



## A NEW APPROACH FOR POST-EURO 6 STANDARDS

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Enabling European cities & regions to improve air quality by reducing vehicle emissions

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**POLIS**  
CITIES AND REGIONS FOR TRANSPORT INNOVATION

## About this document<sup>1</sup>

This document presents the position and recommendations of the POLIS Network to develop a new approach for post-Euro 6 vehicle emission standards.

The main recommendations of this document are the following:

- A new and effective vehicle emission standard must put the protection of human and environmental health at its core.
- The responsibilities of vehicle manufacturers, vehicle owners and public authorities should be clearly defined.
- Effective monitoring and enforcement are needed to restore trust in the industry and the European standards.
- Less complexity, more collaboration and transparency with an effective European approach are needed.
- Policies that support innovation in vehicle emission testing should be future proof and be aligned with the goals of the European Green Deal.

## About POLIS

POLIS is the leading network of European cities and regions working together to promote sustainable mobility through the deployment of innovative transport policies and solutions.

The POLIS Working Group on Clean Vehicles & Air Quality addresses vehicle emissions as well as alternative fuels and related refuelling infrastructure.

On July 2020, POLIS submitted recommendations for the development of a new Euro Standard in a post-euro 6 context to the AGVES expert group from the EU DG for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW). These recommendations provide more details and information that have been used in this position paper, and are available at:

<https://www.polisnetwork.eu/document/vehicle-emissions-in-a-post-euro-6-context/>

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# 1. Euro standards & air pollution from vehicles emissions: What is at stake?

Current combustion vehicles emit more than what is expected, based on air pollutant emissions limit values. This is due to several shortcomings in the European type approval legislation, especially when it comes to emissions testing and problems with tampering. Improvements made to the legal framework<sup>2 3</sup> (e.g. improved surveillance) and the testing procedures (RDE<sup>4</sup>) have yielded positive results. However, real world vehicle emission problems remain persistent, even in the latest Euro 6d vehicles. A significant improvement to Euro 6d is required in the new emission standard to restore trust in the industry, and in the initiatives taken by different levels of governance to protect human and environmental health.

It is a reality that traffic emissions are a major (and in case of NOx, the main) source of local air pollution<sup>5</sup> which is a cause for significant health loss<sup>6</sup>. Research shows that premature death in the EU due to tailpipe emissions<sup>7</sup> has long surpassed the fatal traffic accident statistics<sup>8</sup>. For the World Health Organisation (WHO), there is sufficient evidence in humans of the carcinogenicity of diesel exhaust<sup>9</sup>. Further legislation urgently needs to consider these health impacts in the development of an effective and efficient post Euro 6 standard. As stated in the Green Deal, the EU emission targets need to be more stringent<sup>10</sup>. Moreover, other pollutants need to be considered and properly regulated as it is done in other parts of the world.

Well-defined testing procedures and conditions for different lifecycle stages are in place, but currently tend to stimulate manufacturers (OEMs<sup>11</sup>) to design vehicles to merely pass the test, rather than to strive for minimal emissions during real world driving. The current testing framework offers insufficient guarantees to avoid illegal defeat devices from being detected and thus installed<sup>12</sup>. The complex and detailed testing requirements

<sup>2</sup><https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R0858&from=EN>

<sup>3</sup><https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007R0715&from=EN>

<sup>4</sup> Real Driving Emissions test, this is a new emissions test in which vehicle emissions are monitored during a test cycle driven on the road instead of in laboratory

<sup>5</sup> <https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-air-pollutants-8/transport-emissions-of-air-pollutants-8>

<sup>6</sup> <https://www.eea.europa.eu/publications/air-quality-in-europe-2019>

<sup>7</sup> Assessment based on data from 2015. The study only takes tailpipe PM 2,5 and ozone (resulting from NOx-emissions) into account: <https://theicct.org/publications/health-impacts-transport-emissions-2010-2015>

<sup>8</sup> [https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip\\_16\\_863/IP\\_16\\_863\\_EN.pdf](https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_16_863/IP_16_863_EN.pdf)

<sup>9</sup> [https://www.iarc.fr/wp-content/uploads/2018/07/pr213\\_E.pdf](https://www.iarc.fr/wp-content/uploads/2018/07/pr213_E.pdf)

<sup>10</sup> <https://www.europarl.europa.eu/news/en/press-room/20200419IPR77407/eu-covid-19-recovery-plan-must-be-green-and-ambitious-say-meeps>

<sup>11</sup> Original Equipment (vehicle) Manufacturer

<sup>12</sup> [https://www.eca.europa.eu/lists/ecadocuments/brp\\_vehicle\\_emissions/brp\\_vehicle\\_emissions\\_en.pdf](https://www.eca.europa.eu/lists/ecadocuments/brp_vehicle_emissions/brp_vehicle_emissions_en.pdf)

create a difficult context for surveillance authorities. The current durability requirements do not guarantee low emissions over the full lifecycle of vehicles and conformity tests are limited to relatively young vehicles only<sup>13</sup>. Furthermore, the current legislation fails to reliably regulate liability, which is why in the European Union it takes years of lengthy and complex legal procedures before loopholes in the regulation get closed and vehicle emission problems get remediated<sup>14 15 16</sup>, if action is taken at all.

