

## Consultation document

### Complementary provisions to Euro 5/6 and Euro VI

*This document does not represent an official position of the European Commission. It is a tool to explore the views of interested parties. The suggestions contained in this document do not prejudice the form and content of any possible future proposal by the European Commission.*

## 1. Introduction and context

The European Union has committed itself to providing for a high level of environmental and public health protection and has taken on ambitious objectives as part of the EU air quality policy and the integrated climate and energy policy framework. Among other measures, **common EU standards** limiting the emission of atmospheric pollutants from motor vehicles have been introduced to address this situation and to **ensure the proper functioning of the single market**. Successive "Euro" emission standards for light duty vehicles were initiated in the EU starting in 1993, the most recent ones being Euro 5 and Euro 6. The work on reducing emissions is also in progress for heavy duty vehicles (buses and trucks) with the Euro VI standard. Furthermore, the European Commission has a comprehensive strategy to reduce CO<sub>2</sub> emissions from new motor vehicles sold in the European Union, to ensure that the EU meets its greenhouse gas emission targets.

In light of rapid developments in automotive technology, persistent air quality problems in urban areas, and the experience made in implementing the existing legislation, there is a **constant need to keep the relevant legislation under review**.

In this context, the European Commission is launching a public consultation to gather views from relevant stakeholders regarding a bundle of six individual measures. These measures are aimed at **updating the current emissions legislation and type approval requirements to technical progress** and to **simplify the legal framework** by introducing a number of complementary provisions to the Euro 5/6 light duty<sup>1</sup> (LD) and Euro VI heavy duty<sup>2</sup> (HD) emission standards, and the general safety regulation<sup>3</sup>.

## 2. What are the issues?

**Six specific areas** have been identified where market and regulatory failures hinder addressing the overarching challenges described in the above paragraphs:

- The **potential to reduce fuel consumption**, and therefore pollutant and greenhouse gas emissions, **through efficient driving behaviour, so-called "eco-driving", is insufficiently exploited**. This is mainly due to a lack of information/awareness of drivers about how to drive efficiently. Devices supporting eco-driving, such as fuel consumption

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<sup>1</sup> Regulation (EC) 715/2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6)

<sup>2</sup> Regulation (EC) 595/2009 of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI)

<sup>3</sup> Regulation (EC) 661/2009 of the European Parliament and of the Council of 13 July 2009 concerning type-approval requirements for the general safety of motor vehicles

meters (FCM) and gear shift indicators (GSI), are available on the market and GSI are already mandatory in new passenger cars (category M1). However, studies show that the potential of eco-driving can be better exploited when using FCM at the same time. The latter could be installed at very small costs for the vehicle manufacturer but currently (if available) are frequently sold as costly "options", which impedes their widespread use. In addition, other vehicles like light commercial vehicles, trucks or buses currently have no support for eco-driving at all.

