

POST EURO 6/VI EMISSION STANDARDS OVERVIEW

1. CONTEXT

With the Advisory Group on Vehicle Emissions, and the launch of a public consultation, the European Commission has started collecting inputs on the need and content of what could be a future post Euro6/VI emission standard, for simultaneously passenger cars, light commercial vehicles, and heavy-duty trucks.

The PFA welcomes the principle of transparency of this initiative. We believe that the need and the aim shall be clearly defined.

Air quality remains a concern in many countries in Europe. Road transport is still a contributor to air pollution, in particular in major cities. However, the relative contribution is very much depending on the pollutant as the recent data related to COVID shut down have shown.

Euro 6/VI entered into force six years ago, but was introduced in several steps, the latest (Euro 6d – Euro VI E) only applying to all vehicles respectively in 2021/2022.

- The Real Driving Emissions test (RDE), introduced with Euro 6d-TEMP, has definitively changed the paradigm on vehicle emissions: vehicles designed to comply with the RDE based regulation, which covers a wide range of driving conditions, are often well below the regulated limits in most usage conditions (see links below)
 - ICCT on HDV Heavy Duty Vehicles: <https://theicct.org/publications/fact-sheet-inuse-nox-hdvs-us-eu>
 - ACEA on LDV Light Duty Vehicles: <https://www.acea.be/publications/article/access-to-euro-6-rde-monitoring-dat>
- RDE was first introduced in 9/2019 for all cars, and the upcoming results on air quality of the latest Euro 6 steps will only be measurable when such vehicles will represent a significant share of the fleet.

Therefore, the fleet renewal toward Euro 6d / Euro VI E is a key parameter of a decreasing contribution of road transport to air pollution. These vehicles start being available and will bring a major improvement on the road as demonstrated in RDE tests.

In addition to that, the EU commitment to cut CO2 emissions will bring an additional benefit to air quality via the development and spreading of Pure Electrical Vehicles and Plug in Hybrid Electric Vehicles with a zero tailpipe emission capability that will automatically reduce the amount of pollutant emissions without any additional strengthening of the emission regulation.

2. ANY CHANGE IN VEHICLES EMISSIONS REGULATION SHOULD TARGET AN EFFECTIVE IMPROVEMENT OF AIR QUALITY

Recent studies during Covid period, with very low traffic in cities, have confirmed that road transport remains a major contributor on NO_x emissions, but is a minor contributor on PM emissions.

Recent simulation studies by ANSES, AERIS and CONCAWE, have shown that the fleet renewal with most recent Euro 6d vehicles has a huge impact on lowering NO_x concentration in cities leading by 2030 to a near 100% of compliance for the EU monitoring stations.

These studies have also shown that further tightening of exhaust regulatory limits on NO_x will not significantly improve the air quality in cities, which should however be the main target of Euro 7.

On the other hand, the reduction of the limits could cause unwanted effects such as:

- increase the price of vehicles and consequently slow down the fleet renewal
- Increase the pollution generated by the manufacturing and the recycling of vehicles complying with such limits (e.g. extraction of special resources ...)

Nevertheless, if new emission limits were proposed for the next regulatory step, the PFA would call for a comprehensive demonstration by simulation of the additional impact on air quality of these new limits, in addition to fleet renewal.

If this assessment demonstrates the need and the benefit of a further step in reducing some pollutants emitted by passenger cars, light commercial vehicles, and heavy duty trucks, it will then support automotive industry in developing technologies that are justified and fit for purpose.

3. ANY CHANGE IN VEHICLES EMISSIONS REGULATION SHOULD CONCENTRATE ON ACTUAL USE CASES OF VEHICLES

If justified by air quality benefits, any further tightening of emission limits should remain in line with the different use cases of the various vehicle categories and keep as a basic the existing differences between LDV and HDV regulation.

Any improvement or simplification of these regulations should not miss the principle of statistically representative “real driving” conditions. Otherwise, it would drastically increase the cost for the consumer if the vehicles had to comply with very exceptional driving or usage patterns that are not representative.

Such over cost, not justified by any significant improvement in air quality, would be a severe threat of the competitiveness of European Automotive industry.

4. FRENCH AUTOMOTIVE POSITION ON CLOVE PROPOSAL

On October 27th, the CLOVE¹ consortium presented in AGVES² meeting a global proposal to the future Euro7 / EURO VII emission limit standards for light duty and heavy-duty vehicles. We consider that the proposal as formulated will have a major and negative impact on our industry in France and in Europe with a limited benefit on Air Quality.

