

# Why the new Euro 7 standards are crucial to delivering cleaner air in cities

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# 1. Impact of air pollution on health

Air pollution is the largest environmental health risk in Europe. It is a major cause of adverse health effects: it causes and aggravates respiratory and cardiovascular diseases. Heart disease and stroke are the most common causes of premature deaths attributable to air pollution, followed by lung diseases and lung cancer. The leading causes of premature deaths attributed to air pollution are heart disease and stroke, followed by lung conditions and lung cancer. In the 27 EU Member States (EU-27) in 2020, air pollution contributed to a sizable number of premature deaths. There were 238,000 premature deaths from exposure to fine particle matter (PM10 and PM2.5) above the 2021 World Health Organization guidelines and 49,000 premature from exposure to nitrogen dioxide (NO2). Acute exposure to ozone (O3) caused 24,000 premature deaths.

In 2020, the number of premature deaths attributed to exposure to fine particulate matter above the WHO guideline level fell by 45% in the EU-27, compared to 2005. Since 2020 was marked by a strong reduction in human activities due to the COVID-19 crisis, the figures for the upcoming years might not be as positive. Therefore, further efforts will be needed to meet the zero-pollution vision for 2050 of reducing air pollution to levels no longer considered harmful to health.

Besides premature death, air pollution also causes morbidity. People live with diseases related to exposure to air pollution; this is a burden in terms of personal suffering as well as significant costs to the healthcare sector. In 2019, exposure to PM2.5 led to 175,702 years of living with disability (YLDs) due to chronic obstructive pulmonary disease in 30 European countries. At the same time, exposure to NO2 led to 175,070 YLDs due to diabetes Type 2 diabetes in 31 European countries. That same year, 12,253 people across 23 European countries were admitted to the hospital with lower respiratory infections from acute ozone exposure.

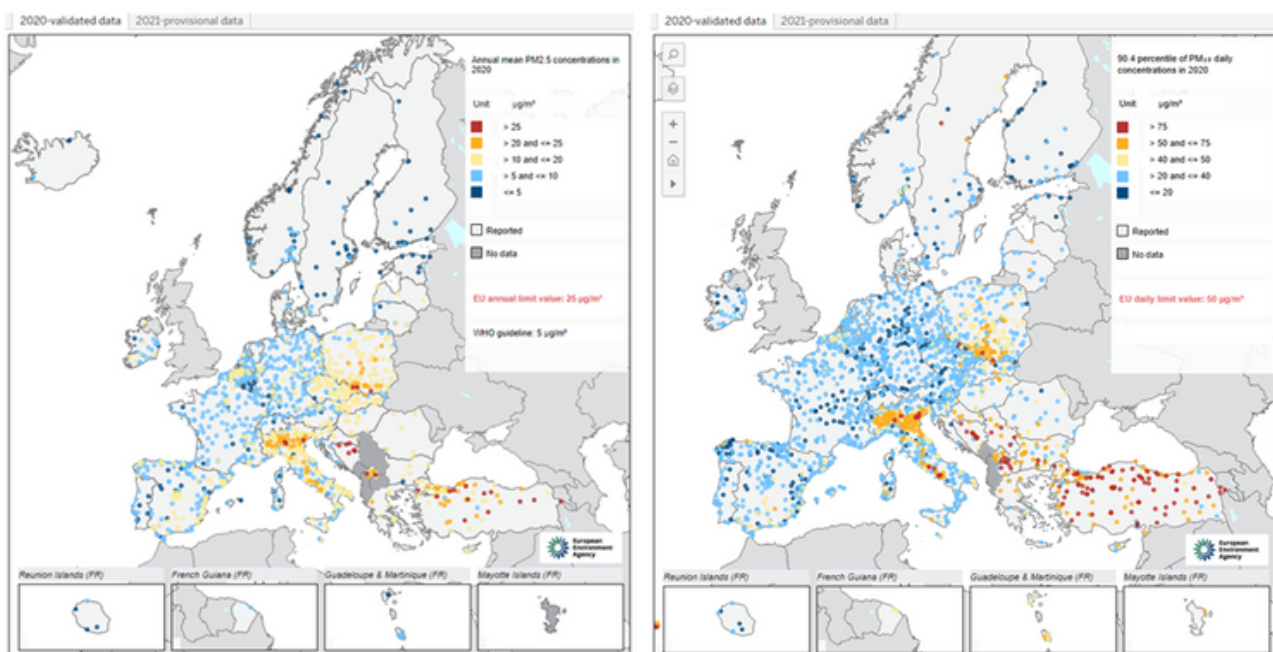
The impacts of air pollution cost society an estimated €231 to €853 billion per year, including €8 billion for lost workdays alone.

