MAIRIE DE PARIS

LE PLAN CLIMAT ÉNERGIE DE PARIS

2004
2014

ASSESSMENT OF PARIS CLIMATE & ENERGY ACTION PLAN

KEY FIGURES FOR 2004-2014

PARIS

-9.2%
Green house gases
CO_2

-7%
Energy

15.6% EnR²

+ 100,000
Parisians

-12,700 t.CO_2
Through renovation
of social housing

-50,000 t.CO_2
on waste

-39% GHG
from traffic
in central Paris

MUNICIPALITY

-2%
Green house gases
CO_2

-5%
Energy

20.9% EnR²

+325 000 m²
very high energy
performance created

-25% fuel for
Municipal Automobile
Transport vehicles

-17 000 t.CO_2
on food

CONTENTS

INTRODUCTION

In order to combat climate change, the City of Paris made a very early commitment to reducing the carbon footprint of its territory. This was the challenge facing the Paris Climate and Energy Action Plan, launched in 2007 and updated in 2012, which aims to reduce greenhouse gas emissions in Paris by 75% by 2050. Paris was one of the first municipal authorities to adopt such an action plan, with targets which were more ambitious than those set by the European Union, in order to support energy transition, adapt the territory to climate change, and control greenhouse gas emissions within the Paris area.

This trailblazing plan, unanimously adopted on two occasions by the Council of Paris, consists of both a strategic vision of Paris' ecological transition, and numerous operational and concrete measures to reduce Paris' carbon footprint and contribute to the fight against climate change. The 2020 targets for all of the measures implemented in the Paris area are as follows:

- **Réduire les émissions de gaz à effet de serre de 25% par rapport à 2004 ;**
- **To reduce greenhouse gas emissions by 25% compared with 2004;**
- **To reduce energy consumption by 25% compared with 2004;**
- **To use 25% renewable and recovered energies in energy consumption;**
- **To adapt to climate change.**

For Paris municipal property and activities (City and Département of Paris), the above targets have been increased to 30%.

Since 2007, the Climate and Energy Action Plan has been divided into specific operational and/or strategic plans:

- Municipality;
- Housing;
- Citizens;
- Adaptation strategy;
- 'Paris Durable Pro', being drawn up at the time of writing of this assessment.

The Paris Climate and Energy Action Plan will be revised once more in 2017. This revision will be an important stage, as it will serve to map out a route aiming to achieve the 2050 targets and respond to the climate challenge. In order to do this, the City will draw on the experience acquired through the implementation of its actions and commitments since 2007, on forward-thinking dialogue, and on the observation of solutions that have emerged in other cities of the world. This revision will also take into account the targets to be set by Greater Paris, created in 2016, along with the expectations and contributions of stakeholders in the Paris area.

This document provides an assessment of the actions undertaken as part of the Paris Climate and Energy Action Plan since the year of the first inventory drawn up in 2004 (reference year) as regards greenhouse gas emissions and energy consumption, while exploring the economic and social aspects of the measures adopted and the adaptation of the territory to climate change.

GREATER INTERNATIONAL COMMITMENT

The Earth Summit in Rio in 1992, the Kyoto Protocol in 1997, the Copenhagen Conference in 2009 and the **Paris Agreement** in December 2015: international negotiations on the climate reflect a worldwide movement to fight climate change.

Cities are home to more than half of the world's population and **generate 70% of global greenhouse gas emissions**. Because they are on the frontline of the impact of climate change, cities from all over the world have been **committed for around ten years** to the implementation of ambitious and innovative energy and climate policies. The City of Paris joined this network of cities at a very early stage, and since then has engaged in regular discussions and communications about its experience and results in terms of the fight against and adaptation to climate change.

2005 : Paris joins **Energy Cities**, the first European network created to act in favour of local energy transition

2007 : Paris joins the **C40**, a network for exchange and technical expertise bringing together the major metropolitan areas of the world committed to taking action for the climate

2009 : Paris signs the **Covenant of Mayors**, the leading European movement for voluntary commitment to improve energy efficiency

2010 : Paris signs the **Mexico City Pact** which aims to reduce the environmental impacts of cities

2011 : Paris signs up for the **Carbonn Climate Registry**, a reference platform for cities wishing to communicate with each other about commitments and actions in the fight against climate change

2012 : Paris decides to publish, together with businesses, an annual assessment of its actions on the **Carbon Disclosure Project platform**

2014 : Paris is listed on the UN platform **NAZCA**, which records climate action initiatives by non-state stakeholders

2014 : Paris signs the **Compact of Mayors** and is one of the first cities to be "fully compliant" with the commitments of the Compact

2015 : Paris joins the international **100 resilient cities network**, in order to adopt a global resilience strategy and develop international cooperation on adaptation measures

2016 : Anne Hidalgo, the Mayor of Paris, presents her application to **chair the C40**.

OVERALL ASSESSMENT FOR THE PARIS AREA FOR 2004-2014

Every five years the City of Paris assesses developments in greenhouse gas emissions and energy consumption in the Paris area. The first assessments were carried out with **2004 as the reference year**, and were repeated for the year 2009. This 3rd edition presents the results as of 31 December 2014. All assessments were audited and certified by the consultancy firm Sustainable Metrics.

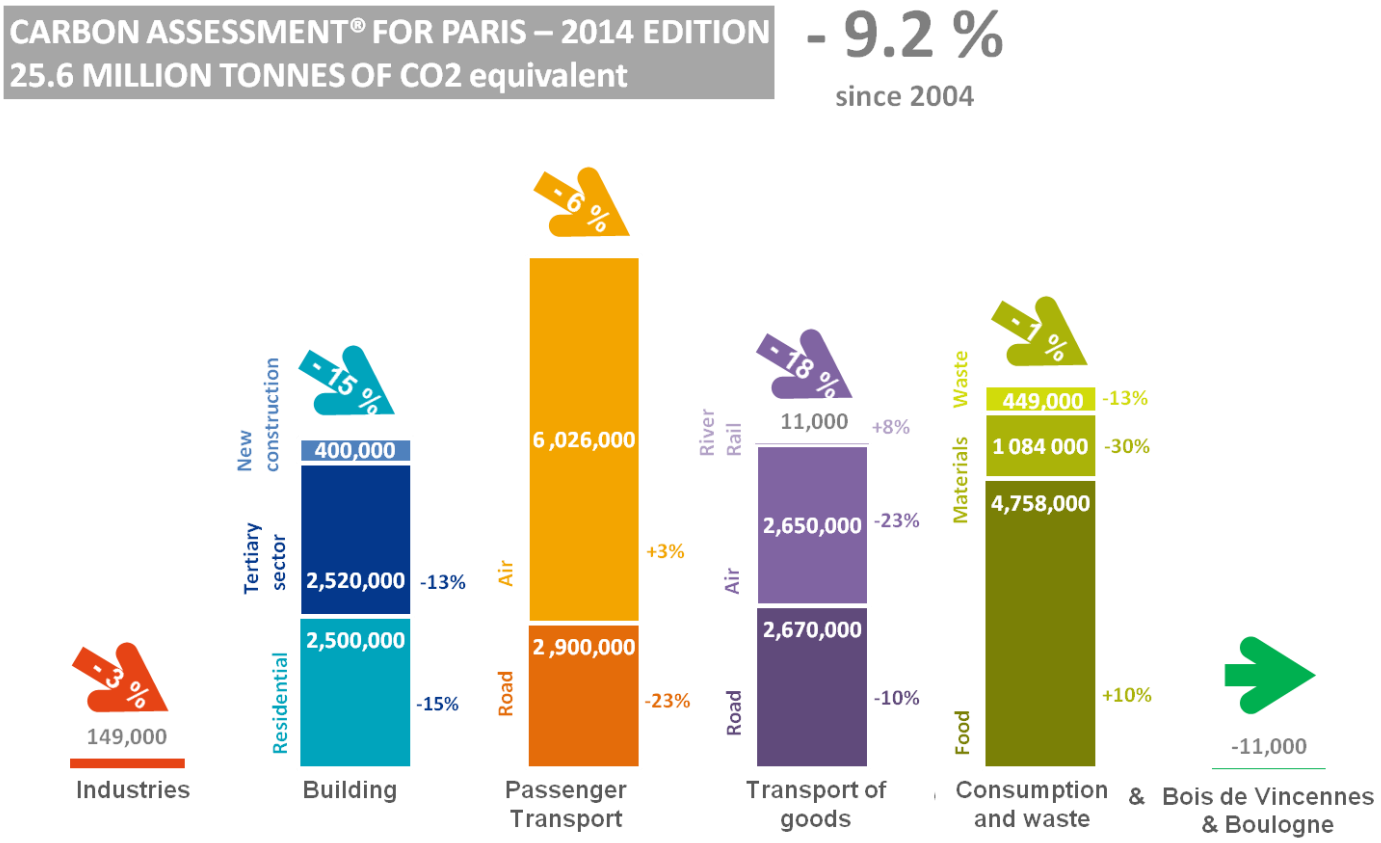
GREENHOUSE GAS EMISSIONS: TARGET OF -25% BY 2020

Since the beginning of the Paris Climate and Energy Action Plan, greenhouse gas emissions in the Paris area have been assessed using the method referred to as "**Bilan Carbone®**" (carbon assessment) initially developed by the French Environment and Energy Management Agency (ADEME). This tool assesses the direct and indirect emissions of the seven main greenhouse gas emission categories (CO2, CH4, N2O, PFC, HFC, SF6 and NF3) generated by all activities in a region. The Paris Carbon Assessment covers a very broad scope, incorporating emissions which occur outside the area but which help the city function (for example, emissions from power stations for the electricity consumed in Paris or the agricultural emissions necessary for the production of meals consumed in Paris).

