



### *Comments on:*

**Draft Regulation of the European Parliament and of the Council**  
on type-approval of motor vehicles and engines, and of systems, components and separate technical units intended for such vehicles, with respect to their emissions and battery durability (Euro 7) and repealing Regulations (EC) No 715/2007 and (EC) No 595/2009 on the Euro 7 standard

### **Introduction and foreword**

For more than 110 years, ANFIA has represented the Italian automotive industry (car designers, component manufacturers, light and heavy vehicle manufacturers, trailer manufacturers and bodybuilders), one of Italy's most important industrial sectors.

In line with European commitments to decarbonisation, climate neutrality and improved air quality, ANFIA member companies have always been committed to developing technologies that reduce pollutant and climate-changing emissions and are making significant investments to meet the increasingly stringent targets set by the EU and directly imposed on the automotive sector.

In this context, the **recent adoption of the regulation on CO<sub>2</sub> reduction targets for light vehicles and the forthcoming publication of new targets for heavy vehicles are already revolutionising the European production chain.** Historically a leader in internal combustion engine (ICE) technologies, Europe is now having to catch up with countries that dominate the electrification of vehicles (availability of raw materials, refining know-how, etc.) to avoid losing its competitiveness on a global scale.

The shift in production, strongly advocated by European institutions, will require massive investments from companies in the automotive sector within a very tight timeframe. It also envisages 'banning' the sale of internal-combustion-engine vehicles fuelled by gasoline or diesel by 2035.

**The Euro 7 proposal, in particular concerning the timetable for implementation, the change in testing methodology for heavy-duty vehicles and specifically with regards to the envisioned emission limits for certain pollutants, seems inappropriate and highly restrictive to a sector that Europe has already asked to make a significant effort to contribute to the Union's shared objectives.**

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## **A general assessment of the EU COM proposal**

After a thorough technical analysis, the Italian automotive value chain's overall assessment of the proposed regulation can only be highly critical since the proposal clearly appears to be **incomplete and approximate**.

Whole sections of the technical annexes have been left blank. **Several passages in the body of the text need to be completed** (e.g., the lack of a definition of small volume manufacturers of heavy-duty vehicles or the benefits expected from the introduction of the Euro 7+, Euro 7A, Euro 7G classes), **inconsistent or even contradictory**. **Some provisions** (as in the case of tyres and batteries) **overlap with other EU regulations**, duplicating or complicating the regulation without adding value to the stated objectives.

**In particular, the proposed timeframe for implementation (2025 for light vehicles and 2027 for heavy vehicles) seems implausible, given that the test methods still need to be defined and having in mind the time required to complete the legislative co-decision process.**

The legislator's attention is also drawn to the fact that **some of the proposal's provisions will lead to significant increases in fuel consumption and will therefore be counterproductive in limiting CO<sub>2</sub> emissions**.

**The technologies required to reduce certain pollutants (rapid catalyst heating, regeneration of particulate filters, etc.) require fuel as an energy source**. In addition, seemingly innovative improvements, such as direct electrical heating of catalytic converters, involve even more consumption because they use Noble Energy derived from the fuel (with less than optimal efficiency) instead of primary heat energy.

The case of N<sub>2</sub>O, a pollutant introduced by Euro 7 for HD vehicles, is a particularly striking example. As N<sub>2</sub>O is produced at low and medium temperatures, it is necessary to ensure that the temperature of the catalytic converters is maintained at this level under all operating conditions, which requires a considerable amount of energy and consequently increases fuel consumption and CO<sub>2</sub> emissions.

Finally, it should be noted that the **Commission's impact analysis needs to be more balanced and, therefore, cannot be accepted**. As far as the environmental impact is concerned, the study published by ACEA<sup>1</sup> shows that the **Euro 7 adoption scenario, compared to non-adoption, will have an additional 4% reduction in NO<sub>x</sub> for cars by 2030, 2% for commercial vehicles and trucks, while for buses there are no additional benefits**; on the other hand the estimate of vehicle price increases (about 3%) is implausible because the

<sup>1</sup> <https://www.acea.auto/news/impact-of-euro-7-on-nox-emissions-by-vehicle-type/>

enormous investments needed by manufacturers and component suppliers will undoubtedly be more significant than indicated and will obviously have different implications for the accessibility of mobility for consumers.

**In light of these initial general considerations, we believe that the proposal as it stands is not viable in terms of its structure (limits, application dates, authorisation procedures) because it is highly restrictive and, given the context, at the limits of feasibility, and that it must be thoroughly revised in the context of the co-decision procedure between institutions.**

### **Technology neutrality and decarbonisation targets**

The Euro 7 Regulation, with all the necessary and essential revisions, will only be able to support the achievement of its objectives if it is accompanied by a strong push towards the use and valorisation of Low Carbon Fuels (LCFs)<sup>2</sup> and it is therefore **essential that the new regulation contains provisions for type approval testing with renewable fuels, establishing specific test methods and emission calculations that consider the beneficial effect of fuels from renewable sources.**

To value and account for the important contribution to emission reductions, the CO<sub>2</sub>-neutral part of the fuel should be subtracted from the total CO<sub>2</sub> emissions figures. In this way, the actual annual CO<sub>2</sub> emissions of the fleet marketed can be calculated in future years based on the percentage of LCF sold in the EU.

