

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



Issues identification

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European
Commission



Scientific Advice Mechanism

**Scoping paper:
Closing the gap between light duty vehicle real-world
CO₂ emissions and laboratory testing**

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Research and
Innovation

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Following a request for support by SAM submitted by Commissioner Cañete to Commissioner Moedas, a Scoping Paper has been prepared by DG Climate Action in cooperation with other Commission services (e.g. DG GROW, JRC), defining the exact scope and timing of the request

Extract from the Scoping Paper

"The Commission has already identified two possible further streams of action, on the one hand by **ensuring that the WLTP test is kept as representative as possible of "real-world" CO₂ emissions** and on the other by exploring the development of complementary procedures, like the **use of large-scale fuel-consumption data or the development of a simulation tool.**

An ex-post assessment of average real-world emissions would allow subsequently more precise ex-ante testing procedures. Capturing the average real-world driving behaviour and circumstances would incentivise vehicle manufacturers to deploy technologies delivering more CO₂ savings in practice."

Request to SAM

"SAM is asked to provide scientific advice in view of improving the **measurement of light vehicle CO₂ emissions, also in terms of reliability and transparency.**

The mechanism could **explore the progress on this particular matter** also in other parts of the world by capitalising on the international liaisons of the scientists.

As regards the possible deployment and exploitation of on-board fuel consumption meters, data protection and ownership issues will need to be duly taken into account."

Questions to be addressed by SAM

- ***What is the European and world-wide scientific basis for improving the measurement of light vehicle CO₂ emissions and fuel consumption in order to produce values closer to average real-world data?***
- ***Which approaches might be considered, what are their strengths and weaknesses, also in terms of reliability and transparency, and what additional scientific and analytical work would be needed?***

The SAM High Level Group is expected to present a scientifically sound analysis of the various options to inform the policy debate expected over the next years.

Key Issues identified by the SAM HLG currently under consideration

WLTP

- **The WLTP is a clear step forward in terms of reducing the gap between laboratory measurements and real-world CO₂ emissions.**
- **WLTP should be revised periodically to keep up with technological developments and to prevent widening of the gap in the future.**
- **Legislation should be designed in a way that incentivizes manufacturers to optimise technology in order to lower CO₂ real life emissions rather than adapting to the test cycles.**



Portable Emission Measurement Systems (PEMS)

- **The possibilities and limitations to use PEMS to measure CO₂ emissions (including accuracy of measurements) needs to be assessed. The approach taken by PSA together with NGO partners provides an interesting approach.**
- **The measurement of real driving emissions may not be suitable for the type approval process but it is a valuable element to prevent the widening of the gap with time (Safety net) .**

Fuel consumption

- **Fuel consumption is a reliable indicator of the tank-to-wheel CO₂ emissions of a car.**
- **The average real life fuel consumption constitutes valuable consumer information and may be used to give feedback for future monitoring and improvements of the regulatory test cycle.**
- **It would be worth investigating the feasibility of a new standard approach to collect, store, use and communicate fuel consumption values.**

Future solutions in view of the decarbonisation and the digitalisation of the transport sector

- **The wider context of developments in the transport sector needs to be considered, including for instance the electrification of transport, the sharing economy, connected cars, knowledge generated by big data...**

Key Issues identified (summary)

- **WLTP is a major step forward. We need to prevent the widening of the gap with time.**
- **Use of Portable Emission Measurement Systems (PEMS) for CO₂ should be considered.**
- **Real life fuel consumption should be used as a reliable indicator of the tank-to-wheel CO₂ emissions.**
- **New developments in the transport sector need to be taken in consideration for future policies.**

Overall policy considerations

- **Consumers should be empowered to make well informed choices.**
- **Transparency is key.**
- **Full consistency of EU policies is a must (Transport, Air quality, Climate).**
- **More coordination and a reliable and empowered monitoring /control system are needed in Europe.**