This methodological choice stemmed from a desire to get the most comprehensive possible view of greenhouse gas emissions in the area and potential levers for reducing them (for example a reduction of electricity consumption), even though some of these levers are naturally shared with numerous other stakeholders, highlighting the interdependence between different territories. It is important to note that this wider scope recommended by ADEME and voluntarily chosen by Paris since 2004 is not always that selected by other cities and is not always set out in the various existing standards, since it is relatively complex and involves significant engineering in order to calculate the assessments.

For example, the calculation of greenhouse gas emissions within set boundaries requires the collection of several thousand data items whose availability and reliability may vary from one year to another (the air transport items were frozen in 2009 for example due to a lack of reliable data). Likewise, some technical assumptions such as emission factors may also evolve in line with scientific advances. In order to give visibility to structural changes in the area independently of methodological changes, it is therefore necessary to recalculate the preceding assessments. Any interpretation of the results must therefore take these specificities into account.

OVERALL ASSESSMENT FOR THE PARIS AREA FOR 2004-2014



The 2014 Carbon Assessment for Paris therefore stands at **25.6 million tonnes of CO_2 equivalent**, **9.2% lower than in 2004**. The four main sectors have all seen a sharp decline in their emissions. More than one third of the emissions in this assessment are generated by Parisians **travelling by air** for work or leisure and the air freight of products manufactured abroad. The other item that has increased is that of Parisians' food. This item has followed the rise in the population of Paris.

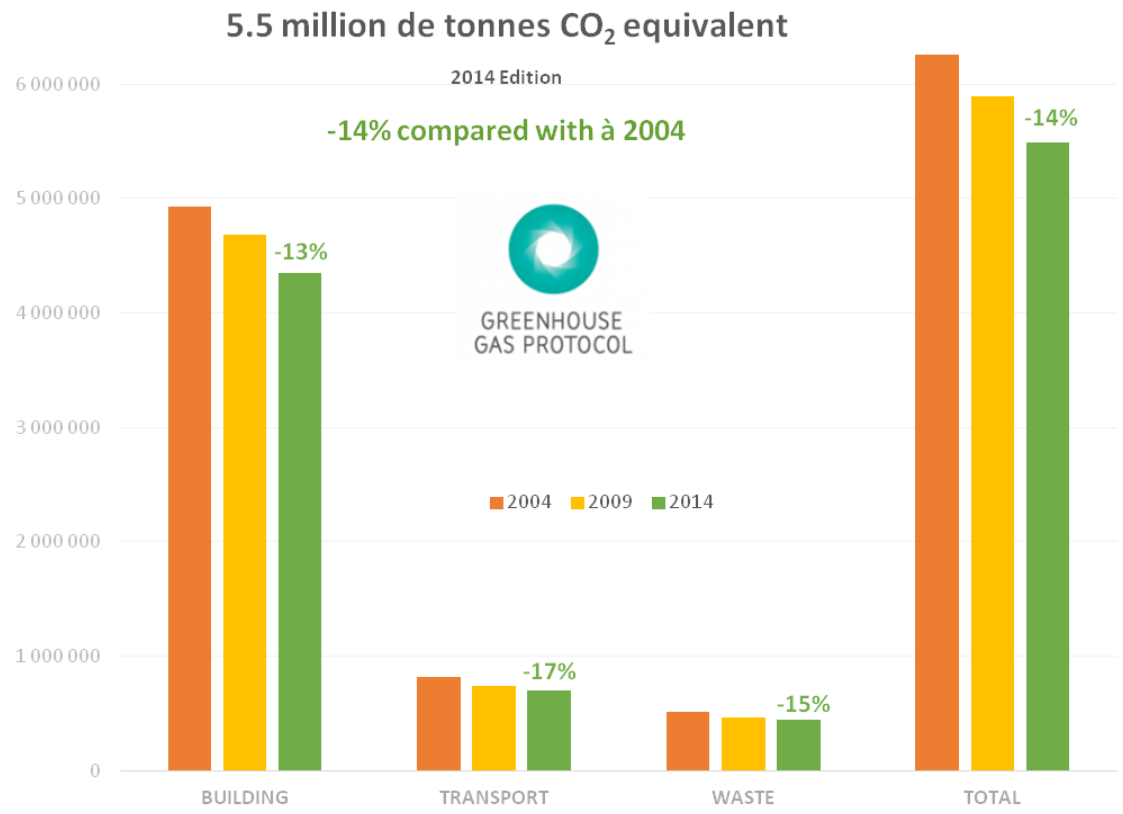
The fall in emissions in the **Building sector (-15%)** is due to the improvement in energy efficiency of Paris housing combined with a fall in consumption by the Tertiary sector. Emissions from **passenger** road **transport** have fallen sharply (by **23%**). The effects of the soft and sustainable mobility policy embarked upon by the City of Paris in 2001 are now very visible with a fall of **39% in emissions for traffic in Paris proper**. Emissions related to waste have fallen significantly, by **13%** in 10 years; this is a result of the reduction of **waste** at source and the improvement of waste sorting.

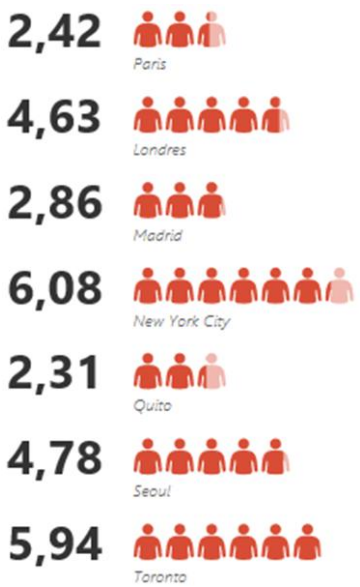
In all, more than 2.6 million tonnes of CO_2 equivalent per year have been saved in 10 years. The 2020 trend indicates a potential 18-20% fall in emissions from the area. The total results per sector are outlined within this document.

OVERALL ASSESSMENT FOR THE PARIS AREA FOR 2004-2014

Since 2010, other methods have emerged at international level, such as the **Global Protocol for the Community (GPC)**, adopted since COP20 by several international city networks of which Paris is a member. This method seeks to illustrate the direct emissions of an area, in regard to which local officials have greater capacity and means to act directly. It therefore incorporates the emissions generated directly by energies consumed in buildings and by industry, local transport and emissions from the collection and processing of waste.

Using the GPC format, emissions from the Paris area in 2014 stand at **5.5 million tonnes of CO_2 equivalent**, a drop of **14%** compared with 2004. It should be noted that in the GPC format, the 2020 target is an emissions reduction of 26% compared with 2004 (instead of -25% in the Carbon Assessment method).





Many cities in the world use this shared method of assessment of direct emissions from their territories. The figure on the left provides a comparison of emissions per capita using this tool. Paris has one of the lowest carbon intensities per capita of the cities listed.

The cross effect of the fall in territorial emissions and of population growth means that carbon intensity per capita, using the GPC method, fell from 2.96 to 2.42 tCO_2e/cap. in 10 years, i.e. a saving of 18%.

