City bans are spreading in Europe

Low-emission zones are spreading in response to the air quality crisis

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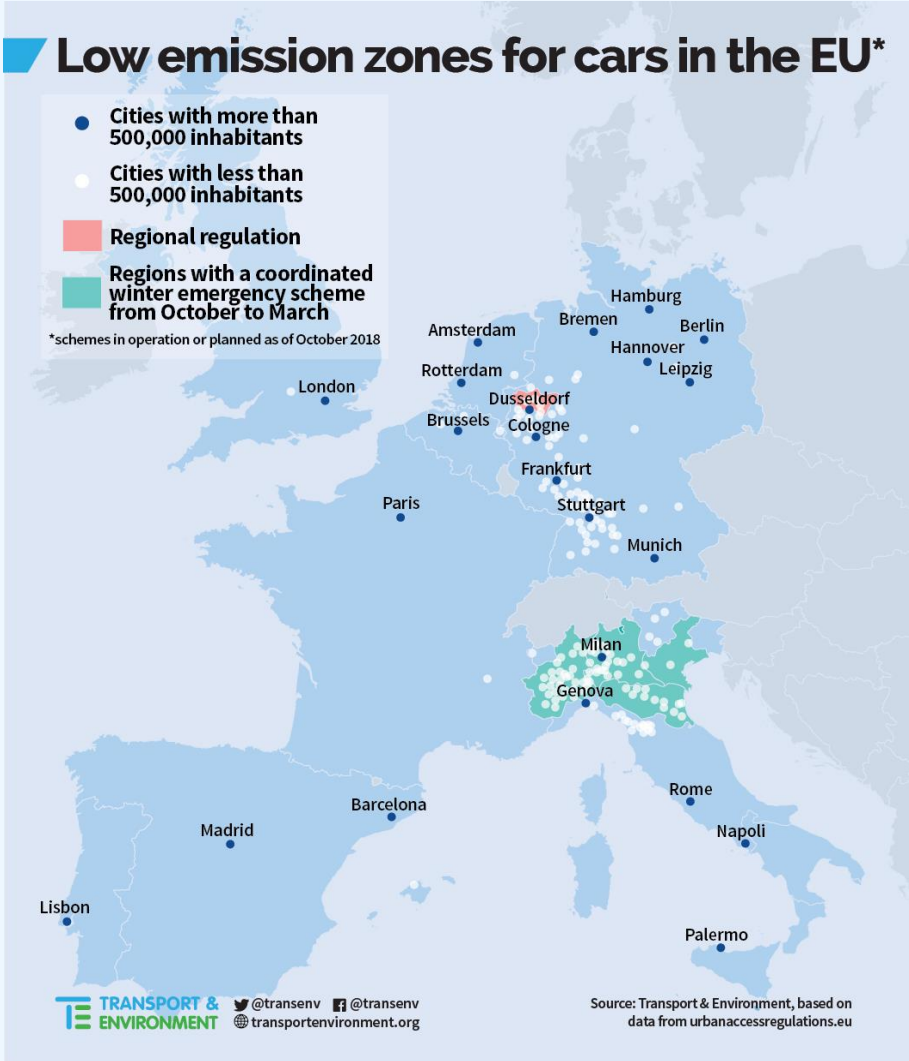
Summary

The present briefing provides an overview on the evolution of low-emissions zones for cars and vans in EU cities and analyses their effect on consumer behaviour on the basis of a representative survey commissioned by Transport & Environment. It finds that there is a steadily growing number of cities that introduce or tighten low-emission zones. There are currently more than 260 low-emission zones in 12 EU Member States, among which 250 concern passenger cars. The Dieselgate scandal has provided strong impetus to this movement amongst European cities, and there are now also several cities in Central and Eastern Europe that discuss adopting low-emission zones.



