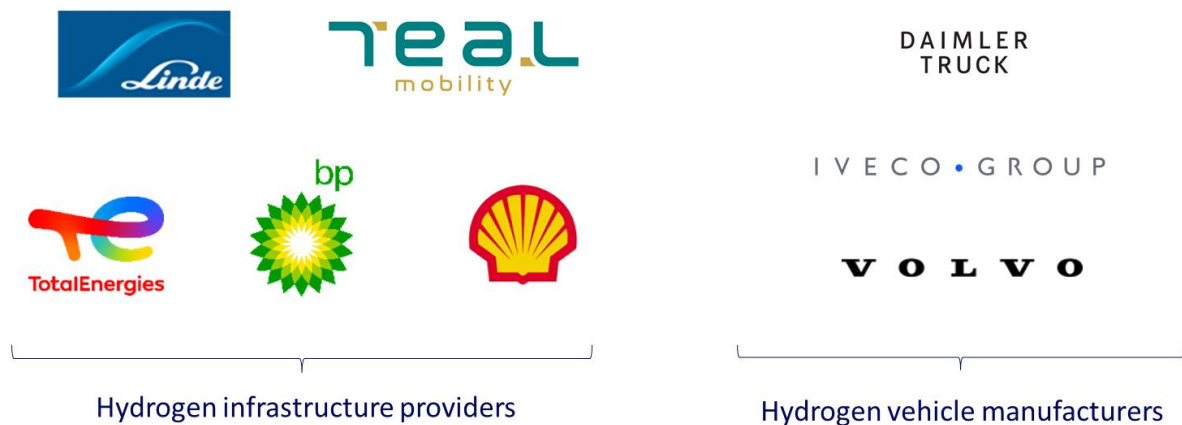


H2Accelerate

Policy support for the implementation of hydrogen trucking in Europe *September 2024*

The H2Accelerate collaboration has been formed by major players from the fuel supply and trucking industries to work together to accelerate the deployment of hydrogen-powered trucking in Europe.



Since its inception in 2020, the H2Accelerate collaboration has secured funding to deploy 150 heavy-duty fuel cell trucks and a high-capacity hydrogen refuelling station (HRS) network in Europe. However, in order to achieve the European Union's 2030 goal of reducing greenhouse gas emissions from heavy-duty vehicles (HDVs) by 45%, it is estimated that 70,000 - 85,000 fuel cell HDVs will need to be in operation by 2030.¹ These vehicles will need to be supported by approximately 3,000 - 3,600 high-capacity HRS, each capable of dispensing 1 tonne or more of hydrogen per day.² This is substantially more than the 428 HRS with a minimum capacity of 1 tonne/day estimated by Hydrogen Europe to be required to meet the target set by AFIR.³

Achieving these targets will therefore require a step-change in the deployment of hydrogen trucks and refuelling capacity.

¹ [ACEA Factsheet](#)

² Based on 30kg/day hydrogen demand per truck and 70% HRS utilisation

³ [The Hydrogen Europe Quarterly Q4 2023 - COP28: Delivering on our 2030 Ambitions](#)

Requirements for Achieving 2030 Targets

During the scale-up of the sector, the cost of operating hydrogen trucks will be substantially higher than that of the incumbent diesel vehicles.⁴ Fleet operators work on very fine margins, and cannot afford to pay substantial green premiums to decarbonise their supply chains. At this early stage, the sale of hydrogen trucks and fuel is therefore dependent on policy and regulatory measures to create cost parity with diesel solutions during sector scale-up.

With sufficient funding and policy support, the infrastructure and supply chain for hydrogen trucks can be deployed at scale, allowing the technological improvements, economies of scale, and supply chain development that is needed to lower the vehicles' capital and operating costs, and hydrogen prices over time. The initial policy and funding support will act as a catalyst to create a self-sustaining market, driven primarily by economies of scale, allowing the levels of policy and regulatory support to be reduced in the early 2030s.

Members of the H2Accelerate collaboration recommend the following actions are urgently taken by the European Commission to enable the scaled deployment of hydrogen trucking and attainment of the 2030 HDV CO2 targets:

- 1. Funding joint deployment of refuelling stations and hydrogen trucks.** Capital funding from European facilities such as CEF AFIF, which provides 30-50% of HRS capital costs as a grant, can support the case for operational cost parity and facilitate infrastructure deployment. However, the business case for the construction of HRS rests on demand for hydrogen fuel from trucks, and as of today, no European programme for funding hydrogen trucks exists, leading to challenges for deployment:
 - National funding calls do not provide sufficient funding to enable deployment at the scale required to achieve a 45% reduction in emissions from heavy-duty road vehicles by 2030.
 - The lack of coordination between funding for HRS and funding for vehicles means that the guarantee of HRS utilisation required to create a business case is still lacking.