OVERALL ASSESSMENT FOR THE PARIS AREA FOR 2004-2014

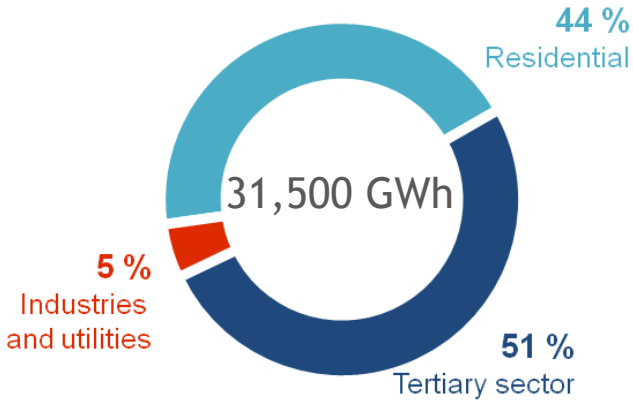
ENERGY CONSUMPTION: TARGET OF - 25% BY 2020

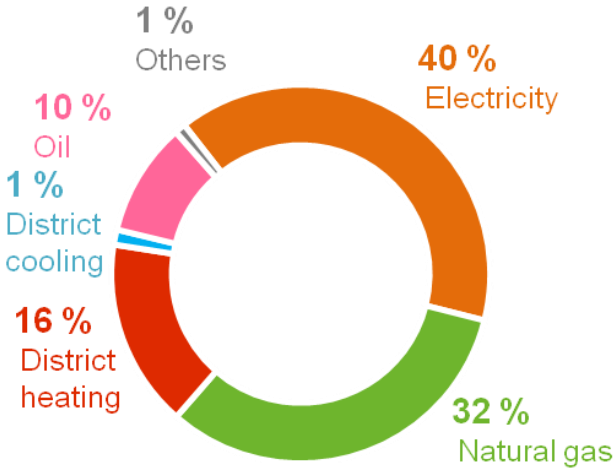
Bolstered by ten years of success, Paris is more determined than ever to speed up the energy transition on its territory, a priority of the Paris Climate and Energy Action Plan. Since 2007 the city has acted to support energy saving, boost energy efficiency and develop the production of renewable energy in the territory.

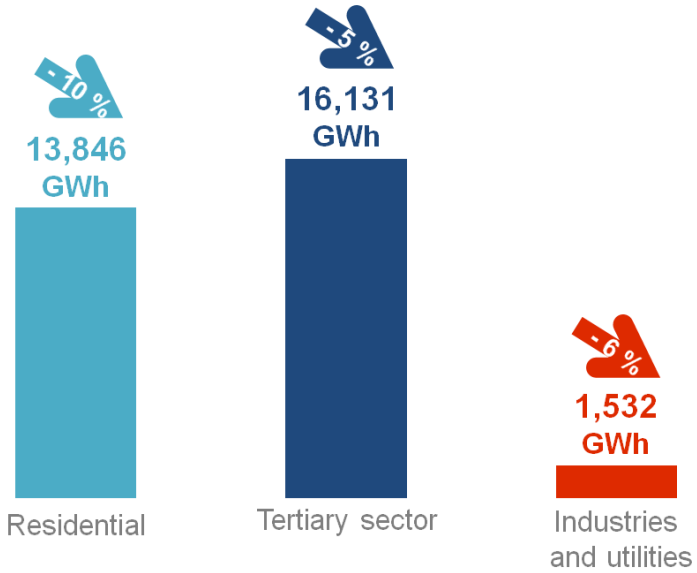
Energy consumption in Paris buildings stood at 31,500 GWh of final energy at the end of 2014.

Unlike the rest of France, in Paris housing and economic activities display almost identical results. There is very little industry in the capital.

Electricity is still the major energy consumed in Paris, ahead of natural gas. In the last 10 years heat has increased slightly and is the third highest energy source in Paris, thanks to the city's heating network which covers virtually all the area.







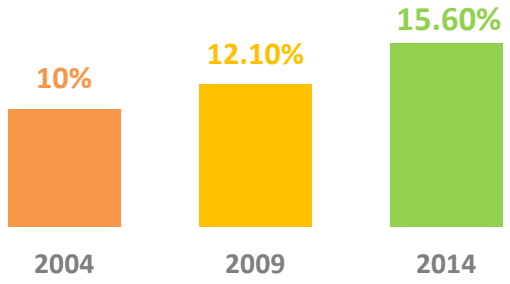
Between 2004 and 2014, energy consumption in Paris fell by 7%. However, this figure conceals inequalities between sectors.

For example, in ten years the housing sector experienced a fall of almost 10% while the reduction in the Tertiary sector was only 5% and was 6% for industries and utilities. It should be noted that of the 415 GWh/year of energy savings in the residential sector between 2009 and 2014, 59 GWh came from the energy renovation of social housing with more than 7,500 social housing units renovated in 5 years.

RENEWABLE AND RECOVERED ENERGIES: TARGET OF - 25% BY 2020

In 2014, Paris imported 90% of its energy requirements. Two of the three networks partially supplied the city with renewable and recovered energies.

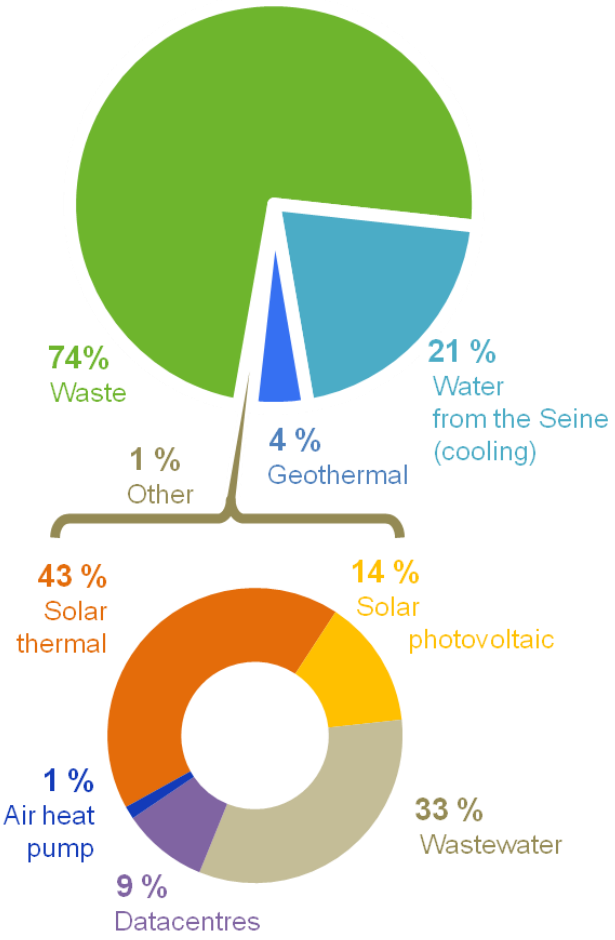
At the end of 2014, the heating network delivered energy that was 49% renewable (and recovered) while the figure for the electricity network was 19%. The energy supplied by the gas network in 2014 was still 100% fossil. In 2014 the proportion of renewable and recovered energies in Paris consumption was 15.6% compared with 10% in 2004, i.e. an increase of more than 50%.



EnR² rate in Paris' energy consumption

In 2104, with 464 installations, the production of renewable and recovered energy (EnR²) in Paris stood at 2,100 GWh. This represents almost 7% of annual requirements.

The largest sources of EnR2 came from industrial sectors, primarily energy recovered from Parisian waste which, in 2014, produced 1,553 GWh. The second highest source was the use of the Seine for the production of cold water with 432 GWh. Geothermal energy came 3rd with 58 installations in Paris and an annual production of 94 GWh, which is 20 times greater than that in 2009.



With regard to low power installations, solar is the most highly developed with almost 50,000 m² of solar panels installed for production of 12 GWh. Photovoltaic solar systems represent 60% of installations and 25% of production. Three-quarters of solar panels produce hot water.

Heat recovery is a growth area and in Paris there are 3 different types of installations:

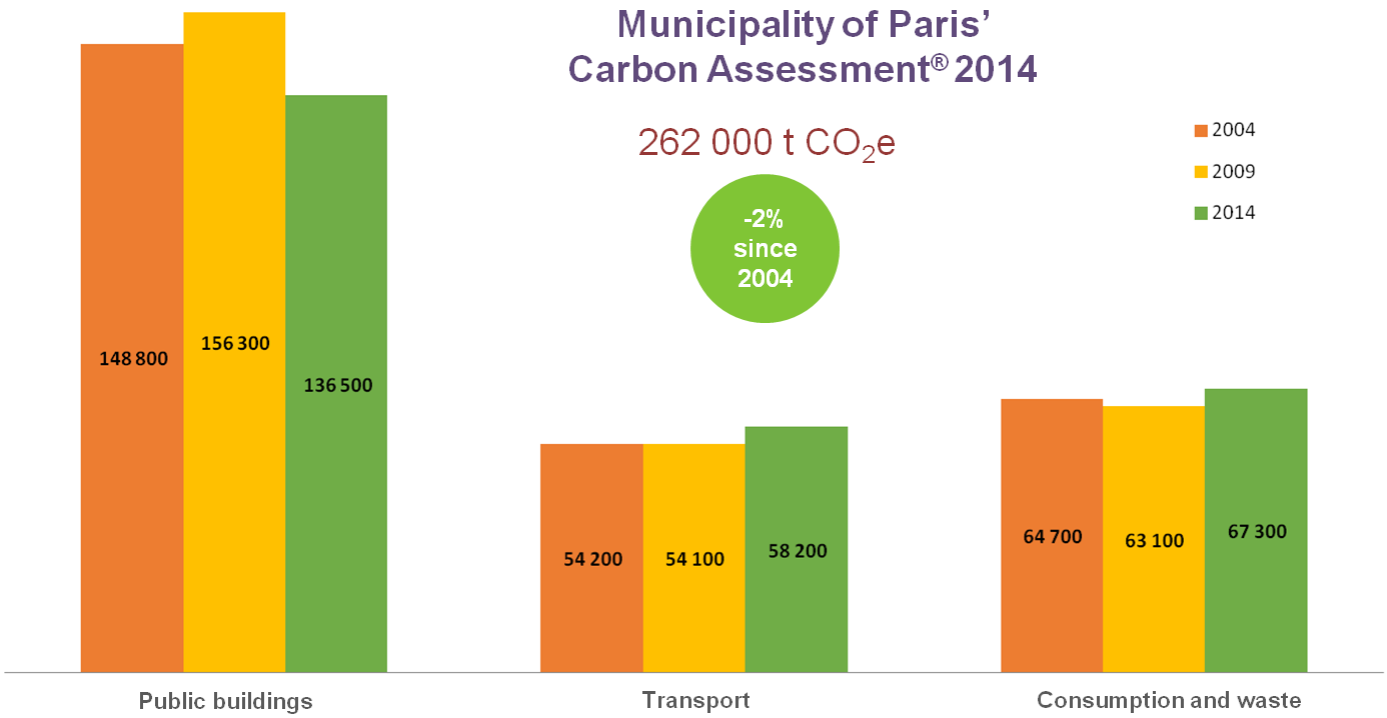
- Heat pumps using extracted air with a production of 300 MWh.
- Heat recovery from wastewater with 18 installations producing 7 GWh.
- Heat recovery from datacentres, a fast-developing sector. In 2014 there were 3 installations in Paris producing 2 GWh.

OVERALL ASSESSMENT FOR 2004-2014 FOR THE MUNICIPALITY OF PARIS

A new full inventory of greenhouse gas emissions and energy consumption by the municipality of Paris was conducted in 2014. This inventory is partially updated every year for the majority of major emission items: energy consumption, journeys by the municipal vehicle fleet, meals, etc. "Municipality of Paris" means all services offered by the Municipal and Départemental authority of Paris: all public facilities (more than 4 million m²: schools, crèches, swimming pools, libraries, cemeteries, gardens and mother and child centres (PMIs)), public lighting, journeys and supplies linked to the working of the municipality, refuse collection, mass catering, etc.

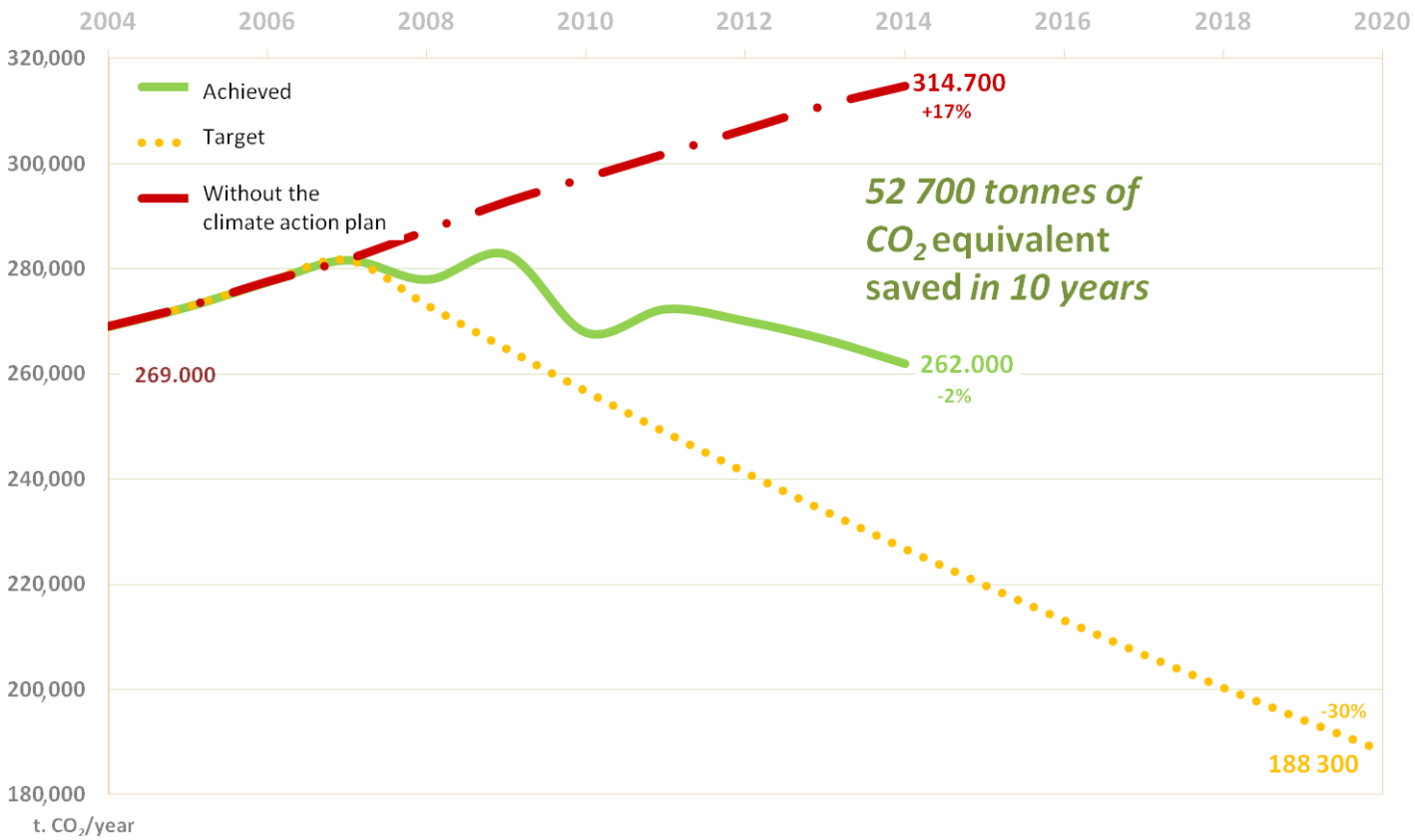
GREENHOUSE GAS EMISSIONS

The 2014 edition of the Municipality of Paris' Carbon Assessment presents greenhouse gas emissions in the order of 262,200 tonnes of CO_2 equivalent. Overall they are down by 2% compared with 2004.