Map of low-emission zones in the EU, in operation or planned (as per 15 October 2018), source: Urban Vehicle Access Regulations in Europe

Secondly, the results of the survey show that consumers are turning away from diesel, with 69% saying that it is "not too likely" or "not at all likely" that their next car will be a diesel. Air quality concerns and the effect of city bans are cited as main reasons for these choices. Thirdly, the survey shows that low-emission zones are not unpopular at all. In fact, more than two thirds of consumers support city bans. These messages are encouraging for cities taking action for clean air: Their efforts are paying off and there is broad public support for effective measures.

In order to make these local measures effective, specific recommendations are given at the end of the briefing: Cities should be free to design their urban vehicle access restriction policies as they see fit the local circumstances, public health and environment, but should make use of remote sensing data rather than arbitrarily banning specific euro-classes. A comprehensive EU-wide programme is needed to clean up the 43 million of dirty diesel cars and vans on the road today, combining software and hardware fixes. The effectiveness of these fixes must be independently certified to ensure significant emission reductions are achieved in the real-world. In addition to coordinating measures at EU level, governments should take action to restrict the influx of dirty diesels. This is legally possible as a recent legal analysis commissioned by T&E found.

1. More and more European cities are banning dirty cars in an uphill battle for air quality

Cities are at the forefront in the struggle for clean air in Europe managing the fallout from the Dieselgate scandal and failure of vehicles manufacturers to control toxic emissions when cars are used on the road, creating a legacy of around 43 million grossly polluting diesel cars and vans on EU roads.[1] The latest data of the European Environment Agency show that there are more than 480,000 premature deaths annually in the EU due to air pollution (PM2.5, NO_2, ozone).[2]

Public awareness and concern about the health effects of air pollution have increased dramatically following the scandal and new evidence on the scale and diversity of the health effects. EU citizens consider air pollution as the second most important environmental issue[3], and increasingly demand effective action to clean up the air they breathe.[4]

European cities are at the sharp end of the air pollution crisis, left to clean up the pollution created by the failure to effectively implement and enforce vehicle emissions regulations. A recent report by the European Court of Auditors highlighted that although Member States are required to take effective action by the Ambient Air Quality Directive (Directive 2008/50/EC) when 'levels of pollutants in ambient air exceed any limit value or target value'[5], few countries were taking sufficient steps to meet their legal obligations to reduce air pollution.[6] The European Commission has launched infringement procedures for air pollution exceedances against 17 Member States.[7] But in most of them, action to tackle pollution hotspots remain inadequate.

Emission standards for cars are set at EU level, while Member States are responsible when it comes to approving for sale new vehicle types, registering cars and enforcing rules. But most governments that approved cars for sale have also failed to require most highly polluting vehicles to be recalled and fixes implemented. A recent report by the European Commission has also highlighted the derisory progress

[1] https://www.transportenvironment.org/press/dieselgate-three-years-43-million-dirty-diesels-our-roads-%E2%80%93-and-still-growing

[2] https://www.eea.europa.eu/highlights/air-pollution-still-too-high/

[3] Special Eurobarometer 468 - October 2017 "Attitudes of European citizens towards the environment."

[4] https://www.youtube.com/watch?v=pbChDEMRMBU

[5] Article 23, Directive 2008/50/EC

[6] https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=46723

[7] https://www.eca.europa.eu/en/Pages/DocItem.aspx?did=46723: letters of formal notice were sent to AT, BE, CZ, DK, HU, LU, PL, PT; reasoned opinions were sent to DE, ES, FR, IT, UK.

made by vehicle manufacturers to reduce the emissions from the small number of models they have agreed to upgrade the exhaust controls.[8]

In the absence of effective action to clean up excessively polluting cars, cities have little choice but to ban them from polluted locations in order to make pollution levels safe. Such measures are usually called "low-emission zones" (LEZ) or "clean air zones" (CAZ), and are part of the wider panoply of "urban vehicle access restrictions" (UVAR), i.e. "measures to regulate vehicle access to urban infrastructure".[9]

