



**EUROPEAN COMMISSION**

Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs

Director-General

Brussels,  
GROW C4/ /cds(2015) 2785740

**NOTE FOR THE ATTENTION OF MR TOMASZ HUSAK  
HEAD OF CABINET OF COMMISSIONER ELŻBIETA BIEŃKOWSKA**

**Subject: Update regarding RDE legislation**

Please find below an update regarding legislation addressing real driving emissions (RDE) of light duty vehicles.

Description of the context of the initiative is included in an annex.

**State of play and imminent next steps:**

- (1) The "1<sup>st</sup> RDE package" covering the RDE test procedure for gaseous pollutants (see point 4 in the Annex) has been voted by TCMV on 19 May
- (2) The Commission services have taken note of the strong wish of all Member States to proceed without delay towards the "2<sup>nd</sup> RDE package", which defines in particular the applicable not-to-exceed (NTE) emission limits applicable for RDE testing (this is the main sticking point of the whole exercise)
- (3) The Commission services have taken note of the strong wish of all Member States to include so-called "complementary boundary conditions"<sup>1</sup>.
- (4) The Commission services (GROW and ENV) have presented and discussed a first proposal on how to address the quantitative definition of NTE emission limits (but no concrete values for NTE emission limits yet) to/with key Member States (DE, FR, UK, NL, SE present; IT, ES, PL invited but not present) on 1 June. The Member States present at the meeting have supported the Commission services concept.

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<sup>1</sup> The current RDE test procedure is designed such that it properly assesses the real driving of a driver not having any particular "intentions". However, once the RDE test is driven for fulfilling legislative requirements the drivers are not unbiased any more. If the RDE test procedure is effectively driving under the control of the manufacturer (as it is the case at the initial type approval test) the driving style may be just too smooth (with respect to actual real driving) to facilitate the technical challenges. On the other hand, if the driving is done for surveillance purposes the driving may be unduely transient (e.g. by "pumping" the gas pedal) rendering emission control very difficult in order to obtain an "artificial" negative result. The "complementary boundary conditions" are additional criteria on the dynamical characteristics of the drive trace to contain possible biased driving in a regulatory situation.

- (5) "Complementary boundary conditions" were discussed with stakeholders (Member States and industry) on 27 May and will further be discussed and developed on 15 June within a dedicated "RDE data evaluation task force".
- (6) There were also informal discussions with ACEA on 5 June on the next steps.
- (7) The results of the discussions with key Member States on 1 June will be presented and discussed with a wider group of stakeholders in the RDE-LDV working group (Member States and industry experts) on 25 June.
- (8) The Commission services intend to present a first draft of the "complementary boundary conditions" together with the concept for establishing NTE emission limits (without concrete values yet) at the TCMV of 1 July for discussion (no vote of course).

### **And after the summer**

- (9) The Commission services intend to present a first draft of the (complete) "2<sup>nd</sup> RDE package", including quantitative values for the NTE emission limits to TCMV for discussion by end of September (no vote yet).
- (10) The "2<sup>nd</sup> RDE package" should be submitted to inter-service consultation in October
- (11) Vote in TCMV on the "2<sup>nd</sup> RDE package": November or December.

### **Political assessment**

While most, if not all, Member States support at least in principle the introduction of RDE legislation (albeit different views on its stringency exist), the positions of individual vehicle manufacturers are mixed. Some seem to have accepted the introduction of RDE legislation at least in principle, while others were at least until recently opposing RDE testing altogether.

It should be noted that the Euro 5/6 co-decision Regulation (EC) 715/2007 defines regulatory emission limits (such as NO<sub>x</sub> emission limits for diesel cars) under "normal conditions of use", i.e. not only in relation to a test cycle (see discussion under point 4 of the Annex). The requirements of RDE are therefore fully in line with the basic legislation and were implicitly considered in the underlying political process when the Euro 5/6 legislation was adopted. The problem is that, since the NO<sub>x</sub> reduction strategies applied by the manufacturers have been strongly focussed on the narrow conditions of the test cycle, so far the current Euro 5/6 implementing Regulation (EC) 692/2008 is not sufficient to ensure compliance of the vehicle manufacturers with the basic co-decision requirements.

In any case, ACEA may not have expected that the "1<sup>st</sup> RDE package" was voted positively by a wide majority of Member States on 19 May. This was reflected by a less co-operative approach of ACEA in most of the discussions Commission services had since.

The main concern of ACEA is that an "over-ambitious" approach of the "2<sup>nd</sup> RDE package" to NTE emission limits would effectively eliminate many currently existing diesel vehicles from the market due to insufficient lead time. This would force manufacturers to withdraw existing models from the market and re-develop them before they could be replaced by from-the-scratch new developments (typically taking 5 years).

In the "1<sup>st</sup> RDE package" and the paper on the concept for NTE emission limits referred to in point (4) and discussed with key Member States the Commission services take this concern into account and try to mitigate it as much as possible:

- NTE emission limits are introduced in two steps (weakening the intentions of the initial Cars 2020 Communication), the first one obviously providing more lenient requirements addressing the lead time concerns of manufacturers.
- In the discussion paper the Commission services suggest that only the NTE emission limit of the 2<sup>nd</sup> step (applicable e.g. in about 5 years from now) will be defined by a strict legal application of existing Euro 6 regulatory emission limits. For the 1<sup>st</sup> step also existing vehicle technologies and improvements achievable in a short time frame should be considered<sup>2</sup>.
- For the 1<sup>st</sup> step the Commission services suggest to consider a voluntary anticipated application of more demanding NTE emission limits (than required by the future legislation). Due to market forces and incentives by Member States this could create a "front runner" principle, i.e. some vehicles on the market would be very clean already within the next few years, followed by others. As a consequence the pressure from air quality on implementing very demanding regulatory NTE emission limits already for the 1<sup>st</sup> step would be reduced.