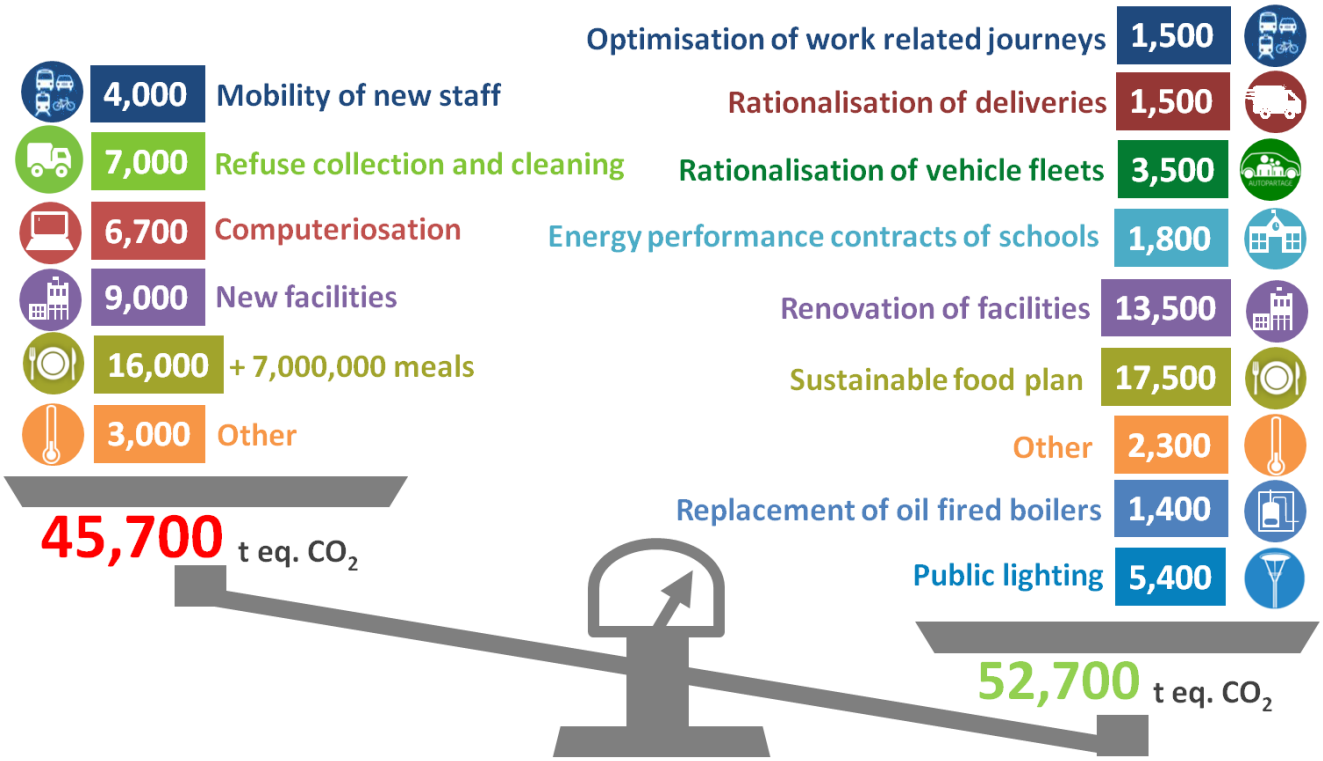


This moderate reduction in Municipality of Paris emissions in absolute terms must be viewed in light of the increase and improvement of public services over the same period. For example, the creation of many new facilities and the delivery of 7 million extra meals in mass catering in Paris necessarily generate additional emissions. In some cases, such as the increase in selective refuse collection, the increase in emissions in the municipality's assessment (+7000 tCO_2) has actually served to reduce emissions from the territory as a whole (-50,000 tCO_2 through the improvement of waste sorting).

OVERALL ASSESSMENT FOR 2004-2014 FOR THE MUNICIPALITY OF PARIS



The measures implemented as part of the Paris Climate and Energy Action Plan have offset the increase in emissions linked to these new services, achieving a net reduction of 2% in the Municipality's assessment. Significant savings have been achieved for example through the energy renovation of 100 schools (-37%), the management and rationalisation of municipal vehicle fleets, energy control on a daily basis in public facilities, the renovation of public lighting (-30%) and the development of sustainable catering in mass catering facilities. In 2014, a total of 52,700 tonnes of CO_2 equivalent per year were saved through the actions of the Climate Action Plan.

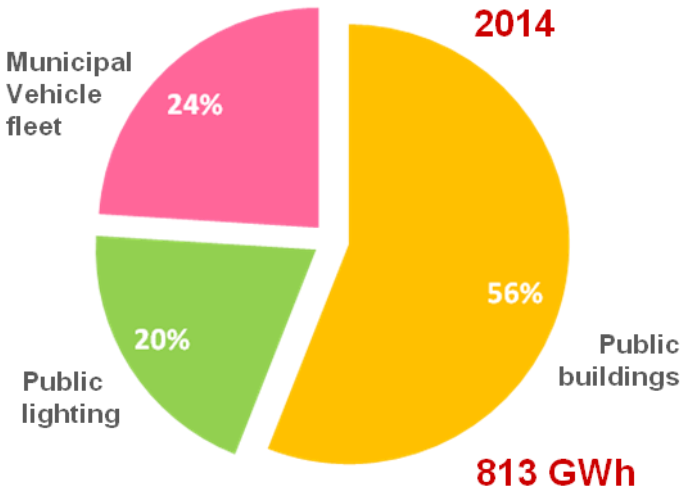


ENERGY CONSUMPTION

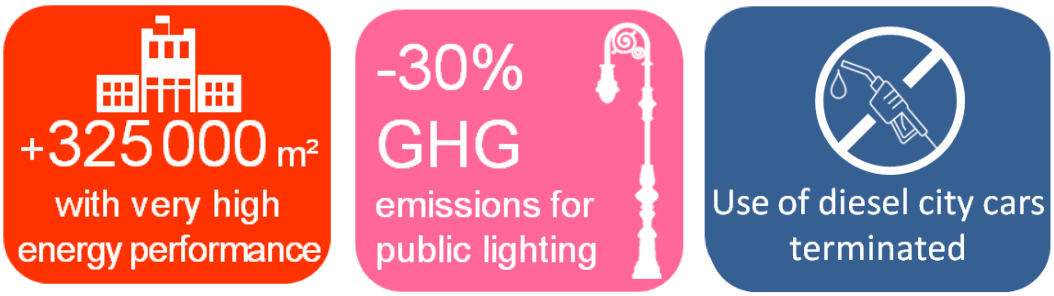
Energy consumption by the Municipality of Paris fell by **6%** between 2004 and 2014.

A **net saving of 50 GWh/year** was recorded at the end of 2014 for public facilities. 30 GWh/year were saved on public lighting, 10 GWh/year by the renovation of 100 schools and 58 by daily measures linked to the Climate Action Plan. These savings broadly compensate for the 300 new facilities created in 10 years which consume 48 GWh/year.

With regard to the **municipal vehicle fleet**, rationalisation, the development of vehicle sharing, and the modernisation of the fleet of city cars resulted in a **reduction of 24%** in fuel consumption in 10 years. The new collection and street cleaning services have created additional consumption of +24%.



ENERGY CONSUMPTION
BY THE MUNICIPALITY OF PARIS



RENEWABLE AND RECOVERED ENERGIES

At the end of 2014, **renewable and recovered energies accounted for 19.4%** of the energy consumption of the Municipality of Paris as against 15% in 2004.

As with the territory as a whole, renewable energies are distributed by the networks supplying City of Paris public facilities. It should be noted that 44.7% of the stock is connected to the heating network.

At the beginning of 2016, by signing its first 100% green electricity contract for its high-power installations, the proportion of EnR² in the Municipality of Paris' consumption **exceeded 50%**, reaching the Climate Action Plan target 4 years early.

20,000 m² of solar panels are currently installed on municipal property.

10 ANS D'ACTIONS

Currently, 10% of the territory is under development. These areas, governed by specific regulations, have become laboratories for the Paris Climate Action Plan. These sites prioritise the use of renewable energies and house "low energy" buildings (50 kWh/m2/year) in compliance with the targets of the Climate Action Plan. They are optimised by incorporating green spaces and logistics functions

RESULTS

GREENHOUSE GAS EMISSIONS

from public lighting

-32%

ENERGY CONSUMPTION

by public lighting

-20%


Fréquel Fontarabie, 20th


Claude Bernard, 19th


solar pannels, 17th

URBAN DEVELOPMENT ZONES (ZAC) AND MAJOR URBAN RENEWAL PROJECTS (GPRU)

- **Clichy Batignolles** (17th arr., 54 ha): **85% autonomous in energy** with 35,000 m² of **solar panels** (40% of electricity for the buildings), **geothermal** heating of hot water (4,000 tCO2 saved), 3,400 low energy housing units, pneumatic waste collection system, and 10 ha of green space in the **Parc Martin Luther King**
- **Fréquel-Fontarabie** (20th arr., 1 ha) **"energy efficiency" prize** in the 2009 eco-**district** competition and award of **Eco-district** label in 2013
- **Claude Bernard** (19th arr., 14.6 ha): **12,000 housing units supplied by geothermal systems**, 3 Very High Energy Performance buildings, BBC (low energy consumption) buildings, ground coupled heat exchangers, **800 m²** of solar panels, and 11,520 m² of **linear forest** (3,000 trees).

RENEWABLE AND RECOVERED ENERGIES

- **50,000 m²** of solar panels installed in Paris.
- 16% of energy consumption covered by the City of Paris' heating network (CPCU).
- Geothermal system in the Louxor cinema (18th arr.) and in several urban development zones.
- **28 municipal solar panel installations** covering a total of 13,000 m².

PUBLIC LIGHTING

- **-32%** of greenhouse gas emissions in 10 years
- **31 GWh/year** saved since 2004 (-20%)
- Renovation of lighting in **1,180** roads since 2011
- **5,504** LED streetlights installed in Paris, making 3% of the total stock. Examples: Rue de Rivoli (84% energy saving), the Champs Elysees, and the Montmartre district.

