

CO₂ emission performance standards and reporting obligations for new heavy-duty vehicles

OVERVIEW

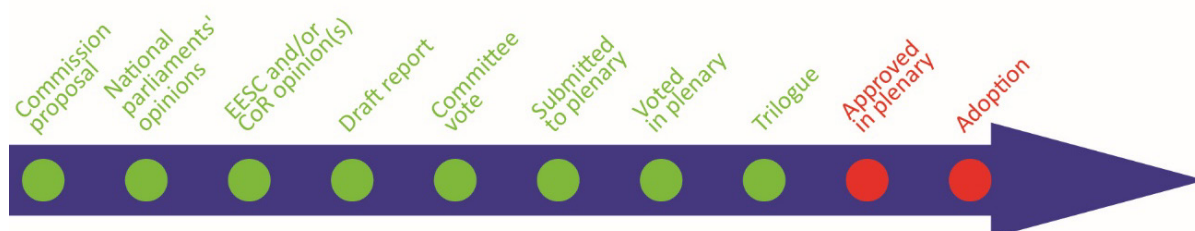
Road transport is a major contributor to climate change. CO₂ emissions from heavy-duty vehicles (HDVs) have grown steadily, and account for over a quarter of road transport CO₂ emissions.

On 14 February 2023, the European Commission tabled a legislative proposal to revise Regulation (EU) 2019/1242 setting CO₂ emission standards for new HDVs in the EU. The proposed revision would expand the scope of the regulation to include urban buses, coaches, trailers and additional types of lorries. The average CO₂ emissions of trucks and coaches, compared with 2019 levels, would have to fall by 45 % from 2030, by 65 % from 2035, and by 90 % from 2040 onwards. The proposal sets a target date when all newly registered urban buses would have to be zero-emission vehicles.

In the European Parliament, the proposal was referred to the Committee on the Environment, Public Health and Food Safety. The Parliament adopted its position during the November II 2023 session. In January 2024, the co-legislators reached a provisional agreement on the proposal. The Parliament and Council need now to formally adopt the text.

Proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) 2019/1242 as regards strengthening the CO₂ emission performance standards for new heavy-duty vehicles and integrating reporting obligations, and repealing Regulation (EU) 2018/956

<i>Committee responsible:</i>	Environment, Public Health and Food Safety (ENVI)	COM(2023) 88 final 14.2.2023
<i>Rapporteur:</i>	Bas Eickhout (Greens/EFA, the Netherlands)	2023/0042(COD)
<i>Shadow rapporteurs:</i>	Jens Gieseke (EPP, Germany) Christel Schaldemose (S&D, Denmark) Pascal Canfin (Renew, France) Pietro Fiocchi (ECR, Italy) Silvia Sardone (ID, Italy) Nikolaj Villumsen (The Left, Denmark)	Ordinary legislative procedure (COD) (Parliament and Council on equal footing – formerly 'co-decision')
<i>Next steps expected:</i>	Final first-reading vote in plenary	



Introduction

On 14 February 2023, the European Commission adopted a legislative proposal to revise Regulation (EU) 2019/1242 setting CO₂ emission standards for new heavy-duty vehicles (HDVs) in the EU. The proposal aims to contribute to reaching the EU's climate objectives set out in the European Climate Law, namely climate neutrality by 2050 and a 55 % reduction in net greenhouse gas (GHG) emissions by 2030, relative to 1990 levels. It also aims to help the EU reduce its dependency on imports of fossil fuels, as highlighted in the REPowerEU plan.

Together with the revised [CO₂ emissions standards for cars and vans](#), the proposal addresses CO₂ emissions in road transport, a sector that accounts for one third of EU final energy consumption, and one fifth of the EU's GHG emissions. It is the only sector in the EU where emissions have continued rising in recent years. Moreover, it is a significant source of air pollution in cities.

[HDVs](#) are currently responsible for about a quarter of total road transport emissions in the EU, and over 6 % of total EU GHG emissions. GHG emissions from heavy-duty road transport increased by about 5.5 % between 2000 and 2019. This increase was mostly driven by growth in transport demand, which increased by almost 25 % over that period. However, growing transport demand has outpaced the gains from efficiency improvements, which had helped to lower the energy consumption per tonne-kilometre transported by almost 15 % over the same period. Demand for transport is expected to keep increasing, and the [European Environment Agency](#) points out that improvements of vehicles should be complemented by measures such as shifting freight transport from road to rail and reducing the number of trips or their length.