**Such a mechanism, defined in the Euro 7 Regulation, would respond to the "recital" (9a) of the recently revised CO<sub>2</sub> regulation for passenger cars and vans, which foresees the possibility for the Commission to develop a proposal for the registration of vehicles using only CO<sub>2</sub> neutral fuels beyond 2035.**

In this context, we reiterate the need for coordination between the CO<sub>2</sub> (both for LD and HD) and Euro7 regulations. This will ensure that only the proportion of CO<sub>2</sub> emitted by fossil fuels is taken into account in exhaust emissions<sup>3</sup>.

It is also hoped that **the new regulation will also make provisions for hydrogen fuelling (with its zero CO<sub>2</sub> emissions).**

<sup>2</sup> At the same time, the switch to R33 or R40 fuels coincides with the entry into force of Euro 7, with a subsequent switch to R100 for new engines by 2035.

<sup>3</sup> It is desirable to arrive as soon as possible at a concrete and agreed proposal at the European level on tackling this critical problem (there are already some working hypotheses using the so-called **Carbon Correction Factor - CCF**).

### **Impact on gas technologies**

Natural gas vehicles will also play an essential role in decarbonisation in the future due to their already lower pollutant emissions (PM10, PM2.5 and NOx) compared to other fuels, especially given the increasing use of 'bio' components such as biomethane and/or bio-LNG.

The Commission's proposal penalises these technologies in particular because of the inconsistency of the measurement of CH<sub>4</sub> emissions, which **imposes a single, significant compliance burden only on engines using natural gas.**

In addition, the new limits also imply the use of additional or less cost-effective components (e.g., particulate filters) for alternative fuels, which **will inevitably increase the cost of vehicles significantly more than indicated in the impact assessment.**

### **On-Board Monitoring (OBM)**

Given that current on-board diagnostic (OBD) systems can already provide a very high level of effectiveness in such stringent limit values, the question arises **as to whether on-board monitoring is necessary.**

There are doubts about implementing the Commission's proposal since the only on-board emissions monitoring sensor currently in production is the NOx sensor installed on Euro 6d diesel vehicles, while the technology for the other pollutants has yet to be available.

The assessment of other vehicle emissions would have to be carried out with models that suffer from significant uncertainties and require a high level of development/testing with increased capital investment.

**Thus, OBM requirements must be carefully balanced regarding currently available technologies and the resulting development and production times if adopted.**

### **Minimum performance requirements for battery durability**

Table 3 of Annex II leaves open the minimum performance requirements for battery life for vehicles of categories M2, M3, N2 and N3. Please note that the technical specifications and definitions of batteries are already contained in the "Battery Regulation"; **any reference on this subject should be strictly related to the regulation mentioned above to avoid misalignments and contradictions that would affect the effectiveness of the application.**

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## **Timeframe for publication of implementing measures**

Given the industrial cycles and development plans that characterise the automotive sector, **the implementing measures for the regulation must be adopted quickly.**

Manufacturers must start their certification and homologation processes for each vehicle type/variant/version well in advance: the current scenario of uncertainty does not allow the industry to prepare and exposes it to significant risks when starting development.

Other completely new elements, such as on-board monitoring and data transmission, can be considered a second priority, without prejudice to the possibility for manufacturers, in the event of delays in definition, to type-approve and market their vehicles within a "limited" Euro 7 range.

**The current testing requirements should be retained in the new regulation. Alternatively, we believe that priority should be given to measures central to the principle and that replace elements already present in the protocols and test procedures of the current Euro 6 and Euro VI regulations.**

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**Detailed analysis of the proposal with comments and proposed amendments, divided into four macro-categories:**

- 1) Euro 7 'exhaust' for passenger cars and vans (LDV)
- 2) Euro 7 'exhaust' for trucks and buses (HDV)
- 3) Small Volume Manufacturers (SVM)
- 4) Euro 7 'non-exhaust' - braking systems
- 5) Euro 7 'non-exhaust' - tyres

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## **1. Euro 7 'exhaust' for passenger cars and vans (LDV)**

- **Impact on the competitiveness of the European automotive sector.**

To contribute to the decarbonisation objectives of the transport sector, also driven by the very recent adoption of the new CO<sub>2</sub> emission reduction targets for 2035, the **investments of the European passenger car and light commercial vehicle manufacturers will be mainly focused on research, development, innovation and production of zero-emission vehicles, which will also contribute to reducing air quality impacts.**

The development and engineering of the limits provided for in the **Euro 7** proposal will **require very significant investments**, which, in addition to overlapping with those already underway for the development of Euro 6e and Euro 6e-bis, will **compete with those already earmarked for electrification plans, a direct consequence of the decision by the European Union to impose a "de facto" ban on the introduction of non-zero emission vehicles on the market from 1 January 2035.**