## 2. Policy context

In 2021, the World Health Organization (WHO) updated its air quality guidelines for the first time since 2005. This update is based on a systematic review of the latest scientific evidence outlining how air pollution affects human health.

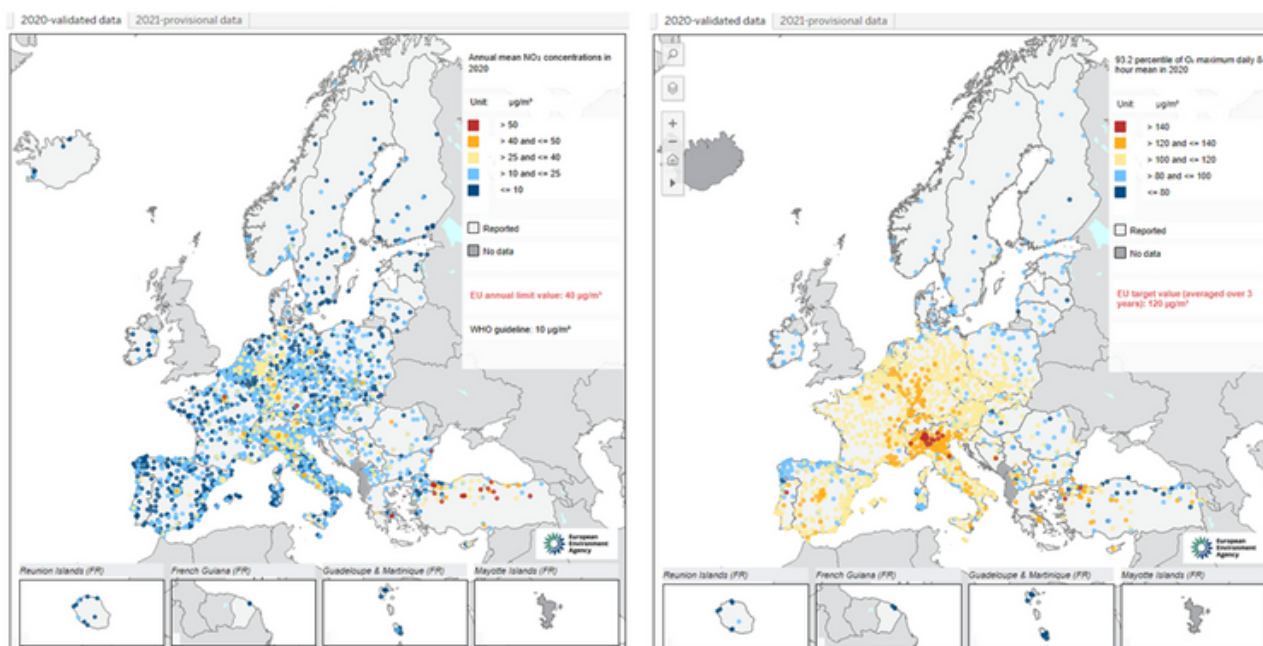
For several decades, the European Union (EU) has had air quality standards in place for key air pollutants in the ambient air quality directives. Although these values were based on the 2005 WHO air quality guidelines, the EU air quality standards did not reach the WHO's level of ambition. Between 2010 and 2023, more than 350 infringement procedures were initiated by the European Commission against Member States for failure to comply with the EU air quality legislation.

Throughout European cities and regions, there are still many areas where the levels of air pollution are well above the currently established air quality limit values. This is particularly concerning to pollutants like Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>), Nitrogen Dioxide (NO<sub>2</sub>) and Ozone, a secondary pollutant formed through chemical reactions between nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC).



*Figures 1 and 2 (from left to right): Concentrations of PM<sub>2.5</sub> in 2020 and 2021 in relation to the EU annual limit value and WHO annual guideline; Concentrations of PM<sub>10</sub> in 2020 and 2021 in relation to the EU daily limit value.*

*European Environmental Agency*



Figures 3 and 4 (from left to right): Concentrations of NO<sub>2</sub> in 2020 and 2021 in relation to the EU annual limit value and WHO annual guideline; Concentrations of O<sub>3</sub> in 2020 and 2021 in relation to the EU target value.

