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From: [REDACTED] <[REDACTED]@acea.be>
Sent: 20 October 2015 10:45
To: COZIGOU Gwenole (GROW)
Cc: [REDACTED]
Subject: Review of COM analysis on RDE
Attachments: 151014 Critique of COM document.pdf; 151015 RDE CLEPA statement.pdf

Dear Mr Cozigou,

Industry is aware of the analysis made by the Commission as a justification for the NOx conformity factors to apply in the first RDE regulatory step from September 2017.

I would therefore like to provide for your information a critique outlining the serious shortfalls in the Commission analysis.

I trust you have also received the attached statement from CLEPA who share our concerns that the RDE Step 1 conformity factors in the Commission document would have a substantial effect on diesel models in the short-term.

regards,

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Discussion points: “NTE emission limits and application dates for RDE legislation”

Introduction:

This paper is prepared on the basis of what we know about the document submitted by the Commission on 1 October “*NTE emission limits and application dates for RDE legislation*”. The content of this document raises serious issues.

The data referred to in this document and the analysis of that data requires a critical scrutiny. For example, in deriving RDE conformity factors applicable in a first regulatory step, the Commission is relying on:

- An investigation by the Joint Research Center (JRC) of the emissions performance of current diesel vehicles under RDE conditions; and,
- Measurements by the Association for Emissions Control by Catalyst (AECC) on one car vehicle equipped with SDPF and recalibrated and one car equipped with DOC and SDPF (but not recalibrated). The test on the first vehicle was intended to demonstrate the short-term optimization of a single type of SCR equipped car.

The data used for this very important analysis is completely unrepresentative of applicable diesel technology and, as such, the consequences pose significant risks to the competitiveness and jobs in this important sector to the EU economy.

The following questions therefore must be resolved:

1. Have the actual market shares of the four different diesel exhaust gas treatment technologies been taken into account in defining the Step 1 Conformity Factor?

The Commission assumes that most current and future vehicles will be equipped with SCR technology (requiring AdBlue). This is a carry-over of the Commission’s assumptions in 2007 that Euro 6 will require all diesel vehicles to be equipped with SCR.

According to JRC data this technology currently accounts for a 67% share (i.e. 50% SCR and 17% NSC+SCR). This contradicts the available data from Germany (sources: KBA, ADAC), which can be considered representative of the European market as the share of diesel in Europe and Germany is almost the same. According to these data the SCR share is currently around 42% and the NSC share around 56%.

The data from the ICCT ⁽¹⁾ study validates this data.

Even in 2-3 years time, the NSC will still account for a significant share of all diesel exhaust aftertreatment solutions, around one third of the market.

	JRC	Market 2014	ICCT EU 2014
<i>Exhaust gas recirculation (EGR)</i>	3%	2%	
<i>NOx storage catalytic converter (NSC)</i>	30%	56%	55%
<i>Selective Catalytic Reduction (SCR)</i>	50%	40%	40%
<i>SCR + NSC</i>	17%	2%	

⁽¹⁾ NOx control technologies for Euro 6 Diesel passenger cars. Market penetration and experimental performance assessment, Liuhanzi Yang, Vicente Franco, Alex Campestrini, John German, and Peter Mock, ICCT, September 2015.

The knock-on effect of the overstated proportion of SCR vehicles on further calculations results in a lower CF. The consequence of this is that a substantial proportion of diesel models equipped with NSC would be forced out of the market.

Obviously this is a serious concern for manufacturers and suppliers and would seriously undermine the fulfillment of future CO2 targets.

2. Where does a CF of 5 come from?

The Commission analysis confirms that they are pursuing a 10% exclusion scenario, i.e. the worst 10% of present-day diesel vehicles will no longer be considered in the analysis.

Having excluded the 10%, the Commission assumes that all present-day vehicles will achieve a CF of 5. This statement is incorrect because the JRC data show that this requires a CF of 6.5.

	90%	70%	50%
<i>JRC (technology-agnostic, p. 18f)</i>	6,5	4,5	3,5
<i>JRC (excluding NSC)</i>	5,5	4	3
<i>COM proposal</i>	5	3,5	3

It should also be added that the Commission additionally states that there will effectively be zero diesel model exclusion because current diesel vehicles, irrespective of RDE, would have reached the end of their product cycle by 2017/18.