**Passenger cars and vans are treated unequally under the new regulation.** In particular, for **non-car derived light commercial vehicles (vans and cabs)** - which will also be subject to the internal combustion engine ban in 2035 - the **proposed stringent limits are not justified** due to the extremely high technological adaptation costs associated with the **limited time that vehicles complying with the new regulation will remain on the market.**

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We also raise the issue of competition on the global market: Euro 7 risks making the zero-emission offer of the European automotive industry less competitive in favour of non-EU manufacturers that are increasingly present in the EU market, **thus jeopardising the competitive position of the European value chain and further aggravating the social and economic impact of the transition.**

- **Real benefits on air quality**

The study published by ACEA<sup>4</sup> shows that the **Euro 7 adoption scenario will lead to a 4% reduction in NOx from cars by 2030 compared to the non-adoption method.** It demonstrates that the Commission's impact assessment of the air quality benefits needs to be revised.

Rapid and massive **renewal of the European vehicle fleet is needed** to improve air quality. As this cannot be achieved immediately with electric vehicles alone, it will have to include replacing older ICE vehicles with new ones in the coming years. **However, Euro 7 could slow down the renewal process because of the additional costs that will have to be borne by the end customer.**

- **Lead time required for the industry.**

The **mandatory introduction date for light vehicles** (set for 1 July 2025 but with the numerous implementing regulations containing the key elements of the type-approval legislation not expected until 2024 at the earliest) **does not give companies sufficient time for product development and type-approval.**

The date of application is even more implausible when the duration of the co-decision procedure and the finalisation of the implementing and delegated acts are taken into account, with the risk that manufacturers will only be aware of the new requirements a few months before the actual application of Euro 7.

The new regulation should apply to new passenger cars at least three years after the effective publication of the implementing measures. Light commercial vehicles should have an additional year, as in previous regulations.

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<sup>4</sup> <https://www.acea.auto/news/impact-of-euro-7-on-nox-emissions-by-vehicle-type/>



– **N1 Vehicles other than passenger cars**

In the Euro 7 proposal, the limits for all N1 vehicles are aligned with the Euro 6 limits for N1 class I, irrespective of the class. There is, therefore, a substantial impact on N1 class II and III vehicles which, depending on the vehicle variant, may have to comply with both the passenger car and the commercial vehicle limit value.

It is considered appropriate to maintain the logic of the differentiation of the limit values for the three classes adopted up to Euro 6 and linked to the vehicle reference mass. This would help to maintain a clear distinction (with different limit values) for N1 vehicles that are not M1 derivatives while at the same time protecting the specific characteristics of light commercial vehicles, which by their nature are different from passenger cars.

For N1 light commercial vehicles, it is necessary to **maintain the system of the Euro 6 regulation currently in force concerning the limits on the most impactful pollutants and the distinction between vehicle classes based on Reference Mass.**

- **Pollutant considerations**

The limits of the Euro 7 proposal for passenger cars have very demanding test conditions compared to Euro 6 and show major critical points in terms of implementation time, cost and packaging, such as the introduction of GPF (gasoline particulate filter) in PFI (port fuel injection) engines.

The need for GPF in PFI engines could make these engines, typically used in city cars, uncompetitive. This could have an impact on supply chains for vehicles in this segment.

The limit values for light commercial vehicles (category N1, classes II and III of the Euro 6 standard, now identified by the new limit value of a power-to-mass ratio of less than 35 kW/t) appear to be utterly unjustified as they are significantly more stringent than the current limit values.

The proposed new limits for these vehicles, combined with the idea of introducing a cold start requirement, will make Euro 7 much more difficult to meet than for passenger cars. As a result, manufacturers of commercial vans and cabs are disproportionately and unreasonably penalised.

- **NH<sub>3</sub>**

This pollutant is a trade-off against NO<sub>x</sub>. Furthermore, it is not produced by the engine but by the catalyst during the NO<sub>x</sub> reduction process; therefore, a more stringent NH<sub>3</sub> limit is particularly detrimental if the NO<sub>x</sub> limit is tightened simultaneously.

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To comply with these limits, it will probably be necessary to use several catalytic converters in series in order to eliminate, in successive stages, the pollutants generated by the elimination of certain types (e.g., NH<sub>3</sub> caused by the elimination of NO<sub>x</sub>), which will increase the overall cost of the powertrain (engine+ATS).

An evolutionary step in the dynamic engine control capabilities will probably have to be developed, e.g., new control units with more computing power and "real-time" software systems: these are very sophisticated technologies that require significant development resources from component manufacturers and may not be considered a business to be pursued given the ICE engine ban by 2035.

- **Cold emissions (cat. N1)**

As an acceptable solution, if it is not possible to carry over the Euro 6 test conditions, the Real Driving Emissions (RDE) tests should be modified as follows:

- The cold emissions budget should be 2000 mg (instead of the proposed 750 mg).
- Hot conditions should only be applied when the vehicle has travelled the first 5 km (instead of at the start of the journey).