In 2022, almost 300 000 trucks over 3.5 tonnes and 28 376 new buses were [registered](#) in the EU. More than two thirds of [new buses](#) had diesel engines, while electrically chargeable buses reached a share of 12.7 %, up from 10.6 % in 2021. Diesel engines retained a share of 96.6 % of [new trucks](#) in 2022. From 2021 to 2022, new registrations of electrically chargeable trucks grew by 32.8 % to 1 656 units (half of which in Germany), reaching a market share of 0.6 %.

Table 1 shows the estimates of the EU automotive industry regarding the number of zero-emission vehicle, charging and refuelling infrastructure needed to achieve CO₂ reduction targets.

Table 1 – Zero-emission vehicles and infrastructure needed for reaching CO₂ targets

CO ₂ targets		- 30 %	- 40 %	- 50 %
Zero-emission HDVs needed in operation on EU roads		280 000	390 000	465 000
	Battery-electric vehicles	230 000	320 000	380 000
	Fuel-cell electric vehicles	50 000	70 000	85 000
Electric charging points		34 000-42 000	48 000-59 000	53 000-65 000
	of which megawatt chargers (> 800 kW)	20 000-25 000	28 000-35 000	31 000-39 000
Hydrogen refuelling stations (6 tonnes/day)		500	650	750

Source: [Factsheet CO₂ standards for heavy-duty vehicles](#), ACEA, 2023.

Existing situation

[Regulation \(EU\) 2019/1242](#) obliges HDV manufacturers to reduce average fleet emissions of new HDVs within regulated vehicle groups by 15 % by 2025 and 30 % by 2030, compared with a mid-2019 to mid-2020 baseline. It applies to four categories of large trucks, which together account for over 73 % of the CO₂ emissions from HDVs. Vocational vehicles, such as garbage trucks and construction vehicles, are exempted due to their limited potential for cost-efficient CO₂ reductions.

The regulation defines a 'zero-emission' HDV as a vehicle either without an internal combustion engine or with an internal combustion engine that emits less than 1 g CO₂/kWh. A 'low-emission' HDV is defined as a vehicle with specific CO₂ emissions of less than half of the reference CO₂ emissions of all vehicles registered in 2019 in its group.

To reward early action and encourage the sale of more zero- and low-emission HDVs (ZLEVs), the regulation provides incentives for such vehicles in the form of 'super-credits' from 2019 to 2024. These can be used to comply with the target set for 2025. Each zero-emission vehicle is counted as two vehicles, and each low-emission vehicle is counted as less than two vehicles, in relation to its CO₂ emissions. From 2025 onwards, a manufacturer that meets a benchmark of 2 % of ZLEVs in total sales will be rewarded with a downward adjustment of its average specific CO₂ emissions by 1 % for each percentage point of exceedance of the benchmark. In both systems, zero-emission HDVs (with the exception of buses and coaches), which are not subject to the CO₂ targets, are accounted for in the incentive mechanism and reduce average specific CO₂ emissions by up to 1.5 %.

To facilitate cost-effective implementation over time, the regulation allows the banking and borrowing of CO₂ credits from one year to the next. This rewards early action and reduces compliance costs for manufacturers, by making it possible to factor in long development cycles in the industry while protecting the environmental integrity of the targets. To maintain the environmental integrity of the CO₂ target, credits can be banked only if the emissions are below a linear emissions reduction trajectory. Total debts must not exceed 5 % of the target, and a surplus of credits cannot be carried over into the next period.

The regulation sets a reference period: 1 July 2019 to 30 June 2020 and 12-month reporting periods starting on 1 July. The excess emission premium for the 2025-2029 period is set at €4 250/g CO₂/tonne-km. From 2030, the excess emission premium is set at €6 800.

The Commission had to establish a [methodology](#) for assessing the conditions under which the reference CO₂ emissions had been established, and criteria to determine whether they had been unduly increased. If this was the case, corrected reference CO₂ emissions had to be published no later than 30 April 2022.

The Commission must regularly collect data on the real-world CO₂ emissions and energy consumption of HDVs using on-board fuel- or energy-consumption-monitoring devices, including vehicle identification number, fuel or electric energy consumed, distance travelled and payload. The Commission must monitor the gap between reported and real-world fuel consumption and CO₂ emissions, report annually and, in 2027, assess the feasibility of adjusting manufacturers' average CO₂ emissions as of 2030. The agreed text introduces new provisions for verifying the CO₂ emissions of vehicles in service and the presence of any strategies that artificially improve vehicles' performance in the tests or calculations for certifying CO₂ emissions and fuel consumption.

