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【欧州】【自動車】

Road/Railway - New legal instruments on environment for vehicles: European Commission presents revision of the Regulation on CO_2 emission standards for new heavy-duty vehicles (HDVs)

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【概要：Summary】

The transport sector is responsible for about 25% of the EU's total GHG emissions. Within the transport sector, road transport alone accounts for about 72% of the EU transport sector's total GHG emissions and the share of GHG emissions of heavy-duty vehicles (HDVs) was the second largest in the road transport with 27.1% after passenger cars in 2019. Furthermore, the vast majority of HDVs in the EU still have internal combustion engines. Therefore, the constant increase of freight volumes in road transport leads to constantly increasing levels of GHG emissions caused by HDVs. Another concern is that HDVs are fuelled by mainly imported fossil fuels, which increases the EU's energy dependency.

GHG emissions of passenger cars and light commercial vehicles or vans were regulated under Regulation (EU) 443/2009 and under Regulation (EU) 510/2011, respectively, which were replaced by Regulation (EU) 2019/631 as of 1 January 2020. However, the HDVs GHG emissions remained unregulated for a long time. Only in 2019, the Regulation (EU) 2019/1242 was introduced to regulate GHG emissions from HDVs. This Regulation covers large trucks, which account for 65-70% of all CO_2 emissions in the HDVs segment. The introduction of this Regulation was an important first step towards reducing the CO_2 emissions of new HDVs as it set the first EU-wide CO_2 emission standards for the period 2025 and 2030.

However, this Regulation (EU) 2019/1242 as well as the Regulation (EU) 2019/631 on GHG emissions of new passenger cars and vans had to be revised with a view on the European Green Deal's target to reducing GHG emissions of the transport sector by 90% by 2050.

To make also the HDVs segment contributing to the European Green Deal's target, the European Commission presented a proposal on the revision of the Regulation EU 2019/1242 on 14 February 2023. The introduction of stricter and new CO_2 emission standards for HDVs beyond 2030, based on the European Commission's proposal COM (2023) 88 final, will not only regulate the CO_2 emissions of new trucks but it will also significantly widen the scope of the Regulation to other HDVs, like buses.

The revised Regulation on new HDVs' CO_2 emission standards will have the power to set the HDV manufacturers' direction and pace of producing and selling cleaner HDVs, which can be expected to contribute to reach zero-emissions mobility and the EU's 2050 climate neutrality goal.

【記事：Article】

1. The need to reduce GHG emissions from road transport

Based on the European Green Deal (COM/2019/640 final) and the 2015 Paris Agreement, the EU will have to significantly reduce its GHG emissions. Based on the European Green Deal and its 2050 net-zero GHG emission target, the European Climate Law (Regulation (EU) 2021/1119) adjusted the mid-term CO_2 emission reduction target for 2030 to -55%, compared to 1990 levels (Regulation (EU) 2021/1119). Regarding the transport sector, the European Green Deal envisages a 90% reduction of GHG emissions to achieve the general climate neutrality target in the EU by 2050.

GHG emissions from transport account for about 25% of the EU's total GHG emissions and road transport represents the greatest share of GHG emissions of all transport means with 72% of the transport sector's total GHG emissions in 2019 (EEA 2022a). The share of HDVs' GHG emissions in the road transport sector's GHG emissions in 2019 was the second largest, with 27.1% after passenger cars (EEA 2022a). Together, passenger cars and HDVs are responsible for the greatest share of the road transport emissions, accounting for almost 88% of the road transport sector's total GHG emissions in 2019 (EEA 2022c).

In the past, the GHG emissions from road transport were regulated under Regulation (EU) 443/2009 for passenger cars and under Regulation (EU) 510/2011 for light commercial vehicles. These regulations were replaced by Regulation (EU) 2019/631 as of 1 January 2020, which sets new CO_2 emission performance standards for newly registered passenger cars and light commercial vehicles (vans) in the EU for the years after 2020 (European Commission n.d., Regulation (EU) 2019/631).

However, since the HDVs' share of GHG emissions in the EU had grown by 25% since 1990, these emissions finally had to be regulated (European Commission n.d.). In 2019, the first ever GHG emission standards for HDVs were introduced, based on the Regulation EU 2019/1242, and setting CO_2 emission performance standards for new HDVs in the EU (Regulation EU 2019/1242).

