

AD/BR8987/KVB

Brussels, 3 July 2023

European Commission proposal to amend the EU Regulation on CO₂ standards for new heavy-duty vehicles

IRU position on the European Commission proposal to amend the EU regulation on CO₂ standards for new heavy-duty vehicles

I. IRU POSITION

IRU recognises the revision of the CO₂ emission standards for heavy duty-vehicles (HDVs) as an important measure to further decarbonise commercial road transport in the EU.

To reach the targets of the EU's Green Deal and achieve a non-disruptive transition to carbon neutrality, the regulation on CO₂ standards for HDVs should be amended to include all options with a potential to decarbonise commercial road transport and establish the enabling conditions, as follows:

Conditions related to scope and targets

Heavy goods vehicles, trailers, and semi-trailers

- **Exempt high-capacity vehicles from the targets.** This means that the vehicles of subgroups 11, 12 and 16, which are already excluded from the current regulation, should continue being excluded, and all other motor vehicles used for towing a combination of 50 tonnes or more, or for very high-volume transports, as well as motor vehicles used in a European Modular System (EMS) mission profile should be added to the exemption.

Reasoning: High-capacity vehicles should not yet be subject to CO₂ emission targets as the current technologies available for zero-emission vehicles are not suitable for these types of operations. The specific characteristics of such vehicle combinations and their positive impact on energy efficiency should be duly considered and accurately taken into account in any emission calculation.

- **The following targets should be set for all non-exempted heavy goods vehicle groups:**
 - **In 2030:** Keep the target at **30%**.

Reasoning: The 45% target proposed by the European Commission will not be feasible due to a lack of enabling conditions and imperative operational circumstances. Several technological options will be needed, including zero-emission propulsion as well as propulsion using carbon-neutral fuels. A dense network of alternative fuels infrastructure and mature vehicle technologies fit for various operational needs are a precondition for the further uptake of zero-emission vehicles. Moreover, road goods transport operators follow long-term investment cycles. Sudden and drastic changes could be disruptive and costly to the industry. But it should be feasible to keep the 30% target already applicable to the motor vehicles covered by the current legislation and simply expand it to the motor vehicle types newly added to its scope (e.g., medium-duty vehicles).

- **In 2035:** Set the target at **55%** instead of 65%.

Reasoning: The 65% target proposed by the European Commission is not realistic for the same reasons mentioned above.

- **In 2040:** Set the target at **75%** instead of 90%.

Reasoning: The 90% target proposed by the European Commission does not send the right signal to incentivise investment in carbon-neutral fuels and technologies other than zero-emission tailpipe vehicles. If vehicles running on these technologies can only account for a very small percentage, an upscale of the carbon-neutral fuels market is unlikely to happen. Combustion technology running on carbon-neutral fuels will be needed beyond 2040 to ensure that road goods transport operators have options to match the needs of their multiple operations. This can only be achieved if a sufficiently large market is left open for such developments.

- **Keep the targets proposed by the European Commission for trailers and semi-trailers:** For trailers at 7,5%, and for semi-trailers at 15%, starting in 2030.

Reasoning: IRU fully supports the immediate decarbonisation potential of trailers and semi-trailers, which can be achieved through lower tyre rolling resistance, aerodynamic devices and design, and zero-emission devices that actively support the propulsion of a vehicle combination.

Buses and coaches

Reduction targets for buses and coaches should be based on a correct classification of the relevant vehicle classes (Class I, II and III), with realistic targets for each class, as follows:

- **Urban buses (Class I and A)** should be subject to a 70% reduction target by 2030, instead of the European Commission’s proposed 100%.

Reasoning: The rules should consider underdeveloped charging infrastructure, insufficient fundings, and scalability challenges, particularly an uneven roll-out across cities. These reasons hinder road transport operators and public transport authorities’ ability to exclusively purchase zero-emission HDVs as of 2030. The 100% sales target would also be inconsistent with enabling conditions and much lower purchasing targets under the Clean Vehicle Directive 2009/33/EC (CVD).

- **Intercity buses (standard and articulated) belonging to Class II and coaches belonging to Class III** should be grouped together and subject to the same targets.

