

Road - Environmental friendly vehicle: European Environment Agency (EEA) report finds average CO2 emissions from new passenger cars and new vans increase in 2018

Andrea Antolini Former Researcher JTTRI

【概要 : Summary】

In the 2015 Paris Agreement, the EU and its Member States committed to reduce their GHG emissions in order to make the Climate change related temperature increase to stay below a 1.5° C increase compared to pre-industrial levels.

In the road transport sector, current mandatory CO2 emission reduction targets are defined in Regulation (EC) 443/2009 for passenger vehicles and in Regulation (EU) No 510/2011 for new light duty vehicles (vans). However, a decrease of CO2 emissions in the transport sector has been prevented by the steady increase in the transport volume and the number of vehicles. Therefore, on 8 November 2017, the European Commission presented a legislative proposal setting new CO2 emission standards for passenger cars and vans for 2025 and 2030. In April 2019, the Regulation (EU) 2019/631 was adopted, setting new CO2 emission reduction targets for new passenger cars and for new light commercial vehicles (vans) in the EU for the period after 2020. From 2025, for the new passenger car fleet and the new light commercial vehicles fleet, a EU fleet-wide target of a 15% reduction of the 2021 target was determined. From 2030, the EU fleet-wide target for CO2 emissions of the new passenger car fleet is set at 37,5% reduction, based on the 2021 target. For the new light commercial vehicles fleet, in 2030, a EU fleet-wide target of a 31% reduction of the

2021 target was determined. In order to evaluate the performance of the fleet of newly registered vehicles in the EU, the European Environment Agency (EEA) collects annually CO2 emissions data among others, based on data reported by the EU Member States. The EEA uses these data to evaluate the annual performance of the new vehicle fleet and its progress toward meeting the EU's CO2 emissions targets. Until 2016, the EEA confirmed a steady decrease in the CO2 emissions of the newly registered passenger cars and vans. However, as 2017 data and the preliminary 2018 data show, the CO2 emissions of passenger cars increased in both consecutive years. This is a concerning result as, in order to meet the future target of 95g CO2/km by 2021 for passenger cars, CO2 emissions will still need to further decrease significantly. Instead, the newly registered vans showed a further decrease in CO2 emissions by 4.7% in 2017 whereas 2018 data shows an increase in CO2 emissions also for newly registered vans.

【記事 : Article】

1. Background and legislation on CO2 emission targets for passenger cars and vans

In order to achieve the Paris Agreement's limit of an increase of 1.5°C compared to pre-industrial levels, all sectors, including the transport sector, will need to contribute to the CO2 emission reduction

efforts.

The EU's transport sector is responsible for around 25% of the EU's total GHG emissions. It is also the only major EU sector where GHG emissions remain well above their 1990 levels. Road transport accounts for about 70% of the transport sector's total GHG emissions. Since the automobile industry was not able to reduce the CO₂ emissions for new passenger cars and light-duty vehicles on a voluntary basis, the EU introduced CO₂ emission targets for new passenger cars and light-duty vehicles. The passenger cars' CO₂ emissions target was set at 130 grams of CO₂ per kilometre (g/km) by 2015 and 95g/km by 2021, based on Regulation (EC) 443/2009. This Regulation gives manufacturers also additional incentives to produce vehicles with extremely low emissions (below 50g/km). Regarding the light-duty vehicles or vans, Regulation (EU) No 510/2011 set the average CO₂ emissions target for new vans at 175g CO₂/km by 2017 and at 147g CO₂/km by 2020.

However, the EU's transport sector needs to be decarbonised at an even higher pace than other sectors. In order to achieve the EU's long-term climate goals, the Regulation (EU) 2019/631 adopted on 17 April 2019, sets new CO₂ emission reduction targets for new passenger cars and for new light commercial vehicles (vans) in the EU, for the years 2025 and 2030. The targets are defined as a percentage reduction from the 2021 starting points. The newly registered passenger cars will have to achieve a 15% reduction by 2025 and a 37.5% reduction from 2030 onwards, based on 2021 levels. Regarding vans, they will have to achieve a 15% reduction from 2025 on and 31% reduction from 2030 onward, based on 2021 levels.