European Environmental Agency

The European Green Deal's zero pollution action plan aims to reduce the number of premature deaths due to exposure to fine particulate matter by 55% by 2030, compared to 2005. To support this objective, on 26 October 2022, the European Commission presented a proposal for a revised Ambient Air Quality Directive, aiming to align the air quality standards more closely with the WHO recommendations.

In parallel, stricter requirements are also foreseen under the European Green Deal to tackle air pollution at source, such as vehicle emissions, either from tailpipe or non-exhaust. As part of these efforts, on November 10, 2022, the European Commission proposed the new Euro 7 emission standards for on-road vehicles. If adopted, the Euro 7 rules will apply to both light-duty (cars and vans) and heavy-duty vehicles (trucks and buses) sold in the EU as of 1 July 2025 for cars and vans and 1 July 2027 for heavy-duty vehicles.

The Euro 7 proposal includes a series of new requirements such as non-exhaust emissions like brakes and tyres, and cold-start emissions, as well as including increased real driving emission and durability requirements.





The Council's decision on Euro 7 will hamper cities' efforts to reduce air pollution. This is not the time to adopt a lenient position on vehicle emission limits; rather, it is time to deliver on the EU's ambition to provide a zero-pollution environment for all urban inhabitants and set more stringent rules on air quality. We urge the European Parliament to side with cities and regions on this important piece of legislation, lest we miss this critical opportunity to clean the air.

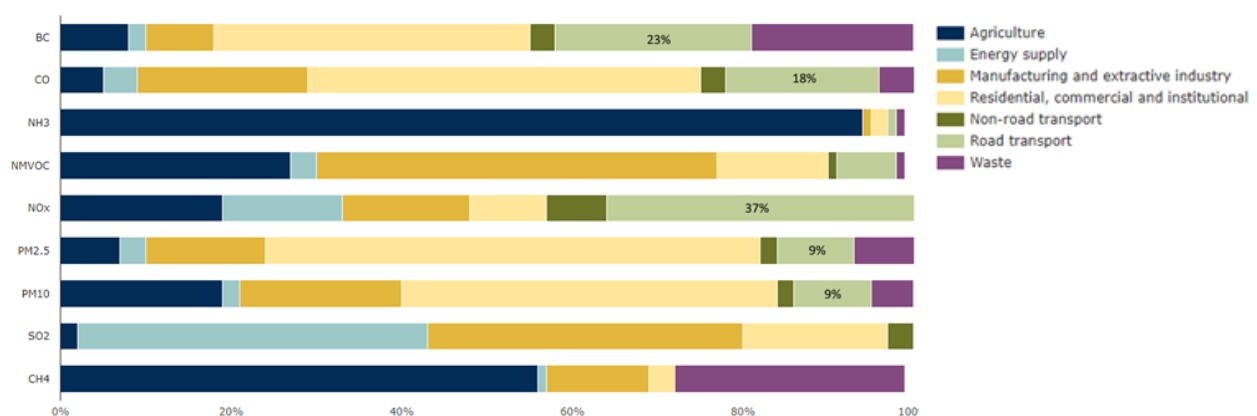
**André Sobczak**

Secretary General EUROCITIES

# 3. Contribution of vehicle emissions to air pollution in cities

Vehicle emissions from motorized traffic are a major threat to public health, and also a major source of inequality and injustice, as they affect, disproportionately, low-income populations that use cars much less, and vulnerable groups such as children, the elderly, and poorer communities. Road traffic pollution bears an enormous cost to health systems. According to the latest estimates from the CE Delft to EPHA, vehicle emissions translate into a total cost to the European public health system of more than 1,200 € per year per inhabitant.

According to the European Environment Agency, around two-thirds of reported exceedances of air quality standards for NO<sub>2</sub> were attributable to road traffic-related pollution between 2014 and 2020. This is because on average in the EU, the largest contribution to nitrogen oxide (NO<sub>x</sub>) pollution is from road transport (37%). This proportion rises to 47% in urban areas, where most Europeans live. Furthermore, 89% of the EU's urban population is exposed to Nitrogen Dioxide (NO<sub>2</sub>) levels above the WHO guidelines.