3. The Commission assumes that the proposed CF for 2017 can be achieved using current exhaust gas technology. This assumption is based on the improvement potential by a factor of 2,2 – 3,0 measured on a single car equipped with SCR (using AdBlue). However, even in September 2017, most new vehicles will still be equipped with NSC. What is the optimization potential of NSC technology?

The assumed optimization potential is derived from an AECC paper. This database is inadequate for a properly informed evaluation. Vehicle manufacturer data were not considered. The same applies to automotive supplier data.

The AECC optimizations were carried out on a single car fitted with an SRC system. No inferences can be drawn for other models or other NOx reducing technology. NSC offers less scope for improvement. The analysis of the potential offered by NSC has not been done and should be undertaken. Alternatively, use can be made of results provided by the automotive industry.

4. What is the origin of the optimization potential of 2,2 – 3,0 for SCR systems?

The AECC analyses indicates an optimization potential of a factor of 2,2 - 3 for an SCR system. This optimization potential is now applied to the (on the road) CF of 5, giving rise to the proposed limit of 1,6 – 2,2 for RDE Step 1.

If one uses a realistic, technology-neutral optimization factor of 2,0 and applies this to the 10% exclusion criterion of CF = 6,5, this results in a CF = 3,3 for RDE Step 1. Excluding 30% of the diesel fleet results in a CF = 2,3.

5. It follows from the JRC data that with a CF of 1,6 in 2018 at least 89% of all the diesel models currently on the market would be excluded. What is the explanation for the discrepancy with the Commission's statements that only 10% of diesel vehicles would be excluded? A market exclusion level of 89% would result in huge consequences to the complete EU auto

sector with obvious consequences on competitiveness, employment, the economy, tax revenues and fulfilling future CO2 targets. Has the Commission produced an impact assessment covering all these important issues?

The Commission is offsetting the JRC results against the AECC optimization potential. By doing this, the Commission makes incorrect use of the JRC database and also incorrectly applies the SCR optimization potential to NSC technology. A correct analysis and calculation would result in a CF = 3,3 for RDE Step 1 while still resulting in 10% of diesel models being excluded. On its own, this is still a very significant consequence.

6. Does the Commission have any ideas on how the 10 - 50% of vehicles that “*need to be replaced*” will actually be replaced? Has the Commission made an impact assessment to address automotive industry costs and the additional CO2 emissions resulting from the various scenarios?

The Commission has made no impact assessment to address these critical effects that the EU automotive sector would have to face. Significant changes to the whole EU auto sector would result from this limited analysis.

7. The Commission refers to JRC measurements to define PEMS measurement accuracy (*margin*). The JRC’s own analysis presents the best case PEMS measurement tolerance at $\pm 30\text{mg/km}$. According to JRC, the average scatter is a factor of 0,9. The variance between these measured results was in excess of 200mg/kg on a case-by-case basis. Therefore, on what basis does the Commission derive a measurement margin of only 15mg/km ?

The Commission's choice of data for analyzing measurement inaccuracy is quite selective. It is inexplicable why the Commission only takes account of only one of the 17 vehicle tests and why the Commission ignores JRC's comments that, even for this selective instance, there is a measurement tolerance of $\pm 30\text{mg/km}$. Industry has provided its own measurement tolerance analysis to the Commission and it is available to other stakeholders on CIRCABC. Especially at very low measurement results, a measurement tolerance of 40 mg/km is a very reasonable proposal from industry.

	mg/km	CF	Source
COM	15	0,2	none (!)
All tests	308	3,9	JRC S. 14
RDE compliant	72	0,9	JRC p. 23 Caution: only 4 tests

	CF moderate	mg/km	CF extended
correct	1 + 0,9	80 + 72	1,6 + 0,9
COM	1 + 0,1875	80 + 15	1,6 + 0,1875

8. In summary, the following points must be made:

- The assumed market shares of the various exhaust gas treatment technologies do not correspond to the real market shares. This falsifies the picture of the emissions situation as regards present-day vehicles.

