

Citizen's summary

Closing the gap

between light-duty vehicle real-world CO₂ emissions and laboratory testing



What are CO₂ emissions from cars and why is it important to reduce them?

Carbon dioxide (CO₂) is a naturally occurring substance which is found in the ground, in living organisms and the earth's atmosphere. CO₂ is vital for life on earth through its role in photosynthesis and in helping to regulate the earth's temperature. However, since the industrial revolution, the burning of fossil fuels (oil, coal, etc.) has been increasing the amount of atmospheric CO₂ which in turn is leading to global warming and ocean acidification with knock-on negative impacts on climate and the earth's ecosystems and habitats. It is therefore important that CO₂ emissions stemming from human activity be limited in order to prevent harmful climate change. Transportation accounts for one fifth of all such CO₂ emissions in the EU, most of which come from passenger cars and vans. For this reason, the EU has set legally-binding limits and reduction targets for the amount of CO₂ emissions from the European fleet of each car manufacturer. This will be a major contribution to the EU's commitment to meet global targets agreed at the 2015 Paris climate summit.

Why has the Commission's Scientific Advice Mechanism (SAM) been asked for advice?

In order to monitor and lower CO₂ emissions it is of utmost importance to have a clear and accurate picture on how much CO₂ is emitted by passenger cars and vans. However, since CO₂ emission limits and targets for car fleets were fixed by the EU in 2009 (revised in 2014), a large and increasing discrepancy has been found between the amount of CO₂ which is measured under the conditions of the laboratory test required to put a car model into circulation, and the amount actually emitted by cars in normal driving conditions. The result is that CO₂ emissions from cars and vans are not being brought under control as expected. Furthermore, consumers and citizens are being misled by the CO₂ emission and fuel consumption data being provided by car manufacturers. In light of this, the SAM has been asked to give its scientific opinion on the options available to eliminate this discrepancy, especially with a view to proposing in 2017 new emission performance standards for the period beyond 2020.

Does this have anything to do with the "dieselgate" scandal which came to light in 2015?

While the source of the problem is similar – i.e. the exploitation of loopholes in the regulatory test cycle leading to an increasing gap between laboratory results and real driving emissions – the two issues are separate. The "dieselgate" scandal concerned the fraudulent measurement of nitrogen oxides (NO_x) of diesel cars in the

laboratory test cycle. CO₂ emissions in turn are not regarded as an air quality issue – in fact, each of us exhales CO₂ in every breath – but they are a serious climate issue as CO₂ is a main contributor to global warming. Hence, there is a need to continue to improve the laws on CO₂ emissions and their enforcement, the transport sector being one of the main targets.

What opinion has SAM given regarding the discrepancy in CO₂ emission measurements?

The SAM High Level Group recommends that laboratory-based tests be complemented by a procedure to monitor CO₂ emissions under actual driving conditions. This includes: 1. exploiting the CO₂ emission data collected when measuring the real driving emissions of air pollutants; 2. designing a specific method to test real driving CO₂ emissions; and 3. making maximum use of the on-board diagnostics in cars, in particular fuel consumption meters, as the amount of fuel consumed compared to the total distance travelled can be easily converted into an average amount of CO₂ emitted per kilometre.

The High Level Group recommends enhancing the coordination and enforcement of policy at EU level, strengthening oversight by public authorities across the EU, and ensuring full transparency of the whole process. The High Level Group is of the opinion that having such a transparent, thorough and accurate monitoring of compliance with the specified emission limits will lead to increased consumer confidence and a level playing field for car manufacturers. It also recommends that the legislation be designed in a way which acts as an incentive for innovation and the take-up of new clean technologies, while allowing the consumers to make informed choices based on reliable data.

The High Level Group acknowledges that the new test procedure for measuring CO₂ emissions which will be introduced as of September 2017 – the Worldwide harmonised Light vehicles Test Procedure (WLTP) – is a major step forward and will reduce but not eliminate the measurement gap. The High Level Group recommends that the WLTP test cycle be reviewed every five years to prevent the measurement discrepancy from growing over time as it did with the current NEDC procedure.

Which are the next steps? Will the Commission pay attention to the recommendations?

The Scientific Opinion has been delivered by the High Level Group on 11 November 2016 to the European Commission, which will now reflect on the recommendations. It is too early to say what exactly the Commission's proposal for the future policy on CO₂ car emissions will look like, but the Scientific Opinion submitted by the High Level Group will definitely be a key element in its evidence base.

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Website of the Scientific Advice Mechanism: ec.europa.eu/research/sam

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