*Figure 5: Contributions to EU-27 emissions of BC, CO, NH<sub>3</sub>, NMVOCs, NO<sub>x</sub>, primary PM<sub>2.5</sub>, SO<sub>2</sub> and CH<sub>4</sub> from the main source sectors in 2020.*  
European Environmental Agency

Many public authorities are putting the improvement of air quality high on their agenda, but their health and environmental objectives can only be achieved with the help of correspondingly strong and effective EU legislation on vehicle emissions. A more ambitious Euro 7 proposal is essential for public authorities to comply with the new air quality standards proposed by the European Commission and people's right to breathe cleaner air. Several public authorities have already taken the World Health Organization air quality standard as the reference within their environmental and transport policies.

The EU must put in place a legislative and regulatory framework that meets the needs of our cities and the rights of our citizens to breathe cleaner air.





# 4. Key arguments for a more ambitious Euro 7

The current Euro 7 proposal brings positive aspects like the increased requirements for emissions monitoring and testing, increased durability and the inclusion of limit values for tyre and brake wear. Contrary to the arguments of the automotive industry, it is also technically and economically attainable with the current level of technologies, as recommended by the scientific consortium ('CLOVE Consortium') that helped the Commission prepare the new standards.

However, its level of ambition must be sufficient to help cities achieve full compliance with the air quality standards recently published as part of the revision of the Ambient Air Quality Directive. The new limits for tyre and brake wear are especially important for the transition to electric vehicles, given that these vehicles will still produce emissions from these sources. The automotive industry supports new measures for tyres and brakes.

## 4.1. Euro 7 is essential to allow public authorities to attain the future EU air quality standards

New air quality standards were proposed by the European Commission in late 2022. If adopted by the Council and European Parliament, those standards will have to be complied with in 2030 and will imply significant efforts from the side of city authorities. Further milestones are also expected after 2030. In any case, many cities now regard the new WHO guidelines as the key benchmark and are adapting their environmental policies to work towards those goals.

In the preparatory work the European Commission has carried out to propose those standards, it highlighted on several occasions the fact that reaching the new ambient air quality regulations underpins the need for an upgrade of the standards governing tailpipe vehicle emissions of air pollutants.



Despite the proposed end date of 2035 for placing new combustion-engine cars and vans on the EU market, increasing the share of zero- and low-emission heavy-duty vehicles and new Euro 6d/VI E-vehicles entering the market, a zero-pollution level cannot be reached for NO<sub>x</sub> and total PM<sub>2.5</sub> emissions from road transport.

It is clear from the analysis carried out by one of the most authoritative air quality modelling groups in Europe, i.e. the International Institute for Applied Systems Analysis (IIASA), that full compliance will not be achieved without extra measures. In 2030, more than 52 million EU citizens will continue to be exposed to NO<sub>x</sub> concentrations higher than the WHO-recommended air quality concentration levels due to road traffic.

By failing to increase the ambition of the Euro 7 standards, EU institutions are simply shifting the burden of limiting road traffic emissions from carmakers to city authorities. An ambitious Euro 7 would have a strong positive impact on these emissions, according to a recent research study commissioned by Transport & Environment and carried out by Air Quality Consultants.



[...] implementing Euro 7 as modelled in the IA would significantly accelerate the improvements and result in greater overall reductions. Reductions in NO<sub>2</sub> concentrations of several µg/m<sup>3</sup> are predicted in each city as a result of implementing the impact assessment version of Euro 7;

Euro 7 is expected to reduce the local road component of PM<sub>2.5</sub> concentrations by several tens of per cent by 2050, and these savings would be accelerated if the 3 mg/km limit for brake wear were brought forward to 2025. While many other sources contribute to urban PM<sub>2.5</sub>, there would nevertheless be tangible benefits to achieving greater reductions in brake wear emissions in this way;

The specification for Euro 7 tyre wear limits is not yet known, but emissions reductions of several tens of per cent appear to be readily achievable. Reductions in tyre wear of this scale would deliver considerable improvements to roadside PM<sub>2.5</sub> concentrations.

As a result, we could witness a reduction of NO<sub>2</sub> pollution from road transport by over 20% already in 2030 and around 50% by 2035.