The Commission had to thoroughly review the effectiveness of the regulation by 31 December 2022¹ and to submit a report, and potentially a proposal for amending the regulation, to the Parliament and the Council. As part of this review, the Commission had to assess the introduction of CO₂ reduction targets for other types of HDVs including trailers,² buses and coaches, and vocational vehicles. Additionally, it had to assess the introduction of binding emissions reduction targets for 2035 and 2040 onwards for HDVs.

[Regulation \(EU\) 2018/956](#) sets up a system for monitoring and reporting CO₂ emissions and fuel consumption of HDVs. This system ensures the availability of data on which to base the proposed emission performance standards. Member States must monitor and report data about all new HDVs registered in a calendar year, while HDV manufacturers must monitor and report information related to the CO₂ emissions and fuel consumption of vehicles. The Certification Regulation ([EU\) 2017/2400](#), last amended by Commission Regulation ([EU\) 2022/1379](#), requires manufacturers to calculate this information on the basis of a standardised simulation tool.³ The Commission makes the reported data publicly available in a [register](#) managed by the European Environment Agency, with exceptions for sensitive data.

The [Alternative Fuels Infrastructure Regulation](#) (EU) 2023/1804, adopted in September 2023, requires a gradual deployment of recharging infrastructure for electric HDVs, starting in 2025 and aiming at coverage of all TEN-T roads by 2030.⁴ A specific review of the provisions on infrastructure for HDVs is envisaged in the short term, to take account of significant technological and market developments.

Further EU legislation with an impact on HDVs and transport fuels includes the proposed [Euro 7](#) vehicle emission standards, the new [emissions trading system](#) for road transport fuels, the revised [Renewable Energy Directive](#) with renewable energy targets for the transport sector, and the review of the [Energy Taxation Directive](#).

Parliament's starting position

Parliament's [position](#) on the proposed alternative fuels infrastructure regulation called for more, and more powerful, charging stations for HDVs in urban nodes and in safe and secure parking areas.

In the negotiations on the current regulation, which was adopted in 2019, in its [position](#), the Parliament had called for higher emissions reductions for new HDVs: a 20 % target for 2025 and an indicative 35 % target for 2030.

Preparation of the proposal

A [public consultation](#) on the objectives and specific policy options received 137 responses, which are presented in the Commission's summary report.

The [impact assessment](#) (IA) accompanying the proposal analysed three groups of policy options regarding the CO₂ emission targets (scope, levels, timing and modalities), incentives for zero- and low-emission vehicles, and the potential inclusion of renewable and low-carbon fuels. Under the preferred option, the cumulative tailpipe GHG emissions between 2031 and 2050 would be 35-48 % lower compared with the baseline. Air pollutant emissions would be gradually reduced, reaching a 66-80 % reduction in 2050. The total cost of ownership for first users would be around €9 000 lower for a new HDV purchased in 2030 and around €41 000 lower in 2040. These cost reductions are driven by lower fuel costs. As regards the potential contribution of renewable and low-carbon fuels, the IA analysed possible mechanisms and concluded that they are not the most effective tools for reducing CO₂ emissions of HDVs, are incoherent with other policy instruments, and would increase the administrative burden. According to the IA, the cost of EU fossil fuel imports would fall by €150-200 billion over the 2031-2050 period.

The Regulatory Scrutiny Board issued a [positive opinion with reservations](#) on the IA. In December 2022, noting improvements compared with an earlier version that had received a negative assessment. The board is of the opinion that the IA does not adequately address the risks and constraints that arise from potential under-development of necessary technologies and infrastructure, and that the proportionality of different combinations of options needs further analysis.

The European Parliamentary Research Service published an [initial appraisal](#) of the IA, praising the methodology and underlying expertise, but noting that a more coherent presentation of the options and their interlinkages would have improved accessibility and transparency of the IA.

The changes the proposal would bring

The Commission proposal described in this section has been amended by the Council and Parliament. For the content of the approved new rules, please see the 'Legislative process' section below.