Low-emission zones are spreading in Europe

In Europe, the first low-emission zones (for vehicles) were introduced in Sweden in 1996 (in Göteborg, Malmö and Stockholm) and were targeted at the most polluting diesel trucks and buses focused in city centres. Over the 2000's, the number of low-emission zones increased. In 2005, several Italian municipalities decided to introduce such schemes, and were followed by Austrian and German communes. By 2011, there were already 179 low-emission zones in 9 European countries.[10]

The introduction of low-emission zones is mostly intended to reduce air pollution. Some cities have also introduced congestion charges or urban road tolls to ease congestion and raise additional revenues. In some cities, like Milan, the schemes are combined. Increasingly Zero Emission Zones are being implemented to reduce traffic and air pollution as well as move towards climate change goals.

The focus on city car bans increased after the Dieselgate scandal in 2015. Investigations, and independent testing revealed that diesel cars emitted up to 10 times more NO_x on the road than when tested in the lab.[11] Together with increased pressure from the European Commission to require EU countries to meet pollution limits and, most importantly, successful legal actions by citizens and NGOs in several Member States, there was raised awareness why air pollution levels for nitrogen dioxide and ozone in cities had been improving much more slowly than expected and concern about how much longer it will take to achieve acceptable pollution levels.[12]

The identification of manipulated diesel cars has provided a strong impetus for the introduction of new or tightening of existing low-emission zones in Europe. Official data show that transport emissions account for 60% of NO_2 concentrations in cities; and diesel cars are responsible for almost ¾ of these emissions.[13] A new analysis carried out in cooperation with the specialised website "Urban Vehicle Access Regulations in Europe"[14] shows that in October 2018, there were more than 260 cities across 12 European countries that have formally introduced low-emission zones. 250 of these low-emission zones concern passenger cars.

Most low emission zones are in Italy, where permanent or seasonal traffic limitations are implemented at a regional level. There are currently also 80 LEZ in Germany, 14 in the Netherlands, 14 in the UK. France also has 14 LEZ but these are mostly emergency schemes in the biggest cities, whereby low-emission zones can be introduced in case of pollution peaks (similar schemes also exist in other countries such as Spain). However, a new mobility law is currently being discussed in France, and it is expected to bring about many new permanent LEZ in the country's biggest cities.[15]

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[8] https://circabc.europa.eu/d/a/workspace/SpacesStore/deb3151d-ed83-4947-918d-6190b015f1f7/State%20of%20play%20of%20the%20recall%20actions%2020180914.pdf

[9] https://ec.europa.eu/transport/sites/transport/files/uvar_final_report_august_28.pdf

[10] https://www.ademe.fr/sites/default/files/assets/documents/zones-faibles-emissions-lez-europe-ademe-2017-rapport.pdf

[11] https://www.transportenvironment.org/sites/te/files/publications/2016_09_Dieselgate_report_who_what_how_FINAL_0.pdf

[12] https://www.theguardian.com/business/2015/sep/22/vw-scandal-caused-nearly-1m-tonnes-of-extra-pollution-analysis-shows

[13] https://www.umweltbundesamt.de/themen/neun-fragen-antworten-diesel

[14] http://urbanaccessregulations.eu/

[15] https://www.lesechos.fr/partenaire/macif/partenaire-1858-les-futures-zones-a-faibles-emissions-en-trois-questions-2216292.php

In cities in Central and Eastern Europe (CEE), there are presently no low-emission zones for cars. Prague has announced its intention to introduce one, but the start date is to be confirmed. Public discussions are ongoing in many cities, namely in Poland (including Krakow, Warsaw, Katowice, Lublin and Bydgoszcz) and Bulgaria (Sofia).
Most LEZs exclude older vehicles initially, before extending the scheme to more recent generations. However, this fails to take into account that on the road there is almost no difference in nitrogen oxide emissions between Euro 2 models and early Euro 6 models.[16] Some of the newest Euro 6d-temp models do however achieve notably lower emissions. Most LEZ apply more stringent criteria for diesel vehicles than for petrol ones. Only a few LEZ that start in 2019 will exclude EURO 6 diesels, but by 2025 most do exclude these models.

