H2ero Net Zero

Hydrogen Europe Position Paper

Unlocking the potential of clean mobility: the revision of CO_2 emission standards for cars and vans

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Hydrogen Europe

Executive summary:

Hydrogen Europe considers the revision of the Regulation setting CO_2 emission performance standards for new passenger cars and new light commercial vehicles[1] to be a key legislative initiative to help the EU deliver upon its 2030 climate targets and to reinforce its global leadership in zero-emission vehicles, particularly hydrogen fuel cell vehicles.

Consequently, we call on the EU institutions to maintain the level of 2025 targets while strengthening the 2030 targets, provided the enabling framework conditions are in place, and a holistic approach is taken. As the Regulation covers different vehicle types, these differences should be reflected when it comes to targets, with dedicated sets for each vehicle category; in this respect, the key role of fuel cell electric vehicles for both segments should be acknowledged.

Low carbon and renewable fuels have a central role to play, and this should be considered in the text by including a provision giving an option for manufacturers to take part in a voluntary crediting mechanism for renewable fuels of non-biological origin, which would be linked to an obligation to invest into zero-emission vehicles.

Another key element of the proposal should target the overall system and resource efficiency: its role should be carefully analysed and recognised in the proposal. The uptake of low and zero-emission vehicles will be severely hampered if not supported by an efficient system.

Lastly, Hydrogen Europe calls for the allocation of emission premiums to upskilling, re-skilling and hydrogen refuelling station deployment. In addition, Europe needs technicians and automotive personnel to have all necessary skills and competencies to work on hydrogen vehicles since they have fundamental differences from internal combustion engine vehicles.

Background:

In line with the European Green Deal, the European Climate Law sets the legally binding objective of reducing greenhouse gas emission by 55% by 2030 and of achieving climate neutrality by 2050 in the EU. To contribute to these objectives, **greenhouse gas (GHG) emissions in the transport sector must be drastically reduced by 2050, a 90% reduction compared to 1990 levels.**

[1] Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO_2 emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011 (recast)

Yet, transport is today the only sector whose greenhouse gas emissions are higher than in 1990 and **continually growing.** Road transport is responsible for 2/3 of the EU transport emissions. Passenger cars and light commercial vehicles are responsible for 73% of all GHG for the road transport sector.

EU regulations in place to tackle GHG emissions of cars and vans are instrumental in triggering the decarbonisation of the road transport sector and boosting the number of hydrogen-powered vehicles and hydrogen as a fuel.

1. Setting ambitious and appropriate CO_2 standards.

Hydrogen Europe **supports the 2025 CO_2 target as currently set in Regulation** (EU) 2019/631: 15% reduction, compared to 2021 levels, for new cars and vans from 2025. This is in line with industry developments pathways. **However, the 2030 targets** of 37.5% and 31% reduction for new cars and vans, respectively, **should be strengthened, provided the enabling framework conditions are in place and a holistic approach is taken.**

The revision of the CO_2 standards should adequately reflect the specificities of light commercial vehicles. Specifically, Light Commercial Vehicles (LCVs) are a specific vehicle segment with different missions from passenger cars. They are key players of the logistics chain and represent the main working tool for many Small and Medium Enterprises. They are also often offering last-mile delivery in urban areas, in which the most polluting vehicles might get restriction access, following Urban Vehicles Access Restrictions rules decided by local authorities. **Hydrogen-fuelled LCVs represent a promising technology in this segment because they can offer similar operational flexibility to conventional vehicles.**

Additionally, they can silently access city centres, meet customer range expectations combined with payload capacity, and increase quality of life in urban areas. Leading manufacturers in the sector are expanding their portfolios with fuel cell electric options to complement battery-electric options. **On the infrastructure side, LCVs are expected to be the enabler of hydrogen refuelling stations business cases.** These vehicles will be refuelled often and are expected to use the same stations, hence ensuring certainty on the daily amount of hydrogen used there. However, **the development of fuel cell electric LCVs segment will be gradual, given the lower volumes compared to passenger cars,** the specific technological performances, the longer development cycles, the impact on customer Total Cost of Ownership (TCO), as well as the specific missions.

For these reasons, while acknowledging this in the upcoming review of the CO_2 regulation for cars and vans, the EU Commission should focus on the following points to allow a swift transition towards decarbonisation: **Keep the differentiated emission targets between LCVs and passenger cars** and recognise a higher threshold for the definition of Low Emission Vehicles (LEV) of minimum 80 g CO_2/km (WLTP).