2. Regulation EU 2019/1242 on CO_2 emission standards for new heavy-duty vehicles

In 2019, HDVs including trucks, buses, and coaches were responsible for about 6% of the EU's total CO_2 emissions (European Commission 2023a, EEA 2022c, European Parliament 2019). The HDVs' CO_2 emissions continued to increase, especially in freight transport due to a growing road transport demand. The HDVs CO_2 emission levels increased by about 29% from 1990 to 2019, and since 2014 they increased every year, except for a decline in 2020, caused by the COVID-19 pandemic (EEA 2022d, European Commission 2023a). Furthermore, CO_2 emissions from HDVs are expected to further grow by around 9% between 2010 and 2030 (Regulation (EU) 2019/1242). Therefore, it was a matter of urgency to finally also introduce regulatory measures to reduce the GHG emissions of HDVs, namely trucks (EEA 2022b).

Considering the European Green Deal's target for the transport sector and reduce the CO_2 emissions by 90% by 2050, the pressure increased to significantly reduce also the HDVs CO_2 emissions to contribute to achieving the target. However, the HDVs transport sub-sector is characterised by many different vehicle categories, technologies, sizes, and weights, as HDVs are typically customised for specific clients and uses. This made it difficult to estimate important parameters such as fuel consumption and CO_2 emissions in a reliable and cost-effective manner (European Parliament 2019). The European Commission's first heavy-duty vehicles' strategy of 2014 focused on certifying, reporting, and monitoring the HDVs' emissions in the short-term. The monitoring and reporting regulation supported the implementation of CO_2 standards for trucks, which is a prerequisite for

introducing further legislation on CO_2 emission standards for the entire HDVs segment. The Commission developed a computer simulation tool, Vehicle Energy Consumption Calculation Tool (VECTO), which allows for measuring CO_2 emissions from new trucks above 7.5 tonnes.

Regulation (EU) 2018/956 of the European Parliament and of the Council of 28 June 2018 on the monitoring and reporting of CO_2 emissions from and fuel consumption of new HDVs sets up a system for monitoring and reporting CO_2 emissions and fuel consumption of HDVs (European Parliament 2019). Since 1 January 2019, HDV manufacturers have to calculate the CO_2 emissions and fuel consumption of new HDVs to be placed on the EU market, using the VECTO Tool. A similar monitoring and reporting system is already in place for light-duty vehicles (European Parliament 2019).

Finally, Regulation (EU) 2019/1242 of 20 June 2019 sets CO_2 emission performance standards for new heavy-duty vehicles. The Regulation sets a target of reducing the CO_2 emissions by -15% for the reporting periods from the year 2025 onwards and a CO_2 emissions reduction target of -30% for the reporting periods of the year 2030 onwards unless decided otherwise, based on the reference CO_2 emissions reported pursuant to Regulation (EU) 2018/956 for the period from 1 July 2019 to 30 June 2020 (‘the reference period’), and excluding vocational vehicles (Regulation (EU) 2019/1242). As a first step, Regulation (EU) 2019/1242 standards cover large trucks, which account for 65% to 70% of all CO_2 emissions from HDVs (European Commission n.d., Regulation (EU) 2019/1242).

Regulation (EU) 2019/1242 also includes an incentive mechanism for zero-emission vehicles (ZEV), trucks with no tailpipe CO_2 emissions and low-emission vehicles (LEV), trucks with a technically permissible maximum laden mass of more than 16t, with CO_2 emissions of less than half of the average CO_2 emissions of all vehicles in its group registered in the 2019 reporting period (European Commission n.d.).

Regulation (EU) 2019/1242 also contains a date for reviewing the regulation. By 31 December 2022, the Commission should have submitted a report to the European Parliament and to the Council on the effectiveness of Regulation (EU) 2019/1242, on the CO_2 emissions reduction target and the level of the incentive mechanism for zero- and low-emission HDVs applicable from 2030, and on the introduction of binding CO_2 emissions reduction targets for HDVs for 2035 and 2040 onwards, among others (European Commission n.d.).

However, the HDV emissions standards based on Regulation (EU) 2019/1242 were no longer in line with the EU’s climate objectives of the European Green Deal and the European Climate Law. Regulation (EU) 2019/1242 did not provide a sufficiently clear and long-term signal to investors and it did not reflect the new reality in the energy sector and the rapid developments in the HDV industry globally (European Commission 2023b). The revision of the Regulation (EU) 2019/1242 was also expected necessary to extend the scope of the legislation to buses and other types of HDVs, and to introduce new CO_2 emission reduction targets for the years 2035 and 2040 (European Parliament 2022).

