

Too big to ignore – truck CO₂ emissions in 2030

September 2015

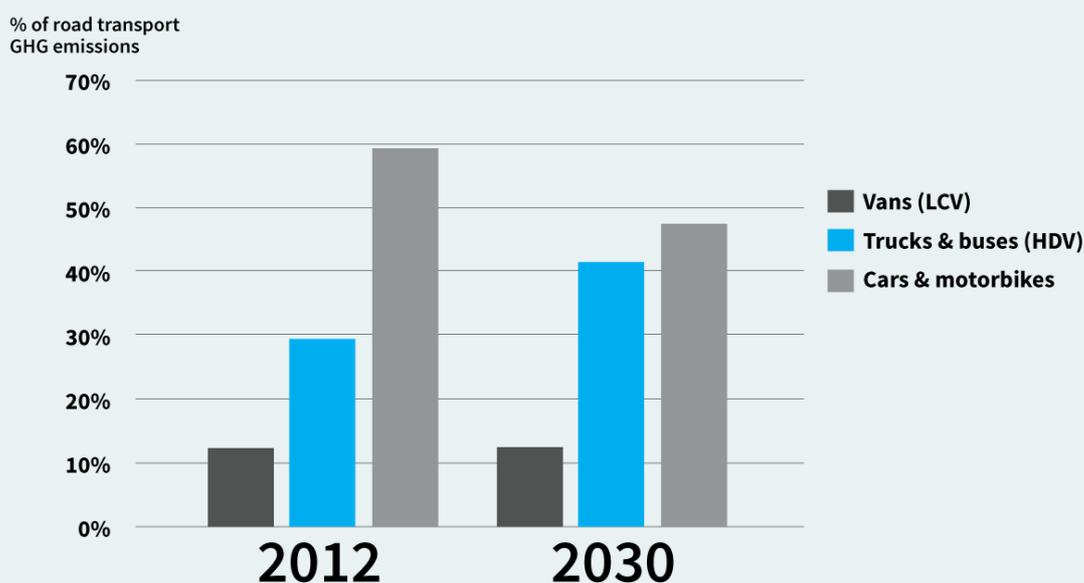
Summary

Emissions from heavy-duty vehicles (HDV), which include trucks and buses, increased by 36% between 1990 and 2010 and continue to grow. HDV emissions currently represent around 30% of all road transport CO₂ emissions and 5% of all EU CO₂ emissions. Unless additional measures are taken HDV emissions will increase to 40% of road transport emissions by 2030. By 2030 trucks and buses will emit approximately 15% of total ‘effort sharing’ or non-ETS emissions.

It is inconceivable that the EU’s 2030 Effort Sharing Decision (ESD) targets, let alone the EU’s 2050 targets, can be achieved without tackling the heavy-duty sector. However, to date there has been no credible EU strategy to help member states curb truck and bus emissions.

The Commission cannot afford to ignore HDV emissions any longer and must use the impending “decarbonisation of transport strategy” to detail its plans to curb HDV CO₂. It should end uncertainty about its plans and announce the introduction of truck fuel efficiency standards. In addition to this it should amend the Eurovignet directives to enable CO₂-differentiated road charging and accelerate the introduction of new lorry designsⁱ. Further measures include the increase of minimum diesel taxes (Energy Tax Directive) as well as modal shift.

Truck CO₂ - too big to ignore



Sources: 2012: EEA GHG Data Viewer, Odyssee project
2030: Own calculations based on EC "Trends to 2050" report. It includes strict standards for cars and vans both in 2025 and 2030. Cars and vans standards are in the EC working plan.

Transport & Environment

1. CO₂ emissions from HDVs

CO₂ emissions from heavy-duty vehicles (HDVs) – trucks and buses – have increased in recent decades. Unless additional action is taken, HDV emissions will keep increasing and their relative importance within road transport emissions will also increase.

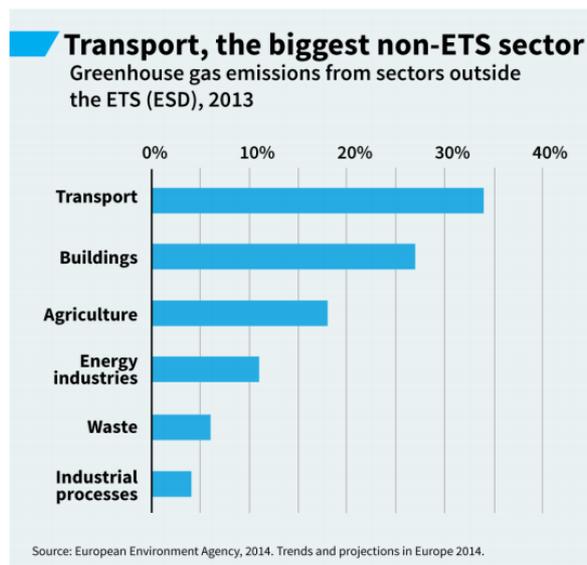
1.1. HDV CO₂ between 1990-2010

According to the 2014 HDV communication of the European Commissionⁱⁱ, “between 1990 and 2010 HDV CO₂ emissions are estimated to have grown by about 36%, despite the 2008-2009 economic crisis interrupting the steady growth previously observed”. Emissions growth is the result of rapidly expanding demand for road freight, stagnant truck fuel economy and the lack of success of modal shift policies.

1.2. Current HDV CO₂ emissions

In 2012 – the latest available data – transport was directly responsible for a quarter of all greenhouse gas emissions of the EUⁱⁱⁱ. Depending on whether we include international aviation and shipping, road transport emits between three quarters and almost 100% of transport emissions.

