Energy, Climate change, Environment

Climate Action

Light-duty vehicles

Passenger cars and light commercial vehicles (vans) are respectively responsible for around 16% and 3% of total EU emissions of carbon dioxide (CO_2), the main greenhouse gas driving climate change.

To help reduce emissions, the EU has a Regulation that sets CO_2 emission performance standards for new passenger cars and vans (Regulation (EU) 2019/631).

With stricter CO_2 emission targets in place since 2020, the average CO_2 emissions from all new passenger cars registered in Europe fell by 27% between 2019 and 2022, while the average emissions from new vans dropped by 10%. The main driver of this decrease in emissions is the surge in zero-emission vehicles, which respectively amounted to 13.4% and 6% of the 2022 EU (and Norway and Iceland) new car and van fleet.

On 19 April 2023, the European Parliament and the Council amended the Regulation to strengthen the CO_2 emission performance standards for new passenger cars and vans, and bring them in line with the EU's ambition to reach climate neutrality by 2050. This amendment strengthened the emission targets applying from 2030 and set a 100% emission reduction target for both cars and vans from 2035 onwards.

Benefits

The amended Regulation (EU) 2019/631 will:

- contribute to reaching at least 55% net greenhouse gas emission reductions by 2030 compared to 1990 as well as achieving climate neutrality by 2050, in line with the European Climate Law;
- provide benefits to EU citizens and vehicle users as a result of the wider deployment of clean and affordable zero-emission vehicles,
- spur innovation in zero-emission technologies, strengthening the EU's technological leadership of the automotive value chain and stimulating employment in the EU.

Target levels

Below are the EU fleet-wide CO_2 emission targets set in the Regulation:

2020 to 2024

- Cars: 95 g CO_2/km
- Vans: 147 g CO_2/km

These target levels refer to the NEDC emission test procedure.

2025 to 2034

The targets that will apply from 2025 onwards are based on the WLTP (Worldwide harmonized Light vehicles Test Procedure) and were set out in Commission Implementing Decision (EU) 2023/1623:

- Cars: 93,6 g CO_2/km (2025-2029) and 49,5 g CO_2/km (2030-2034)
- Vans: 153,9 g CO_2/km (2025-2029) and 90,6 g CO_2/km (2030-2034)

From **2035 onwards**, the EU fleet-wide CO_2 emission target for both cars and vans is 0 g CO_2/km, corresponding to a 100% reduction.

The **annual specific emission targets** of each manufacturer are based on these EU fleet-wide targets, taking into account the average mass of its registered new vehicles. Since 2021, those specific emission targets are based on the WLTP.

The manufacturer targets for the **years 2021-2024** are calculated in accordance with point 4 of Annex I (parts A and B) to Regulation (EU) 2019/631, using the values set out in Annex II to Commission Implementing Decision (EU) 2022/2087.

The manufacturer targets **from 2025 onwards** are calculated in accordance with point 6 of Annex I (parts A and B) to Regulation (EU) 2019/631, using the values set out in Annex II to Commission Implementing Decision (EU) 2023/1623.

On 1st of April 2025, the European Commission proposed a **one-time flexibility measure** allowing car and van manufacturers to **meet 2025–2027 CO_2 targets over a three-year average rather than annually**. Part of the Industrial Action Plan for the automotive sector, this aims to support investment in the clean transition while preserving overall climate ambition. For more information on this flexibility, please consult our dedicated Q&A located in the Documentation section below.

Incentive mechanism for zero- and low-emission vehicles (ZLEV)

From 2025 to 2029, a ZLEV **crediting system** will apply both for car and van manufacturers. The system will alleviate a manufacturer's specific emission target

if its share of new ZLEV (vehicles with emissions between 0 and 50 g CO_2/km) registered in a given year exceeds the following **benchmarks**:

- Cars: 25% ZLEV
- Vans: 17% ZLEV

A one percentage point exceedance of the ZLEV benchmark will increase the manufacturer's CO_2 target (in g CO_2/km) by one percent. The alleviation of the emission target will be capped at maximum 5% to safeguard the environmental integrity of the Regulation.

To calculate the ZLEV share in a manufacturer's fleet, an accounting rulegive a greater weight to ZLEVs with lower CO_2 emissions. An additional multiplier may apply for cars registered in Member States with a low share and number of ZLEVs registered in 2017.