Considering the general way forward, the EEA had pointed out that a combination of ‘avoid’, ‘shift’ and ‘improve’ (ASI) strategies would be necessary to ensure that the trend of increasing emissions in road transport was reversed. “Avoid” strategies intend to reduce the number of trips and their length (i.e., addressing demand), while “shift” strategies aim to shift transport activity to more efficient modes. “Improve” strategies focus on improving vehicle and fuel technologies to make them more efficient (EEA 2022c). This approach needed also to be applied to the HDVs segment in the transport sector. Furthermore, measures had to be taken to change the HDVs’ current 99% dependency on

combustion engines, largely fuelled by imported fossil fuels (European Commission 2023b).

Finally, under the climate neutrality target of the European Green Deal, Regulation (EU) 2019/631 on the CO2 emission performance standards for newly registered passenger cars and light commercial vehicles (vans) in the EU in the years after 2020, as well as Regulation EU 2019/1242 on HDVs' GHG emissions standards needed to be revised. On 14 February 2023, the European Parliament approved the new CO_2 emissions reduction targets for new passenger cars and light commercial vehicles COM (2021) 556 final, as part of the "Fit for 55" package with 340 votes in favour, 279 against and 21 abstentions (European Parliament 2023). Thereby, the MEPs endorsed the political agreement reached with the Council of the European Union in October 2022 on the revised CO_2 emission performance standards for new cars and vans.

In parallel, the European Commission presented a proposal on a revision of Regulation EU 2019/1242 and the CO_2 emission standards of HDVs on 14 February 2023.

3. Revision of Regulation EU 2019/1242

Regarding the review of the Regulation EU 2019/1242, the European Commission was expected to assess a possible extension of the regulation's scope to buses and other types of HDVs, as well as an extension of the regulation's application period with stricter emission reduction targets for the years 2035 and 2040 (European Commission n.d.). A public consultation on the review of the Regulation EU 2019/1242 was held from 20 December 2021 to 14 March 2022 (European Commission n.d.).

Finally, on 14 February 2023, the European Commission presented its proposal for a "Regulation amending Regulation (EU) 2019/1242 as regards strengthening the CO_2 emission performance standards for new heavy-duty vehicles and integrating reporting obligations and repealing Regulation (EU) 2018/956" (COM(2023) 88 final, European Commission 2023a).

The European Commission presented this proposal COM(2023) 88 final, with ambitious new CO_2 emissions standards for new HDVs from 2030 onwards, which are expected to reduce CO_2 emissions of trucks, city buses, and long-distance buses, which should be newly covered by the legislation (European Commission 2023b). The proposal phases in stronger CO_2 emissions standards for almost all new HDVs with certified CO_2 emissions (European Commission 2023b). Compared to 2019 levels, new HDVs with certified CO_2 emissions should achieve -45% emissions reductions from 2030, rather than -30% as in Regulation (EU) 2019/1242; 65% emission reductions from 2035; and 90% emissions reduction from 2040 (European Commission 2023a, 2023b).

In comparison to Regulation (EU) 2019/1242, which covered only heavy trucks, the new proposal COM (2023) 88 final expands the scope of covered HDVs, covering trucks (above 5 tonnes), city buses and long-distance buses (above 7.5 tonnes) as well as trailers (as unpowered vehicles towed by a motor vehicle) (European Commission 2023a).

Moreover, to stimulate a faster deployment of zero-emission buses in cities, all new city buses should be zero-emission buses as of 2030 (European Commission 2023b). These strengthened emissions standards would ensure that this segment of the road transport sector contributes to the shift to zero-emissions mobility and the EU's climate and zero pollution objectives (European Commission 2023b).

Most importantly, the proposal COM (2023) 88 final keeps a technology-open approach, meaning that the manufacturers will be able to decide by themselves, which technologies they prefer to choose to achieve these targets, e.g., electrification, hydrogen fuel cells or hydrogen in internal combustion vehicles (European Commission 2023a).

Regarding the ambitious 100% share of zero-emission city buses as of 2030, electric buses already represent a considerable proportion of new fleets of city buses in several Member States. According to the European Commission, several cities are already planning to go to fully zero-emission public transport well before 2030 and some EU Member States have already set an earlier target at national level. Finally, recent announcements from manufacturers are aligned with this ambition and it is important to ensure that European legislation supports this ongoing transition (European Commission 2023a). City buses are especially suitable for a more rapid shift to zero-emission mobility due to the way they are used, as they can fully recharge overnight and travel on well-defined short routes (European Commission 2023a).