The [proposal](#) sets new CO₂ emission standards for new HDVs, extends the coverage to further classes of HDVs, and incorporates and updates the rules on monitoring and reporting contained in Regulation (EU) 2018/956, which is repealed. It has three specific objectives: reduce CO₂ emissions cost-effectively, provide benefits for European transport operators and users, through more energy-efficient vehicles, and strengthen the EU's industrial technological and innovation leadership by promoting investments in zero-emission technologies.

The scope of the Regulation would be extended to include almost all vehicles with certified CO₂ emissions, including [trailers](#), urban buses, coaches and further types of lorries above 5 tonnes. With these additions, more than 98 % of the sector's CO₂ emissions will be regulated from 2030, compared with 73 % under the existing regulation.

The average CO₂ emissions of HDVs, compared with 2019 levels, would have to fall by 45 % from 2030, by 65 % from 2035, and by 90 % from 2040 onwards. Specific reduction targets for subgroups of HDVs are set out in Annex I. In addition, the proposal sets a target for trailers⁵ to contribute to CO₂ reductions (7.5 % for normal trailers and 15 % for semi-trailers).

All newly registered urban buses will have to be zero-emission vehicles from 2030. This target does not apply to coaches used for regional and long-distance passenger transport, which are subject to the CO₂ emissions reduction targets.

The incentive scheme for zero- and low-emission vehicles would end in 2029, because their sales are expected to be driven by the stricter targets from 2030 onwards.

Manufacturers would be allowed to continue making use of emission credits or emission debts after 2029. Any emission debts would have to be cleared in the 2029, 2034 and 2039 reporting periods. The proposal sets a CO₂ emissions reduction trajectory for the years 2030 to 2040.

Manufacturers would be able to transfer individual vehicles for the purpose of calculating their average specific CO₂ emissions. Zero-emission vehicles could be transferred between any two manufacturers,⁶ while all other vehicles could be transferred between economically connected manufacturers, subject to certain conditions. New rules are added to determine how the registered vehicles are attributed to manufacturers for compliance assessment.

The following groups of vehicles would be exempt from the CO₂ reduction targets: special-purpose vehicles for mining, forestry and agriculture; vehicles designed and constructed for military use; track-laying vehicles; vehicles designed and constructed or adapted for use by civil protection, fire services and forces responsible for maintaining public order or providing urgent medical care; and vocational vehicles such as garbage trucks. Manufacturers responsible for less than 100 new HDV registrations in the EU could be exempted from the CO₂ emissions targets.

The provisions of Regulation (EU) 2018/956 on monitoring and reporting of HDV CO₂ emissions and fuel consumption would be integrated into the amended Regulation (EU) 2019/1242.

By 2028, the Commission would have to review the effectiveness and impact of the regulation, and submit a report accompanied by a proposal to amend it, if appropriate.

Advisory committees

The European Economic and Social Committee adopted its [opinion](#) on the proposal on 12 July 2023. The opinion calls for a CO₂ emissions reduction trajectory aligned with the industry's capacity to transform, and with transport operators' needs regarding costs and operational efficiency. It considers that the 'tailpipe' approach to HDV emissions should be complemented by policy instruments to incentivise the use of renewable, non-fossil fuels for internal combustion engine vehicles. Moreover, it advocates a life-cycle approach to avoid a shift of emissions upstream in the value chain. It generally welcomes a higher speed of decarbonisation, which can boost structural transformation and promote EU leadership in the clean transport industry, while ensuring fairness for workers. Acknowledging the importance of a regulatory stimulus for the deployment of zero-emission vehicles, it calls for a focus on the demand side and enabling conditions for logistics operators.

The European Committee of the Regions decided on 10 May 2023 not to issue an opinion.

National parliaments

By the subsidiarity deadline (22 May 2023), 20 national parliaments had [scrutinised](#) the proposal. Only the [Italian Senate](#) and the [Italian Chamber of Deputies](#) sent reasoned opinions stating concerns about subsidiarity and proportionality. They consider that the ambitious targets of the proposal and the necessary build-out of refuelling infrastructure cannot be achieved in a reasonable time frame, that the proposal creates risks for the European road transport sector, and that targets based on tailpipe emissions disregard the environmental impacts of electric vehicles. They argue that the proposal fails the principle of proportionality, as it introduces a heavy compliance burden on manufacturers, producers and distributors of traditional fuel, and advanced biofuel chains that is out of proportion with the relatively small amount of GHG emissions generated by HDVs.