Penalties for excess emissions

If the average CO_2 emissions of a manufacturer's fleet exceed its specific emission target in a given year, the manufacturer must pay – for each of its new vehicles registered in that year – an **excess emissions premium** of €95 per g/km of target exceedance.

Pooling

Different manufacturers can act jointly to meet their emissions target. When forming a pool, manufacturers must respect the rules of competition law. Pooling between car and van manufacturers is not possible.

Exemptions and derogations

Manufacturers responsible for fewer than 1 000 new cars or fewer than 1 000 new vans registered in the EU per year are **exempt** from meeting a specific emission target in the following year, unless they voluntarily apply for a derogation.

Manufacturers may apply for a **derogation** from their specific emission target with the following conditions:

- A "small-volume" manufacturer (responsible for less than 10 000 new cars or less than 22 000 new vans registered per year) can propose its own derogation target, based on the criteria set in Article 10 of the Regulation.
- A "niche" car manufacturer (responsible for between 10 000 and 300 000 new cars registered per year) can apply for a derogation for the years until 2028, included. The derogation targets are calculated as set out in Article

10(4) of the Regulation and in point 5 of Part A of its Annex I. Feel free to access the values used to calculate the "niche" derogation target from 2025 onwards.

For more information, look at our Derogations folder.

Eco-innovations

To promote the development of new and advanced technologies reducing CO_2 emissions from vehicles, manufacturers may obtain emission credits for cars and vans which are equipped with innovative technologies (eco-innovations) whose full CO_2 savings are impossible to demonstrate during their type-approval.

The manufacturer must demonstrate these savings based on independently verified data. The maximum emission credits for these eco-innovations per manufacturer are 7 g CO_2/km per year until 2024, 6 g CO_2/km from 2025 to 2029, and 4 g CO_2/km from 2030 to 2034. As of 2025, the efficiency improvements for air conditioning systems will become eligible as eco-innovations.

For more information, look at our Eco-innovations folder.

In-service verification

Manufacturers must ensure that the CO_2 emissions recorded in the certificates of conformity of their vehicles and the in-service CO_2 emissions of such vehicles correspond. Type-approval authorities must verify this correspondence in selected vehicles, as well as the presence of any strategies to artificially improve the vehicle's performance during type-approval tests.

In case deviations or artificial strategies are detected, type-approval authorities must report those to the Commission, who will take them into account when calculating the average specific emissions of a manufacturer. Authorities must also ensure the correction of the certificates of conformity, and may take additional measures as set out in the Type Approval Regulation.

Find more information in our In-service verification folder.

Real-world emissions

To assess the real-world representativeness of the CO_2 emissions and the fuel or energy consumption values determined during type-approval, as well as to prevent the growing of the gap between emissions tested in the laboratory and real-world emissions, the Commission is collecting real-world data from cars and vans using on-board fuel consumption monitoring (OBFCM) devices, starting with vehicles first registered in 2021.

Find more information in our Real-world CO_2 emissions folder.

Documentation

Click on the + signs for more information.

Legislation

- Regulation (EU) 2023/851 amending Regulation (EU) 2019/631 on strengthening CO_2 emission standards for cars and vans
  - Commission proposal
  - Impact assessment and executive summary
- Regulation (EU) 2019/631 setting CO_2 standards for new cars and vans (consolidated version)
  - Commission proposal
  - Impact assessment (part 1 and part 2) and executive summary
  - Non-paper on higher ambition levels for targets and ZLEV and Technical update

Monitoring of CO_2 emissions (including real-world emissions)

- Commission Implementing Regulation (EU) 2021/392 on monitoring of CO_2 emissions from cars and vans and real-world fuel or energy consumption values
- Commission Notice C/2017/3563 - Guidance on the monitoring and reporting of data on new light-duty vehicles
- Further information (guidelines, reporting schemas, list of manufacturers, monitoring decisions)
- CO_2 Data Viewer - cars (European Environment Agency)
- CO_2 Data Viewer - vans (European Environment Agency)
- Real-world CO_2 emissions data viewer (European Environment Agency)

Excess emissions premium

Method for the collection of the premium:

- Commission Decision 2012/100/EU - cars
- Commission Decision 2012/99/EU - vans

Derogations

Provisions for the application for a derogation:

- Commission Regulation (EU) No 63/2011 - cars
- Commission Delegated Regulation 114/2013 - vans

In-service verification

- Commission Delegated Regulation (EU) 2023/2867 – guiding principles and criteria
- Commission Implementing Regulation (EU) 2023/2866 – procedures

Eco-innovations

- Commission Implementing Regulation (EU) 2023/2767 - procedures for the approval and certification of eco-innovations. This Regulation has replaced and repealed Regulations (EU) 725/2011 (cars) and (EU) 427/2014 (vans).