The specific emission targets for 2025 and beyond, which manufacturers will have to comply with, are based on the EU fleet-wide targets, taking into account the average test mass of manufacturer's newly registered vehicles. Furthermore, an incentive for zero- and low-emission vehicles (ZLEV) is defined in the Regulation for passenger cars or vans with CO₂ emissions between 0 and 50 g/km. In order to incentivise the uptake of ZLEV, a crediting system is

introduced from 2025 onward. Moreover, specific CO₂ emission targets of an automobile manufacturer will be relaxed if its share of ZLEV registered in a given year exceeds certain benchmarks. The provisions on pooling between manufacturers are the same as under the current Regulations. The new Regulation (EU) 2019/631 will start to apply on 1 January 2020, when the current Regulations setting CO₂ emission standards for passenger cars and vans will be repealed.

2. The EEA's collection of CO₂ emission data for passenger cars and vans

As a party to the United Nations Framework Convention on Climate Change (UNFCCC), the EU reports annually on GHG emissions in its inventory report. In accordance with the EU Regulation (EC) 443/2009 for passenger cars and 510/2011 for vans, the European Environment Agency (EEA) collects data on various parameters of new vehicles, including the development of CO₂ emission levels towards the respective CO₂ emissions targets. The EEA uses the data reported by all EU Member States to evaluate the annual performance of the new vehicle fleet and its progress toward meeting the EU's CO₂ emissions target.

Until 2016, the EEA report provided the results of CO₂ emission levels of new passenger cars and vans based on the standard of the European vehicle test protocol New European Driving Cycle (NEDC). While the NEDC was still fully applicable in 2015 and 2016, in September 2017, the new World Harmonised Light Vehicle Test Procedure (WLTP) became mandatory for all new vehicle types. As of September 2018, the WLTP became applicable for all new vehicles. As the EU CO₂ regulations for cars and vans are based on emissions measured using the New European Driving Cycle (NEDC), and since some Member States have taxation systems in place based on NEDC-based CO₂ figures, it will be necessary to determine NEDC-based CO₂ emission figures also for some time after the WLTP has been introduced. However, it can be expected that when the WLTP test requirements will finally be fully used as data basis for the EEA's reports, the results will show

an increase in the CO2 emissions of newly registered passenger cars and vans. Consequently, the automobile manufacturers will have to significantly improve their efforts in order to meet future CO2 emission reduction targets.

3. The EEA data for CO2 average emissions for passenger cars and vans in 2016 and 2017

According to the EEA's updated summary of CO2 emission levels of new passenger cars and vans in the EU in the year 2016, conventional diesel and petrol cars accounted for 96,5% of new sales. However, for the first time since 2009, the share of diesel vehicles dropped below half of all new passenger car registrations. The 2016 share of plug-in hybrid and battery electric vehicles remained largely at around 1%, like in 2015. The 2016 findings show that new passenger cars sold in the EU in 2016 had an average CO2 emission level of 118.1g CO2/km, 1.2% lower than in 2015. From 2010 to 2016, there was a steady decline in passenger cars' CO2 emissions visible, of almost 22 grams of CO2 per kilometre (g CO2/km). Regarding vans, the vast majority of vans sold in 2016 were diesel vehicles (96%) and the average CO2 emissions were 163.7g CO2/km, which was already well below the 2017 target of 175g CO2/km. However, although individual performances show that all car and van manufacturers met their CO2 specific emission targets, the average CO2 emissions still need to further decrease if manufactures want to meet their respective future targets of 95g CO2/km for cars by 2021 and 147g CO2/km for vans by 2020.