- **RDE test conditions**

The estimated costs of implementing the proposed test conditions (which are much more stringent and unrepresentative of reality than the already stringent current tests) lack clarity and seriously underestimate the true cost burden of implementing the new regulation.

In Annex III of the proposal, the test conditions for measuring RDE emissions state that every driving condition must be covered, and Article 14(4)(a) mentions "random" and "worst case" conditions, implying the absurd need to measure emissions under "reckless" or irrational driving conditions, whereas it would be reasonable to consider driving conditions that are consistent with road regulations and vehicle design conditions, excluding scenarios that are completely out of context with type approval testing.

The Commission has proposed PEMS tests as the basis for the Euro 7 legislation without taking into account that the tests will be carried out 'on the road' with 'commercial' fuels, the quality of which may vary between Member States. Thus, a test performed with one type of fuel in one geographical area may give significantly different results when performed with a different fuel in another geographical area. In addition, it is unclear

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whether PEMS will be available to measure all regulated types for on-road type approval purposes.

**It is necessary to maintain the current type-approval test system by adopting the Euro 6 test procedures and updating the RDE tests in a way that will ensure to avoid taking into account unrealistic driving conditions.**

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## **2. Euro 7 'exhaust' for trucks and buses (HDV)**

### **- Impact on investments in the sector**

The proposed introduction of the PEMS type-approval procedure, even for industrial vehicles, is a major change that completely undermines the traditional principle of engine+ATS type-approval.

A different type approval for each vehicle model will require huge investments, which will inevitably have an impact on the final price of the vehicles (much higher than the 2-3% foreseen by the impact assessment). The potential consequence will be that fleets will not be renewed, with obvious negative effects on the energy efficiency of the fleet and its safety.

### **- Real benefits of air quality**

For heavy duty vehicles, the benefits are expected to be very small, especially in terms of time scale. Given the average lifespan of a heavy-duty vehicle, the benefits may not be seen for many years and may take at least 10 years to materialise.

**To have a real impact on air quality, priority should be given to renewing the circulating fleet by replacing older vehicles with alternative fuel vehicles and the latest Euro 6/VI vehicles. The benefits would be much greater than the minimal incremental benefit from Euro 6/VI to Euro 7.**

### **- Consistency with CO<sub>2</sub>**

For the heavy-duty sector, the Commission's legislative proposal to revise the CO<sub>2</sub> reduction targets (set only three years ago) is due on 14 February 2023. The further tightening of the 2030 target and the setting of long-term targets up to 2040 and beyond will further accelerate the market introduction of an increasing number of zero-emission heavy-duty vehicles. Such vehicles will also make a significant contribution to improving air quality in Europe as they have zero exhaust emissions.

The overly ambitious targets and associated test procedures for HD vehicles in Euro 7 will force European truck and bus manufacturers to re-invest heavily in the development of new engines and vehicle technologies, diverting significant resources from the main challenge of fully decarbonising heavy-duty transport.

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- **Lead time required for the industry.**

For heavy-duty vehicles, Euro VI stage E is still far from having paid for itself, having only been in force for one year. It is very damaging for the industry to have a new emission standard without having the time to recoup the investments made to achieve previous important emission reduction targets.

A period of around four years between presentation and application of the regulation is clearly insufficient for the industry, given that it took six years to move from Euro V to Euro VI stage A and another seven years to move from stage A to stage E. In addition, the introduction of N<sub>2</sub>O limits requires the development of new and reliable vehicle sensors (OBD 700,000 km) by suppliers (remember that the PN sensor took many years of development and at least three postponements of its mandatory application).

**Euro 7 for heavy-duty vehicles should be in force at least four years after all implementation and delegated acts are published.**

- **Pollutant considerations**

The HD limits are drastically stringent (-80% compared to Euro VI standards) and their coexistence for limits that are usually in trade-offs on the internal combustion engine (such as the NO<sub>x</sub>-PM trade-off) will force a generational leap in emission control systems and engine-ATS integration that will be **difficult to achieve in the time available**. In addition, the introduction of an emission budget for short distances and idling is a further cause for concern.

Pending more detailed analysis, it should be noted that the level of the limits seems to conflict with tolerances, both measurement and cycle. As far as measurement tolerances are concerned, new equipment would have to be developed at great expense. However, even an internal combustion engine has a certain tolerance, especially in a very aggressive cycle such as the WHTC. It would therefore be necessary to carry out many measurement cycles (at high cost) in order to have a meaningful statistical sample.

→ All this, although challenging, may be **plausible on a test bench, but it is unrealistic with a PEMS** since it would be necessary to "store" the emissions for later analysis.