- **Applying ammonia (NH<sub>3</sub>) emission limits to all categories of heavy duty motor vehicles**, as required by Euro VI emissions legislation which will become binding as of 31/12/2012, **puts certain types of heavy duty vehicles at a disadvantage without creating any environmental benefits**. In particular, this would drive up the cost of heavy duty compressed natural gas (CNG) vehicles and encourage their replacement with more polluting vehicles which is undesirable from an environmental perspective.
- Currently there is a strict **mass limit defining whether vehicles have to be approved for their emissions according to light or heavy duty legislation**. For vehicle platforms (i.e. groups of vehicles with similar design) at the borderline of this mass limit, some vehicles have to be approved as 'light' and others have to adhere to heavy duty legislation, which creates additional compliance costs and administrative burden for the manufacturer, without delivering any obvious environmental benefit.
- The emissions of modern passenger cars are reduced by after-treatment (e.g. catalysts) or internal engine measures (e.g. catalysts for hydrocarbon (HC) control, exhaust gas recovery, so-called EGR, or selective catalytic reduction (SCR) systems for NO<sub>x</sub> control of diesel vehicles). Since aftertreatment systems require a certain temperature (typically above 300° C) to work at full efficiency and the application of internal engine measures is challenging at cold conditions, **emissions are significantly higher at low temperatures**. Therefore, separate low temperature emission limits have been introduced in European emission legislation. However, the current Euro 5 limits for HC and CO are carried over from Euro 3 and no longer reflect the technical progress made in engine- and emission control technology. In addition, no Euro 6 NO<sub>x</sub> emissions at low temperatures are defined yet. HC are known to have **a significantly detrimental impact on health** and Member States encounter massive air quality problems related to NO<sub>x</sub>.
- The current Euro 6 light duty vehicle emissions regulation specifies a **limit value for total emissions of nitrogen oxides (NO<sub>x</sub>)**, but **no separate limit value for nitrogen dioxide (NO<sub>2</sub>)**. In "traditional" diesel engines the NO<sub>2</sub> content in the total NO<sub>x</sub> emissions is about 5%. Modern engines may, however, bring this share up to 50%, strongly depending on the technology used. Direct NO<sub>2</sub> emissions have the most significant health impacts in inner-city areas, the so-called urban hotspots. Therefore, specific Euro 6 NO<sub>2</sub> emission limits may be necessary to address this issue, as is already foreseen for heavy duty vehicles in the Euro VI legislation.
- The current **Euro 6 light duty emission limits for total hydrocarbons (THC) include the methane on top of non-methane hydrocarbon (NMHC) emissions**. In general, the direct effect of methane emissions is not considered dangerous for health or the environment and they have only been regulated since 2005/6, when the Euro 5/6 co-decision proposal was negotiated. The main reason for the inclusion of methane is the fact that it is a strong greenhouse gas. However, in the light of automotive CO<sub>2</sub> Regulation 443/2009/EC, (defining fleet targets rather than regulating the greenhouse gas emissions of individual vehicles) such an approach seems to be too restrictive. It would be more appropriate to add methane to the CO<sub>2</sub> equivalent emissions of a vehicle for the purposes

of the automotive CO<sub>2</sub> Regulation and to "deregulate" methane emissions at type approval, i.e. increase or abolish the THC emission limit. This would also help the entry into the market of compressed natural gas (CNG) vehicles, which naturally have relatively high methane but low CO<sub>2</sub> emissions.

### **3. How can these issues be addressed?**

To tackle the issues described above, the European Commission considers amending the existing legislation along the following lines:

- Introduce mandatory fuel consumption meters (FCM) for all light duty (LD) vehicles and extend the mandatory installation of gear shift indicators (GSI) from only passenger cars to all light duty vehicles;
- Change the scope of the Euro VI ammonia (NH<sub>3</sub>) limits so that it only limits ammonia slip from vehicles where ammonia is formed as part of the NO<sub>x</sub> reduction by the selective catalyst. Exclude gas powered heavy duty vehicles (CNG/LPG) from the existing ammonia limits by only applying them to those engine types where ammonia slip indicates a problem with the catalytic converter (i.e. diesel engines);
- Remove the upper mass limit of the light duty Euro 5/6 regulation for emission purposes to avoid the need for two separate approvals which may arise in borderline cases under the current legislation;
- Introduce a mandate for the Commission to set low temperature emission limits for carbon oxide (CO), hydrocarbons (HC) and NO<sub>x</sub>/NO<sub>2</sub> by way of a delegated act;
- Introduce a mandate for the Commission to specify in addition to the Euro 6 limit value for total emissions of NO<sub>x</sub> a limit value for emissions of NO<sub>2</sub> by way of a delegated act;
- Introduce a mandate for the Commission to account for the greenhouse gas effects of methane emissions as CO<sub>2</sub> equivalents in vehicle type approval information and accordingly increase or remove limit values of THC emissions of positive ignition vehicles by way of a delegated act;

### **4. How to contribute to the consultation**

All interested parties are invited to submit their comments. Replies can be submitted in all official EU languages. Given the possible delays in translating comments submitted in certain languages, translations of the replies in one of the Commission's working languages (English, French or German), would be welcome. The deadline for the replies is 28 October 2011. Replies should be sent to the European Commission, ENTR D.5, 1049 Brussels, preferably via e-mail to [entr-consultation-emission@ec.europa.eu](mailto:entr-consultation-emission@ec.europa.eu). More information can be found at [http://ec.europa.eu/enterprise/sectors/automotive/documents/consultations/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/automotive/documents/consultations/index_en.htm).