Reasoning: Class II buses with an intercity mission profile are more similar to coaches than to urban buses. They should therefore not fall under the definition of “urban buses”. Class II vehicles are generally larger than Class I buses, and travel longer distances (up to 600km per day), requiring enabling conditions such as alternative fuels infrastructure on route. Additionally, the CVD does not include Class II buses in its procurement targets and EU legislation should be consistent in definitions and approach.

- The CO₂ reduction targets for **Class II and III buses and coaches** should be set at 15% for 2030, 40% by 2035, and 65% by 2040.

Reasoning: The higher targets proposed by the European Commission, which are for the first time included in the scope of the CO₂ standards with a more compressed time frame, are unrealistic for the road passenger transport sector. For coaches, enabling conditions lag much further behind than those for heavy goods vehicles, including technology developments for low- and zero-emission vehicles and infrastructure, resulting in limited operational range and low commercial speeds. Regarding Class II intercity buses, as these vehicles have not been subject to CVD, hence not covered by EU

procurement targets, it is not feasible to set the same targets for Class II and urban buses (Class I and Class A) under the CO₂ standards because the ambition level would go from 0 to 100 in a single step.

Common conditions for buses, coaches, and trucks:

- **Set a review clause for the targets in 2027**, instead of the European Commission's proposed 2028 date.

Reasoning: A review of the legislation needs to take place at least two years prior to European elections to allow a potential revision of CO₂ reduction targets to pass the co-decision procedure during the same legislature. The next European Parliament elections will be in 2029.

- **Allow access to in-vehicle data related to CO₂ only upon request during the time of technical inspections.** Access should be temporarily granted upon request to authorised inspectors for periodic and roadside inspections under standardised and safe conditions.

Reasoning: Continuous on-board monitoring, as proposed by the European Commission, implies challenges in terms of technical, safety, security and privacy requirements.

- **Set a technology-neutral approach and support accountability of carbon-neutral fuels and the use of high-capacity vehicles and combinations.** This can be achieved by combining lower targets for zero-emission vehicles, as proposed above, with a mechanism such as a carbon correction factor (CCF) accounting.

Reasoning: Efficient decarbonisation with immediate effect can only be achieved by keeping all options open, including opportunities for an increased contribution of carbon-neutral fuels and a wider use of high-capacity vehicles and combinations. The specific characteristics of such vehicle combinations and their positive impact on energy-efficiency should be duly considered and accurately considered in any emission calculation.

- **Provide regulatory incentives, such as tax credits or subsidies.**

Reasoning: To facilitate the market uptake of zero-emission vehicles, the sector requires support for the uptake of new vehicle technologies, as well as an even roll-out of charging and fuelling infrastructure networks across the EU, with a grid system to support the additional power required.

II. ANALYSIS

IRU is committed to reaching the European Green Deal's targets and promoting a sustainable and environmentally responsible commercial road goods and passenger transport industry. IRU's Green Compact project aims to guide the road transport industry worldwide to reach carbon neutrality by 2050. The project follows a realistic and pragmatic approach, based on alternative fuels deployment and efficiency measures tailored to meet operational market needs.

The current EU CO₂ standards for HDVs (adopted in August 2019)¹ cover heavy goods vehicles using a single drive axle². These vehicles, moved more than 80% of freight volumes (tkm) in 2021, according to Eurostat data.

The European Commission's amending proposal aims to include more vehicle types in its scope, such as medium-duty vehicles, buses and coaches, and semi-trailers and trailers. Broadening the scope is an important step towards further reducing greenhouse

¹ Regulation (EU) 2019/1242

² Subgroups 4, 5, 9 and 10, 4x2 and 6x2 with a gross vehicle weight (GVW) greater than 16 tonnes.

gas emissions (GHG) and addressing climate change; but it must remain pragmatic and realistic.

Road goods and passenger transport operators face challenges in reducing their fleets' CO₂ emissions. These include: high capital costs of transitioning to zero-emission technologies, limited availability of heavy-duty zero-emission vehicles, operational efficiency challenges of new powertrains, such as vehicle autonomy and load capacity, insufficient network of alternative fuels infrastructure, and the challenge of reskilling their workforce.