Reduction in NO <sub>2</sub> pollution from road	2025	2030	2035	2040	2045	2050
Brussels	-3%	-24%	-50%	-73%	-87%	-93%
Madrid	-3%	-23%	-47%	-69%	-81%	-84%
Milan	-3%	-22%	-46%	-64%	-73%	-73%
Paris	-3%	-23%	-48%	-70%	-84%	-88%
Warsaw	-3%	-23%	-47%	-69%	-81%	-83%

*Figure 6: Reduction in NO<sub>2</sub> pollution from road transport due to implementation of a Euro 7 aligned with the Commission's Impact Assessment in 2035 compared to the baseline.  
Transport & Environment*

This in turn could reduce concentrations of toxic NO<sub>2</sub> at pollution hotspots in Brussels, Madrid, Milan, Paris and Warsaw by between 16% and 24% already in 2035.

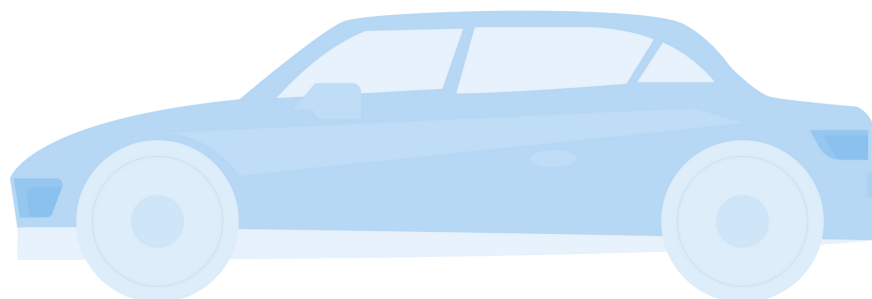
NO <sub>2</sub> Air Pollution Concentration (µg/m <sup>2</sup> )	Brussels	Madrid	Milan	Paris	Warsaw
2035 baseline	21	22	20	26	21
2035 IA	17 (-20%)	18 (-20%)	17 (-16%)	20 (-24%)	17 (-19%)

*Figure 7: NO<sub>2</sub> concentrations and % reductions in 2035 under a business-as-usual baseline scenario where Euro 7 is not implemented and with Euro 7 which follows the Commission's Impact Assessment and is implemented in 2025. Modelling is based on compliance at the worst-case modelling station.*  
*Transport & Environment*

Under the current proposal, or even worse, an even less ambitious version, cities and regions will have to implement even more stringent measures to control polluting vehicles in order to protect public health:

- Expanding Urban Vehicle Access Regulations (UVAR) schemes
- Implementing Low Emission Zones (LEZ) and Zero Emission Zones (ZEZ)
- Adopting brand-new congestion-charging schemes

Experience of existing schemes of this type shows that they are expensive to implement and manage. They also require huge amounts of political capital, as they tend to provoke strong opposition, at least in certain parts of the community.





## 4.2. The erroneous Euro 7/ electromobility dichotomy

The auto industry has strongly pushed the argument that resources and funding are scarce, so European automakers should either focus on the development and production of electric vehicles or focus on the Euro 7 for ICE vehicles (if they wish to remain a competitive industry), and that we cannot have both — so, the industry should focus on e-mobility as ICE car sales will be banned in 2035 anyway, and Europe is going electric.

The automotive industry also recently started to claim that Euro 7 would go against the fight against climate change as it would delay the transition towards zero-emission mobility. This argument is losing its substance, as Germany successfully sought to amend the EU's law to end sales of new CO<sub>2</sub>-emitting cars in 2035.

We must not forget that ICE vehicles will still circulate on European roads way beyond 2035, as cars in the EU have an average age of 12,4 years and even beyond 15 years in some countries, which means that we might still see ICE vehicles circulating in European roads by 2050.

As the private vehicle fleets in Eastern and Southern European countries are, on average, older (around 14-16 years in countries such as Czechia, Slovakia, Romania, Hungary and Greece compared to 9-10 years in France, Germany, or Belgium, [according to the latest ACEA data](#)) it is important to ensure that the emissions levels of these vehicles are as low as possible.

We must not also forget that there is a strong second-hand market for Eastern and Southern European countries and the uptake of e-mobility has different speeds across the EU, so a relevant part of the ICE fleet will end up circulating in these regions while the most developed countries fully comply with ambitious fleet electrification targets. The citizens of these countries should not be subjected to higher levels of air pollution and be treated as second-class citizens.

Finally, following a last-minute effort by Germany, the European Union has introduced in the recently approved Regulation that bans new sales of combustion-engine cars from 2035 onwards an exemption for vehicles that run exclusively on e-fuels — a nascent technology that combines hydrogen and carbon dioxide to produce synthetic fuels. This could offer a route for automakers to keep selling combustion engine vehicles after 2035, thus bringing even more need to a strong Euro 7.

