

**Case study:**

**City of Paris Action to  
Improve Air Quality**

## **Case study: City of Paris Action to Improve Air Quality**

Produced by the UK Health Forum and commissioned by the Health Foundation.

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## Case study: City of Paris Action to Improve Air Quality

### Summary

This case study was selected to exemplify how strong leadership at a city level can lead to the development of a diverse range of policies and actions to improve air quality by radically altering the travel behaviour of residents and businesses.

The problem was poor air quality in Paris caused largely by emissions from diesel and petrol-powered vehicles. In 2001, the newly elected Socialist Mayor of Paris proposed to reduce vehicle traffic within the city by extending two metro lines, building a third tramway, adding a new bus line, and introducing a bike rental scheme called Velib'.

In October 2007, the Paris Climate Action Plan was published which included the objective to reduce transport emissions by 60% between 2001 and 2020. The Plan included the creation of 700km of cycle routes, the subsidy of bike and electric moped purchases, an electric car rental scheme called Autolib' and incentives for citizens and businesses to dispose of their old cars.

A new national environment law, passed in 2009, allowed for the introduction of low emission zones (LEZs) in France. The feasibility of such a scheme was studied in Paris but rejected on a number of social and economic grounds. However, when the Paris Climate and Energy Action Plan was refreshed in 2012, a LEZ was proposed in recognition that achieving the 60% reduction in transport emissions by 2020 would require the most polluting vehicles to be restricted from entering the city.

The refreshed Paris Climate and Energy Action Plan set out other new measures that have since been achieved, including a reduction in the speed limit on the Boulevard Périphérique from 80km/h to 70km/h, pedestrianising the banks of the River Seine, pedestrianising Avenue des Champs-Élysées one Sunday per month and pedestrianising streets every Sunday and on public holidays.

In April 2014, a new Socialist politician, Anne Hidalgo, took office as Mayor. She announced the intention to introduce a LEZ and to ban all diesel vehicles from the city centre by 2020. Extensive consultation was undertaken with the Government, businesses and citizens. The Mayor's Air Pollution Control Plan passed into law in February 2015 and in January 2017 Paris became the first restricted zone (Zone à Circulation Restreinte, ZCR) in France. The scheme limits access to the city centre for the most polluting vehicles and all vehicles must display a 'Crit'Air' windscreen sticker to indicate the vehicle's level of pollution.

The success of the Paris Climate and Energy Action Plan is monitored every five years. By 2014, the levels of both nitrous oxide and particulates had fallen by 50%. Overall, automobile traffic in the city centre had fallen by 30%. However, as recently as June 2017 the city experienced dangerous levels of air pollution and had to implement emergency response plans.

Success factors that could inform action in the UK include:

1. strong, consistent political will and the ability to win over stakeholders
2. use of a mix of carrot and stick policies, including financial incentives and an awards scheme to encourage competition between different localities.

## Introduction

This case study describes the evolution of Paris’s Climate and Energy Action Plan and the circumstances leading up to the introduction of a low emission zone (LEZ) – the Zone à Circulation Restreinte (ZCR) – in the city centre to tackle air pollution. The case is informed by a key informant from the Urban Ecology Agency of the Department of Green Spaces and Environment, City of Paris.

### Timeline

Year	Event
1995–07	Jacques Chirac, a right-wing politician, holds the French Presidency
1995–2001	Jean Tiberi, a right-wing politician, holds office of Mayor of Paris
2001	Bertrand Delanoë, a left-wing politician, elected as Mayor of Paris and announces green transport plans to reduce vehicle journeys by 25% in ten years, reduce harmful emissions, and increase and improve public transport <sup>(1)</sup>
2005	Paris starts to draft its first Climate Action Plan
2007	Paris joins the C40 Cities network, a global climate leadership group
Feb 2007	City of Paris publishes White Paper on climate change <sup>(2)</sup>
2007	Launch of Velib’, the Paris bike-sharing scheme
2007–12	Nicolas Sarkozy, a right-wing politician, holds the French Presidency
Oct 2007	Council of Paris adopts Climate Action Plan 2007–2012. <sup>(3)</sup> This pledges to reduce emissions from transport by 60% in inner Paris between 2001 and 2020.
2009	New national environment law <sup>(4)</sup> is passed: all authorities >50,000 inhabitants must adopt a Local Climate and Energy Plan. The law also paves the way for LEZs.
2010	Paris signs Mexico City Pact that aims to reduce the environmental impacts of cities <sup>(5)</sup>
2010–12	LEZ feasibility studies in eight French cities, including Paris
2011	Launch of Autolib’, the Paris electric car rental scheme
2012	Paris rejects LEZ scheme following feasibility study
2012–17	François Hollande, a left-wing politician, holds the French Presidency
Dec 2012	Council of Paris adopts updated Paris Climate and Energy Action Plan 2012–2017. It includes the proposal for a LEZ. <sup>(6)</sup>
2014	Paris signs the Compact of Mayors – 228 cities pledging to cut carbon emissions <sup>(7)</sup>
2014	Anne Hidalgo, a left-wing politician, takes office as Mayor of Paris and announces emergency measures for air pollution, plans for a LEZ, and the intention to ban all diesel vehicles from Paris by 2020 <sup>(8)</sup>
2014	France’s Green party presents proposal in the national parliament that would see the gradual reduction of diesel use across France <sup>(8)</sup>
2015	Introduction of a LEZ in Paris: the ZCR
2016	Paris awarded World Wildlife Fund’s Global Earth Hour Capital 2016 title <sup>(9)</sup>
2016	Mayor of Paris takes over as chair of C40 <sup>(10)</sup>
2017–present	Emmanuel Macron, a centrist politician, holds French Presidency
2017	All vehicles entering Paris city centre must display a Crit’Air sticker