Stakeholder views⁷

The European Automobile Manufacturers' Association ([ACEA](#)) highlights that enabling conditions, notably recharging and refuelling infrastructure, must be improved to meet the existing targets, let alone the more ambitious targets proposed by the Commission. It furthermore calls for an annual review of the key enabling conditions. ACEA considers the proposed targets for the newly included vehicle groups to be too ambitious and warns that the 100 % zero-emission target for urban buses by 2030 puts enormous pressure on public transport operators. In December 2020, ACEA and major European truck manufacturers launched [cooperation](#) with the Potsdam Institute for Climate Impact Research on pathways to making all new commercial vehicles fossil-free by 2040. In its [factsheet](#), ACEA points out that shippers and hauliers will only invest in zero-emission HDVs if they can be seamlessly refuelled/recharged and operated more profitably than conventionally powered vehicles.

The European Association of Automotive Suppliers ([CLEPA](#)) considers the proposed 2030 and 2035 targets extremely ambitious, and doubts that the enabling conditions can be met. CLEPA urges policymakers to keep the current 2030 target and consider a reasonable trajectory towards 2035, supported by improved enabling conditions such as charging and refuelling infrastructure, and renewable electricity, hydrogen and fuels.

The European Clean Trucking Alliance ([ECTA](#)) regards the proposed CO₂ standards for HDVs as necessary to drive the transition towards zero-emission trucks. ECTA states that ambitious targets require an increased production of zero emission vehicles, making them more affordable in the process. ECTA further suggests a zero-emission target for small and medium trucks for 2030 and intermediate targets for 2027. This would address the CO₂ emissions from small trucks, which are currently neither reported nor regulated. The European Association for Electromobility ([AVERE](#)) supports an accelerated reduction of the CO₂ targets and a zero-emission target for all trucks by

2035. Moreover, it calls for a dedicated mandate for large corporate operators to decarbonise their HDV fleets ahead of this timeline.

The European Association for Forwarding, Transport, Logistics, and Customer Services ([CLECAT](#)) welcomes the Commission's proposal, saying that the strengthened regulations are essential for accelerating the transition towards zero-emission trucking. CLECAT also points to the challenge of extending the necessary charging and refuelling infrastructure, claiming it is the biggest concern that could hinder businesses from realising a fully zero-emission future.

The European Road Hauliers Association ([UETR](#)) highlights the need for incentives, financial support and accompanying measures for small and medium-sized road transport companies. These measures should target vehicles, energy products and private recharging stations.

[Hydrogen Europe](#) supports the proposal's high ambition together with its technology-neutral approach that includes all hydrogen-powered solutions. It calls for improved enabling conditions to make hydrogen-powered HDVs more affordable and attractive, including a dense refuelling network, robust supporting schemes and favourable road tolls.

A [joint letter](#) by European companies, including fuel and automotive suppliers, and scientists recommends that sustainable and renewable fuels be considered for compliance in the proposed CO₂ regulation for HDVs. The [European Biogas Association](#) supports this view.

[IndustriAll](#), a federation of trade unions, considers the Commission proposal necessary for European leadership in the clean transport industry, but highlights the need for a just transition for workers and a job-rich industrial strategy. As just transition principles have been applied in climate legislation for passenger cars, a similar approach is needed for HDVs.

The International Council on Clean Transportation ([ICCT](#)) welcomes the Commission's proposal, considering the new standards as world-leading and an excellent regulatory framework to contribute to EU climate objectives. A March 2022 [ICCT white paper](#) had proposed a 90 % CO₂ reduction target for 2035 and a zero-emission target for 2040.

Transport and Environment ([T&E](#)) urges the European Parliament and the Council to set a zero-emission target for new trucks from 2035, to prevent the sale of new diesel trucks even though their electric counterparts offer similar performance at lower cost.

Legislative process

The Council adopted its [general approach](#) on 16 October 2023. The general approach maintains the proposal's headline targets for 2030, 2035 and 2040, amends the definition of 'zero-emission' HDV, and introduces extra-heavy combination lorries as a sub-group of vehicles. It moves the target date for 100 % of newly registered urban buses to be zero-emission vehicles from 2030 to 2035, and exempts inter-urban buses. From 2030 onwards, 85 % of new urban buses would have to be zero-emission vehicles. The emissions reduction target for semi-trailers is set to 7.5 % from 2030, compared with 15 % in the Commission proposal. The Council wants the Commission to review the regulation in 2027, a year earlier than proposed by the Commission, including a report on progress in the deployment of recharging and refuelling infrastructure for alternative fuels.