It should however be noted that the manufacturers' concerns have to be balanced with the existing pressing air quality needs and legal obligations (see point 3 in the Annex) and the introduction of RDE legislation will not be entirely "painless", i.e. the RDE legislation will indeed have an impact on the vehicles to be placed on the market.

*(electronically signed)*  
Daniel Calleja

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<sup>2</sup> For the moment this should be understood as a political intention. An appropriate legal justification still needs to be developed, because Euro 6 co-decision legislation in principle applies the respective emission limits without exception and does not allow for such "transitional" measures driven by technology concerns.

## **Annex: Background**

### **1. Objective and description of the activity**

At the moment, for regulatory purposes emissions are measured on a laboratory test cycle (NEDC) only. "RDE testing" means measuring emissions with portable measurement systems (PEMS) while driving the vehicle on the road and should determine the real, average emissions of a vehicle on the road taking into account all possible driving situations according to their statistical occurrence. The purpose of RDE legislation is to apply the regulatory emission limits also to RDE tests and to ensure thereby a better emission performance of vehicles, in particular for NO<sub>x</sub>.

### **2. Significant political/economic impact**

Ambient NO<sub>2</sub> concentrations set by existing air quality legislation (under the responsibility of DG ENV) are systematically and massively exceeded, mainly in urban areas. As a consequence 22 Member States face infringement procedures by the Commission as well as law suits of their own citizens affected by high ambient NO<sub>x</sub> concentrations (e.g. asthmatics). NO<sub>x</sub> emissions of diesel vehicles are identified as the main culprits and RDE testing should address this situation. NO<sub>x</sub> emissions of diesel vehicles typically exceed the legal emission limits under real driving conditions by a factor of 5 or more.

### **3. Legislation**

The Euro 5/6 co-decision Regulation (EC) 715/2007 defines regulatory emission limits (such as NO<sub>x</sub> emission limits for diesel cars) under "normal conditions of use", i.e. not only in relation to a test cycle. It empowers the Commission to define specific test procedures in Comitology (without any limitations to laboratory test cycles!) for achieving these objectives. In addition it requires the Commission specifically to monitor the real world emissions of Euro 5/6 vehicles and to revise the test procedures if necessary (what is being done with the current RDE proposal). Considering the existing massive exceedances of regulatory NO<sub>x</sub> emission limits (defined in the co-decision Regulation) it can be said that the Euro 5/6 implementing Regulation (EC) 692/2008, currently only providing for emission measurements on a test cycle, falls short of the mandate given to the Commission by the co-decision legislator.

### **4. Regulatory steps (global picture)**

- Adoption of the RDE test procedure for gaseous pollutants by TCMV on 19 May 2015, "1<sup>st</sup> RDE package" (achieved)
- Adoption of quantitative RDE requirements for gaseous pollutants, i.e. not-to-exceed (NTE) emission limits, by TCMV in second semester 2015, "2<sup>nd</sup> RDE package"
- Adoption of RDE test procedure and quantitative requirements for particle number (PN) emissions by TCMV, early 2016, "3<sup>rd</sup> RDE package" (see remark in the "technical background" section below).
- Adoption of in-service-conformity requirements for RDE testing by TCMV, end 2016, "4<sup>th</sup> RDE package"

## 5. Some technical background

In addition, absolute NO<sub>x</sub> emissions of diesel vehicles under real driving conditions have hardly changed through the various Euro steps. On the road a Euro 5 vehicle emits almost the same amount of NO<sub>x</sub> per km as a Euro 3 vehicle. For the particular aspect of NO<sub>x</sub> emissions of diesel vehicles the European emission legislation therefore must be considered as an almost complete failure until now (NB: for other pollutants and vehicle technologies the Euro emission legislation is quite successful!).

For specific technical reasons NO<sub>x</sub> emissions of diesel vehicles can only be controlled "dynamically", i.e. by technical systems (EGR, SCR, DeNO<sub>x</sub> cats) that are constantly adjusted to the specific operational conditions (engine speed/load etc.) of a vehicle. Most other pollutants, such as HC/CO/NO<sub>x</sub> emissions of gasoline and particles in diesel vehicles, are controlled "statically", i.e. by a device (3way catalyst, particle filter) which is always there and does not need a continuous complex dynamic adjustment to the instantaneous operational conditions of the car.

Therefore a control strategy of NO<sub>x</sub> emissions of a diesel car specifically developed for the pre-defined laboratory test cycle, as required by today's legislation, does not work very well on the road, where driving conditions are different (while emission control relying on "static" devices is much less sensitive to specific operational conditions). With today's legislation manufacturers can legally ignore the calibration of NO<sub>x</sub> emission of diesel vehicles to real driving conditions, which leads to the described problems of NO<sub>x</sub> emissions.

It should be noted that for particle number emissions of gasoline vehicles potentially similar issues exist, which should be addressed in the same way but at a later stage.