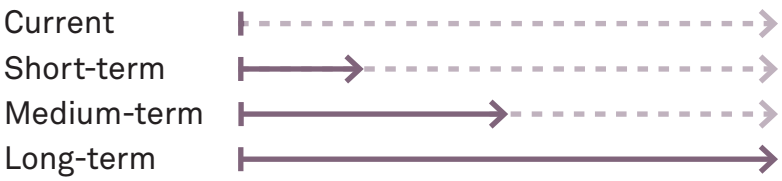
2 **Physical risks**

Current and/or anticipated effects of climate change present significant physical risks to Paris:

Seriousness

Less Serious ! ! ! Serious ! ! ! Extremely Serious ! ! !

Timescale



Risks & Adaptation

More frequent heat waves

Risk: !!! Timescale: 

It is projected that heatwaves will become more frequent and more intense during the 21st century: from about 1 day per year at the end of the 20th century to 10 to 30 days per year by the end of the 21st century. The 2003 heatwave has seriously touched Paris, particularly in terms of surmortality (+1,070 casualties directly due to the heat spell). Other impacts of heatwaves can concern energy distribution, telecommunications, biodiversity, transport system and business continuity.

Increased urban heat island effect

Risk: !!! Timescale: 

Impacts are expected on human health (thermal discomfort) and building energy consumptions (use of air conditioning during hot summer nights)

More frequent droughts

Risk: !!! Timescale: 

More frequent low water flow and thus potential impacts on goods transport through river transport; and water resource. Impacts on biodiversity and potential impacts on energy distribution (particularly for the cold and heat urban networks). To a lesser extent, potential impacts on buildings (with the swelling-shrinking movements of some clay soils). On the long term, potential competitions for the uses of water (agriculture, drink...)

Change in seasonality of rainfall

Risk: !!! Timescale: 

Are expected more spring and summer droughts, possibly more intense rainfall throughout the year. Some floods could be expected too

More intense rainfall

Risk: ! ! ! Timescale: 

Potential impacts of more floods touching diverse sectors such as buildings, transport, economy, waste water treatment, drinkable water quality, telecommunication, energy distribution network...

More intense droughts

Risk: ! ! ! Timescale: 

More intense droughts might cause problems for water supply (at least the part coming from surface waters). Other potential impacts include low water flow and thus potential impacts on goods transport through river transport. Impacts on biodiversity and potential impacts on energy distribution (particularly for the cold and heat urban networks).To a lesser extent, potential impacts on buildings (with the swelling-shrinking movements of some clay soils)

More hot days

Risk: ! ! ! Timescale: 

Possibly a higher use of air conditioning, particularly in office buildings. Impacts on biodiversity; impacts on the use of the public spaces and outdoor activities.

Hotter summers

Risk: ! ! ! Timescale: 

Higher risks of heatwaves, see previous lines. More use of air conditioning.

Warmer water temperatures

Risk: ! ! ! Timescale: 

Problems in water use for energy production and water treatment. Impacts on biodiversity.

Flooding

Risk: !!! Timescale: Unspecified

Flooding can be a major climate related issue for Paris, with consequences on energy distribution, transport disruption, business continuity, public health, biodiversity... However, studies carried on so far have not been able to determine an enhanced or reduced pattern of flood occurrence in the context of climate change.

Increased frequency of large storms

Risk: !!! Timescale: Unspecified

Transport disruption (trains, roads), energy blackouts, buildings deteriorations, trees falling down...

Reduced average annual rainfall

Risk: !!! Timescale: 

By 2050, the overall annual rainfall in Paris will probably decrease, impacting on river freight abilities, water quality, as well as waste water treatments.

Compounding factors may worsen the physical effects of climate change in Paris.

Paris is a very densely populated and urbanised city. Therefore, the following factors exist and may worsen the physical effects of climate change in Paris:

- The majority of soils are sealed (accentuates the severity of more intense rainfall and urban heat island effect),

- There are some major issues about air quality (accentuate the severity of heatwaves and urban heat island effect for public health),

- A lot of major activities for tourism and economy are located by the river Seine, and are thus at a high risk in case of flooding.