Decarbonisation requires a reliable, technology-open, and ambitious regulatory framework built on the following approach:

1. Targets for heavy goods vehicles

Current CO₂ standards for HDVs oblige vehicle manufacturers to reduce average fleet emissions of new HDVs within regulated vehicle groups by 15% (by 2025) and 30% (by 2030) compared to a 2019-2020 baseline. The CO₂ emission standards are determined based on the type-approval system and Regulation (EU) 2017/2400 which determine CO₂ emissions and fuel consumption of HDVs. These rules require vehicle manufacturers to declare CO₂ emissions and fuel consumption of new vehicles based on the VECTO³ tool.

The emission reduction targets set for 2030 are based on an additional yearly reduction target of 3% based on the targets set for 2025. Since the HDV industry operates on a long-term planning horizon, sudden and drastic changes could be disruptive and costly. The targets set in the current Regulation (EU) 2019/1242 should therefore be kept.

After 2030, the industry will have had time to adjust to the current targets and further invest in low-emission technologies. Extending the yearly reduction targets from 2030 onwards would allow for a further CO₂ reduction, encourage innovation and the development of new technologies, giving choices to road transport operators.

At the same time, EU-wide exemptions from the CO₂ tank-to-wheel emission targets are needed for high-capacity motor vehicles used for the heaviest duty operations, including in European Modular System (EMS) combinations, because the purpose of these vehicles cannot yet be equally served by a zero-emission equivalent. High-capacity vehicles are a powerful tool to reduce transport energy intensity and are therefore part of the decarbonisation solution. The specific characteristics of such vehicle combinations and their positive impact on energy-efficiency should be duly considered and accurately considered in any emission calculation. The impact of the weight of zero-emission technology is still too high on the load capacity of such vehicles. This impact cannot yet be fully compensated by potential technology weight derogations. The proposal leaves it to individual Member States to decide on an exemption for such vehicle categories. This exemption should be laid down at the EU level to avoid a non-aligned approach between Member States.

IRU calls for:

- **Exempt high-capacity vehicles from the targets.** This means that the vehicles of subgroups 11, 12 and 16, which are already excluded from the current regulation, should continue being excluded, and all other motor vehicles used for towing a combination of 50 tonnes or more or very high-volume transports⁴, as well as motor vehicles used in a European Modular System (EMS) mission profile, should be added to the exemption.

³ [The EU Vehicle Energy Consumption and Calculation Tool.](#)

⁴ These are transports carried out with vehicle combinations using high-cube trailers or semi-trailers which have a lowered chassis and wheelbase to either increase the size of the load area of the body or to allow the carriage of high cube containers while staying within the maximum authorised height of 4 metres. The additional space created increases the load capacity with up to 60%.

- **Set the following targets for all non-exempted categories of heavy-duty vehicles used in the transport of goods:**
 - **In 2030:** Keep the target at **30%**.
 - **In 2035:** Set the target at **55%**.
 - **In 2040:** Set the target at **75%**.

2. Targets for trailers and semi-trailers

Trailers do not directly emit CO₂ emissions. However, their design and operational use affect the tractive force exerted by the pulling vehicle and can therefore influence the CO₂ emissions and fuel consumption of a vehicle combination. The European Commission's intention to include trailers under the CO₂ standards regulation is a step forward to overcome market barriers to the adoption of cost-effective trailer technologies. Below are several options with CO₂ emission reduction potential:

- Low- and zero-emission technology used in powered trailers and semi-trailers to support the towing vehicle.

The increased use of trailers and semi-trailers equipped with a device that actively supports the propulsion of a vehicle combination and has no internal combustion engine (or an internal combustion engine emitting less than 5 g CO₂ /kWh) can make a significant contribution to advance decarbonisation. Such vehicles can be combined and used with different motor vehicles. Intelligent trailer technologies, which adjust the force of the trailer in real-time to actively support the motor vehicle, significantly reduce the emissions from the vehicle combination. The additional drivetrain also allows energy to be recovered during braking.

- Lower tyre rolling resistance.

Today, rolling resistance reduction is showing a limited impact on the motor vehicle CO₂ emissions reduction. However, improving the quality of the tyre material could improve its CO₂ emission reduction effect.

- Increased aerodynamic performance.