2. Air quality concerns are the main reason for consumers to turn away from diesel

The Dieselgate revelations about the significant impact of diesel cars on air pollution levels and public health has resulted in a slump in sales of new diesel cars. During the second quarter of 2018, sales of diesel vehicles in Europe accounted for just 36.3% of total vehicle sales, as opposed to 45.2% in the second quarter of 2017. This is a substantial reduction compared to 2015, when 52% of the new cars sold in Europe were diesel cars. Declining diesel sales are now occurring in almost all EU countries.

There appears to be several reasons for the reduction in consumer acceptance of diesel cars. Car buying is an emotional as much as rational decision and with the systematic cheating that has been exposed some car-buyers may have decided that driving diesel does not portray the image they wish. There is also evidence of a decline in diesel second hand values in some markets that will lead to higher leasing costs or poor resale value. The increasing number of LEZs will undoubtedly impact upon resale values and the appeal of buying diesel. In addition, the failure to compensate diesel drivers or address the high emissions on many models may also have had a role with the ongoing revelations that manipulation of emissions after-treatment systems has been and may still be common practice in parts of the industry.[17]

A new representative survey commissioned by T&E to Ipsos Mori underlines the loss of consumer acceptance and that the high past market share is unlikely to be reached again.[18] 69% of consumers in nine of Europe's most important car markets say that it is "not too likely" (31%) or "not at all likely" (38%) that the next car they plan to buy or lease will be a diesel car. The rejection is particularly strong in Belgium (77%) and Germany (79%), while only a slight majority of consumers in Poland (51%) and Italy (59%) is not planning to buy or lease a diesel car anymore.

[16] https://www.transportenvironment.org/publications/cars-engines-can-they-ever-be-clean

[17] https://www.automobilwoche.de/article/20181020/NACHRICHTEN/181029999/medienbericht-auch-euro-d-temp-diesel-von-opel-unter-verdacht

[18] The survey was undertaken during the first two weeks of September 2018 in nine European countries: Belgium, France, Germany, Great Britain, Hungary, Italy, Poland, Spain, and Sweden. In each country a sample of 500 adults were surveyed online meaning there was a total of 4,500 citizen attitudes polled. While the sample in each country was not large it was designed to be representative. The precision of Ipsos online polls is measured using a credibility interval. In this case, the poll has a credibility interval of ±5.0 percentage points for respondents in each country, and ±1.7 percentage points for all respondents surveyed.

How likely is it that the next car you buy or lease will be a diesel car?

	Total	Belgium	Poland	Sweden	Hungary	France	Germany	Great Britain	Italy	Spain
Very likely	6.7%	3.7%	6%	6.6%	6.1%	11.8%	3.8%	6.1%	7.4%	8.4%
Somewhat likely	25.3%	18.8%	42.9%	21.4%	22.9%	24.6%	16.5%	21.6%	33%	25.6%
Not too likely	30.5%	28.2%	35.2%	36.6%	29.3%	27.9%	26.3%	28.9%	32.3%	29.7%
Not at all likely	37.6%	49.3%	16%	35.4%	41.7%	35.8%	53.4%	43.3%	27.3%	36.3%
Overall likely	**31.9%**	**22.6%**	**48.8%**	**28%**	**29%**	**36.4%**	**20.3%**	**27.8%**	**40.4%**	**34%**
Overall unlikely	**68.1%**	**77.4%**	**51.2%**	**72%**	**71%**	**63.6%**	**79.7%**	**72.2%**	**59.6%**	**66%**

Source: IPSOS poll September 2018

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Table 1 - Responses on intention to buy or lease a diesel car

When asked about the reasons for turning away from diesel cars, consumers most frequently replied that they were concerned that diesel cars contribute to bad air in their cities (41%). Respondents from Great Britain (46%), Italy (49%) and Spain (46%) were particularly concerned about this, whereas consumers in Belgium (36%), Poland (36%) and Germany (35%) were slightly less worried.