Paris considers that the physical impacts of climate change could threaten the ability of businesses to operate successfully.

Floods, especially if caused by a rise of the river Seine, could cause transport disruptions, supply chain interruptions, service sector buildings deteriorations.

Heatwaves cause health risks to residents and workers, and accentuate problems of air quality.

Paris uses IPCC models and climate change impact assessment guidance as its primary method to evaluate physical risk to the city. http://www.paris.fr/viewmultimediadocument?multimediadocument-id=148424

Work has been carried out with the French national meteorological and climate organisation (Météo-France). Météo-France has characterised the Parisian climate by providing elements about past climate, and about projections of a potential future climate throughout the 21st century in Paris. As for evaluating the physical risks, we made some research on how the City of Paris has tackled previous extreme events (2003 heatwave, 1910 river flood, 1999 storms...) and we compiled some information on diverse research projects (future water availability, modelling of urban heat island effects for Paris...).

Cities are facing risks from climate change.

Percentage of cities facing different categories of natural risk.

3 **Adaptation**

Paris has a plan for increasing its resilience to the expected physical effects of climate change. Paris Climate and Energy Action Plan, 2012 update. http://www.paris.fr/viewmultimediadocument?multimediadocument-id=148424

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

More frequent heat waves

Action: Community engagement/education

City administration recommends measures to drastically reduce urban motor vehicle traffic during heat waves (electronic signs on busy roads)

Increased urban heat island effect

Action: Tree planting and/or creation of green space

Plant public areas (boulevards, squares, tramway lines) as well as create new parks opened to the public: + 61 ha of green spaces in the 2001-2014 period, and a target of creating 30 new ha of parks in the period 2014-2020 Promote the creation of 100ha of new green roofs and façades within Paris by 2020. Plant 20,000 new trees within Paris by 2020. Create an entirely “green street” by 2020.

More frequent droughts

Action: Plant drought resistant trees

As opposed to xeriscapes, for now in Paris we plant trees in the parks and streets that have the particularity to tolerate well air pollution and drought conditions.

Change in seasonality of rainfall

Action: Crisis planning and practice exercises

Build a response according to the flood risk prevention plan in case of flood, and a response in case of drought, so that the municipality can still provide public services in case of these extreme weather events.

More intense rainfall

Action: Restrict development in at risk areas

Use the flood risk prevention plan of 2007 for the Paris area.

More intense droughts

Action: Awareness campaign/education to reduce water use

Led by “Eau de Paris” to raise public awareness for the Parisians.

More hot days

Action: Cooling systems for critical infrastructure

Study done on the comparison of 20 cooling techniques for public space and buildings in Paris. This study led on recommendations for experimenting new virtuous cooling techniques in Paris. Currently, on-going work for assessing the potentialities of these implementations.

Hotter summers

Action: Heat mapping and thermal imaging

Characterisation of the Parisian urban heat islands and cool islands thanks to modelling work as well as measurements.

Warmer water temperatures

Action: Water use restrictions and standards

Based on the national laws and rules, restrictions on water use specifically for industrial uses if the temperatures (especially river water temperatures) are too high (for biodiversity and drinkable water treatments).

Flooding

Action: Flood mapping

Based on the national laws and rules, a map of Paris with the areas at risk of flooding has been done and is communicated to all the stakeholders working in building construction and urban planning.

Increased frequency of large storms

Action: Resilience and Resistance Measures for Buildings

On-going, inventory and assessment of technical solutions for buildings in case of extreme weather events including storms.

Reduced average annual rainfall

Action: Diversification of water supply

Paris takes its water for drinkable water from surface waters (50%: 2 different rivers) and groundwater (50%: 102 different sources). The City has developed partnerships with the other cities in its suburb to be able to exchange water when needed. Some emergency water is also available deep under the City, 5 wells allow access to this water if needed and more are planned to be dug.