Gap fairings, side skirts, moveable roofs and rear-end devices can increase HDVs' aerodynamic performance. While an increase in aerodynamic performance can reduce CO₂ emissions, they cannot be used in all mission profiles such as urban logistics. Not all devices can easily be used in vehicles used in combined and multimodal transport.

- Lightweighting

Weight reductions can be achieved through material substitution (**e.g.**, use of aluminium, composite materials, and high-strength steel) in the chassis and in the body structure. These advanced lightweighting options can already be found on the market but have low market penetration due to the higher cost involved. While lightweighting only provides marginal benefits in long-haul operations, it can provide important gains in more transient operations, such as regional delivery.

IRU calls for:

- Keeping the targets for trailers and semi-trailers proposed by the European Commission: **7,5% for trailers and 15% for semi-trailers as of 2030.**

3. Targets and correct classification of bus and coach sector (Class I, II and III)

The current CO₂ standards for HDVs (adopted in August 2019) were set to reduce the average CO₂ emissions of the highest-emitting HDV segments by 15% in 2025 and by 30% in 2030 compared to a baseline determined from 2019 and 2020 data. The baseline value was calculated using the certified CO₂ emissions of new HDVs collected under a separate monitoring and reporting regulation, which entered into force in January 2019. The targets for the newly introduced vehicle categories have another

reference year (2025) compared to the current scope (2020). This gap needs to be considered as technical progresses have already been made.

Targets imposed by CO₂ legislation should be flexible and vary for different vehicle categories. It should also consider what is already technically feasible for the short and medium term. Targets should be achievable in all Member States to avoid distortions of competition and facilitate the cross-border use of alternative fuel vehicles.

Targets for road passenger transport vehicles will have to be realistic and proportionate.

IRU calls for:

- **Urban buses (Class I and A)** should be subject to a 70% reduction target by 2030, instead of the European Commission proposed 100%. The rules should consider underdeveloped charging infrastructure, insufficient fundings, and scalability challenges, particularly an uneven roll-out across cities. These reasons hinder road transport operators and public transport authorities' ability to exclusively purchase zero-emission HDVs as of 2030. The 100% sales target would also be inconsistent with enabling conditions and much lower purchasing targets under the Clean Vehicle Directive 2009/33/EC (CVD).

Additionally, a 100% sales target would compel vehicle manufacturers to solely focus their investments on ZEVs, neglecting the opportunity to invest in enhancing the efficiency of ICE vehicles and improving efficiency across various vehicle types. Transport operators still need a wide range of vehicles that best fit their business models. It is important to sustain investments in ICE technology, particularly during the transitional period, to ensure that operators have access to the vehicles that best suit their needs.

- **Intercity buses (standard and articulated) belonging to Class II and coaches belonging to Class III** should be grouped together and subject to the same targets. Class II buses with an intercity mission profile are more similar to coaches than to urban buses. They should therefore not fall under the definition of "urban buses". Class II vehicles are generally larger than Class I buses and travel longer distances (up to 600km per day), requiring enabling conditions such as alternative fuels infrastructure on route. Additionally, the CVD does not include Class II buses in its procurement targets. EU legislation should be consistent in its definitions and approach.
- **Class III (coaches) and Class II (intercity or integrated traffic)** to have targets distinct from trucks and set as follows:
 - 15% as of 1 January 2030;
 - 40% as of 1 January 2035; and
 - 65% as if 1 January 2040.

The higher targets proposed by the European Commission, which are for the first time included in the scope of the CO₂ standards with a more compressed time frame, are unrealistic for the road passenger transport sector. For coaches, enabling conditions lag much further behind than those for heavy goods vehicles, including technology developments for low- and zero-emission vehicles and infrastructure, resulting in limited operational range and low commercial speeds. Regarding class II intercity buses, as these vehicles have not been subject to CVD, hence not covered by EU procurement targets, it is not feasible to set the same targets for Class II and urban buses (Class I and Class A) under the CO₂ standards because the ambition level would go from 0 to 100 in a single step.

4. Review clause linked to enabling conditions

Emission reduction targets for vehicle manufacturers can only lead to a successful market uptake of zero-emission HDVs if enabling conditions, such as the network of alternative fuels infrastructure, are in place.