In addition to the CO_2 targets, **a mechanism incentivising zero- and low-emission vehicles (ZLEV) continues to be needed, even if CO_2 targets become stricter.** All vehicles with emission below 50 g CO_2 /km - as in the current Regulation - should be eligible for this mechanism. Specificities of vans should be considered in the incentive's mechanism as well. The one-way super-crediting system should be maintained in its current form.

Overall, **the targets can only become stricter if all aspects are addressed consistently and holistically.** This is a must to ensure a coherent, smooth, complete transition to decarbonised mobility.

The aim is to be compliant with the objectives of the EU Climate Law of a 55% emissions reduction by 2030 and carbon neutrality in 2050.

2. An ambitious regulatory framework based on synergies to unlock hydrogen vehicles uptake.

While this paper focuses on reviewing the CO_2 standards for cars and LCVs, the revised proposal needs to be placed into a fully synergetic framework that reinforces its goals. This can be achieved through a holistic view of infrastructure policy and demand- and supply-side measures that synergistically incentivises the roll-out of hydrogen fuel cell vehicles (FCVs).

On the infrastructure side, a conditionality principle should be put in place to link hydrogen refuelling stations deployments and CO_2 standards targets. As per the Alternative Fuels Infrastructure Directive's (AFID) original wording: "[...] a build-up of sufficient hydrogen refuelling infrastructure is essential to make larger-scale hydrogen-powered motor vehicle deployment possible"[2]. In the upcoming review of the Alternative Fuels Infrastructure Directive, the wording should more clearly reflect the development of the technology and its contribution to meeting the Green Deal objectives. Hydrogen should become a mandatory fuel on the list of fuel, and the Member States should have binding requirements on the number of hydrogen refuelling stations submitted as part of their National Policy Frameworks. In addition, multipurpose refuelling stations should be considered at strategic locations to serve different transport modes[3].

[2] Recital 37
[3] See Hydrogen Europe position paper on the Alternative Fuels Infrastructure Directive

On the vehicles' side, manufacturers should bring sufficient models of hydrogen vehicles to the market.

The number of required hydrogen refuelling stations (HRS) can be calculated by applying a ratio of liquid fuel refuelling points of the existing fleet to the fleet mix based on the 2030 scenarios developed by the European Commission. For example, based on the 2018 fleet mix (latest details available) and the 2030 ALLBNK scenario [1], for a total H2 fleet of more than 2m FCEVs, it would be recommended to have around 5000 hydrogen pumps, or based on average three pumps per station, approximately 1700 HRS in 2030 to satisfy the corresponding 2030 fleet mix.

In addition, the synergies between the **Trans-European Transport Networks (TEN-T) and the Trans-European Networks for Energy (TEN-E)** should be explored further to make a direct link between the fuel source, the optimisation of the production, use and transport of large quantities of hydrogen and the increase of hydrogen demand for the transport sector through the development of hydrogen infrastructure network. Furthermore, cross-references to TEN-T and TEN-E interlinks should be added to the revised TEN-T and TEN-E guidelines. When TEN-T and TEN-E corridors are aligned geographically, the HRS network should be strengthened.

Demand- and supply-side support measures for low carbon and renewable fuels, such as renewable/low carbon hydrogen, need to be equally considered and enabled via clear certification schemes[4] as well as an ambitious review of the Renewable Energy and Energy Taxation Directives. Additionally, future legislative proposals such as the Carbon Border Adjustment Mechanism could be used to boost hydrogen demand, which in turn would facilitate the uptake of hydrogen vehicles. **An appropriate re-skilling and upskilling strategy for automotive workers (supported by the Just Transition Fund)** is needed to give them adequate tools and competencies (including safety standards and procedures) to work on hydrogen-powered vehicles.

3. Accurately measuring emissions and recognising the role of low carbon/renewable fuels.

As the current legal framework is based on a tank-to-wheel (TTW) approach and has proven to be effective, it is unlikely to be changed by 2030. However, considering the well-to-wheel (WTW) approach to analyse the total emissions **could be a helpful tool for a better understanding of CO_2 emissions within a sector.** This should go hand in hand with ambitious targets for low carbon and renewable fuels (e.g., in RED2) and the means to encourage and incentivise such fuels.