4 **Social risks**

Paris faces social risks as a result of climate change.

Increased risk to already vulnerable populations: Short term

Fewer premature deaths from freezing temperatures, but higher premature casualties from heat spells.

Increased resource demand: Short term

Increased amount of green space in the city (as an adaptation to heat), so increased demand in water.

Cities are at risk from climate change

Increased incidence and prevalence of disease: Medium term

Potential risk with warmer temperatures and due to the proximity of airports and major commutes through Paris.

Increased demand for public services (including health): Medium term

Paris gains inhabitants each year. There is thus an increased demand for all types of public services (kinder gardens - schools - retirement homes - waste collection - water distribution and treatment - health care....).

Population displacement: Long term

Possibly, in the context of climatic migrations (not extensively documented for now).

5 **Opportunities**

Climate change action presents economic opportunities for Paris.

Opportunities

Paris is positioning itself to take advantage of opportunities from taking climate change action.

Green jobs

By retrofitting residential and service sector buildings. Every year the City of Paris invests more than 40 million € for retrofitting social housings of the city, i.e. around 24,000 flats retrofitted in the last 6 years. It maintains and creates jobs in the building sector; it also allows families with low income to earn money on the energy bill. Those investments created 2,000 new jobs in Paris.

Increased energy security

Thanks to the development of an energy strategy, shared by the different departments of the municipality and the energy grid suppliers.

Improved efficiency of operations

More energy efficiency in diverse activities of the municipality (lighting, retrofitting of its own buildings...) allows saving money on the energy bill. For example, the City of Paris “pays” 40% of social flat retrofitting to avoid 30% of energy consumption at least. In the end, inhabitants earn around 400€/year on their energy bill.

Increased green entrepreneurship

The City of Paris offers to new or future green entrepreneurship companies (building, smartgrid, RES...) 7,800 sqm for their headquarters. This new building is the first very high energy performance building for the service sector in Paris with solar cells, green roofs, very low energy consumption... The new companies benefit of all facilities to develop their companies with a very low rent.

Increased attention to other environmental concerns

The purchasing department was created in 2009, it manages the transversal purchases of the local government. Environmental clauses are becoming more included in the specifications of public markets (70% of markets).

Development of new business industries (e.g. clean tech)

Paris gives incentives for green innovation: lower loan for green entrepreneurship companies or low rent to install the activities, creation of specific calls for projects and contributions, help with finding territories for experimentations... http://www.parisregionlab.com/

C **Date and boundary**

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

Sun 01 Jan 2012 - Mon 31 Dec 2012

Boundary typology used for Paris's GHG emissions inventory:

Departments, entities or companies over which financial control is exercised

C **GHG emissions data**

Paris has used Bilan Carbone (R)
Same method used in 2004, 2007, 2009, 2011. We counted the direct and indirect GHG emissions that made possible the activity of Paris as it was in 2011. e.g. for 1 litre of gasoline consumed in

Emissions – Local Government

a Parisian vehicle, the GHG emissions related to oil extraction, refining, and engine combustion are considered. The methodology used is the Bilan Carbone (R) methodology, that gives national calculation ratios and rules to apply within the French territory. This method gives CO2e emissions aggregated for the 6 GHG gases of the Kyoto protocol.

Total (Scope 1 + 2) emissions for Paris:

156,581

metric tonnes CO_2e

Breakdown of Paris's GHG emissions by scope:

Scopes are a common categorisation 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

84,297

metric tonnes CO_2e

Total Scope 2 activity

72,284

metric tonnes CO_2e

Total amount of fuel (direct/Scope 1 emissions) consumed in Paris during the reporting year:

Natural gas

250 GWh

Diesel/Gas oil

35 GWh

Compressed natural gas (CNG)

23 GWh

Motor gasoline (petrol)

14 GWh

Biodiesel

8 GWh

Liquefied Natural Gas (LNG)

1 GWh

Electricity, heat, steam, and cooling (indirect/Scope 2 emissions) that has been consumed by Paris during the reporting year:

Electricity

375 GWh

Heat

186 GWh

Cooling

7 GWh

Paris does measure Scope 3 emissions.