PROJECTS FOR 2014-2020

KEY FIGURES

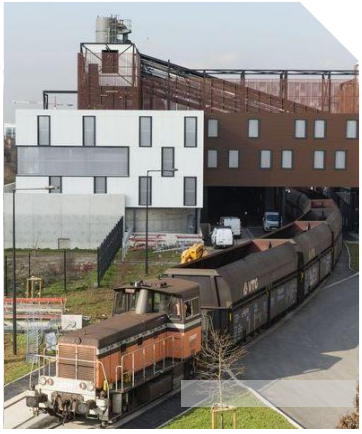
ENR2 RATES IN ENERGY CONSUMPTION:

Paris:

15.6 %

Municipality:

19.4%



URBAN DEVELOPMENT ZONES AND MAJOR URBAN RENEWAL PROJECTS

- **Boucicaut** (15th arr., 3 ha): award of Eco-district label in 2014, 35,800 m² of low energy housing units, solar panels, green roofs, heat pumps, and rain garden.
- **Bercy-Charenton** (12th arr., 70 ha): target of 50% renewable energies
- **St Vincent de Paul** (14th arr., 3.4 ha): first adapted urban development zone in Paris, green corridor

REINVENTINGER PARIS

23 innovative urban projects selected to upgrade under-used sites in Paris for the long term

- La ferme du rail (19th arr.): urban farming on open ground
- Triangle Éole-Évangile (19tharr.): zero carbon fertile island with the use of low carbon concrete

RENEWABLE AND RECOVERED ENERGIES

- Conversion of the heating network's oil fired power plants to gas: 180,000 tCO2/year saved
- **First wood co-combustion plant** at Saint-Ouen on the heating network: 300,000 tCO_2 saved
- Development of "hidden resources": heat recovery from datacentres, wastewater and car parks…
- 50,000 m² of solar panels on going in Paris

MUNICIPAL FACILITIES

- 100% of electricity for the Municipality from renewable energy sources
- Paris City Hall: heat recovery covering 30% of hot water requirements, a saving of 44% on cold production, 250 tCO_2/year saved (-25%) from 2015
- Aspirant Dunand swimming pool (14th arr.): heat recovery from wastewater: 46 tCO_2/year saved (-30%) from 2016 onwards
- 100 MWh/year produced by datacenter heat recovery at the Buttes aux Cailles swimming pool (13th arr.)

HOUSING: ENERGY-SAVING ACCOMMODATION ACCESSIBLE TO ALL

10 YEARS OF ACTION

The housing sector has been a priority lever for action of the Climate and Energy Action Plan since its adoption in 2007. Engaging in the thermal renovation of the current stock and constructing new housing in accordance with Climate Action Plan standards should allow us to achieve a reduction of 25% in greenhouse gas emissions in this sector while offering Parisians a better quality of life through optimal thermal comfort both in winter and summer.

RESULTS

GREENHOUSE GAS EMISSIONS

-15%

ENERGY CONSUMPTION

-10%

Agence Parisienne du Climat

Familles à énergie positive engagées pour le climat !


94 Philippe-de-Girard street, 18th

PRIVATE HOUSING

- Creation of the **Paris Climate Agency** (Agence Parisienne de Climat): a one-stop shop for information on energy renovation for Parisians
- Co-owned properties target the climate (**Copropriétés Objectif Climat**): **22,000 housing units** have benefited from subsidised energy audits
- 21,000 private housing units supported in programmed housing improvement operations (OPAH)
- Programmed operation for the thermal improvement of housing in the 13th arrondissement (**OPATB 13e**) (2010-2015): **151 thermal diagnoses** carried out, 66 co-owned properties (1,784 housing units) involved in an energy renovation project. €85 million of renovation work to be undertaken. Potential savings of 30 GWh/year and 6,000 tCO_2/year
- **4** editions of the **Family Positive Energy Challenge** (Défi Famille à Énergie Positive): 636 families involved and **343 MWh saved**, equivalent to the annual consumption of 35 apartments

ENERGY POVERTY

- Set-up of a local undertaking contract
- **16,000 households/year** helped by the Housing and Energy Solidarity Fund (**Fond Solidarité Logement Energie**): €3.35m in aid in 2014
- **33,000 families/year** benefiting from assistance from the **Paris Family Energy Fund** (Paris Energie Famille): €7.7 million in 2014

SOCIAL HOUSING

- **28,097 social housing units** funded for energy renovation
- **44,800 tCO_2** and **259 GWh/year** saved
- Savings of an average of **€400/year** on heating bills for the renovated housing units; 5000 jobs created in the building sector

PROJECTS FOR 2014-2020

KEY FIGURES

NUMBER OF HOUSING UNITS IN PARIS

1.36 million

NUMBER OF SOCIAL HOUSING UNITS

240,000

coach copro

Simplifiez-vous la rénovation énergétique

PRIVATE HOUSING

- **Let's eco-renovate Paris** programme (Eco-Rénovons Paris) - target 1,000 buildings: €51 million investment
- Creation of the **Territorial Energy Renovation Platform** (Plateforme Territoriale de Rénovation Énergétique) in order to encourage mass implementation of energy renovation in co-owned properties
- Programmed operation for the thermal improvement of housing in the 19th arrondissement (**OPATB 19e**): 55,000 housing units affected by the largest programme in France devoted to renovation incentives
- **9** pilot co-ownership properties as a result of the Copropriété Objectif Climat programme
- **60 co-owned properties** and **6 houses** winners of the 1st call for proposals (Sept 2014 to February 2015)
- **56 potential applicants** for the 2nd call for proposals (November 2015 to May 2016)
- **Sustainable and energy saving programmed housing improvement operation** (OPAH 2d2e) – 3rd, 10th and 11th arr.: pilot operation for energy saving in old buildings
- **28 co-owned properties** winners of the 1st call for proposals (February to June 2013)
- **36 co-owned properties** winners of the 2nd call for proposals (February to July 2014)
- **Coach Copro®**: **45,000 housing units** registered in Paris, deployment throughout the metropolitan area (Greater Paris Seine Ouest, Est Ensemble)

SOCIAL HOUSING

- **7,500 new social housing units** funded per year to reach 25% of existing social housing units by 2025
- **4,500 social housing units per year** undergoing Climate Action Plan renovation

THE TERTIARY SECTOR IN PARIS, A NEW CHALLENGE

10 YEARS OF ACTION

Delivering energy transition in the Paris area is a major undertaking by the city authorities, one which cannot be achieved without the mobilisation of economic stakeholders. The tertiary sector represents a potential source of energy saving which to date is virtually untapped. It is for this reason that the City of Paris, through the updating of its Climate Action Plan, sought to offer this sector support in order to ensure a balance between attractiveness from an economic and tourism viewpoint on the one hand and controlling the carbon footprint of economic activities on the other.

RESULTS

GREENHOUSE GAS EMISSIONS

Paris: **-13%**

Municipality: **-5%**

ENERGY CONSUMPTION

Paris: **-5%**

Municipality: **-6%**

A JOINT COMMITMENT

- **31 businesses** have signed the **Paris Climate Action Partnership Charter** (Charte partenariale Paris Action Climat), with 750,000 tCO_2/year saved
- "Energy-efficient buildings" calls for projects in collaboration with Paris & Co: **38** projects under development
- Creation of the Paris Innovation and Start-up Fund (Fonds Paris Innovation Amorçage) and of the Paris Finance Plus guarantee fund to help young innovative businesses
- **461 hotels** have signed the **Charter for Sustainable Accommodation in Paris** (Charte pour un hébergement durable à Paris) with the Convention and Visitors' Bureau

EXEMPLARY INCUBATORS

- Paris Région Innovation Nord Express (18th arr., 8,300 m²): **1st tertiary sector BBC (low energy) building in Paris**, accommodating 99 businesses. 1st promotion of property of the future (Immobilier de demain) incubator programme.
- Paris Innovation Belleville (20th arr., 500m²): high energy performance renovation
- Paris Innovation Losserand (14th arr. 8,000m²): renovated former EDF station, **1,000m² of photovoltaic façade**


Paris Région Innovation Nord Express, 18th

MUNICIPAL BUILDINGS

- **100 schools renovated** in 2 years: 1800 tCO_2/year saved, 10 GWh/year saved **(-33%), €850,000/year saved, 2,200 m² of green roofs.**
- **58 GWh saved** by maintenance work on facilities and modernisation of boiler rooms
- **325,000 m²** of very high energy performance facilities created, 24 GWh/year saved

PROJECTS FOR 2014-2020

KEY FIGURES

SURFACE AREA IN M²

59.5 million

ENERGY CONSUMPTION

51% of the region

SURFACE AREA OF NEARBY BUILDINGS

+7,5%

A JOINT COMMITMENT

- **Eco-responsible events' charter** (Charte des évènements écoresponsables): good practices to adopt in order to reduce the environmental impact of events in public spaces in Paris
- **Tertiary Sector Platform** (Plateforme Hub tertiaire): the first collaborative platform for economic stakeholders devoted to climate and energy issues

EXEMPLARY INCUBATORS

- **Chapelle International** (18th arr.): Multi-modal logistics hotel, datacenter heat recovery, **5,000 m² of urban agriculture**, 2 freight shuttles/day, 44,000 heavy goods vehicles avoided/per year, or **1,537 tCO_2/year**
- **Halle Freyssinet** (13th arr., 30,000 m²): **first international incubator of the future**, with 1,000 start-ups


Renovation of a school

MUNICIPAL BUILDINGS

- Renovation of **200 schools** with a minimum energy saving of 30%
- Ambitious renovation of 10 swimming pools
- Accelerated modernisation plan for boiler rooms

TOWARDS MORE CLIMATE AND AIR QUALITY FRIENDLY MOBILITY

10 YEARS OF ACTION

Transport of passengers and goods is the biggest emitter of greenhouse gases and atmospheric pollutants. The ambitious targets of the Climate and Energy Action Plan in terms of transport involve the definition of a new type of mobility for the capital: a reduction in the proportion occupied by cars and polluting emissions and an increase and improvement of public transport, the development of active modes of travel, and commitment to sustainable urban logistics. All of these actions will allow us both to reduce Paris' carbon footprint and improve the quality of the air breathed by Parisians.