## Description of the policy

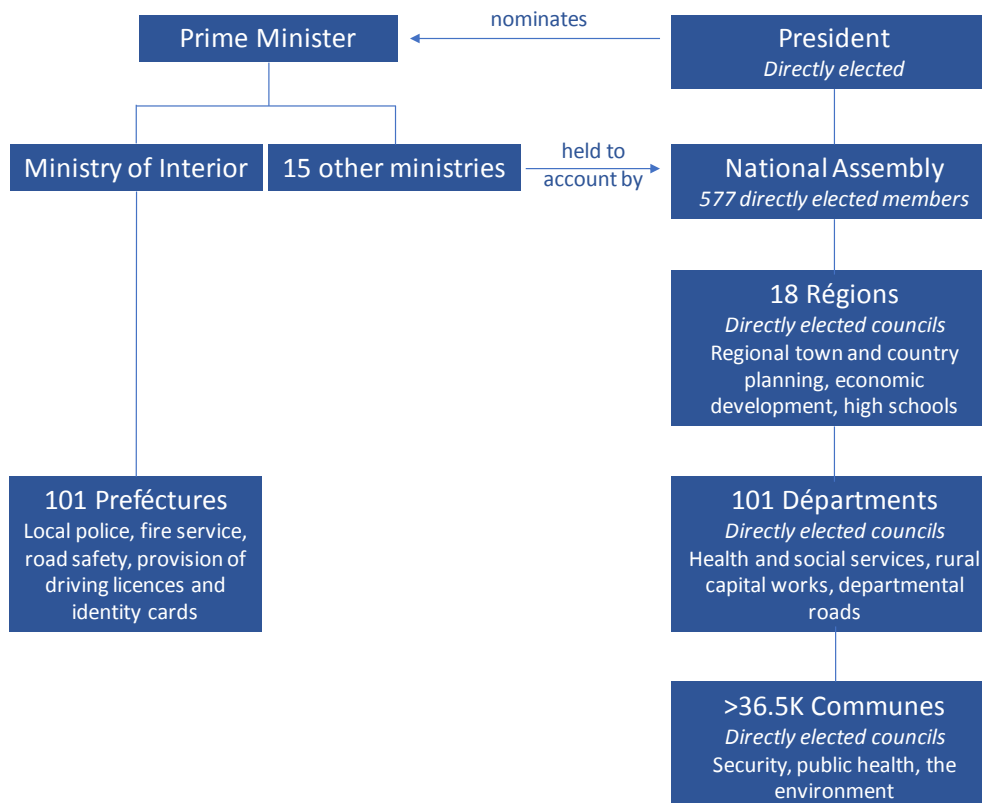
### System of government in France<sup>(11)</sup>

The National Assembly (the French parliament) is made up of 577 directly elected members called députés. Upon election, the President of France nominates a Prime Minister who in turn proposes a list of ministers to form the French executive government, held to account by the National Assembly. Ministries relevant to this case study include the Ministry of the Interior, and the Ministry for the Ecological and Inclusive Transition.

The Ministry of the Interior is represented at the sub-national level by 101 préfetures. They are responsible for the delivery of identity cards, driving licences, passports, work permits and vehicle registrations. They have powers to modify vehicular traffic regulations including speed limits.

Below the national level, the country is divided into three levels of government: 18 régions, 101 départements and approximately 36,500 communes.