Incoming goods (scope 3)

65,000

metric tonnes CO_2e

Transportation (scope 3)

34,900

metric tonnes CO_2e

Wastes (scope 3)

1,840

metric tonnes CO_2e

Emissions related to the “making” of long-lived goods (scope 3)

12,800

metric tonnes CO_2e

Breakdown of Paris's
GHG emissions by department (total):

Public buildings and street lighting

148,000

metric tonnes CO_2e

Consumption and waste

67,000

metric tonnes CO_2e

Transportation

54,000

metric tonnes CO_2e

Paris's emissions decreased. The GHG emissions decreased from 2007 thanks to the Paris Climate and Energy action Plan. All details available in the five-year report + the "bleu 2013".

C **External verification**

Paris's emissions have not been externally verified. Two members of the staff have the national agreement to verify and audit GHG balances in France.

C **Date and boundary**

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

Thu 01 Jan 2009 – Thu 31 Dec 2009

Boundary typology used for Paris's GHG emissions inventory:

Geopolitical Boundary

Physical areas over which local government has jurisdictional control.

C **GHG emissions data**

Paris has used the Bilan Carbone (R).
We counted the direct and indirect GHG emissions that made possible the activity of the Paris territory as it was in 2009.

Emissions – Community

e.g. for 1 litre of gasoline consumed in a Parisian vehicle, the GHG emissions related to oil extraction, refining, and engine combustion are considered.

The methodology used is the Bilan Carbone (R) methodology, that gives national calculation ratios and rules to apply within the French territory. This method gives CO2e emissions aggregated for the 6 GHG of the Kyoto protocol.

Total (Scope 1 + 2) emissions for Paris:

7,413,300

metric tonnes CO_2e

Breakdown of Paris's GHG emissions by scope:

Scopes are a common categorisation 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

5,922,600

metric tonnes CO_2e

Total Scope 2 activity

1,490,700

metric tonnes CO_2e

Breakdown of these emissions by end user, economic sector, IPCC sector, GHG or any other classification system used:

End user: buildings, water, waste, transport. Economic sector: residential, commercial, industrial, institutional. IPCC sector: stationary combustion, mobile combustion, industrial processes, waste. Greenhouse gas: CO_2, CH_4, N_2O etc.

Waste and consumption

6,466,000

metric tonnes CO_2e

Good transportation

6,440,000

metric tonnes CO_2e

People transportation

5,778,000

metric tonnes CO_2e

Buildings

5,760,000

metric tonnes CO_2e

Industries

165,000

metric tonnes CO_2e

Total amount of fuel (direct/Scope 1 emissions) consumed in Paris during the reporting year:

Diesel/Gas oil

9,438,000
MWh

Natural gas

9,373,650
MWh

Motor gasoline (petrol)

3,217,500
MWh

Various fuels

643,500
MWh

Liquefied Petroleum Gas (LPG)

64,350
MWh

Electricity, heat, steam, and cooling (indirect/Scope 2 emissions) that has been consumed by Paris during the reporting year:

Electricity

15,980,250

MWh

Heat

4,182,750

MWh

Paris does measure Scope 3 emissions.

Waste and consumption

64,660,000

metric tonnes CO_2e

Good transportation

6,440,000

metric tonnes CO_2e

People transportation

5,778,000

metric tonnes CO_2e

Buildings

5,760,000

metric tonnes CO_2e

Industries

165,000

metric tonnes CO_2e

Paris's emissions remained the same.

GHG balance have been assessed for Paris in 2004 and in 2009 so far. Emissions decreased from 2004 to 2009 thanks to the Climate and Energy Action Plan impact. The figure will be updated in 2016 based on the emissions for the year 2014. So far, the figures provided in both 2013 and 2014 are the same because they account for the year 2009.