In the European Parliament, the proposal has been referred to the Committee on the Environment, Public Health and Food Safety (ENVI), which appointed Yannick Jadot (Greens/EFA, France) as rapporteur. His May 2023 [draft report](#) calls for reaching 100 % new zero-emission HDVs by 2040 and sets more ambitious intermediate targets. Bas Eickhout (Greens/EFA, the Netherlands) became rapporteur after Yannick Jadot was elected to the French Senate and resigned as an MEP.

The ENVI committee adopted its [report](#) on 24 October 2023, with 48 votes in favour, 36 votes against and 1 abstention. The report proposed raising the emissions reduction target for the 2035-2039 period to 70 % (compared with 65 % in the Commission proposal).

The Parliament adopted its [position](#) on 21 November 2023 with 445 votes in favour, 152 votes against and 30 abstentions. The adopted text affirms the emissions reduction targets proposed by the Commission, and extends the scope of the proposed regulation to vocational vehicles (such as garbage trucks, tippers and concrete mixers). To protect investment in existing biomethane refuelling infrastructure for urban buses, Member States would be allowed to request a temporary exemption (until 2035) for urban buses fuelled by biomethane, provided that the fuel is produced from a virtuous waste treatment process and guaranteed by certificates of origin. The Commission would have to convene an annual 'Zero-Emission HDVs Forum' of stakeholders, think tanks and Member States, to work on the effective and cost-efficient roll-out of recharging and refuelling infrastructure. By 30 June 2024, the Commission would have to present a legislative proposal to increase the share of zero-emission HDVs owned or leased by large fleet operators, including binding zero-emission mandates. Within six months of the entry into force of the revised regulation, the Commission would have to adopt a delegated act regarding type-approval rules for internal combustion engine vehicles that have been converted to zero-emission vehicles, in order to allow for series approval. Within one year after the entry into force, the Commission would have to develop a methodology for registering heavy-duty vehicles running exclusively on CO₂-neutral fuels. By the end of 2025, the Commission would have to assess the role of sustainable renewable fuels in the transition towards climate neutrality, including in the HDV sector. By the end of 2026, the Commission would have to assess the methodological options for reporting the full lifecycle CO₂ emissions of new HDVs. The date for the Commission review of the regulation is advanced from the end of 2028 to the end of 2027.

The file was referred back to the ENVI committee for negotiations with the Council, which concluded on 18 January 2024 with a [provisional political agreement](#). The agreed text extends the scope of the regulation to almost all new heavy-duty HDVs with certified CO₂ emissions, including smaller trucks, urban buses, coaches and trailers. Vocational vehicles will be included from 2035, and the Commission will analyse, by 2027, the possibility of including trucks under 5 tonnes.

An exemption from the CO₂ reduction targets applies to small-volume manufacturers; vehicles used for mining, forestry and agriculture; vehicles for use by the armed forces and fire services; and vehicles for use in civil protection, public order and medical care.

The agreement maintains the emission reductions targets for trucks and coaches proposed by the Commission: 45 % for 2030, 65 % for 2035, and 90 % for 2040. From 2030, the target for trailers will be 7.5 % (as proposed by the Commission), and for semi-trailers it will be 10 % (instead of 15 % proposed by the Commission).

The agreed text requires 100 % of newly registered urban buses to be zero emission vehicles by 2035 (five years later than proposed by the Commission, following the Council position), and sets an intermediate 90 % target by 2030. Inter-urban buses are exempt from this target and subject to the general targets for coaches.

By June 2025, the Commission must assess options to facilitate market uptake of retrofitted HDVs (conventional vehicles converted to zero emission vehicles). The Commission must analyse the need to further incentivise the uptake of sustainable renewable fuels and present a report by the end of 2025.

The Commission must review the effectiveness and impact of the regulation by 2027, a year earlier than proposed by the Commission. As requested by Parliament, the Commission will have to work on a methodology for assessing and reporting the full lifecycle CO₂ emissions of new HDVs. By 30 June 2027, the Commission must analyse potential initiatives to increase the share of zero-emission HDVs owned or leased by large fleet operators.

A [new recital](#) (13b) asks the Commission to assess the role of a methodology for registering HDVs exclusively running on CO₂-neutral fuels, within a year of the regulation entering into force.