**Figure 1:** System of Government in France



### The City of Paris

Paris is the capital of France and has an area of 41 square miles. It is France's most populous city with a population of about 2.2 million. (12) Paris is one of eight départements within the Île-de-France region, and it is also a commune.

The commune and département are overseen by the Council of Paris. The elected Mayors of the communes function as the département's executive.<sup>(12)</sup> A number of deputy mayors are appointed who have responsibility for geographical districts and areas of policy.

While the communes in France have responsibility for the police, Paris is an exception, with a single Préfecture of Police handling law enforcement and security across Paris and its three neighbouring départements.

The Métropole du Grand Paris (the Greater Paris metropolitan authority) was established in January 2016 and is an administrative structure facilitating cooperation between Paris and the 130 communes that surround it. It has a population of 7 million.<sup>(12)</sup> The Métropole is administered by a Metropolitan Council of 210 members, chosen by the councils of the member communes. Its responsibilities include urban planning, housing and protection of the environment.

### **Action to tackle air pollution in Paris 2001–2007**

The main source of air pollution in Paris is fossil fuel-powered transportation, which is responsible for 66% of emissions of nitrogen oxides (NOx) and almost 60% of fine particulate emissions (PM10 and PM2.5).<sup>(13)</sup>

France was involved in air quality management in the 1990s and published the Air Quality and the Rational Use of Energy Act in 1996.<sup>(14)</sup> This included the obligation to publish urban mobility plans to tackle pollution. The first urban mobility plan for Île-de-France was published in 2000.<sup>(15)</sup>

According to our informant, the right-wing Mayor of Paris, Jean Tiberi, elected in 1995, led a plan for pedestrians and bikes, including the creation of 30km/h zones and bike lanes. He also created separated bus lanes around Paris and launched the tramway project on the southern boulevards.

In March 2001, the Socialist politician Bertrand Delanoë became the Mayor of Paris, leading a coalition of Socialists, Greens and Communists.<sup>(1)</sup> As Mayor, Delanoë's goals were to cut down on vehicle traffic within the city, reduce air pollution and improve the quality of life.

*'Delanoë made a deal with the Green party between the 2 rounds of the election. So a part of his programme was taken from the Green party's programme, particularly for the public space and mobility policy. But he was himself motivated by the questions of public space sharing and environment and he carried himself some of the projects.'*

Source: Department of Green Spaces and Environment, City of Paris

The Mayor's plans included extending two metro lines, building a third tramway to enhance public transport from the suburbs to the city centre, adding a new bus line and introducing a bike rental scheme.<sup>(6)</sup> The public was in favour of his actions.

*'[The Mayor] was re-elected in 2008 and benefited of [sic] good rates of popularity. During his mandates, it was considered that the population of Paris had changed and cared more about environment.'*

Source: Department of Green Spaces and Environment, City of Paris

In June 2005, the city decided to draft a Climate Action Plan to extend and reinforce green transport plans and mobilise the authorities, citizens, and stakeholders living or operating in the city. The collaborative approach was set out in a White Paper in 2007, *Voices of Parisians for the Climate*.<sup>(2)</sup>

### **The 2007 Paris Climate Action Plan**

In October 2007, the Council of Paris unanimously approved the Paris Climate Action Plan.<sup>(3)</sup>

*'It is usual that Parisian politic group vote together for environmental plans (bike plans, climate plan, air quality plans...) because they don't want it to be understood as "I am not for climate change".'*

Source: Department of Green Spaces and Environment, City of Paris

The Plan pledged to reduce greenhouse gas emissions by 75% by 2050, relative to 2004, with three interim targets to be achieved by 2020:

1. 25% less greenhouse gas emissions
2. 25% less energy consumption
3. 25% of Paris's energy consumption to come from renewable energy sources.

The Climate Action Plan would be updated every five years and a Climate Action Plan monitoring committee was established.

The main transport-related objective in the Climate Action Plan was a 60% reduction in transport emissions between 2001 and 2020. Actions taken to achieve this included:<sup>(6)</sup>

- the adoption of a new cycling plan in 2010 to create 700km of cycle routes by 2014, either by continuing existing routes or as new projects in neighbouring communes; plans also included the creation of suitable bike parking areas and encouraging businesses to create bike garages for their employees
- the launch of the bike rental scheme (called Velib') in 2007
- the subsidy by the City of Paris between 2008 and 2011 of bike and electric moped purchases and the replacement of 6% of the Paris taxi fleet
- support by the City of Paris for the manufacture of 100% electric taxis
- the launch in 2011 of an electric car rental scheme called Autolib'
- incentives for citizens and businesses who want to dispose of their old cars, including a discount membership in Autolib' (a public transport pass) and a Vélib' subscription, or a €400 contribution to buy a bicycle, with or without electric assistance<sup>(16)</sup>
- the adoption in 2011 of measures to improve the council's own fleet of vehicles and help council employees reduce their reliance on private vehicles to get to work.