Exemptions from the new standards of CO_2 emission targets for new HDVs will apply to HDVs of small volume manufacturers, vehicles used for mining, forestry and agricultural purposes, vehicles designed and constructed or adapted for use by civil protection, fire services and forces responsible for maintaining public order, or vocational vehicles, such as garbage trucks.

The introduction of new technologies is more expensive for small volume manufacturers than for larger manufacturers, since they can take less advantage of economies of scale due to their limited production volumes. Therefore, exempting small volume manufacturers from registering up to 100 vehicles from meeting regulatory requirements will help them to avoid negative impacts of the new legislation. The environmental and climate impact of such an exemption can be expected to be negligible (European Commission 2023a). Therefore, these vehicles are not counted towards the average specific CO_2 emissions of manufacturers (European Commission 2023a).

Regarding a possible application of a mechanism on renewable and low carbon fuels, this approach was dismissed based on the Commission's Impact Assessment analysis. It was dismissed because such an application of a mechanism based on renewable and low carbon fuels would create an incentive to deviate synthetic or e-fuels from sectors with fewer alternatives to decarbonise, like aviation (European Commission 2023a), SWD (2023) 89 final). Accordingly, the Commission concluded in its Impact Assessment that the renewable and low carbon fuels are not the most effective tool in case of reducing CO_2 emissions from HDVs, also because the HDVs manufacturing industry has already announced three technologies, which will drive the shift toward zero emission including battery electric, fuel cell and hydrogen combustion (SWD(2023) 89 final, European Commission 2023a). Furthermore, if fuel suppliers and vehicles manufacturers were to establish a fuel crediting system, the compliance costs for manufacturers and the administrative burden and complexity would have increased (European Commission 2023a).

Regarding the newly covered trailers, improving their energy efficiency is a cost-efficient way to reduce CO_2 emissions from the road transport sector as most of the improvement comes from aerodynamic improvements and other relatively inexpensive technologies. Expanding the scope to trailers will therefore bring additional savings in terms of CO_2 emissions and further reduce the total costs of ownership for transport operators (European Commission 2023a).

Furthermore, as proposed in the Alternative Fuels Infrastructure Regulation (COM(2021) 559 final), the necessary recharging and refuelling infrastructure will have to be developed also for supporting the green transition of the heavy-duty vehicles sector (COM(2021) 559 final). The Commission proposed to install charging and fuelling points at regular intervals on major highways like every 60 kilometres for electric charging and every 150 kilometres for hydrogen refuelling (COM(2021) 559 final, European Commission 2023b).

The revision of CO_2 standards for HDVs is the most important legislation to regulate future climate emissions of new trucks and buses in Europe. Once the proposal COM (2023) 88 final will be written into law, it is expected to send a clear and long-term signal to the EU's HDV manufacturing industry to channel investments into zero-emission technologies for HDVs, based on the revised standards (European Commission 2023a). These standards will set the direction and pace at which HDV manufacturers will produce and sell cleaner trucks, buses and other HDVs.

4. Conclusion

Since the transport sector is the only sector in the EU with still increasing GHG emissions, also a significant reduction of GHG emissions of HDVs is imperative for reaching the EU's medium and long-term GHG emission reduction targets.

So far, the CO_2 emissions from new passenger cars and vans have been regulated, but the GHG emissions of new HDVs had only been planned to be reduced by -15% from 2025 onward and by -30% from 2030 onward, compared to the reference period of 1 July 2019-30 June 2020.

However, the European Green Deal and the European Climate Law's targets required more ambitious targets also for reducing the CO_2 emission standards of new HDVs, going beyond the targets set in Regulation (EU) 2019/1242.

Therefore, the review of the HDV CO_2 emission standards will have to introduce more ambitious targets to be able to significantly reduce CO_2 emissions from HDVs also beyond the year 2030.

The deployment of an adequate charging and refuelling infrastructure for heavy-duty vehicles will be another crucial step to supporting the introduction of a zero emission HDVs' fleet.

The final version of the legislation based on proposal COM (2023) 88 final is expected to encourage the European HDV manufacturers to increase their production of electric and green hydrogen vehicles and to achieve the transition toward a fleet of zero emission HDVs, which can be expected to contribute to the general shift toward zero-emissions mobility and the EU's 2050 climate neutrality goal.

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