Although it is still subject to debate, best estimates^{iv} consider that in 2012 HDVs were responsible for around 30% of road transport emissions. That is equivalent to more than 5% of EU GHG emissions and around 10% of total non-ETS emissions. That implies that less than 5% of all vehicles^v on the road emit around 30% of road transport CO₂ emissions, which can be explained by their high mileages – around 100,000 km per year for a long haul truck – and high fuel consumption – around 34,5 l/100km or 900g CO₂/km.



1.3. Estimated HDV CO₂ emissions by 2030

There are no exact predictions on the relative importance of HDV emissions but all existing scenarios and analysis point to road freight emissions’ sustained growth. For example, a 2011 AEA-Ricardo study for the European Commission estimated HDV emissions would rise by 22% by 2030.^{vi} The International Transport Forum estimates that by 2050 CO₂ emissions from Europe’s surface freight will increase by 28 to 55%.^{vii}

To look at HDVs’ contribution in 2030, we used the European Commission’s 2013 Reference Scenario.^{viii} That study did not consider additional standards for cars and vans after 2020. However, the EC has already announced there will be new standards. We assume new strict standards for cars and vans will be set for both 2025 and 2030^{ix}. The result, as can be seen in the figure, is that HDVs will be responsible for 41%^x of total road transport CO₂ if no additional measures are taken by 2030. But even in an unlikely scenario where no new standards for cars and vans were introduced, HDVs would still be responsible for 37% of total road transport emissions in 2030.

2. What can be done about HDV CO₂?

The Commission is developing a decarbonisation of transport strategy that will be presented alongside the 2030 ESD/non-ETS proposal. It will detail the EU-level actions the Commission will initiate to tackle road transport CO₂. Currently the Commission appears to focus mostly on passenger cars. We believe a comprehensive approach is required that tackles all sources of emissions, including trucks and buses.

For HDVs, we propose a package of measures that will reduce emissions but also produce significant benefits for the logistics industry and the economy. Its three key components are:

1. **The introduction of fuel efficiency standards for heavy-duty vehicles.** The standards must be set at a level that is technically feasible and that pays back before the end of the first period of ownership (4-5 years) so that hauliers benefit from lower fuel costs. According to the best available EU and US studies, that potential is probably between 35% and 50%.^{xi}
2. **The differentiation of tolls and taxes on the basis of CO₂.** Currently there are basically no fiscal incentives to buy fuel-efficient trucks and, with fuel prices low and undermined by fuel tourism and rebates, they've lost much of their impact. Additional fiscal incentives are needed to accelerate the uptake of more efficient vehicles and make it even more economical to buy a new, ultra-efficient truck or retrofit an existing one. Tolls would be a particularly effective tool.^{xii}
3. **The Commission should speed up the introduction of new lorry designs.** The recently agreed Directive 2015/719 has removed the length limit for the front of trucks and enables more aerodynamic designs whilst providing truckmakers with extra space and weight for fuel saving technologies. To get the better vehicles on the road by 2020, the technical rules should be agreed in 2017 since truckmakers successfully lobbied for a three-year moratorium.

Other measures that are needed to reduce freight emissions are an increase of minimum diesel taxes through a review of the Energy Tax Directive and better use of the potential of other modes such as rail freight. However, the latter would require additional efforts to ensure fairer competition between the different modes (full internalisation of external costs) as well as within the rail freight sector itself.

Further information

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Endnotes

ⁱ <http://www.transportenvironment.org/press/eu-agrees-safer-cleaner-lorries-2022>

ⁱⁱ European Commission, 2014. Strategy for reducing Heavy-Duty Vehicles' fuel consumption and CO₂ emissions

ⁱⁱⁱ Including bunkers (international aviation and shipping) and excluding LULUCF. EEA GHG Data viewer was used.

^{iv} EEA GHG Data viewer for 2012 was used, combined with Odyssee calculations. Odyssee had a single category for vans and trucks, so the split between the two was done using Ricardo-AEA 2011 data, Reduction and Testing of Greenhouse Gas (GHG) Emissions from Heavy Duty Vehicles – Lot 1: Strategy. HDV GHG emissions are estimated to be around 249 Mt of CO₂eq in 2012.

^v DG Move 2014 transport statistical pocket book was consulted on stock of vehicles. Vans and trucks are under the same category ("Goods vehicles"), but to differentiate about the two ACEA information on vans annual registration, combined with average retirement age for vans was considered. "Buses and coaches" were added.

^{vi} http://ec.europa.eu/clima/policies/transport/vehicles/docs/ec_hdv_ghg_strategy_en.pdf

^{vii} International Transport Forum, 2015. ITF Transport Outlook 2015. Figure 2.15.

^{viii} European Commission, 2014. Trends to 2050. Reference Scenario 2013.

^{ix} We considered 70 g/km by 2025 and 55g by 2030, in line with other T&E research on the ESD.

^x The annexes of the document include under the same category ("Trucks") vans and trucks. To differentiate, it was considered that vans' relative importance would remain stable. Even if new standards for vans will be introduced, during the last year a trend implies increases in usage of vans. The stagnation of vans' relative importance is confirmed by analysis of another transport research organisation (unpublished). The category "Public road transport" corresponds to buses and coaches, so it was added.

^{xi} http://www.transportenvironment.org/sites/te/files/publications/2015_06_Lorry_co2_briefing_update_US_PHASE_III.pdf

^{xii} T&E briefing and CE Delft study forthcoming