This leaves national, regional, and local authorities unable to perform effective enforcement and steers them towards measures such as access restrictions in cities, which mainly affect owners instead of vehicle manufacturers. A completely different approach to the development of a new Euro Standard is also very much needed for European cities and regions, which aim for and are working towards a significant improvement in air quality. Business as usual is not an acceptable answer, since vehicle manufacturers can apply already available cleaner technologies and continue to innovate to reduce and phase out pipeline emissions. EU Type approval legislation must guarantee that only the less pollutant emitting vehicles can be produced and enter the market. Otherwise, public local authorities will have no other choice than to continue to introduce more restrictive measures to protect their citizens from harmful air pollutants.

## 2. The key role of cities and regions in reducing transport emissions

When it comes to reducing vehicle emissions, local policy makers face different challenges, such as the heavy reliance on conventionally fuelled private cars and the slow shift towards more sustainable transport modes. However, these local challenges also come with several opportunities.

1. Air quality plans, in combination with Sustainable Urban Mobility Plans (SUMP)s<sup>17</sup>, set specific goals and identify measures that can monitor, reduce, and control air pollutants. Examples include (ultra) Low or even Zero-Emission Zones (LEZ, ZE)<sup>18</sup>, the procurement of clean vehicles for public fleets and incentives for and promotion of clean vehicles for other captive fleets and citizens.

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<sup>13</sup> Conformity checks are limited to the 'useful lifecycle of vehicles' (< 100.000 km or less than 5 years old), while the average fleet age of passenger cars in the EU is above 10 years, and their average lifecycle is increasing. See:

[https://www.acea.be/uploads/publications/ACEA\\_Report\\_Vehicles\\_in\\_use-Europe\\_2019.pdf](https://www.acea.be/uploads/publications/ACEA_Report_Vehicles_in_use-Europe_2019.pdf)

<sup>14</sup> Cases T-339/16, T-352/16, T391/16 <https://curia.europa.eu/jcms/upload/docs/application/pdf/2018-12/cp180198en.pdf>

<sup>15</sup> <https://ec.europa.eu/transparency/regdoc/rep/1/2019/EN/COM-2019-208-F1-EN-MAIN-PART-1.PDF>

<sup>16</sup> Case C-693/18: <https://curia.europa.eu/jcms/upload/docs/application/pdf/2020-04/cp200052en.pdf>

<sup>17</sup> [https://eur-lex.europa.eu/resource.html?uri=cellar:82155e82-67ca-11e3-a7e4-01aa75ed71a1.0011.02/DOC\\_4&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:82155e82-67ca-11e3-a7e4-01aa75ed71a1.0011.02/DOC_4&format=PDF)

<sup>18</sup> <https://urbanaccessregulations.eu/>

2. The impacts of the current European legal framework in terms of vehicle emissions and the approach of vehicle manufacturers to this, are not only affecting the health of European citizens and their trust in the automotive industry, but also the effectiveness of the decisive measures that local authorities are taking to improve air quality. For example, most LEZ are currently technology-neutral and in many cases are based on the Euro Standards. However, as expected results are insufficient, especially for NO<sub>x</sub>, European cities and regions need to make extra efforts, such as using other tools to monitor vehicle emissions in normal driving conditions, for example via remote sensing.
3. As a result of the difficulties encountered under the type approval vehicle legislation, and by following more ambitious goals in terms of air and CO<sub>2</sub> emission reductions, more cities and regions are planning to and implementing diesel and petrol vehicles bans from urban areas. Moreover, battery electric vehicles are now the focus of many local authorities' roadmaps to phase out combustion vehicles, achieve their environmental goals and thus protect the health of their citizens.
4. The European Green Deal is an opportunity to give direction and achieve clear goals to cut emissions from transport by aligning the air quality standards to the WHO guidelines, set up more stringent air pollutant emissions standards for combustion-engine vehicles and support the deployment of alternative fuel public recharging infrastructure. In that way, the Green Deal can also strengthen the innovative and market position of European vehicle manufacturers and support the goals and actions of local authorities in the further roll-out of electric mobility.

### 3. A call for action from the local level: Recommendations

#### 1. A new and effective vehicle emission standard must put the protection of human and environmental health at its core

a. The new legislation must move away from the technically detailed and complex type-approval testing in which vehicle manufacturers demonstrate the performance of specific emission control systems with a prototype. Instead, the new legislation should consist of clearly formulated general principles that safeguard the protection of the environment and public health. A main principle should be that during the full lifecycle of the vehicle, in real driving conditions, effective and correctly designed emission control



systems are used in such a way that emissions are kept to a minimum and no harmful emissions occur.

b. These general principles should be accompanied by provisions that are simply formulated, unambiguous and with measurable environmental requirements for emission limits. Those limits should apply in all driving conditions and during the full lifecycle of the vehicle.