Ecologie Sans Frontière is a French non-governmental organisation created in 1998 that lobbies for the protection of the environment and is independent of industry, public authorities and political movements. In 2007, the organisation lobbied the French presidential election candidates to introduce a national environment law, the Grenelle de l'Environnement.<sup>(4)</sup>

The new law was passed unopposed in 2009 by the right-wing government of Nicolas Sarkozy, making it a requirement for towns with more than 50,000 inhabitants to have a Local Climate and



Energy Plan in place by 31 December 2012. The law facilitated the alignment of Paris's Climate Action Plan with the other areas of action being taken across the city to promote sustainable development.<sup>(6)</sup>

The law<sup>(4)</sup> also allowed for the introduction of LEZs in France and paved the way for feasibility studies in eight French cities (including Paris) between 2010 and 2012.<sup>(17)</sup> The study in Paris was led by the City of Paris with the Paris Urbanism Agency\* and Airparif.†

*'Discussions between the politicians and technicians concluded that [sic]:*

- *No feasibility of the effective scenario (governance, lack of alternative mobility for impacted people)*
- *Heavy investment [was] in contradiction with an "experiment" approach (3 years)*
- *No national compensation measure*
- *No coherence with national support for diesel'*

Source: Department of Green Spaces and Environment, City of Paris

According to our source, the decision not to proceed went unopposed by the Mayor who had not included the measure in his electoral programme and did not want the national government to impose it on him. The LEZ proposal was not of concern to the car industry since it would stimulate the sale of newer, cleaner vehicles.

### **The 2012 Paris Climate and Energy Action Plan**

In 2012, the City of Paris refreshed its 2007 Climate Action Plan and reaffirmed the city's commitment to fighting climate change by maintaining its 2020 targets.<sup>(6)</sup> A key feature of the revised Plan was to encourage more sustainable movement around the city.

It was estimated that by 2020, the existing green transport policies would achieve 40% of the target 60% reduction in transport emissions.<sup>(6)</sup> The 2012 Plan included new measures to tackle transport emissions to achieve the 60% target:

- reduction of the speed limit on the Paris ring road (Boulevard Périphérique) from 80km/h to 70km/h
- the creation of 30km/h zones in streets around schools and sporting or cultural facilities used by the public
- the creation of combined pedestrian/vehicle zones with a 20km/h speed limit, giving pedestrians priority and reducing the volume of cars in districts where there are large numbers of pedestrians
- pedestrianising the banks of the River Seine
- proposals for a LEZ, with the aim of banning access for the highest polluting vehicles
- plans to address urban logistics.

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\* The Paris Urbanism Agency is a non-profit association established by the Council of Paris to address the urban and societal evolution of Paris and Greater Paris

† Airparif is a non-profit organisation accredited by the government to monitor air quality in Île-de-France and the impact of emission reduction measures

Other measures introduced since 2012 include: (18)

- pedestrianising Avenue des Champs-Élysées every first Sunday of the month; bicycles are also allowed
- 'Paris breathes' (the pedestrianisation of streets every Sunday and public holidays)
- the launch of Belib', a public network of charging stations for electric vehicles
- in April 2015, Paris adopted the 2015–2020 Bike Plan with a proposed investment of more than €150 million to double the length of bike lanes by 2020.

### **Air pollution crisis, March 2014**

In March 2014, dangerously high levels of air pollution in Paris triggered emergency action by the city authorities in an attempt to bring levels back down. The initial action was to make public transport free to reduce the volume of cars in the city. This intervention was said to have cost around €4 million a day. The authorities also reduced speed limits by 20km/h.<sup>(8)</sup>

When these measures were insufficient, the authorities introduced a ban on half the city's cars from the city centre for two days by blocking odd-number licence plates one day and even ones the next. While pollution levels were reduced as a result, the ban was criticised as being discriminatory for not removing the heaviest-polluting vehicles from the city centre. The president of Ecologie Sans Frontière suggested a fairer approach to restricting vehicles in the city centre would have been to evaluate the 'greenness' of individual cars and ban only the most polluting ones.<sup>(8)</sup>