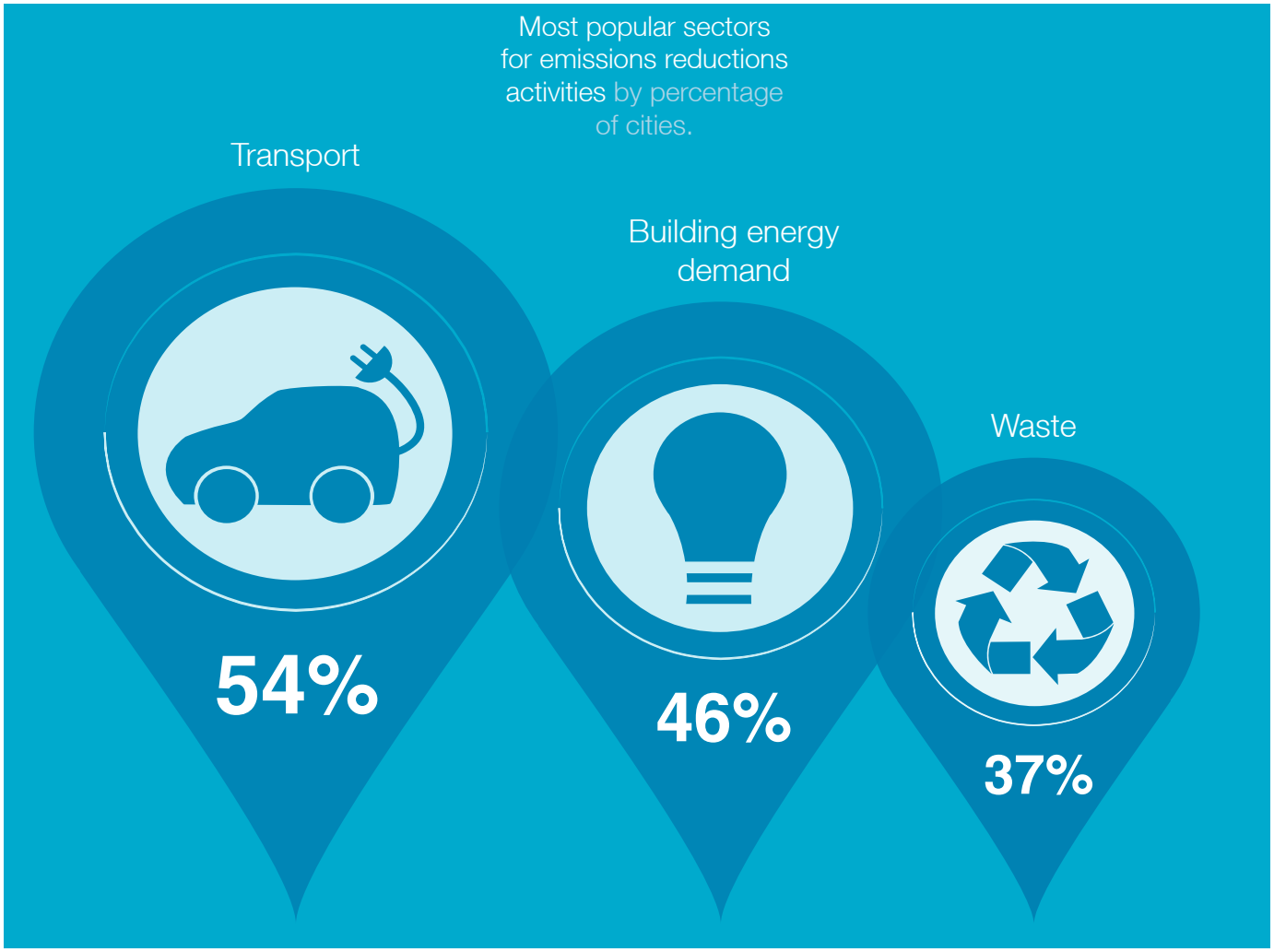
C **External verification**

Paris's emissions have been externally verified.