## 2. Clear responsibilities for all stakeholders involved

To protect citizens from harmful emissions, a swift response is required in case emission issues arise. Remedial action can only be taken quickly and effectively if the legislation makes it fully clear when the liability for the emission performance of the manufacturer stops and that of the vehicle owner starts. POLIS proposes the following:

### a. Responsibilities of the OEM

- Demonstrate the effectiveness of their emission control technology by meeting emission limits in on-road type-approval tests.
- Durability of these systems, meeting at least the minimum requirements.
- Taking necessary measures to protect the vehicle and its systems from manipulation and tampering.
- Reliably monitoring the status of the emission control systems and emission performance of the vehicle during its full lifecycle. Such monitoring systems must actively notify the driver when the vehicle fails to meet its emission requirements. These instances must be transparent and easy to check by relevant stakeholders, such as maintenance centres and authorities (Periodic Technical Inspection - PTI, Market Surveillance, 3rd parties seeking to perform in service conformity tests, ...). Only when this monitoring system reliably indicates an emission problem, the responsibility for the vehicle emissions can shift to the owner.
- The monitoring system needs to transparently provide all relevant data when an auxiliary emission strategy (AES) gets activated within the vehicle to type-approval authorities, market surveillance authorities and 3rd parties investigating the emission performance of the vehicle. If an AES gets triggered too frequently or it causes significant emission increases while driving in real world conditions, the OEM needs to provide a solution.
- Providing quick and effective solutions to be implemented through call-back actions in case emission problems are detected.

**b. Responsibility of the owner**

If the monitoring system indicates an emission problem, the vehicle owner needs to act promptly, bringing the vehicle back into a fully functional state in which the vehicle continues to reliably meet the emission limits.

**c. Responsibility of the public authority**

- Effective surveillance and enforcement
- Transparency to facilitate emissions testing by market surveillance authorities, type approval authorities and 3rd parties.

**3. Effective monitoring and enforcement to restore trust in the industry and the European standards**

a. Currently, the legislation raises too many thresholds in the form of detailed requirements and boundary conditions for independent parties to perform emission tests. A simple, yet professionally executed emissions test by a 3rd party on a vehicle should be valid, especially if the monitoring system does not indicate a specific problem that the owner must solve.

b. To further bring the threshold for independent testing down, once the testing party has provided all the details about the emission test performed and the vehicle(s) involved, the burden of proof should shift to the OEM, to continue the investigation and provide a solution to the 3rd party.

c. When independent testing shows that the requirements set out in POLIS' first recommendation are not met in real-world conditions, the OEM is required to provide a solution.

**4. Less complexity, more collaboration and transparency with an effective European approach**

a. The implementation of POLIS' first recommendation will help in putting together a less complex legal framework. Complexity can be further reduced by striving for harmonisation between light-duty (without taking commercial vehicles separately) and heavy-duty vehicle legislation and a technology-neutral approach in formulating requirements.

b. Reliable and transparent data from the OEM, the granting type-approval authority and from monitoring systems (see POLIS recommendation 1) should allow authorities and 3rd parties to check real-world compliance with environmental goals, assess the durability requirements of emission control systems, fight illegal tampering, and organise independent (in-service conformity) testing.

c. The existing type-approval process is fragmented across different national and regional authorities. It is time for a European type-approval agency, which should serve as the single competent authority to grant market access, offering better guarantees in terms of environmental performance. This European type-approval agency could also facilitate harmonised and uniform call-backs and decisive action EU-wide in case emission issues are found.

d. Cities and regions' challenges to meet environmental goals due to the current type-approval framework need to be acknowledged. Local authorities cannot remain responsible for not meeting air quality norms, while at the same time they are not considered as a key partner in the development of new Euro Standards.

## 5. Policies that support innovation are future-proof

a. Europe needs to take this opportunity to achieve emission-free sustainable road transport. The introduction of more stringent vehicle emission standards should go hand-in-hand with the development of innovative alternative fuel charging infrastructure and vehicles. To meet the ambitious goals of the European Green Deal at all levels, including the local one, harmonisation with other actions and legislation at the EU level is needed.

b. Cities and regions' efforts in the introduction of the LEZs and ZEZs and the deployment of alternatively fuelled vehicles and charging infrastructure, should be recognised and further encouraged. The technology-neutrality approach for light-duty vehicles (LDVs) in cities should be replaced by zero-tailpipe emission vehicles. For the heavier duty vehicles, electric modes within urban areas should be considered and encouraged.

## For more information

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