According to the provisional data published by the EEA on 23 April 2018, the CO2 emissions of newly registered passenger cars sold in the EU in 2017 increased to 118.5 grams of CO2/km, representing an increase of 0.4g CO2/km compared to the result of 118.1g CO2/km in 2016. After a steady decline from 2010 to 2016, this 2017 result underlined that the improvement of the fuel efficiency of new cars sold in the EU stalled in 2017 compared to 2016. Instead, the average emissions level of new light commercial vehicles sold in the EU decreased by 7.7g CO2/km to

156.0g CO2/km compared to 2016. Thereby, the average van registered in the EU in 2017 emitted 4.7% less CO2 emissions than in 2016. This was the highest annual reduction reported since the regulation to reduce CO2 emissions from light-duty vehicles came into force in 2011. However, further efficiency improvements for vans are still needed in order to reach the target of 147g CO2/km set for 2020. These EEA results regarding the CO2 emission levels of new passenger cars and vans in 2017 confirm that the EU will need further efforts to meet the respective future target of 95g CO2/km for passenger cars by 2021 and the target of 147g CO2/km for vans set for 2020. The utilisation of the WLTP standard from September 2017 for reporting the CO2 emissions of new vehicles types and from 2018 onwards also for new vehicles could lead to a further increase in the results of CO2 emission levels.

4. EEA's preliminary results on average CO2 emission levels of new passenger cars and vans in 2018

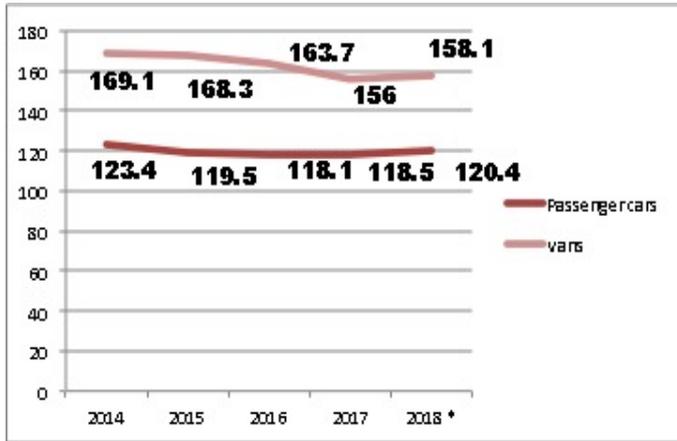
Meanwhile, the EEA has published the provisional data for the average CO2 emissions from new passenger cars and vans registered in the EU and in Iceland in 2018. According to the preliminary 2018 data collected by the EEA, released on 24 June 2019, the average CO2 emissions from new passenger cars registered in the EU increased for the second consecutive year in 2018, reaching 120.4g CO2/km.

Average CO2 emissions from new passenger cars and vans registered in the EU and Iceland (in g CO2/km)

	2014	2015	2016	2017	2018 *
passenger cars	123, 4	119, 5	118, 1	118, 5	120, 4
vans	169, 1	168, 3	163, 7	156	158, 1

*EU and Iceland

<https://www.eea.europa.eu/highlights/car-and-van-manufacturers-meet>



Development of average CO2 emissions of passenger cars and vans, 2014–2018 (in gCO2/km)

<https://www.eea.europa.eu/highlights/car-and-van-manufacturers-meet>

The EEA's 2018 data shows that the average CO2 emissions of new cars increased by 1.6% and for the first time, CO2 emissions from vans also rose, by 1.2% in 2018.

After a steady decline from 2010 to 2016, CO2 emissions from new passenger cars increased again in 2018, with an additional increase of 2.0 g CO2/km. At the same time, also the average CO2 emissions from new vans registered in the EU and Iceland in 2018 increased to an average of 158.1 g CO2/km, up from 156.1 g CO2/km in 2017. This is the first increase in average CO2 emissions from new vans since the regulation came into force in 2011, following a significant decrease in 2017.

According to EEA data, diesel vehicles constituted 36% of the new passenger car registrations, marking a drop of 9% from 2017, and a 19% decrease from 2011 when diesel cars peaked with a 55% share of new registrations. This significant decrease in 2018 can still be attributed to the impact of the diesel scandal in 2015. On average, the CO2 emissions of diesel cars (121.5 g CO2/km) are now very close to those of petrol cars (123.4 g CO2/km). The difference of 1.9 g CO2/km between diesel and petrol cars is the lowest observed in the past 5 years.