Auditor Bio Intelligence Service.

Percentage of emission inventory audited: 100

Cities are undertaking 2110 activities to mitigate and adapt to climate change



Strategy

6 **Local government operations – GHG emissions reduction**

Paris has a GHG emissions reduction target in place for local government operations.

Paris's local government operations GHG emissions reduction target in detail:

Baseline year

2004

Baseline emissions

268,000

metric tonnes CO_2e

Percentage reduction target

30%

GHG sources to which the target applies

All sources

Target date

2020

Activities undertaken to reduce Paris's emissions in its government operations:

Energy Demand in Buildings

Energy efficiency/retrofit measures

Consists in getting a better energy efficiency with the thermal boilers.

5,603 metric tonnes CO_2e

Consists in retrofitting the 600 primary schools of Paris. European financial support.

13,484 metric tonnes CO_2e

25% of the buildings owned by the municipality except schools

10,111 metric tonnes CO_2e

Switching to low-carbon fuels

Consists in using the heat district network

3,789 metric tonnes CO_2e

Sensibilisation of staff on electricity consumption

Consists in educating staff on how to use less electricity. Aim: reduce energy consumption by 8%

9,789 metric tonnes CO_2e

Building codes and standards

5% of the surface of the housing

4,885 metric tonnes CO_2e

Food

Promotion of climate smart eating habits

Consists in including 40% of local sustainable food in the municipal canteens.

3,586 metric tonnes CO_2e

Consists in reducing by 20% the GHG emissions from food by limiting the quantities of meat and dairy products in the municipal canteens

9,953 metric tonnes CO_2e

Education

Climate change-focused curriculum

Consists in educating staff on general energy and climate change related issues.

Outdoor lighting

LED / CFL / other luminaire technologies

Consists in decreasing energy consumption for municipal lighting by 30% at the 2020 horizon.

3,879 metric tonnes CO_2e

Low carbon administration purchases (paper, materials...)

544 metric tonnes CO_2e

Water

Water metering and billing

Not applicable (already done)

Wastewater to energy initiatives

Included in the energy efficiency figure for buildings

Waste

Recycling or composting collections and/or facilities

Included in the whole community figure for wastes

Waste prevention policies or programs

504 metric tonnes CO_2e

Waste to energy

Included in the whole community figure for wastes

Energy supply

Clean energy procurement strategies

Consists in finding 30% of suppliers alternative energy

1,752 metric tonnes CO_2e

Optimise traditional power/energy production

Consists in converting 30% of thermal boilers

3,417 metric tonnes CO_2e

Consists in restarting the 60% consumption of fuel on the network of heat and 40% on the gas network

372 metric tonnes CO_2e

Transmission and distribution loss reduction

Indirectly, thanks to the amelioration of energy network

12,994 metric tonnes CO_2e

Transport

Awareness and education for non-motorised transport

Consists in educating staff: travels by bicycles, “green-driving”

4,497 metric tonnes CO_2e

Improve fuel economy and reduce CO2 from trucks

Consists in improving the practices of deliveries

2,531 metric tonnes CO_2e

SMART public transport

Consists in 5% of electric vehicles and 15% of hybrid vehicles

1,086 metric tonnes CO_2e

Transportation demand management

Consists in improving the commute (home/work)

7,531 metric tonnes CO_2e

Improve fuel economy and reduce CO2 from motorised vehicles

Indirectly, thanks to the improvement of individual vehicle emissions

2,053 metric tonnes CO_2e

7 **Community – GHG emissions reduction**

Paris has a GHG emissions reduction target in place for its community.

Paris's community
GHG emissions reduction target in detail:

Baseline year

2004

Baseline emissions

25,000,000

metric tonnes CO_2e

Percentage reduction target

25%

GHG sources to which the target applies

All sources

Target date

2020

Activities currently being undertaken to reduce emissions city-wide:

Energy demand in buildings

Energy efficiency /retrofit measures

Aim to retrofit 55,000 social housings by 2020

570,000

metric tonnes CO_2e

Financing mechanisms for retrofit

Specific mechanisms to give incentives for private co-owners to retrofit their buildings.