- **Cold emissions**

As an acceptable solution, cold emissions should be applied for each journey with a minimum duration under the following conditions:

- Cold conditions verified for journeys ≤ 3 WHTC: NO<sub>x</sub> budget < 270 mg/kWh \* 3 WHTC

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- Hot conditions for journeys > 3 WHTC with MAW (Moving Average Window) from 2 WHTC

#### - NO<sub>x</sub>

The NO<sub>x</sub> limit without DF is reduced by more than 5 times, from 460 mg/kWh of Euro VI to 90 mg/kWh of Euro 7, hot (from Euro III to Euro V the reduction is only 2.5 times).

The 350 mg/kWh limit for the cold cycle is itself a very strict limit, given that the conversion efficiency of SCRs is minimal or zero below 220 °C (a temperature that is not easy to reach or maintain at low engine loads).

These limits (both hot and cold) are at the limit of technical feasibility and imply substantial hardware modifications at extremely high cost for only marginal potential fleet emission benefits.

The severity of the limit values is further exacerbated by the fact that they will have to be met in 'real driving' conditions (with zero conformity factors) rather than in the laboratory tests that have been carried out to date with the Euro VI standard.

We would like to stress that **no technology is ready at present that will be able to achieve similar values** (with a 3-way catalyst, it will be tough to reduce NO<sub>x</sub>, as there are also severe restrictions on CO emissions). **A possible solution might be a chain of catalysts with air injection between them and an SCR system.** In addition, the limited availability of precious metals and the instability of many of the Countries of origin of these materials will significantly increase the cost of catalysts.

→ All this will **increase the cost per vehicle, which will undoubtedly exceed the €2,681 mentioned in the impact assessment.** This is without considering the high certification costs that will be passed on to the product. **Massive investments** will therefore have to be made to **achieve a minimal reduction** (think that the average NO<sub>x</sub> reduction from Euro III to Euro V for a 40-tonne, 5-axle truck was around 270 g/hour. By contrast, the average drop from Euro VI to Euro 7, with similar or higher investments, would be only 33 g/hour.)

**Given the uncertainty in measurements, a NO<sub>x</sub> emission limit value of 180 mg/kWh is proposed, representing a reduction of more than 50% compared to the current Euro VI limit values and an adjustment of the limit values in cold conditions as presented.**

#### - PN

The limit for PN is reduced by a factor of 3: this is a very penalising decision, being also, as mentioned above, a trade off with NO<sub>x</sub> abatement.

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For this pollutant, the current Euro VI limit has shown good effectiveness in reducing the emission of harmful particles from heavy-duty engines. The method developed by the UNECE to control even finer particles, from the current value of 23 nm down to a value of 10 nm, will in itself already allow a significant reduction in the number of particles produced by the engine that are not captured by the particle filters.

Reducing the limits even further, when even finer particles (which were previously not detected in type approval tests) are already being measured, will lead the industry into a situation where the technology is simply not known.

**It is proposed to adopt the limit on PN10 at  $6 \cdot 10^{11}$  #/kWh.**

- **N<sub>2</sub>O and CH<sub>4</sub>**

It should be noted that for HD vehicles, the proposed limits for CH<sub>4</sub> are at the limit of technological feasibility (especially for cold start), as production compliance factors and extended durability requirements have yet to be determined.

**There should be a combined limit value for N<sub>2</sub>O + CH<sub>4</sub> rather than different limit values for N<sub>2</sub>O and CH<sub>4</sub>.**

- **New RDE test for HDV**

The introduction of the PEMS type-approval procedure for heavy-duty vehicles, as opposed to the engine+ATS bench type-approval procedure, will prevent the same engine from being used in several vehicles and requiring a different type-approval for each vehicle variant.

Article 14 (Chapter V) leaves the definition of these test procedures to the Commission, and it is important to stress that **the purpose of the 'groups' or 'families' of vehicles to be tested by RDE will be a crucial issue in determining the volume of testing and thus the additional burden on the vehicle manufacturer. The creation of extended 'groups' or 'families', e.g. working on the definition of worst cases, will limit this burden.**

It is also pointed out that the **total transfer of responsibility for the type-approval of vehicle emissions to the bodybuilders** (Article 9) risks placing small and medium-sized enterprises in serious difficulties, especially those involved in the production of small numbers of special vehicles (e.g. refuse collection, fire-fighting, airport vehicles, etc.), either because of the significant increase in costs they will have to bear or because they will no longer be technically able to remain on the market.

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**We reiterate the proposal to maintain the current system of type-approval testing by transposing the Euro VI test procedures.**

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### 3. Small Volume Manufacturers (SVM)

#### - SVM vehicles cat. M1, N1

Setting a staggered timeframe for Small Volume Manufacturers (2030 for the introduction of Euro 7 and 2035 for the end of the derogation from the CO2 reduction targets) would place a double burden on the small production segment, which cannot benefit from economies of scale due to its low volumes.

The impact assessment and recital no. 19 of the Euro 7 proposal both recognise the special needs of Small Volume Manufacturers and the negligible contribution they make in terms of the environment and impact on air quality. Thus, in line with the reasoning behind the exemption granted to Small Volume Manufacturers in the regulation on CO2 targets, it is proposed to extend the current time horizon for the entry into force of Euro 7 for new registrations to 2035.