H2Accelerate members would welcome a European funding programme to support the deployment of both trucks and HRS together, with coordinated technologies, geographies, and deployment timelines.

- 2. Coordinate geographic spread of hydrogen refuelling and production infrastructure.** To ensure a distributed deployment of refuelling stations and production infrastructure, the EU should closely collaborate with its member states to support AFIR network planning across Europe, which requires member states to prepare an HRS deployment plan by 2027.⁵ H2Accelerate members believe that large-scale production hubs capable of producing affordable green hydrogen should be identified and supported (through financial incentives and accelerated permitting), with the first large-scale zero emission freight corridors along TEN-T corridors to be developed between them with regularly spaced HRS. However, industry is limited in its ability to deliver an efficient HRS network by antitrust regulation. The Commission should therefore coordinate this distributed deployment with input and guidance from industry and member states to construct an

⁴ [H2Accelerate whitepaper](#)

⁵ [AFIR Regulations](#)

efficient HRS network. This will ensure a positive user refuelling experience and enable end users to access green hydrogen at an acceptable price.

- 3. Create certainty on the availability of renewable hydrogen for road mobility through the European Hydrogen Bank and RED mandates.** Large-scale production hubs will help to reduce the cost of producing hydrogen, but additional hydrogen subsidies such as those provided through the European Hydrogen Bank and H2Global will further reduce the cost of hydrogen fuel. It is estimated that 6.0 to 7.3 GW of hydrogen production will be required to meet the 2030 targets for HDVs.⁶ By increasing the funding available within the European Hydrogen Bank so that dedicated funding can be provided for hydrogen for road mobility, increased certainty on the availability of affordable green hydrogen for mobility will be created, supporting investment in the vehicle manufacturing. In the longer term, certainty on security of supply can be achieved by increasing the quota for RFNBO hydrogen used in transport, from the requirement under RED for 1% of fuel used in the transport sector to be hydrogen (or e-fuels) by 2030, to 2% or more.⁷
- 4. Ensure member states implement measures to achieve total cost of ownership (TCO) parity with diesel trucks.** As capital grants are phased out, member states must implement baskets of policy measures which create operating cost parity between diesel and hydrogen freight. Increasing carbon tax under ETS II, RED credits for green hydrogen at a sufficiently high level, reduced road tolls for zero emission vehicles, and road tax exemptions for zero emission vehicles are some of the measures that can be implemented together to support cost parity. Certainty on long term cost parity is a key enabler for the necessary investment in the sector today, therefore the Commission should provide guidelines and implementation support to member states in order to ensure a harmonised implementation of these measures at sufficient levels to create cost parity across the EU. Member states should adhere to the timeline of the implementation of these measures to allow industry to act on these measures. For example, multiple member states have not transposed RED II into national legislation, even after having received a formal notice as well as a reasoned opinion from the EU.⁸ Today, certainty on policy longevity is limited; regulatory clarity on RED credits for road transport is only available until 2030, which does not match the lifetime of hydrogen production or refuelling infrastructure, while ReFuelEU Aviation and FuelEU Maritime provides clarity up to 2050.⁹
- 5. Consistency, certainty, and coherence on existing policy and regulatory frameworks.** Industry must make large-scale long-term investments today in order to meet existing policy targets. However, changes to or incoherences in regulations leads to the risk of stranded assets. Revision clauses, such as that on low carbon fuels in the HDV CO2 standards, introduce uncertainty and prevent investment in the development of zero emission vehicles, leading to delays to the development of the sector as a whole. The same challenge applies to coherence between regulations, where today we see challenges. The most recent example is the need for zero emission vehicles under the HDV CO2 standards, while Transport Ministers cannot support higher vehicle weights as proposed in the revision of the Weights & Dimension directive, which would improve the case for the deployment of both battery electric and fuel cell heavy-duty vehicles. It is paramount that

⁶ Based on the required 70,000 - 85,000 fuel cell HDVs and 30 kg/day hydrogen demand per truck, an electrolyser efficiency of 55 kWh/kg and 80% electrolyser load factor.

⁷ RED. This increase will be dependent on each member state.

⁸ [Overview of biofuels policies and markets for road transport across the EU](#) and [open infringement cases on RED II](#)

⁹ [ReFuelEU Aviation](#) and [FuelEU Maritime](#)

the Commission both commits to delivering on existing policy and regulatory frameworks and does not change this regulation outside of exceptional circumstances, and ensures that regulations is consistent with decarbonisation targets. This will provide the necessary confidence and sense of urgency to industry to make the required investments.

These measures, implemented together with the recent Net Zero Industry Act which supports hydrogen as a strategic technology, will create the enabling conditions for the series production and scaled deployment of hydrogen trucks, and coordinated deployment of the supporting infrastructure. Urgently implementing these actions is a prerequisite to achieving a 45% reduction in emissions by 2030, required by the HDV CO2 targets and climate neutrality in 2050.