300,000

metric tonnes CO_2e

Building codes and standards

Mandatory to be 20% better in energy consumption compared with national standards in renewal area/urban development zones.

250,000

metric tonnes CO_2e

Energy supply

Combined heat and power

Development of district heating

100,000

metric tonnes CO_2e

Energy supply

Low or zero carbon energy supply generation

240,000

metric tonnes CO_2e

Transport

Infrastructure for non-motorised transport

Specific urban planning to improve safety and pleasure for pedestrians and bikes and reduce room for cars

600,000

metric tonnes CO_2e

Improve the accessibility to public transit systems

Developing logistic platforms to connect with rail or river

500,000

metric tonnes CO_2e

Improve rail, metro, and tram infrastructure, services and operations

New tram, new metro, extension of opening hours...

1,000,000

metric tonnes CO_2e

SMART public transport

Specifically for bus systems to inform Parisians of next bus

250,000

metric tonnes CO_2e

Improve fuel economy and reduce CO2 from bus and/or light rail

Change motor of old buses

500,000

metric tonnes CO_2e

Awareness and education for non-motorised transport

Promote cycling: bike paths, traffic adjustments for cyclists, bike-free service...

15,000

metric tonnes CO_2e

Improve bus infrastructure, services, and operations

200,000

metric tonnes CO_2e

Urban land use

Greenspace and/or biodiversity preservation and expansion

Biodiversity action Plan adopted in November 2011: aim to create 40 new wetlands or ponds within the city by 2020. New mayoral targets for the 2014-2020 period: create 30 ha of green spaces open to the public, create 100 new ha of green roofs and façades, of which a third for food production, plant 20,000 new trees in Paris. Unable to assess in CO2e

Eco-district development strategy

All new urban area is a “laboratory” of Paris Climate and Energy Action Plan: green infrastructure, renewable energies, low energy consumption and GHG emissions...

250,000

metric tonnes CO_2e

Greenspace and/or biodiversity preservation and expansion

Biodiversity Plan, characterisation and creation of green and blue corridors

Water

Wastewater to energy initiatives

50,000

metric tonnes CO_2e

Water metering and billing

Operation led by Eau de Paris (drinking water supplier and producer company owned by the municipality) to raise public awareness about the “water treasure”

150,000

metric tonnes CO_2e

Waste

Recycling or composting collections and/or facilities

Creation of new centres promoting recycling, reusing and trading

10,000

metric tonnes CO_2e

Improve the efficiency of waste collection

50,000

metric tonnes CO_2e

Improve the efficiency of long-haul transport

50,000

metric tonnes CO_2e

Waste prevention policies or programs

Whole city scale programme

41,200

metric tonnes CO_2e

Food

Promotion of climate smart eating habits

Important programme to bring agriculture closer to Paris, to improve quality... and give incentives to develop urban farming.

1,245,000

metric tonnes CO_2e

Education

Climate change-focused curriculum

Exhibitions, movies, special public days, online serious game: www.climway.paris.fr

15,000

metric tonnes CO_2e

Public Procurement

Encourage low carbon products

Mandatory in public market: environmental clauses

50,000

metric tonnes CO_2e

Encourage sustainable food production and consumption

Lobbying campaign to reduce waste

500,000

metric tonnes CO_2e

Finance

ESCO Financing

15,000

metric tonnes CO_2e

Outdoor lighting

LED / CFL / other luminaire technologies

Important renovation programme for public lightings in the city

5,000

metric tonnes CO_2e

8 **Planning**

Paris has a renewable energy target.