M0 and TM0 adjustment

- Adjustments of M0 and TM0 values

Expert Group

- Commission Expert Group on CO_2 from road vehicles

Statements

- 2023/03/28 - Commission statement for a Regulation on CO_2 cars and vans

Flexibility for 2025-2027 manufacturer compliance

How will this new flexibility work in practice?

Rather than having to comply with the CO_2 emissions reduction targets annually for the years 2025, 2026 and 2027, manufacturers' compliance will be assessed based on their performance over the entire three-year period. This is a temporary flexibility for this period.

In practice, manufacturers will have to ensure that their average specific emissions of CO_2 over the period 2025 to 2027 do not exceed their emissions target. This means that over-emitting in one year can be compensated with overcompliance another year, to ensure that average emissions over the three years do not exceed the target. All vehicle manufacturers will be covered by this new compliance mechanism, thus ensuring a level playing field.

A manufacturer's average emissions of CO_2 over this three-year period will be calculated as the average of its annual emissions of CO_2, weighted according to the number of its vehicles registered in each of those years. Similarly, a manufacturer's target over that period will be calculated as the average of its annual targets, weighted according to the number of its vehicles registered in each of those years.

Does this flexibility mean that we are changing our CO2 reduction targets?

The proposed amendment does not change the CO_2 reduction targets established under the Regulation. For the years 2025 to 2029, Regulation (EU) 2019/631 sets a 15% reduction target for the EU fleet average CO_2 emissions of car and van manufacturers compared to the 2021 baseline.

The additional flexibility for manufacturers lies in the calculation of their compliance – if manufacturers were to exceed the target in certain years of this three-year period, they would need to compensate by overachieving the target in the other year(s), thus maintaining the ambition of the targets.

Will the Commission continue to monitor CO_2 emissions every year?

Yes, all the monitoring and reporting provisions remain unchanged to ensure full transparency.

Can manufacturers with a limited number of vehicles registered in the EU still benefit from derogations with this new flexibility?

The possibility for manufacturers to apply for derogations from their specific emissions CO_2 targets, when they register less than 10 000 cars or 22 000 vans per year (‘small-volume’ manufacturers) or less than 300 000 cars per year (‘niche’ manufacturers), remains in place.

For such manufacturers, the compliance assessment for the period 2025 to 2027 will follow the same principles as for any other manufacturer. For each year when the manufacturer was granted a derogation, the derogation target will be used for the purpose of calculating the specific emissions target applying over the three-year period.

Studies

Click on the + signs for more information.

Studies supporting implementation work

- 2023 - Support for the in-service verification of CO_2 emissions of new light- and heavy-duty vehicles
- 2023 - CO_2 in-service verification test campaign and methodology development for light-duty vehicles
- 2023 - Support for the preparation of a procedure to certify CO_2 savings from the use of efficient mobile air conditioning (MAC) systems
- 2019 - Preparation for collection and monitoring of real-world fuel consumption data for light-duty and heavy-duty vehicles

Studies supporting the 2017 impact assessment

- Assessing the impacts of selected options for regulating CO_2 emissions from new passenger cars and vans after 2020
- Improving understanding of technology and costs for CO_2 reductions from cars and LCVs in the period to 2030 and development of cost curves
  - Technology Results
  - Technology Sources

JRC Science for Policy Reports

- Risk assessment for the 2024 In-Service Verification (ISV) of CO_2 emissions of Light-Duty Vehicles
- From NEDC to WLTP: effect on the type-approval CO_2 emissions of light-duty vehicles
- Characterisation of real-world CO_2 variability and implications for future policy instruments
- Light Duty Vehicle CO_2 Emission Reduction Cost Curves and Cost Assessment - the DIONE Model

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