Ecologie Sans Frontière filed a criminal complaint against the city council for endangering others over the pollution spike and in particular for not acting quickly enough to bring pollution levels down. They and others blamed successive French governments for promoting the use of diesel vehicles – which are used by two-thirds of French motorists and are more polluting than petrol cars – via tax breaks.<sup>(8)</sup>

### **Spring 2014: A change of Mayor**

A new Socialist politician, Anne Hidalgo, took office as Mayor of Paris in April 2014. She had served as the First Deputy Mayor of Paris under Delanoë. Hidalgo set out emergency response plans in the event of future pollution crises and these included:<sup>(8)</sup>

1. reducing the level of pollution at which action should be taken from 80 to 50 microgrammes of particles for every cubic metre of air
2. making public transport free when the pollution level was reached
3. making residential parking free as soon as the pollution level was reached
4. making the city's municipal bicycle and car rental schemes (Velib' and Autolib') free from the second day that pollution levels were above 50 microgrammes.

Ecologie Sans Frontière welcomed the proposed measures.<sup>(8)</sup>

The Plan was triggered for the first time in March 2015 as pollution levels surpassed the 50 microgrammes per cubic metre threshold.<sup>(19)</sup> The traffic calming measures – including alternate day access to the city for cars – were initially overruled by the Minister for Ecology for being discriminatory against suburban commuters.<sup>(20)</sup> According to our source, the Minister had always been against punitive measures. However, the powers to introduce the measure rested with the

local representative of the government (le Préfet), who reports to the Prime Minister, and the President of France stepped in and ruled on the side of the city.<sup>(21)</sup>

### **Renewed call for a LEZ in Paris**

The 2012 Climate and Energy Action Plan had proposed that a city-wide LEZ would be required in order to achieve the 60% target reduction in emissions. Upon taking office, the new Mayor announced her intention to look at the feasibility of creating a LEZ to restrict or ban highly polluting vehicles.<sup>(8)</sup>

In November 2014, the Mayor announced a far more ambitious plan to ban diesel vehicles altogether from the city centre by 2020 as well as introduce a system for restricting access to the city centre for other high-polluting vehicles.<sup>(22)</sup> She would need Government's permission to do both.

*'Another lever that does not come under municipal powers but that of the state: traffic restriction measures, such as traffic alternating, pending the possibility of discriminating vehicles according to their degree of pollution by identification on the gray card. Here too, we want automaticity to be established. On all matters related to pollution, we actively engage with the state.'*

Source: Mayor Hidalgo in Journal du Dimanche interview (22)

Opposition to her announcements was voiced, with critics accusing the Mayor of putting the interests of elite city dwellers opposed to congestion ahead of the needs of lower-income Parisians who live in the suburbs and are reliant on their, often older, cars.<sup>(23)</sup>

*'The language chosen by the mayor of Paris to talk about her antipollution plans has the air of being more of a war against automobile owners rather than an ecological battle for the capital.'*

Source: Le Figaro<sup>(23)</sup>

*'What is the barman who lives on the far outskirts of Paris supposed to do when he needs to get to his work late at night? Ms Hidalgo's proposal is that of a Champagne socialist who is far removed from concerns of everyday people.'*

Source: Daniel Quéro, president of 40 millions d'automobilistes, quoted in *The New York Times*<sup>(23)</sup>

### **Developing the LEZ**

Following the Mayor's announcement, consultation with the Government, tourism professionals, tradespeople and their representatives began on the terms of a LEZ.<sup>(13)</sup> In addition, a citizens' conference was held in October 2014 to garner residents' views.<sup>(13)</sup>

According to our key informant, discussions with the Government were held on two levels. On the technical level, civil servants were very positive and saw the plans in Paris as being helpful to securing the adoption of similar schemes by other cities in France. At the political level, elected officials in Paris worked closely with the environment minister and the Prime Minister to secure their backing for the scheme.

The key informant described the health sector's role as being to produce the studies demonstrating the impact of air pollution, with 8,000 deaths each year in the Paris region and six months of life lost

for Parisians. The studies were conducted by INVS (now Santé publique France) and ORS (the regional health observatory) as part of European- and French-funded research.

Elsewhere, medical professionals focused on explaining the impact of chronic or severe air pollution, particularly on young people, for example through the Fondation du Souffle,<sup>(24)</sup> a collaboration of research funders and the medical profession established to tackle respiratory disease in France.