#### - SVM vehicles cat. M2, M3, N2, N3

Unlike with M1 and N1, there is no definition of Small Volume Manufacturers of vehicle categories M2, M3, N2 and N3.

It seems appropriate to define cumulative production thresholds for categories M2+M3 and N2+N3,

given the standard vehicle platforms sometimes adopted for these types of vehicles.

To lay the foundations for a discussion on this subject, it is possible to speculate:

- “Small volume manufacturer”: a manufacturer producing **less than 1000 new M2 and M3 vehicles** registered in the Union per calendar year.
- “Small volume manufacturer”: a manufacturer of **less than 5000 new motor vehicles of category N2 and N3** registered in the Union per calendar year.

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#### **4. Euro 7 'non-exhaust' - braking systems**

##### **- General considerations on the content of the proposal**

The proposed regulation on brake emissions is a 'first', and it could be a real opportunity to improve air quality, especially in urban and suburban areas, less so along motorways where brakes are little used.

At the same time, the Commission's proposal deals comprehensively with exhaust and non-exhaust pollutants, the former having an established regulatory history of progressive reduction over time, while the latter is being regulated for the first time: we, therefore, consider it **appropriate to discuss the different emission sources separately.**

##### **- Real air quality benefits - Incentives for retrofitting registered vehicles**

**We propose the adoption of a solution that we believe is particularly effective in terms of air quality, capable of delivering a 50% benefit in terms of combined early activation time and emission reduction, at a cost that is acceptable to the European consumer and without increasing the cost of ownership of vehicles in circulation.**

It is worth considering that the European passenger car fleet alone is close to 250 million vehicles<sup>5</sup> with a replacement rate of about 1/20 per year.

→ This means, for example, that by **2030** (5 years after the proposed entry into force of EURO 7), the achievable air quality improvement in brake emissions is around 25%, while the remaining 75% of vehicles on the road remain unregulated.

**A standard should be considered that, for example, from 2028 will only allow low-dust emission replacement parts for braking systems (brake discs, brake pads and brake drums) to be sold on the EU market.**

**With a 'retrofit' forecast like the one proposed, linked to the natural replacement rate of discs and pads which are changed every 2-3 years, the entire pre-EURO 7 car fleet could be completely upgraded in terms of brake emissions.**

The estimated positive effects of such an action should be appropriately reflected in the cost-benefit analysis. This analysis, presented by the European Commission together with the EURO 7 proposal, should therefore be revised appropriately.

<sup>5</sup> Source: ACEA Studies Office, 2021

- **Mandatory application dates**

The impact on brake system suppliers depends mainly on the technology choices made by OEMs, which may be as follows to a first approximation:

- ❖ change only the pad compound, which will be possible for **A and B segment** vehicles;
- ❖ new pad compounds designed for discs with innovative low-wear cast iron alloys for the wide range of **C- segment** vehicles;
- ❖ the introduction of coated brake discs with ultra-low emissions combined with specific friction material for **high-end vehicles**.

The reason why the coated disc is necessary for these vehicles, is that it is strategic to maintain both the consumer's right to choose and the competitiveness of European OEMs, which also lies in being able to offer a customised braking system for specific brands, whereas the **simple adoption of a different friction material would lead to a standardisation of braking performance**.

**Considering the current brake system validation cycle and the necessary industrial investments, dedicated production lines should be commissioned during Q1-2023 with scheduled deliveries starting in Q1-2024, but obviously the OEMs' industrial strategy can only be decided after the Implementation Regulations are approved. Clearly, there are critical time constraints that need to be carefully evaluated and resolved as soon as possible.**

In fact, considering that approximately 60 million brake discs and drums and twice as many brake pads are installed each year in Europe, and assuming a required share of coated discs of between 15 and 25 per cent (9 to 15 million discs), there is a need for substantial investment in operational fixed assets. A CAPEX worth approximately 35 million euros per million coated discs produced is estimated.

As part of the move towards ever greater electrification of vehicles, in the near future non-exhaust emissions from brakes will also benefit from more stringent regeneration strategies. It is therefore possible to imagine a further reduction in brake emission limits, especially for the most electrified vehicles, probably well beyond the 3 mg/km/veh set for 2035. This would make it possible to maintain the economic sustainability of the investments that brake suppliers will have to deploy, and at the same time put the industry truly at the forefront of the move towards a truly zero-emission vehicle.

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## 5. Euro 7 'non-exhaust' - tyres

### – General considerations

In general the tyre industry supports the European Union's goal of cleaner mobility including any initiative taken to regulate tyre abrasion. Regulating tyre abrasion by setting minimum standards is indeed one lever to reduce the emission of Tyre-Road Wear particles - something the tyre industry has been committed to and working on for several years, also by supporting the development of test methods that would be fit for regulatory purpose.

Industry anyhow strongly recommends that **any measure to be adopted at EU level will be based on UNECE testing methods and limits**. This will facilitate the possibility for other countries to take the EU example, without generating possible barriers to trade.