RESULTS

GREENHOUSE GAS EMISSIONS

-39% IN PARIS PROPER

AUTOMOBILE TRAFFIC

-30%

AIR QUALITY

-50% NOx

-70% COVNM

-50% PM

SUSTAINABLE MOBILITY

- Creation of the **T3** tram line (22.4 km): doubling passenger use, -50% car traffic on the Maréchaux boulevards
- Extension of metro lines 3, 4, 8, 12 and 14
- **738 km** of cycle lanes
- **Vélib'**: **286,000 subscribers**, 2 rentals per second
- **Autolib'**: **67,500 subscribers**, 875 Autolib' terminals
- **13 "Paris respire" zones**: pedestrianisation every Sunday and public holiday

URBAN LOGISTIC

- Creation of **15 urban logistic spaces** (ELUs)
- 90 professionals signed up to the **Sustainable Urban Logistics Charter**

MUNICIPAL VEHICLE FLEET

- **-16%** greenhouse gas emissions by the municipal vehicle fleet between 2004 and 2014
- **-40%** saloon and city cars in the municipal motor fleet
- **18%** of **electric** vehicles (saloon and city cars)
- 78% of refuse collection trucks are **natural gas vehicles** (NGV)

PROJECTS FOR 2014-2020

KEY FIGURES

PROPORTION OF JOURNEYS ON FOOT IN PARIS

52%

TONS OF GOODS TRANSPORTED BY RIVERS AND CANALS

2.6 millions

AIR QUALITY

257 days with a "good" or "very good" rating

SUSTAINABLE MOBILITY

- Zero diesel by 2020
- 50% of deliveries by "clean" engines by 2017
- 22 projects selected for the "sustainable urban logistics" call for experimental projects in collaboration with Paris & Co
- +700 electric recharging points including Belib'
- Deployment of 1,000 Cityscoot self-service electric scooters in the capital
- €150m committed to the 2015-2020 Cycle plan, + 700 km of cycle lanes
- Creation of an express cycle network in liaison with the metropolitan area
- Development of the metropolitan Velib' service
- Creation of a high service level bus service along the Seine and between railway stations

MUNICIPAL VEHICLE FLEET

- Zero diesel saloon or city cars from 1st January 2015
- Zero diesel used in cleaning and refuse collection vehicles
- Development of car sharing and bike sharing
- Development of teleworking
- Global European public procurement for diesel-free busses

TOWARDS RESPONSIBLE CONSUMPTION GENERATING LESS WASTE

10 YEARS OF ACTION

Paris generates large flows of energy and water but also of consumer goods producing greenhouse gases throughout their lifecycle. This is why the City is rallying its departments, service providers, partners and users on the following aspects: reduction and recycling of waste, sustainable water management and the development of sustainable food.

RESULTS

GREENHOUSE GAS EMISSION

WASTE
-13%

FOOD
+10%

WASTE
-70 kg/inhabitant

amélioration du métabolisme urbain


Recycling center La petite Rockette, 11th

REDUCING WASTE

- Almost **15% of waste recycled every year**
- 245 textile collection bins installed on public roads
- **258 collective composting sites**
- **8 recycling centres** avoiding the incineration and/or burial of around 2,400 tonnes of waste in 2014
- Creation of a mobile eco-point for information and voluntary drop-offs
- **13 "Improvement of the urban metabolism"** experimental projects for more effective management of resources and materials used in connection with the activities of the City
- Development of the **"Menu Carbone"** application, which allows people to find out the emissions produced by their plate of food

SUSTAINABLE FOOD

- **17,000 tCO_2/year saved by the sustainable food plan**
- **30 million meals per year in 1,200 municipal canteens**
- **Paris is the leading public purchaser of organic food in France**
- **27.3% of sustainable food served in municipal canteens, 24.2% of which is organic (as against 7.4% of organic food served in 2009)**
- **50.3% of sustainable food served in nurseries**

PROJECTS FOR 2014-2020

KEY FIGURES

WASTE

483 kg/year/inhab

TONNAGE OF WASTE COLLECTED

-6.4%

ZÉRO WASTE STRATEGY

- Target of **50% waste recycling rate**
- Awareness raising amongst 70,000 citizens, with 90 waste sorting ambassadors
- Deployment of around **40 Trilib's**
- **+ 10 new waste centres including** the one on the Boulevard Ménilmontant (11th arr.) in 2018, the first waste centre in France to be installed in a city centre
- Creation of a **recycling centre in every arrondissement** for the collection and reuse of objects and materials
- Implementation of the **White Paper** produced as a result of **the General Meeting for the Circular Economy of Greater Paris** (États généraux de l'économie circulaire du Grand Paris) (65 proposals)
- Compost action plan
- **50% of** food waste avoided between now and 2025

Les états généraux de l'économie circulaire du Grand Paris

DÉCHETS, MOINS C'EST MIEUX

PLAN ALIMENTATION DURABLE

SUSTAINABLE FOODE

- **50% of organic food** in municipal canteens by 2020
- **Deployment of organic farming** in the Eau de Paris catchment area (2,100 ha in 2015)
- Incorporation of a **local seasonality criterion** for fruit and vegetables served (77.5% in 2015)

ADAPTATION

10 YEARS OF ACTION

While global warming has been confirmed by the latest reports of the IPCC in 2013 and 2014, the impacts of climate change for Paris are becoming clearer. We need to be prepared for an increasing scarcity of water and more frequent extreme weather conditions: severe heat waves and droughts in summer and heavy rain both in summer and winter…

RESULTS

PEOPLE LISTED ON THE EXTREME HEAT REGISTER (CHALEX)

20,000

SURFACE AREA OF GREEN SPACES OPEN TO THE PUBLIC

+57.4 ha

NUMBER OF DRINKING WATER FOUNTAINS

1,200


Parc Clichy Batignolles, 17th


Left bank of the Seine

STUDYING & ADAPTING

- **Assessment of Paris' strenghts and weaknesses facing climate change and dwillindling resources** ; disseminaiton and information
- **Regeneration and pedestrianisation of the Left Bank of the Seine**, from the Pont Royal to the Pont de l'Alma

WATER

- **1 water mirror** at the **Place de la République**
- Experimentation with **sprinkling roadways with non-drinking water** in heat waves: -1°C experienced at the end of the day

CLIMATE FORECASTS FOR 2050-2070

- More frequent **heat waves**: rise from 1 day/year of heatwave on average to 10 to 25 days of heatwave/year on average between now and the end of the century
- **Torrential rain** and increasing numbers of **storms**: + 10 to + 15% stormy days in summer between now and the end of the century
- **Droughts** water stress to be expected
- Risk of **flooding** through rising water levels of the Seine unchanged
- Winters which may stay cold
- Uncertainty about increases in violent winds and sunshine hours

PROJECTS FOR 2014-2020

KEY FIGURES

OVERMORTALITY IN PARIS

DURING HEAT WAVES

2003 : 1,070
(15,000 in France)

2006 : <200
(2,000 in France)

2015 : 141
(3,300 in France)

GREEN AREAS OF PARIS

30%

GREEN ROOFS

44 ha

GREEN WALLS

118 (almost 1ha)