Elected members used this health data to justify their LEZ policy. In addition, the deputy mayor for health participated in developing the action plan and created a second plan, Paris Santé Environnement, that was focused on promoting health through better urban planning.<sup>(25)</sup>

Consultation on the LEZ proposals and on an accompanying impact study was extended to the municipalities that border the city of Paris, the Île-de-France Transport Union (STIF), the Paris Chamber of Commerce and the Chamber of Trades and Crafts, as well as to the wider Île-de-France region.<sup>(13)</sup>

### **2015 Paris Air Pollution Control Plan**

The Air Pollution Control Plan passed into law in February 2015. From 1 September 2015, all trucks, buses or coaches registered before 1 October 2001 were banned from the city centre.<sup>(13)</sup>

According to our informant, progression of the low emission scheme to other categories of vehicle was delayed by a dispute between the Mayor and the French Minister for Ecology about the number of categories by which to divide vehicles. The Minister had argued for four categories to help municipal authorities quickly determine the age and model of cars. Such an approach would have eliminated one in three vehicles from the streets, but this was felt by the Mayor to be too extreme.<sup>(26)</sup> In the end, six categories were agreed, based on model year and fuel type.

*'In [the Minister's] mind the lowest categories were denouncing bad vehicles and bad car owners. She preferred a classification showing the best cars, allowing them, for example, to drive even during pollution peaks. She was then explained that it was a necessity to have progressive bans and she accepted to come back to 6 categories [sic], as planned before.'*

Source: Department of Green Spaces and Environment, City of Paris

From 1 July 2016, there was no access on weekdays between 8h and 20h for passenger cars and vans registered before 1997 and for motorized two-wheelers registered before 1 June 1999.<sup>(13)</sup> This restriction was expected to remove one in ten vehicles from Paris's weekday streets by the end of 2016.<sup>(26)</sup>

A public consultation took place between December 2016 and January 2017 to explain the further roll out of the scheme.<sup>(13)</sup> Among the consultation documents was a study<sup>(27)</sup> carried out by Airparif. The study comprised:

- the share of emissions related to road traffic in Paris
- the current state of air quality in Paris
- an assessment of the impact on pollutant emissions of the implementation of a LEZ in Paris.

On 15 January 2017, Paris became the first restricted zone (ZCR) in France.<sup>(3)</sup> All vehicles circulating in Paris (including foreign vehicles) had to display an air quality certificate 'Crit'Air' in the form of a windscreen sticker to indicate the vehicle's level of pollution. The six categories ranged from Crit'Air (no number) for electric and hydrogen fuel cell vehicles, up to Crit'Air 5 for the most polluting vehicles.<sup>(13)</sup>

From 1 July 2017 the most polluting diesel passenger cars and light commercial vehicles (Crit'Air 5) were no longer able to drive in the city centre from 8h to 20h from Monday to Friday. Crit'Air 5 trucks and coaches were unable to drive in the city centre from 8h to 20h on any day of the week.<sup>(13)</sup>

Further stages of traffic restrictions are planned between 2018 and 2020, which will be clarified as soon as the energy transition legislation relating to restricted traffic zones is passed.<sup>(12)</sup>

By 2020, no cars registered earlier than 2011 will be permitted in the city on weekdays.<sup>(26)</sup>

### **Enforcement of the ZCR**

The ZCR scheme was initially enforced by the Prefecture of Police but, according to our key informant, on 1 January 2018, 2,000 prefecture staff who had previously been responsible for enforcing paid parking became responsible for enforcing the ZCR.

Vehicle owners are fined if they fail to abide by the ZCR in any of the following ways:<sup>(13)</sup>

- driving in violation of the ZCR restrictions
- parking in a ZCR without a Crit'Air sticker
- applying a Crit'Air sticker that does not correspond to the characteristics of the vehicle.

Plans to broaden the ZCR to include the Boulevard Périphérique and the radial roads within the second Paris ring road will require automatic vehicle recognition. This requires the Ministry of the Interior, which oversees vehicles licences as well as the police force in France, to introduce a new law allowing the police to film licence plates. According to our key informant, the Ministry is currently opposed to the idea although locally the Prefecture of Police is supportive.

*'The interior ministry is opposed, for a long time now, to a change of legislation allowing to film licence plates. There is a sensibility of the public about being continuously watched [...] The cities are still lobbying for automatic control based on plates, as the government has to show to Brussels his will to tackle pollution.'*

Source: Department of Green Spaces and Environment, City of Paris

### **Widening action beyond the City of Paris**

In 2012, under its Regional Climate-Air-Energy Strategy, the Île-de-France region established regional energy and air quality guidelines that included the goal to reduce greenhouse gas emissions from road traffic by 20% in combination with a significant reduction in air pollutants.<sup>(28)</sup>

At the beginning of 2015, a meeting was convened by Paris with its neighbouring communes to discuss air pollution. It concluded with a proposal that financial assistance for the acquisition of non-fossil fuel powered vehicles should be extended beyond inner-city residents to professionals living in the suburbs who commute to work in the city centre.<sup>(13)</sup>

Building on this, the Greater Paris metropolitan authority, formally established in 2016, made air quality a priority; one of its first actions was to provide financial support of up to €5,000 to owners of the oldest vehicles to help them buy a replacement vehicle (electric, hydrogen, rechargeable hybrid or compressed natural gas).<sup>(13)</sup> This was funded from local taxes.