## 4.3. Euro 7 is a matter of public health

Local authorities have the responsibility of safeguarding their citizens' health and quality of life. The adoption of ambitious Euro 7 Standards brings an important opportunity to decrease the negative health, social and well-being effects of transport-related air pollution from internal combustion engines. This could help prevent a significant number of premature deaths in Europe, as well as related morbidity. A strong Euro 7 Standard needs to be introduced urgently to relieve the strain on the health of our citizens, who have the right to breathe clean air.

Cities and regions must be provided with the tools to adequately protect vulnerable populations, such as older people, children, pregnant women, and those living with medical conditions, all of which are particularly vulnerable to the effects of air pollution. Ensuring fewer and cleaner vehicles on our roads is the most effective way to protect disadvantaged populations, such as low socioeconomic groups and some ethnic minorities, which are more at risk and vulnerable to air pollution exposure. It is important to note that meeting the WHO Guidelines could prevent 60% of mortality related to NO<sub>2</sub> in Europe.



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Our cities need fewer, but also cleaner cars. While electromobility is quickly becoming a reality in Europe, it is not a silver bullet, and we will still see millions of internal combustion engine vehicles circulating on our roads in the next decades. Without proper policy tools, like an ambitious Euro 7, in place, cities and regions will not be able to properly safeguard the health of their citizens and their right to clean air — this remains a major health challenge.

**Karen Vancluysen**  
Secretary General POLIS

# 5. Recommendations and calls for action from the local level

To ensure Euro 7 fully delivers on its promise to reduce pollutant emissions from road traffic, European cities and regions call on the EU co-legislators to raise the ambition of the proposed Euro 7 regulation, namely by:

- 1 Adopting the limit values recommended by the CLOVE consortium, which would reduce toxic NOx by 50% for petrol and just over 60% for diesel, as well as the fine particles by over 80%**
- 2 Ensuring that testing conditions match car usage in cities. Ensuring that the real driving emissions (RDE) testing procedures adequately reflect urban driving conditions in the real world**
- 3 Ensuring that brake particle emissions limits are designed to ensure a steep reduction of their volume, based on the technology already available on the market. It will be fundamental to swiftly adopt the recommendations and measurement methodology that will result from the work developed under the UN Task Force on Tyre Abrasion. These limits will also apply to zero-emission vehicles and are therefore essential in the transition to electrification of road vehicles**



- 4 Adopting the limit values recommended by the CLOVE consortium, which would reduce toxic NOx by 50% for petrol, just over 60% for diesel, and fine particles by over 80%**
- 5 Limiting the complexity related to the new categories of vehicles to be type-approved (Euro 7+, Euro 7g,) to facilitate their re-use in the context of low-emission zones enforcement. More clarifications are needed to better understand the new proposed categories and their impacts on local air quality, as they might risk bypassing local regulations — the new vehicles categories based on geo-fencing and adaptive emissions could provide a way to transfer emissions of air pollutants from LEZ and ZEZ to their adjacent areas**
- 6 Increasing the period during which the vehicle should comply with the current limit to better reflect the lifetime of vehicles (durability) and ensure vehicles remain compliant even when they enter the second-hand market:**



For cars, to 240,000 km and 15 years (from 200,000 km and 10 years)



For trucks smaller than 16 tonnes, to 700,000 km and 15 years (from 375,000 km and 8 years)



For trucks larger than 16 tonnes, to 1.2 million km (from 875,000 km)

In conclusion, a strong Euro 7 emission standard is vital for European cities and regions, as this presents a (maybe final) opportunity to lessen the detrimental consequences of road transport-related air pollution from internal combustion engines on our citizens' health, social and economic well-being. We must accelerate the shift to sustainable and clean mobility. Cities and regions hold the keys to fundamental change and are leading by example. Therefore, their efforts must be supported by the EU regulations, and these must not be a burden. Only by providing our transport sector with the requirements we can aid local authorities in reducing air pollution in cities and minimising the number of premature deaths and associated morbidity in Europe.

# Acknowledgements

'Why the new Euro 7 standards are crucial to delivering cleaner air in cities' is a joint report of the Clean Vehicles and Air Quality Working Group of POLIS and EUROCITIES.

*For more information on the Clean Vehicles and Air Quality Working Group, click [here](#).*

*For more information on POLIS, click [here](#).*

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