The provisional agreement was endorsed by the Council (Coreper) on 9 February 2024 and by the ENVI committee on 14 February 2024. The next step is the formal adoption by the Parliament, expected in April 2024, and the Council, followed by publication in the Official Journal. The regulation will enter into force 20 days after publication in the Official Journal and apply from 1 July 2025.

EUROPEAN PARLIAMENT SUPPORTING ANALYSIS

Erbach G., [CO₂ emission standards for heavy-duty vehicles](#), European Parliament, EPRS, 2019.

Kramer E., [Updating CO₂ emission standards for heavy-duty vehicles: Initial Appraisal of a European Commission Impact Assessment](#), European Parliament, EPRS, May 2023.

Soone J., [Deployment of alternative fuels infrastructure: Fit for 55 package](#), European Parliament, EPRS, December 2023.

OTHER SOURCES

European Parliament, [Strengthening the CO₂ emission performance targets for new heavy-duty vehicles](#), Legislative Observatory (OEIL).

Basma H. and Rodríguez F., [The European heavy-duty vehicle market until 2040: Analysis of decarbonization pathways](#), International Council on Clean Transportation, January 2023.

European Environment Agency, [Reducing greenhouse gas emissions from heavy-duty vehicles in Europe](#), September 2022 (updated February 2023).

International Energy Agency, [Trucks and buses: tracking report](#), September 2022.

Marcu A., Newman D., Marullaz J. and Ruiz A., [Review of decarbonisation policies for heavy-duty transport: recommendations for a successful transition](#), European Roundtable on Climate Change and Sustainable Transition, October 2023.

Mulholland E., [Zero-emission bus and truck market in Europe: A 2021 update](#), International Council on Clean Transportation, November 2022.

Transport & Environment, [Addressing the heavy-duty climate problem](#), September 2022.

ENDNOTES

- ¹ In the proposal for revising the regulation, the Commission notes that an evaluation of the regulation's effectiveness was not possible at that time because the CO₂ emission standards do not start applying until 2025, but that a revision is needed to bring the regulation in line with the ambition of the European Green Deal and the European Climate Law.
- ² Unpowered vehicle towed by a motor vehicle.
- ³ The vehicle energy consumption tool (VECTO), developed in cooperation with stakeholders, is a simulation software used to determine CO₂ emissions and fuel consumption of HDVs for specific loads, fuels and mission profiles (e.g. long haul, regional delivery, urban delivery), based on input data on relevant vehicle components.
- ⁴ From 2025 onwards, recharging stations for HDVs with a minimum output of 350 kW must be deployed at a maximum distance of 60 km between each other along the TEN-T core network and at a maximum distance of 100 km on the larger TEN-T comprehensive network. Complete network coverage must be achieved by 2030. Moreover, recharging stations must be installed at safe and secure parking areas for overnight recharging and in urban nodes. From 2030 onwards, hydrogen refuelling infrastructure for cars and HDVs must be deployed in all urban nodes and at 200 km-intervals along the TEN-T core network.
- ⁵ Trailers do not cause CO₂ emissions directly, and they can cost-effectively contribute to emissions reductions through relatively inexpensive technologies such as aerodynamic improvements. In combination with a battery-electric vehicle, a more efficient trailer allows for a longer range or a smaller battery, thereby reducing the cost of ownership.
- ⁶ The possibility to transfer zero-emission vehicles between non-connected entities aims to incentivise the development of new zero-emission technologies in specialised small- and medium-sized companies.
- ⁷ This section aims to provide a flavour of the debate and is not intended to be an exhaustive account of all different views on the proposal. Additional information can be found in related publications listed under 'European Parliament supporting analysis'.

DISCLAIMER AND COPYRIGHT

This document is prepared for, and addressed to, the Members and staff of the European Parliament as background material to assist them in their parliamentary work. The content of the document is the sole responsibility of its author(s) and any opinions expressed herein should not be taken to represent an official position of the Parliament.

Reproduction and translation for non-commercial purposes are authorised, provided the source is acknowledged and the European Parliament is given prior notice and sent a copy.

© European Union, 2024.

eprs@ep.europa.eu (contact)

www.eprs.ep.parl.union.eu (intranet)

www.europarl.europa.eu/thinktank (internet)

<http://epthinktank.eu> (blog)

Fourth edition. The 'EU Legislation in Progress' briefings are updated at key stages throughout the legislative procedure.