A Climate-Air-Energy Plan<sup>(29)</sup> was consulted on during 2017 by the metropolitan authority and it moved into implementation in 2018.

## Evaluation

When the Paris Climate Action Plan was launched in 2007,<sup>(3)</sup> it was agreed that it would be updated every five years and a Climate Action Plan monitoring committee was established.<sup>(6)</sup>

Every five years the City of Paris assesses greenhouse gas emissions and energy consumption in the Paris area. The first assessment was carried out in 2004, the reference year, and was repeated in 2009 and 2014.<sup>(6, 30)</sup> All assessments were audited and certified by the consultancy firm Sustainable Metrics.

## Outcomes

The main objective related to air quality in the Paris Climate and Energy Action Plan is a 60% reduction in traffic-related emissions between 2001 and 2020.<sup>(6)</sup>

Outcomes achieved so far include:<sup>(6, 30)</sup>

- a 39% fall in traffic-related greenhouse gas emissions by 2014
- a 50% fall in levels of both nitrous oxide and particulates by 2014
- a 50% reduction in private cars on the Boulevards des Maréchaux due to the new T3 tram line
- 286,000 subscribers to the Velib' scheme, with two rentals per second
- 67,500 subscribers to the Autolib' scheme
- a 16% increase in annual metro journeys by 2009
- a doubling in the number of bicycle journeys by 2009
- a reduction of 30% in automobile traffic in the city centre.

*'The transition to a clean energy mobility system is underway [...]. Unlike federal governments or private companies, city leaders hold jurisdiction over public transit options, and can drive large-scale deployment by electrifying municipal vehicle fleets, adding bicycle lanes, limiting the number of cars through incentives or taxes, and implementing policies to encourage a clean transport revolution.'*

Source: Mayor Hidalgo in Fast Company interview<sup>(31)</sup>

As a result of the multifaceted action taken to significantly reduce pollution from vehicles, wood fires are becoming the primary source of pollution in Paris and the Paris region. Powers to tackle wood fires currently reside at the national level in France.

*'For the moment the prefecture does not want to create banning [sic] on this topic, which is delicate because people don't understand that wood can be harmful. The city will participate in the information and grant policies to modernize the installations.'*

Source: Department of Green Spaces and Environment, City of Paris

However, as recently as June 2017,<sup>(32)</sup> Paris has had to implement its emergency pollution control plans when air pollution exceeded the threshold of 50 microgrammes of particles for every cubic metre of air.

It is estimated that the 3,000 Autolib' cars rented out in Paris replace the equivalent of 22,500 private vehicles on the city's streets and 164.5m kilometres driven per year by polluting diesel and petrol vehicles.<sup>(33)</sup> The adoption of similar schemes across France has boosted the French auto manufacturing industry, with Renault selling the largest number of electric vehicles in Europe (6,000 cars during the first half of 2013), ahead of Nissan (5,500 cars) and Smart (1,500 cars).



## Lessons learned

### What worked

The key lesson from the case study based on what worked is:

1. Political will and the ability to win over stakeholders are important elements.

*‘Yes, there has to be a political will. But there has also to be concertation of all stakeholders. In our case, there was a good dialogue with the ministry, though some mediated oppositions or the Mayor and the Minister [...] It was important to explain the issues and to announce the actions, so that professional organisations can have enough visibility for their actions.’*

Source: Department of Green Spaces and Environment, City of Paris

### What didn't work

The lessons from the case study based on what worked less well include:

1. While there has been no opposition to plans thus far, including to the LEZ, the city anticipates a greater push back from stakeholders as the controls become more restrictive.

*‘We did not [have to silence our critics]. But for the moment, only the oldest cars and truck are forbidden and the control of our LEZ is not hard. When it changes, they will probably react.’*

Source: Department of Green Spaces and Environment, City of Paris

2. There is evidence that the media remains ambivalent about the actions that the city has taken to control pollution.

*‘We were “lucky” to have a big peak of pollution in December, where everyone could sense the pollution. So it helped to get some balanced opinions of the media.’*

Source: Department of Green Spaces and Environment, City of Paris

To some extent this may reflect the style of the Mayor, who says that she has not tried to sell the changes to Parisians, but rather has sought to demonstrate their impact.