The menace of not being able to enter city centres anymore is equally cited as one of the main reasons for not planning to buy a diesel car anymore. More than one in five of the surveyed consumers (21%) explicitly cite this reason. This is particularly true for Germany (34%) where there has been a long series of court rulings that oblige cities to ban certain diesel cars, the introduction of new LEZ and further announcements about upcoming LEZ.

Why is it unlikely that the next car you buy or lease will be a diesel car?

	Total	Belgium	Poland	Sweden	Hungary	France	Germany	Great Britain	Italy	Spain
Diesel cars cause air pollution, contributing to bad air in our cities	41%	36%	36%	38%	40%	42%	35%	46%	49%	46%
I don't drive too many kilometers to justify a diesel car	33%	39%	24%	37%	35%	41%	39%	24%	31%	21%
Taxes on diesel will probably increase	32%	37%	19%	29%	20%	37%	27%	43%	22%	53%
I may not be able to enter city centers anymore	21%	20%	21%	16%	14%	13%	34%	14%	23%	33%
It's too expensive	21%	21%	31%	20%	19%	21%	20%	24%	18%	14%
Other reason	12%	12%	12%	17%	17%	10%	9%	16%	8%	9%

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Table 2 - Responses on reasons why purchase or lease of diesel is unlikely

The consumer survey results highlight the importance that air quality considerations are having on consumer choices, and the notable effect of discussions about and announcements of low-emission zones in Europe. It also demonstrated that in parallel to the decreasing popularity of diesel cars, many European consumers today are ready to embrace electric cars, with 40% of respondents considering it somewhat

(33%) or very (7%) likely that the next car they buy will be electric or fuel cell powered vehicles.[19]

3. Not unpopular: More than two thirds of consumers support bans of dirty cars

One surprising result from the survey is that more than two thirds (67%) of consumers in the 9 surveyed countries say they "somewhat" or "strongly support" measures that restrict access to city centres to cars with high emissions. Only 10% "strongly oppose" low-emission zones.

Restricting access to city centres to cars with high emissions

	Total	Belgium	Poland	Sweden	Hungary	France	Germany	Great Britain	Italy	Spain
Strongly support	24.5%	19.7%	21.3%	23.9%	38.6%	19.1%	18.3%	23.7%	29.2%	26.6%
Somewhat support	41.6%	39.9%	45%	39.3%	37.8%	41.4%	38.9%	48.8%	45.4%	37.8%
Somewhat oppose	23.8%	29.5%	26.4%	25.2%	16.9%	26.9%	26%	19.7%	19.2%	24.4%
Strongly oppose	10.1%	10.9%	7.3%	11.6%	6.6%	12.5%	16.8%	7.7%	6.1%	11.2%
Overall support	**66.1%**	**59.6**	**66.3%**	**63.1%**	**76.5%**	**60.5%**	**57.2%**	**72.6**	**74.7%**	**64.5%**
Overall oppose	**33.9%**	**40.4**	**33.7%**	**36.9%**	**23.5%**	**39.5%**	**42.8%**	**27.4**	**25.3%**	**35.5%**

Source: IPSOS poll September 2018

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Table 3 - Responses on opinion regarding restrictions for cars with high emissions

The support for low emission zones is the highest in Hungary (77%), Italy (74%) and Great Britain (73%). Countries in which consumer support was relatively lower included Belgium (60%), France (60%) and Germany (57%).

The results show that although low-emission zones have implications for the mobility options of citizens the desire for healthy air offsets this concern.

Conclusions & recommendations

This briefing highlights that a steadily growing number of European cities are introducing and strengthening low-emission zones as part of wider efforts to bring about urgently needed improvements in air pollution levels. There are a range of factors driving the introduction of LEZs, including increased pressure to meet air pollution limits. However, the Dieselgate scandal has undoubtedly provided strong impetus as it exposed that anticipated improvements in future air pollution levels would not be materialising as quickly as hoped and anticipated.