ROADSIDE TREES

110,000

STUDYING & ADAPTING

- Adoption in 2015 of the **Paris Adaptation Strategy** (Stratégie d'Adaptation de Paris) to cope with climate change and dwindling resources: working towards a resilient city
- **Strategy for the reinforcement of the resilience** of the Paris area: devoting at least 10% of the City's budget to resilience efforts
- **Experimentation plan** for adaptation to climate change in collaboration with Paris & Co
- **Greening plan** for the city: + 30 ha of gardens open to the public, + 20,000 new trees planted, + 20 green streets (one per arrondissement), 100 ha of green walls and roofs including one third (33 ha) for urban agriculture
- Participative greening: 209 greening projects indicated by Parisians as part of the campaign "**Du vert près de chez moi**" (Green near me), more than 700 **greening permits** allocated in 1 year
- Development of **24-hour opening of Paris parks** in the summer period
- Redevelopment of 7 major Paris squares (Bastille, Fêtes, Gambetta, Italie, Nation and Panthéon): introduction of water and nature to cool down public areas
- Continuation of the pedestrianisation of the Banks of the Seine: 3.3 km of the Tunnel des Tuileries (1st arr.) to the basin de l'Arsenal (4th arr.) for 2016

WATER

- **2 new open-air bathing areas**: open-air swimming pool on the Seine near the Parc André Citroën (15th arr.) and eco-friendly swimming pool at the junction of the Parc Suzanne Lenglen and the heliport (15th arr.)
- Opening of new **natural bathing sites** between now and 2020: summer bathing in the Bassin de la Villette (19th arr.) and the Lac Daumesnil (12th arr.)
- Development of uses for **non-drinking water**

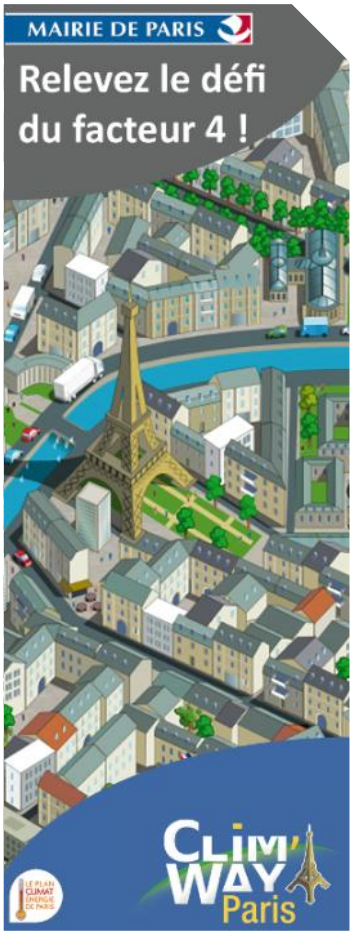
10 YEARS OF ACTION

Since the plan was created, Parisians have been crucial players in the implementation of the Paris Climate and Energy Action Plan. Consultations, information meetings, exhibitions, and events plan based on environmental issues and the fight against climate change are regular features of life in the city. Because the climate is everyone's business.

RESULTS

ACTEURS DU PARIS DURABLE

10% of the population involved



NETWORKS

- Creation of the **Paris Climate Agency** (Agence Parisienne du Climat), a one-stop shop for advice and information for Parisians (individuals and professionals) on climate and energy issues and support for thermal renovation projects: 90 members, 10,100 recommendations given, €11m of work generated
- **6 Paris Energy and Climate Days** (Journées Parisiennes de l'énergie et du climat), an annual event for raising awareness of climate and energy issues: 5,000 visitors per event
- **Actors for a sustainable Paris** (Acteurs du Paris durable), a scheme for the mobilisation and sharing of ideas and actions of Parisians in order to reduce the capital's ecological footprint: 10% of the population reached, more than 460 events staged at the Maison des Acteurs du Paris since 2012, bringing together 17,300 people
- 4 editions of **Promotion of a Sustainable Paris** (Promotion du Paris durable)

TOOLS & EXHIBITIONS

- Creation of the 1st **thermography** and **solar land registry** of Paris
- **Paris Commerce Énergie**: an advice platform for local shops on the control of energy consumption
- Eco-tourist guide listing 150 top tips and addresses from the Paris Convention and Visitors Bureau
- Produce your Climate Plan with **Clim'Way Paris**, an interactive game available in 3 languages
- A forward looking exhibition: +2°C… Paris s'invente
- **100,000 "I feel good, I'm taking action for the climate"** postcards distributed

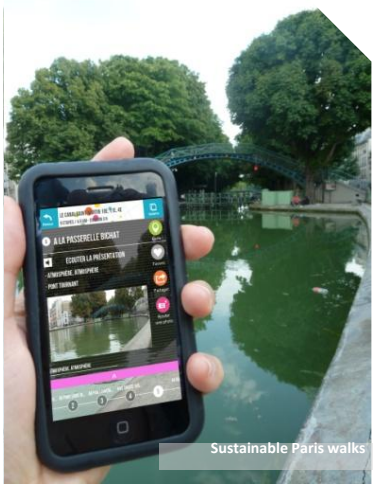
PROJECTS FOR 2014-2020

KEY FIGURES

EARTH HOUR CITY CHALLENGE

WORLD CAPITAL 2016

Climate summit for local leaders


Sustainable Paris walks

POURSUIVRE LA MOBILISATION DE TOUS

- 50% of projects proposed as part of the participatory budget have "climate" related implications
- Creation of 3 Sustainable Paris walks specially for COP21
- Paris de l'Avenir: an annual event to promote the best public and private initiatives for the climate (replacing Paris Climate and Energy Days)
- European and international climate summit for local leaders: + 700 mayors gathered at Paris City Hall for the climate during COP 21
- International resilience and inclusion summit at the end of 2016
- Monthly pedestrianisation of the Champs Elysées and introduction of a car-free day once a year


Paris de l'avenir 2015

PARIS BUDGET PARTICIPATIF

MOBILISING CITY OF PARIS STAFF

- 10,000 members of staff alerted to the issue of climate change
- Almost 1,000 members of staff trained in eco-friendly driving
- 500 municipal employees trained and 150 awareness raising sessions for schools as part of the energy renovation of Paris schools

GLOSSARY

COP: Conference for parties to the United Nations Framework Convention on climate change

Earth Hour City Challenge: International competition launched by the WWF to reward the most ambitious of the 125 candidate cities in terms of the fight against climate change

EnR2: renewable and recovered energies

GPC: Global Protocol for Community, a method for assessing greenhouse gas emissions for local areas

Greenhouse gases - gaseous compounds which absorb the infrared radiation emitted by the Earth's surface and contribute to the greenhouse effect. The increase in their concentration in the Earth's atmosphere is at the origin of global warming

Kilowatt hour (kWh): one kilowatt of energy expended over a one-hour period

LED: light emitting diode. A lighting system which has a lower consumption than incandescent bulbs and of the same order of magnitude as that of fluorescent tubes

Local Urbanism Plan (PLU/Plan locale d'urbanisme)

Low energy building (BBC: Bâtiment Basse Consommation). The BBC standard was a result of the Grenelle Environment Round Table. A BBC building must have an energy consumption level below that of standard dwellings, both for heating in winter and air conditioning in summer

Major urban renewal project (GPRU/Grand Projet de Renouvellement Urbain)

Municipal Automobile Transport (TAM), a department which manages the City of Paris' vehicle fleet

Programmed campaigns for the improvement of housing and thermal renovation (OPAH and OPATB): focusing on the renovation of old urban neighbourhoods and centres and run-down co-owned properties, and the adaptation of housing for the elderly or disabled. Each Opah is established through an agreement signed by the State, the National Housing Agency (Anah) and the contracting local authority. It has a term of 3 to 5 years. This contract sets out the diagnosis, targets and local action plan and specifies the commitments of each signatory

Recycling centre: establishments whose main aim is to promote the reuse of certain materials considered as waste

Specific electricity: electricity used for services which can only be delivered by electricity (lighting, recharging…)

Terawatt hour (TWh): 1 billion kilowatt hours (kWh)

Tonnes of CO2 equivalent (tCO2): a unit which allows the emissions generated by greenhouse gases to be assessed (CO2, CH4, N2O, PFC, SF6, NF3…)

Urban development zones (ZAC/zone d'aménagement concerté)

Very High Energy Performance (THPE) **label**, which targets a reduction in primary energy consumption of 20% compared with the French Thermal Regulations RT 2012 and the strengthening of several obligations of means

1 TONNE OF CO_2 IS :


A5
H2O
H2O
H2O
H2O

+2°C... *Paris s'invente!* - Yannick Gourvil et Cécile Leroux, *collectif et alors*

MAIRIE DE PARIS

DIRECTION DES ESPACES VERTS
ET DE L'ENVIRONNEMENT

AGENCE D'ECOLOGIE URBAINE

● July 2016 ● Conception : Mairie de Paris, Direction des Espaces Verts et de l'Environnement, Agence d'Ecologie Urbaine ● Crédits photos: Mairie de Paris