That is why the tyre industry supports the future inclusion within Euro 7 of the work that will be achieved at UN level on tyre abrasion rates in a type approval regulation.

With regard to the legislative tool that was chosen, the tyre industry believes that an amendment to the **General Safety Regulation** (Regulation (EU) 2019/2144) **would have allowed for a more ambitious approach**, encompassing tyres in the scope no matter to which vehicle these might be fitted - whether EURO 7 or not. In this sense, **the tyre industry strongly recommends to use the mechanisms of the GSR as a reference**, especially during the definition of implementing and delegated acts in Euro 7, to ensure regulatory consistency with UN provisions, holistic consideration of tyre performance and to accelerate the application of tyre abrasion requirements in the European market.

To achieve the goals and ambition of the legislator and of the industry, we recommend that the following elements are taken into account during the legislative process:

- a **synchronization between work at UN and EU levels**: UNECE sets global safety and environmental performance requirements which also help the whole of the EU automotive sector to compete globally. The EU has consistently aligned with these standards and should continue to do so also in the case of tyre abrasion limits;
- reference to the reliable, reproducible and representative **test methods** currently being defined at the UN WP.29 GRBP Task Force on Tyre Abrasion;
- a transparent, encompassing, and rigorous **market assessment** allowing for science and quality ensured rule-setting;
- based on this, align both the **limits and tyres classification to those defined and agreed at UNECE WP.29 level** in adherence to the United Nations 1958 Agreement. This is in coherence with what had already been done for the other regulated tyre performances (Rolling resistance, Wet grip, Wet Grip in worn state and Noise);

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- Euro 7 tyre abrasion requirements should **apply to all tyres** (in the scope of the regulation) produced after a certain date and not only to those intended to be fitted on Euro 7 vehicles;
- Establish a specific timeline for the enforcement of tyre-related obligations, which includes the needed projected time for homologation and consideration of parallel changes in tyre type approval requirements.

- **Main attention points**

➤ **Overall coherency with United Nations tyre Regulations**

**Tyre performances have always been regulated through a structured type approval system, with a holistic approach through the UNECE WP.29 provisions**, in adherence to United Nations 1958 Agreement. This synchronisation between the work of the EU and the UN needs to continue and to be applied also in case of Euro 7, which should be developed with a view of transposing UN abrasion test method and limits, as soon as these will be available.

**Given that the legislator has chosen Euro 7 proposal to address tyre abrasion, this should be in coordination with the existing GSR (Regulation (EU) 2019/2144)**, which regulates safety and other environmental performances of tyres. Furthermore, the legislator should favour a robust and coherent legislative reference and avoid duplication possibly stemming from other workflows of the EU Commission (e.g.: Microplastics Regulation).

In this context, **it is key that the inclusion of tyre emissions in this regulation**, originally only meant to tackle vehicles, **refers directly to the work on tyre abrasion rate currently carried out in the UN (with the burden of measures and type approval pertinent to tyre manufacturers not to OEMs)**. This possibility was also anticipated in the **Impact Assessment produced by the Commission**, where, in absence of any quantitative evaluation on tyres, the inclusion of tyre abrasion provisions was envisaged to be included only at a later stage, e.g. at the first revision of the legislation.

➤ **Publication of implementing measures**

Recital (12) of the Commission's Proposal foresees a report from the Commission and this should reflect the work conducted at UN level, so that future emissions limits can be approved at the same time at UN and EU.

**This approach is well-established for tyre type approval according to test methods and limits defined in the UN**. This was already the case for UN Regulation 117, which sets the limits for the other tyre regulated performances (rolling resistance, wet grip and rolling noise), which were then transposed in the GSR.

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In the case of the Euro 7 proposal, this would have to be integrated, as foreseen by Article 14, by delegated act. Despite announcing tyre abrasion rate limits, **the text of the proposal should clarify that the European Commission will not be establishing “EU-only abrasion limits” but will include in the legislation those developed by the UN, thus broadening its scope with specific tyre-related obligations.**

Also the definition of a reliable, reproducible and representative test method shall be in line with the ongoing activity at the UN which have already planned to start a market assessment as soon as the test method has been validated. These are necessary steps to ensure the definition of ambitious limits for tyre abrasion performance Rate, considering context of status quo in the market.

➤ **Lead-time needed to the industry for implementation**

**Similar to any other provision on tyre performances, it is crucial to allow a feasible lead time for the industry to implement these requirements: i.e. between official publication of regulatory provisions and the date of implementation, not only tyres need to be tested for homologation purposes, but tyre design adaptations need to be made taking into account all performances.**

Finally, any date of entry into force of abrasion limits for tyres should be based on the tyre date of production (which is moulded on the sidewall of each tyre), rather than based on the date of placing the tyre on the market or of the tyre installation on a vehicle.

As a result, it is necessary to set a separate timeline of implementation for tyres, including taking into account a phasing in for new tyre types and for all tyre types, as it was also done in the GSR Regulation.