- The database used for this analysis is tiny and selective. As a consequence, the measurement of one single car is taken to be the benchmark for the complete RDE regulation that addresses cars and LCVs.
- The Commission selectively and incorrectly used the JRC data.
- Input from industry was ignored. Not only data and information provided in response to the Commission's request before the summer break, but also all data and information provided to the Commission over the past 2-3 years.
- The combination of incorrect assumptions and selective data analysis results in hugely unrealistic CFs and completely distorts the probable consequences of excluding a substantial proportion of diesel technology from the future EU market.

15.10.2015

CLEPA Statement

Real Driving Emissions - conformity factors and measurement uncertainty

CLEPA strongly supports the development of the Real-Driving Emissions (RDE) test.

Credible emission reductions under real-world conditions are of utmost importance for air quality improvements particularly in inner cities as well as for the reliability of the entire automotive industry. Technological solutions for diesel and gasoline vehicles are available on the market today. CLEPA strongly believes in technology-neutrality and smart regulation that enhance the leadership of the European Automotive industry.

CLEPA therefore welcomes the adoption of the first RDE package presented in May 2015.

An agreement on the second package including conformity factors and boundary conditions until the end of 2015 is strongly recommended for ensuring a binding and ambitious RDE implementation starting in September 2017.

As regards as the European Commission proposal on **“NTE emissions limits and application dates for RDE Legislation”** presented at the TCMV meeting on 6th October 2015, CLEPA would like to express the following views:

1. The timing of RDE First Step for all new vehicles and the level of conformity factors require careful consideration.

This is particularly true given the proposed all new vehicles date of September 2018 in combination with a conformity factor of 1,6. Such levels of real-world emissions can be reached with best performing NOx aftertreatment systems. However, given the significant share of NOx storage catalysts in the current diesel market, CLEPA expects that a substantial share of current vehicle models will not be able to reach this conformity factor by September 2018 – even if these vehicles can make progress.

An approach that significantly disrupts the market, and CLEPA sees this risk in the current Commission proposal, cannot have the support of CLEPA.

European automotive suppliers, therefore, recommend to define a very ambitious conformity factor of 2,5 for the first step in order to give the European automotive industry a realistic chance to develop vehicles being able to fulfill the future RDE regulation.

Concerning the timing, CLEPA proposes the following:

- **For RDE step 1, from September 2017 (new types) and September 2019 (all types) for M and N1 class I. One year later for N1 classes II and III and N2.**

2. For RDE Step 2, Clepa is in favour of a more stringent approach with a conformity factor in the range of 1,5-1,8.

The conformity factors proposed by the Commission for RDE Second Step take into account PEMS measurement uncertainties. CLEPA believes that the uncertainties have to be studied carefully in order to come to a realistic assessment. European automotive suppliers are skeptical towards a measurement risk division between regulator and manufacturer. Clepa does not believe that the Commission proposal has included a realistic margin level for the measurement the uncertainty.

Concerning the timing for RDE step 2 Clepa proposes the following:

- **From September 2020 (new types) and September 2021 (all types) for M and N1 class I. One year later for N1 classes II and III and N2.**

All the above elements should not be considered in isolation, but have to be seen in the context of market impacts and the achievability of the CO₂ targets for 2020/21.

CLEPA is the European Association of Automotive Suppliers.

116 of the world's most prominent suppliers for car parts, systems and modules and 24 National trade associations and European sector associations are members of CLEPA, representing more than 3 thousand companies, employing more than 5 million people and covering all products and services within the automotive supply chain. Based in Brussels, Belgium, CLEPA is recognized as the natural discussion partner by the European Institutions, United Nations and fellow associations (ACEA, JAMA, MEMA, etc).

Facts about the European automotive industry

- Some **12 million** people are employed in the European automotive industry
- European automotive suppliers directly employ **5 million** people
- European automotive suppliers invest **€18bn** in RDI per year. They are the biggest private investor into research and innovation
- Per year, **18 million** vehicles are manufactured in Europe, contributing to the stability and growth of the European economy