*‘Marketing is not my way to do politics. Instead of wasting time and energy trying to convince through an elaborate marketing campaign, I deliver real solutions that speak for themselves and benefit the people of Paris. And as a mayor of Paris, I am proud to deliver all my commitments to my people.’*

Source: Mayor Hidalgo in Fast Company interview<sup>(31)</sup>

*‘We all want the situation to change but we don't like to be obliged. The public, in Paris and Île-de-France, is aware of the sanitary impact of pollution and of the necessity to change, but we still have to show that it is their own actions that can make this change.’*

Source: Department of Green Spaces and Environment, City of Paris

3. National policy needs to keep pace with the aspirations of local areas.

*‘The city of Paris had to impulse [sic] new legislation to create French LEZ. It succeeded but it could have gone faster if the LEZ had been a clear objective of the national plan for air*

*quality. It is still a work in progress and our success depends on the collaboration of all stakeholders:*

- *Professional organisations (logistic, commerce)*
- *Region Île-de-France, in charge of transports*
- *Metropole du Grand Paris and all its 12 territories*
- *Mayors of the cities in charge of traffic police*
- *National government in charge of legislation for automatic control.'*

Source: Department of Green Spaces and Environment, City of Paris

4. Enforcement of the ZCR scheme by the Prefecture of Police was under-resourced and only a small number of fines were made in 2017. Since January 2018, 2,000 staff members previously responsible for enforcing paid parking in the City have taken responsibility for enforcing the ZCR. Responsibility for enforcing paid parking has been outsourced to a private company.

## Implications for the UK

1. Success in Paris can be attributed to the mix of carrot and stick policies. On the one hand improved facilities for walking and cycling, improved and extended public transport options, financial incentives, and better facilities for electric vehicles have all encouraged Paris residents and businesses to adopt greener modes of transport. On the other hand, a ban or restrictions on more polluting vehicles from the city centre has forced the issue.
2. In July 2017, the UK Government published an air quality plan,<sup>(34)</sup> with a promise to ban all petrol and diesel cars by 2040. Air quality advocates, including the leaders of eight of the most polluted cities, called the plan inadequate and proposed A Clean Air Act for the 21st Century. This would enshrine the right to breathe clean air into UK law, enabling localities to keep to their legal limits on pollution, and ensuring the UK becomes a world leader in clean technology solutions.<sup>(35, 36)</sup>
3. Government research has shown that clean air zones (CAZs), where owners of high-polluting vehicles are charged to enter particular locations, are cost-effective for tackling the air-quality problem.<sup>(33)</sup> Currently, CAZ charges are applied in Birmingham, Derby, Leeds, Nottingham, Southampton and London. However, the Government's current position is that councils should exhaust other options before opting to impose charging, and restrictions should be time-limited and lifted as soon as pollution is within legal limits. Relaxing this position and introducing charges in the most polluted cities could lead to faster improvements in air quality.<sup>(37)</sup>
4. Financial incentives have played a part in encouraging Paris residents to use greener forms of transport. To complement CAZs, campaigners in the UK have proposed the introduction of a targeted diesel scrappage scheme to help lower income groups swap to less-polluting vehicles and therefore avoid the CAZ charges. Campaigners have also proposed the reform of fiscal policies such as Vehicle Excise Duty and Company Car Tax to disincentivise new purchases of diesel cars.<sup>(35)</sup>
5. As has been seen in France, jobs in the car industry can be boosted by Government support for clean technologies. The car industry body, the Society of Motor Manufacturers and Traders, believes that the 814,000 jobs in the UK car industry can be protected with support for the development of electric car technologies and by attracting the major battery manufacturers to the UK.<sup>(37)</sup>
6. The development of award schemes can help create healthy competition between localities to become greener and less polluting. Other municipalities in France have been encouraged to copy the Paris Autolib' scheme with an award, the Electromobile City Trophy, presented every year to regional and local authorities (cities, inter-municipal associations, etc) that have shown particular commitment to sustainable mobility, especially electric mobility, in their region.<sup>(33)</sup>
7. To avoid the situation seen in Paris where the burning of wood has overtaken vehicles as the greatest contributor to air pollution, the Government could consider granting powers to localities to ban the burning of wood (as well as coal) in areas with poor air quality. Tougher controls on the sale of wood-burning stoves could also be introduced, with only low emission versions allowed to remain on the market. The Mayor of London has called for such action to be taken.<sup>(38)</sup>

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