➤ **Application scope (retrofit)**

Tyres are replaced 4-5 times in a car lifetime. As such, they can give almost an immediate contribution to the upgrade of the EU’s vehicle fleet once new abrasion limits are adopted. However, by limiting the application of abrasion rate limits only to tyres fitted on Euro 7 vehicles, the effect on the market will be negligible for several years.

This is why, industry calls to openly indicate that the new requirements apply to all tyres produced after a certain date, to be decided according to the already consolidated approval process of test methods and abrasion limits defined in synchronization with the UN.

This, especially if paired with incentives - as indicated in the Commission’s introduction to the proposal -, could move the market upwards much faster than if it was only applied to tyres fitted to Euro 7 vehicles (whether original equipment or replacement).

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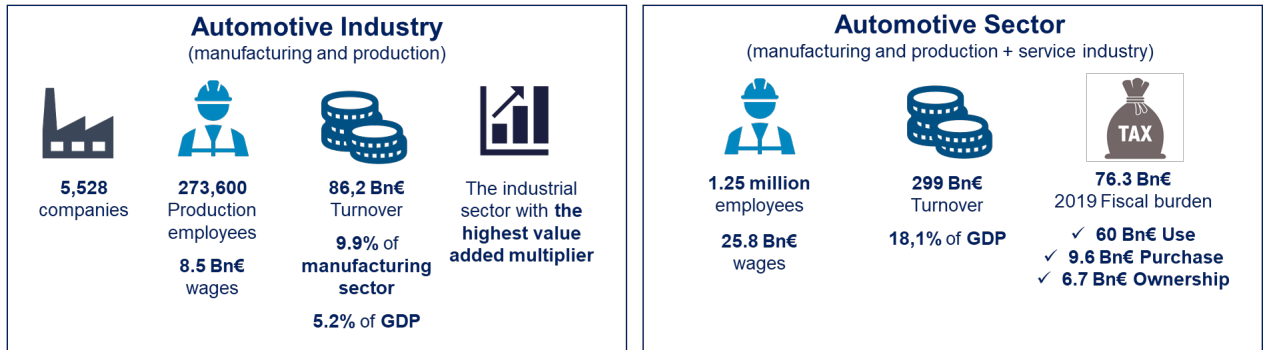
Therefore, tyre industry recommends introducing a new and dedicated article in order to lay down specific provisions relating to tyre abrasion. This will allow extending the scope to tyres beyond those fitted on Euro 7 vehicles.

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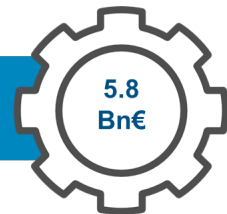


## The Italian automotive sector in figures



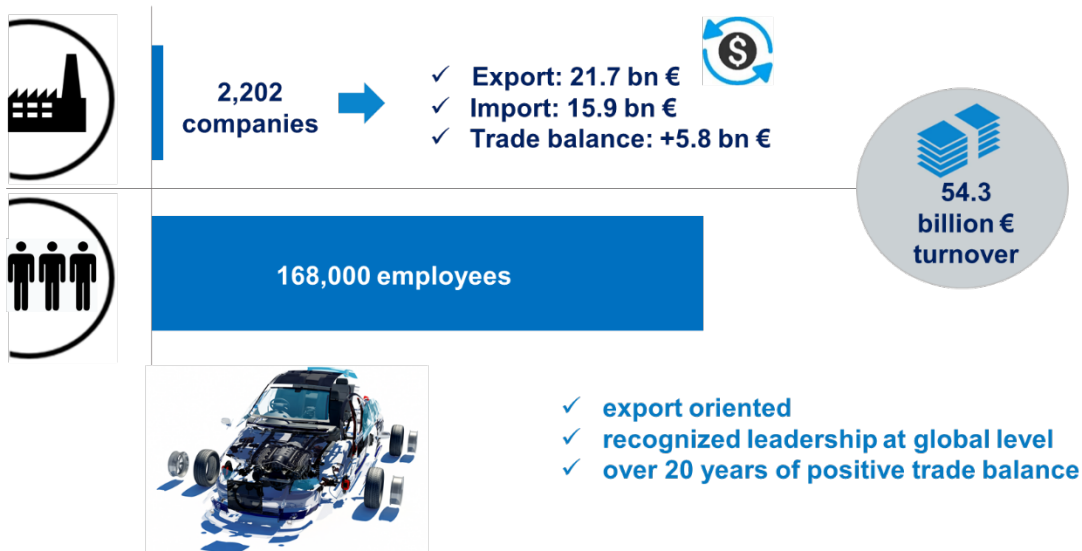
Components Sector<sup>1</sup>: 2,200 companies  
168,000 employees  
54,3 Bn€ turnover

2021 Trade Balance



<sup>1</sup> Source: Osservatorio della componentistica automotive italiana - 2022 Ed.

## The Italian Components industry in Italy - Facts & figures



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