Today, road goods and passenger transport operators are facing significant challenges in adopting electric and hydrogen heavy-duty vehicles due to the lack of adequate recharging and refuelling infrastructure in the EU. Without a dense and reliable infrastructure network, transport operators are unable to operate their fleets of heavy-duty vehicles effectively. In the HDV sector, operators need to run their vehicles over long distances and at high frequencies. Without reliable and accessible charging and refuelling stations, transport operators are likely to experience operational disruptions and increased costs, which could limit the adoption rate of these vehicles.

Moreover, the deployment of recharging and refuelling infrastructure requires significant investments, and the market demand for electric and hydrogen vehicles is not yet strong enough to incentivise private investors to make such investments. Therefore, the EU needs to take a more active role in supporting the development and deployment of charging and refuelling infrastructure.

A robust and accessible network of refuelling stations and charging points is essential to overcome range limitations and ensure uninterrupted operations. Regular checks and monitoring are needed to assess enabling conditions as well as the availability of technology and accessibility of charging and refuelling stations. A review clause needs to be set minimum two years prior to European elections to allow for eventual legislation to pass through the legislative procedure.

IRU calls for:

- A review clause set in 2027 with annual, as opposed to biannual checks, monitoring the effectiveness and impact of the legislation as provided in the proposal and allowing for revision of the targets according to the results of the market assessment.

5. Technology neutrality and accountability of carbon-neutral fuels and the use of high-capacity vehicles

IRU encourages continued research into and development of carbon-neutral technologies specific to the HDVs sector. This includes advancements in electric, hybrid, hydrogen, and other alternative fuel technologies that offer feasible, operationally efficient, and cost-effective solutions for reducing CO₂ emissions. Every technological solution that has the potential to contribute to decarbonising commercial road transport needs to be considered to enable road transport operators to choose the most suitable option for their operational needs.

A tank-to-wheel (TTW) approach leaves vehicle manufacturers no choice but to phase out the production of technologies that allow for carbon neutrality exclusively on a well-to-wheel (WTW) approach⁵. In the new proposal, electrification and hydrogen are seen as the most suitable (and only) tools for the decarbonisation of the sector. This approach limits the number of options for road transport operators to match their operational needs, for example with regards to vehicle autonomy, load and passenger capacity, refuelling and recharging times. By limiting the options for new vehicle acquisitions to zero-emission HDVs, the new proposal gives an advantage to large companies capable of purchasing vehicles produced in limited numbers and at higher prices. Small and medium-sized companies would be forced to continue using their existing fleet.

In addition, the use of trailers and semi-trailers influences the CO₂ emissions of heavy goods vehicle combinations, especially high-capacity vehicle combinations, such as EMS and high-cube articulated vehicles. The use of high-capacity vehicles can contribute to reducing the CO₂ emissions of a vehicle combination by as much as 20%.

⁵ The mechanical energy used by a vehicle to move forward is coming from the conversion of another energy, generally chemical (fuel). This conversion can create carbon emissions. Tank-to-wheel emissions count carbon emissions during the conversion process. Well-to-wheel emissions count the same emissions, and add the emissions generated during the processing of the fuel before conversion (sourcing, treatment, distribution...).

The advantages of the use of motor vehicles, trailers and semi-trailers in high-capacity combinations are insufficiently recognised and considered by the present proposal.

Whereas carbon-neutral fuels and high-capacity vehicle use can equally contribute to decarbonisation, the proposal leaves little option for their use by the road transport industry, only for 10% of new vehicles sold after 2040. Alongside the phasing out of fossil fuels, carbon-neutral fuels, such as liquid biofuels, biogas, and synthetic fuels, would no longer contribute to the decarbonisation of road transport.

Under the current Regulation (EU) 2019/1242, the compliance of a vehicle manufacturer with its specific emission target is assessed against the tailpipe CO₂ emissions of its new fleet. This regulation, however, includes a review clause for assessing the possibility of developing a specific methodology to include the potential contribution of renewable and low-carbon fuels in reducing the CO₂ emissions of the HDV sector. Despite this provision, no mechanisms to account for renewable fuels have been considered by the European Commission in the proposal for the revision of the regulation setting CO₂ emissions standards for HDVs.

Keeping existing options open and allowing for potential new technological solutions allows for a competitive and innovative market, driving innovation and creativity. In addition, technology neutrality makes the industry more resilient by decreasing the risk of insufficient energy supply.