At present the introduction of LEZs is most prevalent in Western, Northern and Southern European cities, but there are also several cities in Central and Eastern Europe that are considering adopting low-emission zones. Sales data together with the results of a pan-European consumer survey show that consumers are continuing to turn away from diesel, with 69% saying that it is "not too likely" or "not at all likely" that their next car will be a diesel. Air quality concerns and the effect of city bans are cited as main drivers for these choices. Finally, the survey shows low-emission zones are not unpopular - more than two thirds of

[19] https://www.transportenvironment.org/sites/te/files/publications/2018_10_Ipsos%20consumer_survey%20on%20attitudes%20towards%20cleaner%20cars_final.pdf

consumers supporting the bans. These messages are encouraging for cities taking action for clean air: Their efforts are paying off and there is broad public support.

However, cities will not be able to solve Europe's air pollution problems on their own. Whilst low-emission zones can accelerate the transition to cleaner mobility across Europe, they need to be flanked by policies that stimulate the supply of low and zero emission vehicles. Ambitious post-2020 emission standards for new cars can act as a strong incentive to roll out more electric cars, thus drastically reducing air pollution levels in urban areas. Such policies would ensure consumers can choose from a sufficient number of clean cars, offering them affordable alternatives to keep accessing low emission zones. An analysis by T&E from March 2018 found that the sales of electric vehicles are not held back by a lack of charging points, but by the limited availability of vehicles.[20]

The effectiveness of LEZs is entirely dependent upon their design. It is therefore essential that **cities should be free to design their urban vehicle access restriction policies as they see fit the local circumstances, public health and environment.** Rather than arbitrarily banning specific euro-classes, cities should consider making use of remote sensing data. Linked to a camera for number plate recognition it is possible to identify grossly polluting cars and to require these to be repaired, have the emission controls upgraded, or banned from the city. In this way cities can target specific models and make the exclusions more effective and fairer. In addition:

- **A comprehensive EU-wide programme is needed to clean up the 43 million of dirty diesel cars and vans on the road today.** Progress to date is piecemeal and slow. The Volkswagen repair programme edges forward slowly, but most other carmakers appear to have made minimal progress through voluntary action. In Germany, German carmakers have committed to clean up their dirty diesel cars and pay into a fund to support cleaner air; but in the rest of the EU there is no such commitment or action. A consistent EU-wide approach is needed.

- **A mix of hardware and software solutions is needed to clean up the dirty diesels still on the road. The effectiveness of these fixes must be independently certified** to ensure significant emission reductions are achieved in the real-world as claimed by carmakers. Consumers should be compensated for any reduction in fuel efficiency. Where fixes are not possible, not carried out by the manufacturers, or cars are not made available by customers these vehicles must be removed from circulation so they cannot be driven until repaired. The system of Periodic Technical Inspection must check upgrades have been implemented successfully and it should also be illegal to knowingly sell or export a car that has not been properly upgraded.

- **In addition to coordinating measures at EU level, governments should take action to restrict the influx of dirty diesels.** This is legally possible as a recent legal analysis commissioned by T&E found.[21] It reviewed near-term options available to Member States to restrict the influx of highly polluting second-hand diesel vehicles under Directive 2007/46/EC (on type-approval of new vehicles) and Directive 2008/50/EC (on air quality). It concludes that under certain conditions, Member States may restrict the circulation of dirty diesels, including a temporary outright circulation ban and a longer-term measure provided new evidence on safety or public health detriment is shown.

[20] https://www.transportenvironment.org/news/supply-chargers-not-standing-way-ev-sales-car-availability

[21] https://www.transportenvironment.org/sites/te/files/publications/Legal%20Analysis%20-%20Measures%20on%20Second-Hand%20Diesel%20Vehicles.pdf

Further information

Jens Müller
Diesel & Air Quality Coordinator
Transport & Environment
jens.mueller@transportenvironment.org
Tel. +32 (0)488 367 353

Yoann Le Petit
Clean Vehicles & New Mobility Officer
Transport & Environment
yoann.lepetit@transportenvironment.org
Tel: +32(0)2 851 02 08