The market share of plug-in hybrid electric vehicles (PHEV) and battery-electric vehicles (BEV) continued to increase. With around 150 000 registrations, sales

of BEVs increased by 50% compared to 2017. However, the combined share of PHEVs and BEVs in all car sales remains low (2% in 2018 compared to 1.5% in 2017). The combined shares of PHEV and BEV sales were highest in Iceland (15%), Sweden (8.4%) and the Netherlands (6.8%). Together with Estonia, Finland and Malta, these were the only countries where the average emissions of new cars decreased from 2017 to 2018. Regarding the newly registered vans, further efficiency improvements are needed to reach the EU target of 147 g CO2/km set for 2020. In case of vans, in 2018 for the first time, the average CO2 emissions from new vans increased to 158.1 g CO2/km, up from 156.0 g CO2/km in 2017. Regarding newly registered vans, in 2018, 1.66 million new vans were registered in the EU and in Iceland, which is an increase of 3.5% compared with 2017. Two out of three new vans (70%) registered in the EU and in Iceland were sold in just five Member States: the United Kingdom (20%), France (19%), Germany (15%), Italy (9%) and Spain (7%). Higher sales in Poland (+46%), Croatia (+28%) and Hungary (+21%) were accompanied by lower sales in Italy (-6%) and Spain (-5%). 94.7% of sales of vans in 2018 were diesel vehicles. However, the market share of petrol vans has been increasing since 2016, constituting 3.6% of the new vans fleet in 2018, compared to 2.4% in 2017. The share of zero- and low-emission vans remained at the same level (1.7%) in 2018 as in 2017. Therefore automobile manufacturers will have to further reduce CO2 emissions of their fleet significantly to meet the upcoming 2020 and 2021 targets.

5. Reasons for the increase of average CO2 emissions in 2018 and conclusion

The increase in CO2 emissions for passenger cars and light duty vehicles (vans) in 2018 is concerning, as only two years before the lower CO2 emission standards for passenger cars and vans will phase in, the average CO2 emissions for passenger cars are still far from the target of 95 g CO2/km. They rather show an increase for two consecutive years and the average CO2 emissions for vans have also been increasing in 2018

for the first time.

The reasons for the increase of CO₂ emissions in newly registered passenger cars and vans are manifold, including an increase in the mass, the engine capacity and the size of vehicles. The reduction in the share of diesel cars, which on average emit less CO₂ emissions than petrol cars, is another reason for the increase.

However, a major reason is the still high concentration of the sport utility vehicle (SUV) segment. They are typically heavier and less aerodynamic, have more powerful engines and larger frontal areas and therefore, they are less fuel-efficient than other cars. This consequently also leads to higher CO₂ emissions than in other vehicles. The average petrol SUV sold last year emitted 133g CO₂/km while the average of other petrol cars sold emitted 120g CO₂/km, according to the EEA's provisional data. Moreover, the take-up of zero- and low-emission vehicles, including electric cars, remained slow in 2018.

Regarding vans, the market share of petrol vehicles increased, constituting 3.6% of the new vans fleet (2.4 % in 2017). The share of zero- and low-emission vans remained at the same level (1.7%) as in 2017.

Another reason for increasing CO₂ emissions is the new testing method of vehicle emissions. Since 2017, the new WLTP has been increasingly used, with the objective to gradually completely replace the out-dated NEDC. In 2018, EU Member States reported both NEDC and WLTP emission factors for around 4.4 million cars (around 30% of new registrations). The WLTP's emission factor was on average 20% higher than the NEDC emission factor, based on the fact that the WLTP standard is a more precise measuring tool than the NEDC, which was easier to manipulate in favour of lower CO₂ emissions. Furthermore, most automobile manufacturers in Europe are failing to meet their own targets for BEVs sales and they are seemingly still making little effort to change this.

Since the average CO₂ emissions from new passenger registered in the EU in 2018 increased for the second consecutive year and for new vans for the first time,

further efficiency improvements are needed to reach the EU target for 2020. However, there are many ways to reduce the vehicles' CO₂ emissions, notably by selling hybrid or electric cars. The automobile manufacturers will have to take bold measures to significantly reduce CO₂ emissions of their fleet otherwise they will fail to meet the upcoming 2020 and 2021 targets.

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