Moreover, the European Commission should consider making use of existing potential to increase the energy efficiency of the industry, which is the foundation of a smoother transition to alternative fuels. Platooning, high capacity-vehicles, including EMS, eco-driving, and urban consolidation centres are some examples of practical solutions that need to be promoted to start the decarbonisation journey as fast as possible.

IRU calls for:

- Road goods and passenger transport operators to have the choice to match the best-suited technological option available to their specific operations and maintain their business.
- The new regulation should acknowledge the role of renewable fuels and the use of high-capacity vehicle combinations by introducing a carbon correction factor (CCF)⁶ as an accounting mechanism. The regulation cannot continue to exclusively follow the “tank-to-wheel” approach while continuing to ignore the fact that other energy sources, such as synthetic and biofuels, are already contributing to the decarbonisation of the sector and can accelerate the shift away from fossil fuels.

6. Regulatory incentives

The HDV sector is cost-competitive and has low profit margins. With over 600,000 businesses across the EU employing almost 3 million people, the road goods and passenger transport sector is predominantly made up of SMEs. Road transport operators make operational decisions based on profitability considerations and the total cost of ownership (TCO).

Prices of alternative fuelled HDVs based on technologies such as battery-electric and hydrogen fuel cell are two to three times higher than conventional vehicles, with no perspective of a massive price decrease in the foreseeable future. Even with increased market uptake, the potential for economies of scale is limited. Unlike passenger cars, which are produced in large volumes, the market for heavy-duty vehicles is smaller, meaning that manufacturers must spread their fixed costs across a smaller number of units. Low profit margins in a highly cost competitive market do not easily allow for investment in highly expensive vehicles. Regulatory incentives provided to manufacturers by Member States to meet the targets should be passed on to end users.

⁶ ‘Carbon Correction Factor’ means a factor which applies a correction to the CO₂ tailpipe emissions of vehicles for compliance assessment, to reflect the GHG emission intensity and the share of CO₂ neutral fuels.

IRU calls for:

- Regulatory incentives such as tax credits or subsidies to support and facilitate the market uptake of electric and hydrogen heavy-duty vehicles.
- In addition to providing support for the uptake of new vehicle technologies, the development of the required infrastructure needs to be encouraged. The cost of grid connection in areas with many charging posts can be discouragingly high. Regulatory incentives, such as guarantees for the initial investment, could facilitate the build-up of new infrastructure.

7. Access to in-vehicle data

Until now, OEMs have used VECTO to estimate the fuel consumption of their vehicles according to a matrix of usages. The CO₂ emissions rate is based on simulated fuel consumption. VECTO will still be used for CO₂ estimations, but the European Commission is planning to introduce a monitoring system for real-world data with on-board sensors.

Data will be collected from the vehicles' on-board-monitoring system (OBM) and on-board-fuel-calculation monitoring (OBFCM) for verification. This data will include the vehicle identification number (VIN), the fuel and electricity consumption, the distance travelled, and the payload (among others).

Declarative data coming from vehicle manufacturers will be stored in a newly created central register⁷. The data contained inside will be anonymised and made publicly available. If the data doesn't comply with the European Commission's requirement, an administrative fine is issued.

It is unclear if the data measured onboard will be stored in this register or not.

IRU emphasises that specifically pre-defined in-vehicle data should only be made available temporarily on demand to authorised inspectors for periodic testing and roadside inspections under standardised and safe conditions, before being erased thereafter. Challenges in terms of technical, safety, security, and privacy requirements should be recognised. Access to in-vehicle data should not interfere with the performance of transport operations.

IRU calls for:

- The user's choice over third-party access to in-vehicle data should always be preserved, with such access requiring either an existing contractual relationship with the user for the provision of services or an explicit consent from the user, i.e., that is freely given, specific for the purpose, informed and unambiguous.
- Rules that address specific safety, (cyber)security, and privacy aspects, for both drivers and operators, especially when it relates to potential on-board access to in-vehicle data.

* * * * *

⁷ The European Commission (EC) intends to keep a central register for the data on heavy-duty vehicles ('the register') reported in accordance with Articles 13a and 13b. The register shall be publicly available except data entries listed in point 3.2.2 of Annex V.