[4] See Hydrogen Europe "Hydrogen Act"

Furthermore, a **WTW approach could, for instance, consider a voluntary crediting system between fuel suppliers and OEMs, provided that it takes into account clearly defined responsibilities between the two sectors and that such a system is fully compatible, avoiding all forms of double counting, with both the RED requirements as well as the CO_2 emission reduction standards.** While the details of such a system remain to be defined, Hydrogen Europe generally supports a voluntary crediting system **under the main condition that it does create an obligation to invest in zero-emission vehicles.** The obligation to invest in zero-emission technologies could be inspired by the mechanism[5] in the United States which constitutes the most important source of income for companies, like those based in California which exclusively sell ZEVs, or which significantly outperform their ZEV mandate[6], and goes beyond the turnover produced by actually selling cars. The State of California mandates that a certain percentage of each manufacturer's yearly sales must be made up of zero-emissions vehicles, measured with ZEV Credits. ZEV Credits are earned when manufacturers sell such vehicles in ZEV states and are awarded based on the type and range of the vehicle sold. This method ultimately encourages automakers to build long-range electric vehicles over anything else. Automakers that are not building enough EVs to meet the ZEV program requirements must buy credits from other automakers.

The voluntary scheme should **focus on renewable fuels of non-biological origin**, as defined in the Renewable Energy Directive, including using renewable hydrogen as an intermediary product in the production of conventional fuels[7]. The introduction of this voluntary crediting mechanism could help accelerate road transport's transition towards climate neutrality by 2050 by allowing industry to make use of a broader set of decarbonisation technologies until 2050.

4. System efficiency and technology neutrality as underlying principles for a revised regulation.

The overall **system efficiency** should be taken into account: When making investments for a technology or energy carrier, the analysis cannot anymore be done in terms of a single energy pathway (i.e., conversion loss for hydrogen vs pure electric efficiency in battery electric vehicles) as the shift in the way we use energy must also be based on whether it is the best for the whole energy system - e.g. transporting hydrogen via pipelines is up to 15 times cheaper than transporting electricity, the costs linked to building additional electricity grids must be taken into account; similar operational flexibility than conventional technology should be ensured for vehicles operators.

[5] Zero-Emission Vehicle (ZEV) program existing in the United States which obliges OEMs to sell a minimum number of ZEVs (or purchase ZEV credits). Such a minimum number of ZEVs is set relative to the number of conventional fuels vehicles sold by that OEM.
[6] The California Low-Emission Vehicle Regulations
[7] Article 25.1 (a) Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources

The adverse mixed effects of favouring one technology will only have to be considered over a whole life cycle approach, such as the **raw materials dependency and limited availability and the recyclability of key components.** The EU's dependence on raw materials and battery cell technology is expected to increase. Critical raw materials are highly concentrated in a small number of countries, as recently stated again by an IEA study[8]. China, for instance, holds a large part of the world's battery production materials.

Today, the global energy trade is based on fossil fuels. In the future, it will switch to renewable sources. Reaching carbon neutrality by 2050 requires massive investments in renewable energy. In addition to investing in domestic renewable energy, the EU needs an **import strategy** to harness the world's best spots for wind and solar. With the help of renewable hydrogen, **energy carriers can be produced in regions with more favourable renewable conditions and be transported across long distances to meet the EU's rising demand for renewable energy** (see, for example, 2x40 GW paper green hydrogen initiative[9]).

5. Allocating excess emissions premiums for the clean transition of the automotive industry.

Under Regulation (EU) 2019/631, manufacturers whose average specific emissions of CO_2 exceed their specific targets should pay excess emission premiums, with these amounts considered as revenue for the general budget of the Union, without a specific destination for the spending of the recovered money.

Excess emission premiums should be allocated to support re-skilling, up-skilling and other skills training and reallocation of workers in the automotive sector. Upskilling and re-skilling will be crucial to adapt to the change in the automotive industry. **Hydrogen Europe welcomes the Pact for Skills and the Automotive Skills Alliance, which will be a concrete tool to support this shift.**

The activities of the Automotive Skills Alliance, which encompasses the whole automotive supply chain, are expected to identify the gaps and provide guidance on needed training and skills.

European companies provide leading hydrogen technology solutions, e.g., in fuel cell and storage technologies. In addition, an FCEV has many components requiring maintenance - thus jobs. Europe must stay at the forefront of this development to enable European players to retain global market shares and jobs in the sector.

[8] The role of critical materials in the energy transition, May 2021, IEA
[9] 2x 40 GW initiative, April 2020

A study[10] has **foreseen that the European hydrogen industry would employ more than 1 million people in 2030,** of which 350,000 jobs would be associated with specialised components such as fuel cell systems. **By securing a competitive position in FCEVs, the European automotive industry with its infrastructure, production capacities, and capabilities will be retained in Europe, keeping the EU's industrial leadership.**

Additionally, the excess emission premiums should **also support the deployment of refuelling infrastructure** as complementary support to the existing funding schemes such as Connecting Europe Facility (CEF).

[10] Hydrogen Roadmap, 2019

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