¹ CLOVE : Consortium for ultra LOw Vehicle Emissions - Technical consortium mandated by the European Commission

² AGVES : DG GROW Advisory Group on Vehicle Emission Standards

As a foreword, we want to remind the public decision makers that all the measurements that have been presented by the CLOVE and that are used to justify their proposal, are based on a limited number of vehicles, mainly Euro6d-temp and in limited number of test conditions (RDE and over RDE) but not as wide as the Euro7 proposal they formulated. If they had tested the selected vehicles in the extreme conditions they propose, the results would have been worse, and the requirements of their Euro 7 proposal would not have been met.

We are especially concerned with the points developed below.

1. **The “Best available technology” approach** taken by the CLOVE will increase significantly the cost of all the vehicles, even the mass market ones (A, B and C segments).

Indeed, a best technology approach induces high-cost systems to be implemented on vehicles. This approach will exclude the most affordable vehicles from the market and incite the European citizens to keep their old vehicles, slowing down the fleet renewal and the benefit of technology introduction.

Our vision is to apply a well-balanced approach between cost of the needed technologies and the air quality benefits in line with the proportionality principle set in the Treaty on European Union³ and Treaty on the Functioning of the European Union⁴.

2. **Emission limits to be applicable to every single trip instead of targeting representative behaviour of EU drivers.** Regulation should create an optimal balance of limit values and test conditions that restrain in a reliable and statistically relevant way the emissions in real driving operations.

- This approach would lead manufacturers to design vehicles in order to address the worst use case situation in Europe (e.g. one short trip up hill with a cold engine at high altitude, at cold temperature while towing). It would lead to a totally disproportionate and unjustified cost that each and every European owner will have to pay for, even if such a driving condition barely happens in real life.
- We believe, instead, that a proper work in defining the regulation is to set the appropriate set of conditions that have a direct impact on air quality, especially in high density areas.

3. **The set of limits proposed by the CLOVE are at the edge or beyond the uncertainty measurement margins of PEMS instruments.**

- As an example: CLOVE proposal for particle number emission limits (PN, in #/km) is between $6.10e^{10}$ and $1.10e^{11}$ when the RDE procedure is valid if maximum PEMS error margin is $1.10e^{11}$.
- A target for low limits, will request a consistent improvement in PEMS accuracy regulatory requirements. There is no evidence in CLOVE proposal that any significant improvement can be achieved with that respect. **This aspect is not taken into account by the CLOVE consortium.**

4. **Test Conformity Indicator (TCI)** is a new concept in emission regulation. It intends to permanently inform that the vehicle complies with the emissions limits. Although the objective is understandable, there is no evidence that it would be achievable.

State of the art with regards to OBD is, on the contrary, to set thresholds at a higher level than limits that allow a robust detection of failed components without triggering false

³ Treaty on European Union; Title 1, Common Provisions, Article 5

⁴ Treaty on the Functioning of the European Union; Protocol (No 2) Article 5 on the application of the principles of subsidiarity and proportionality

detections that can be irritating for the driver and therefore undermine its trust in alarms. This will be even more sensitive with very low limits.

5. CLOVE's proposal includes **Light Commercial Vehicles emission limits** in Light Duty Vehicle standards (i.e. Passenger cars) regardless of their specificities and their use, size, payload that justify having a distinct set of limits.

5. CONCLUSIONS

- The air quality improvement awaited from Euro 6/Euro VI and CO2 regulations is not yet visible, but the positive impact of their massive uptake in the driving fleet in the coming years has been well established by different simulation studies.
- Any new step in emission limits should be justified by a robust assessment of their incremental benefits on Air Quality and should be put in perspective with the contribution and possible limitations of other sources (e.g. industry, agriculture, residential, ...).
- It should keep addressing the specific real use of both LDV and HDV, rather than all possible cases including cases that are statistically not representative.
- The next step should also be cost efficient for the consumer, e.g. the potential benefit shall be in reasonable relation to the required effort.
- The CLOVE consortium proposals for a future Euro7 regulation are not consistent (e.g. PEMS error margin vs very low emissions limits that PEMS is unable to measure with certainty) and will lead to a huge increase in the system costs, which would rule affordable Internal Combustion Engines from the market.
- This position paper will be upgraded when the European Commission has started to detail the first topics of this Euro 7 regulation (first information end of 2020, first draft awaited in summer 2021).