

# REVIEW OF THE CO<sub>2</sub> EMISSIONS STANDARDS FOR HEAVY-DUTY VEHICLES

Position paper – 12 September 2023

AECC hereby provides further input in the ongoing ordinary legislative procedure of the European Commission's proposal to amend the Regulation (EU) 2019/1242 as regards to reviewing the CO<sub>2</sub> emission performance standards for new heavy-duty vehicles (2023/0042 (COD)).

The new CO<sub>2</sub> emissions standards for heavy-duty vehicles provide a key opportunity to accelerate the transport sector's CO<sub>2</sub> emissions reductions by allowing all powertrain technologies to contribute to achieve a 90% reduction in greenhouse gas emissions by 2050.

AECC welcomes the recognition of the hydrogen Internal Combustion Engine (ICE) in the Commission proposal in addition to battery electric and hydrogen fuel cell powertrains.

The continued use of the tailpipe or Tank-to-Wheel (TtW) approach however limits the CO<sub>2</sub> emissions reductions that can otherwise be obtained by using heavy-duty hybrid ICE technologies with drop-in sustainable renewable fuels. A more robust and technology neutral approach is needed to fully consider the role of sustainable renewable fuels for the sector. Considering such novel fuels as an additional pathway within the zero-emission vehicle (ZEV) definition and establishing a Well-to-Wheel (WtW) approach are the first steps towards life cycle assessment (LCA) of these CO<sub>2</sub> emissions. Some elements in this direction were adopted in Regulation (EU) 2023/851 for new cars and vans. The heavy-duty standard should go further than that.

AECC is fully committed to the climate objectives of the EU aiming to achieve a 90% reduction in transport-related greenhouse gas emissions by 2050, as laid out in the European Green Deal<sup>1</sup>. AECC's vision<sup>2</sup> for clean, efficient, convenient and affordable mobility is fully aligned with the European Commission's objective on climate.

AECC is convinced the transition towards the EU zero-emissions transport objectives can be best achieved by the contribution of all available powertrain technologies – Battery Electric Vehicle (BEV), hydrogen Fuel-Cell Electric Vehicle (FCEV), hydrogen Internal Combustion Engine (H<sub>2</sub> ICE), and hybrid ICE on other sustainable renewable fuels – to maximise the opportunities to reduce CO<sub>2</sub> emissions from the heavy-duty transport sector. A mixed technology scenario results in the lowest CO<sub>2</sub> emissions as shown by an FVV study<sup>3</sup>. It is the use of fossil fuels that should be banned, rather than the use of internal combustion engines, to truly decarbonise transport.

AECC welcomes that the Commission proposal fully recognises the contribution of the hydrogen ICE. It should be further ensured that H<sub>2</sub> ICE vehicles are recognised by default as ZEV within VECTO<sup>4</sup>.

The current Tank-to-Wheel approach however limits the CO<sub>2</sub> emissions reductions that can otherwise be obtained by using heavy-duty hybrid ICE technologies with drop-in sustainable renewable fuels. These fuels should also be integrated as an additional path within the Zero Emission Vehicle (ZEV) definition. A similar element has already been established within Regulation (EU) 2023/851 on CO<sub>2</sub> emissions for new cars and vans, leading to the expectation of a proposal to register new vehicles running exclusively on CO<sub>2</sub>-neutral fuels. The heavy-duty CO<sub>2</sub> emissions standard should go further in this direction. This will allow for economies of scale, aiding the affordability of new vehicles and assisting with a Just Transition to net-zero.

Establishing a Well-to-Wheel (WtW) CO<sub>2</sub> emissions approach in the legislation as soon as possible would be a more holistic approach and first step towards life cycle assessment (LCA). In this manner the CO<sub>2</sub> emissions standards for heavy-duty vehicles could ensure a truly technology-neutral approach, which is a core value of the European legislation and will continue to drive further innovations in the automotive industry. Sustainable renewable fuels are already defined within the Renewable Energy Directive (RED)<sup>5</sup>. These fuels and their greenhouse gas reduction targets could readily be considered within the VECTO tool to recognise the role of sustainable renewable fuels and their contribution to transport's decarbonisation.

Further to the benefits of reducing substantially the WtW CO<sub>2</sub> emissions from heavy-duty vehicles, using sustainable renewable fuels allows the use of current refuelling infrastructure. This will preserve accessible and affordable mobility for all.

AECC has demonstrated that a heavy-duty vehicle including state-of-the-art emission control technologies and using sustainable renewable fuels can achieve ultra-low pollutant emissions and very low WtW CO<sub>2</sub> emissions<sup>6</sup>. In order to comply with future regulations including Euro 7 emission standards, and in order to adapt to the expected gradual introduction of sustainable renewable fuels in the market, future heavy-duty vehicles will be equipped with emission control technologies which fully operate in combination with hydrogen or drop-in sustainable renewable fuels. Figure 1 shows the WtW CO<sub>2</sub> emissions achieved by the AECC heavy-duty demonstrator vehicle when tested with sustainable renewable fuels.

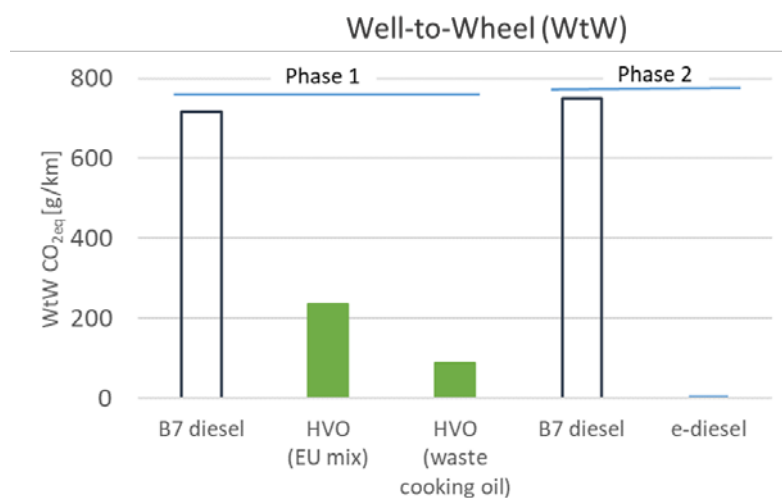


Figure 1. Well-to-Wheel (WtW) CO<sub>2</sub> emissions of the AECC heavy-duty demonstrator vehicle project

AECC will continue to provide robust scientific data and facilitate informed discussions on how to improve local and global air quality whilst maintaining the competitiveness of the European automotive industry through the integration of modern emission control technologies within the vehicle powertrain system.

Should you need more information, you can contact AECC at [info@aecc.eu](mailto:info@aecc.eu).

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ASSOCIATION FOR EMISSIONS CONTROL BY CATALYST

*AECC is an international non-profit scientific association of European companies operating worldwide in the research, development, testing and manufacture of key technologies for emissions control. Their products are the ceramic substrates for catalysts and filters; catalysts (substrates with catalytic materials incorporated or coated); adsorbers; filter-based technologies to control engine particulate emissions; and speciality materials incorporated into the catalyst or filter. Members' technology is integrated in the exhaust emissions control systems of cars, commercial vehicles, buses, non-road mobile machinery and motorcycles in Europe. More information on AECC can be found at [www.aecc.eu](http://www.aecc.eu) and [www.dieselinformation.aecc.eu](http://www.dieselinformation.aecc.eu). AECC's members are Emitec Technologies GmbH, Germany; Johnson Matthey PLC, United Kingdom; NGK Europe GmbH, Germany; Solvay, France; and Umicore AG & Co. KG, Germany.*

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