The city-wide energy mix for Paris's electricity:

Nuclear
74.8%

Hydro
11.8%

Gas
4.3%

Coal
3.3%

Wind
2.8%

Oil
1.2%

Solar
0.7%

Biomass
0.6%

Geothermal
0.5%

Paris has city wide renewable energy

targets:

2020

Target date

38

MW (total capacity)

25%

of total electricity from renewable sources

Paris has municipal renewable energy targets:

2025

Target date

30%

of total electricity from renewable sources

The main renewable energy sources encouraged within the Parisian territory are geothermal and solar.

Renewable energies from networks are

also taken into account with electricity (mainly hydroelectricity and offshore wind from the French territory) and urban heat (biomass, geothermal, waste incineration from the Parisian region).

Paris has climate-change related projects which are targeted to attract private sector involvement:

Greening Paris

Retrofitting Paris at a massive scale, taking into consideration energy efficiency as well as summer comfort

Develop solar energy within Paris

Partnership agreement (Charte Paris Action Climat)

Innovation smart grids

Low carbon emission of goods transportation for shops

Innovation: freight by tramway

Efficient public transport network

Paris incorporates desired GHG reductions into the masterplanning of the city.

There is a master plan at the city scale that includes many actions in 7 main domains:

1. An energy strategy for the Parisian administration

2. Low energy and affordable housing

3. Urban planning for energy efficiency

4. Towards transport which improves the climate and air quality

5. Towards sustainable consumption which generates less waste

6. The service industry in Paris, a new challenge

7. An adaptation strategy

9 **Water**

Paris foresees substantive risks to its water supply in the short or long term.

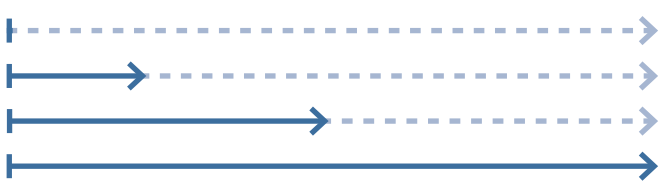
Risks to Paris's water supply as well as timescale:

Seriousness

Less Serious ! ! ! Serious ! ! ! Extremely Serious ! ! !

Timescale

Current
Short-term
Medium-term
Long-term



Increased water stress or scarcity

Risk: n/a Timescale:

See before on the adaptation page: only in conditions of more frequent and intense droughts + changes in rainfall patterns in the second part of the 21st century.

Declining water quality

Risk: ! ! ! Timescale:

There are already problems of water quality ongoing, however this risk might be enhanced in the long term if less water is available.

Flooding

Risk: ! ! ! Timescale: Unspecified

See before on the adaptation page. Risks of flooding for Paris would be extremely serious, however, the climate change impact on the occurrence and intensity of flooding for Paris is not obvious, hence the "less serious" in the column before.

Actions (on the supply and demand side) that Paris is taking to reduce risks to its water supply:

Increased water stress or scarcity

Diversifying water supply (including new sources)

Paris has a very developed network of drinkable water supply (about 2,000 km of waterworks, including 470 km of aqueducts), that uses diverse sources of water (5 zones / 102 sources from water tables and 2 sources from surface waters). The furthest source of water used is situated at 173 km away from Paris. Half of the water consumed comes from surface waters, the other half from ground waters. Thanks to this diversity of supply, the risk of water shortage is minimised. Moreover, there are 5 main water tanks within Paris, that allow storing the amount of water consumed in Paris in 3 days. Interconnections between networks for Paris and the cities of its suburb have already been done. They allow exchanging water from one network to another if needed. However, other new water supplies are explored for Paris like under the city.

Declining water quality

Conservation incentives

Several actions are committed to maintain the water quality: more water treatments, promote organic agriculture where groundwater is taken, mix of different water sources with different qualities to obtain a water with a better quality... For drinkable water as well as non drinkable water, a decline in the annual consumption has been observed for several years. This is partly due to an ambitious policy on water savings, for the Parisians as well as for the local government activities.

Flooding

Regional and municipal plans

Set crises management plan and set building prevention plan.

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