

WORKING TOGETHER FOR A DECARBONISED LOGISTICS INDUSTRY

**"IN THE SHORTER TERM, PORTS CAN DIRECTLY
DEPLOY ON-SITE MULTIMODAL HYDROGEN
FUELLING STATIONS, WHICH ARE CAPABLE OF
SERVICING HEAVY-DUTY TRUCKS AS WELL AS OTHER
HYDROGEN-FUELLED PORT HANDLING EQUIPMENT."**





 H2Aaccelerate

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The symbiotic relationship between ports and the road freight transport industry is the backbone of the European economy. While ports connect Europe to global markets, the trucking industry joins these gateways to the rest of the multimodal logistics chain, all the way to the end user. Within this system, road freight transport is the dominant means of moving goods across Europe, accounting for over 75 per cent of total inland freight transport.

The global energy and supply chain disruptions that have arisen, first due to the COVID-19 pandemic, and now due to the crisis in Ukraine, have demonstrated how critical the resilient operation of both heavy-duty trucking and port operation are to one other and the European economy. The disruptions resulting from these crises show that when the reach and operations of the heavy-duty trucking system are restricted, whether through limited travel routes or driver shortages, the logistics industry risks unsatisfied customers and backlogs in the ports. It is important, given the impact of the heavy-duty trucking sector on the fluid operation of the ports, that players from each sector are willing and able to support each other in the face of evolving market conditions.

A CHANGING INDUSTRY

Amid these disruptions, European ports and the adjoining logistics industry are also responding to mandates and other regulations calling for drastic emissions reductions across their operations.

Strong zero-emission policy mandates have been announced in several European cities and countries such as Paris, Rome, Madrid and the Netherlands. For example, at least 30 cities across the Netherlands will have implemented zero-emission zones for logistics vans and trucks by 2025 (at the time of writing). These announcements are likely only the beginning, and similar mandates across Europe are expected to be implemented in the future.

The European maritime and logistics industries are already responding to these internal and external sustainability drivers to create a more sustainable and resilient supply chain. The International Maritime Organization (IMO) has announced ambitious targets to halve (and potentially eliminate) greenhouse gas emissions from shipping by 2050, while individually, ports, vehicle suppliers, and truck operators have also set business-wide decarbonisation targets. There are clearly drivers from every angle for the decarbonisation of the logistics sector, and attainment of the ambitious climate targets set by the industry relies on urgent action taken now to allow for a rapid transformation.

The sustainability targets set by both ports and the road freight industry cannot be achieved in isolation. Instead, there is room for even more collaboration between ports and the road freight industry to maintain and even improve the service delivery of this sector, while reducing its emissions and fostering decarbonisation across the continent.

PORTS AS CATALYSTS FOR ZERO-EMISSION TRUCKING

Due to imminent expansion of demand for sustainable energy across Europe, there is a need to transport low-carbon energy from places where it is abundant to where it is needed. Hydrogen offers a solution to this problem as it can be produced using excess renewable electricity in countries with strong renewable resource and moved by ship, truck or pipeline around the world at a reasonable cost. At scale, hydrogen and hydrogen-derived chemicals (such as ammonia and methanol) can be efficiently transported via ship into ports for both use in decarbonising logistics and industry, which are often located near ports. Establishing the shipping of hydrogen will be crucial

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in reaching the REPowerEU target of 10 million tonnes of renewable hydrogen imports by 2030. As with many imported products, trucks will aid in connecting the imported hydrogen to end users, such as those at hydrogen refuelling stations. In turn, the hydrogen trucking system itself will benefit from increased security of supply from abroad.

The existing capabilities and facilities in the ports make them well suited to maintain their role as energy access points. However, a substantial level of investment across the hydrogen value chain is needed to establish a similar reliability of supply of low-carbon fuels, such as hydrogen, as that of fossil fuels. The nascency of the hydrogen supply chain means that scale of the energy vector's production, supply, and usage are likely to strengthen as its technological and commercial readiness increases.

As the sites of many projects establishing the hydrogen supply chain, ports play an invaluable role in supporting their planning, construction, and operation. The Port of Rotterdam, which has typically facilitated the import of 13 per cent of European energy demand, is also the site of investments in hydrogen production, import, and end uses. Shell, for instance, will construct Europe's largest green hydrogen plant, Hydrogen Holland I, on its

premises. Although the timescales involved in these projects are necessarily medium to long-term, these investments will likely open a new role for ports to play in the decarbonisation of heavy-duty transport and allow them to continue operating under a new, sustainable business model.

THE H2ACCELERATE COLLABORATION

The H2Accelerate collaboration has been formed by truck manufacturers Daimler Truck, IVECO, and Volvo Group, and hydrogen infrastructure providers OMV, Shell, Linde, and TotalEnergies. The central objective of the collaboration is to enable a commercially viable, pan-European hydrogen trucking system in the post-2030 period. By delivering reliable hydrogen fuel cell trucks and refuelling stations as early as 2025, H2Accelerate members will lay the groundwork for ports to reap the benefits of the synergies between both sectors. In their transition to low-carbon energy transport hubs, ports will also be a vital element of the hydrogen trucking system. This is because the success of a hydrogen trucking system depends on a secure supply of hydrogen to de-risk investment in refuelling infrastructure and provide operational reliability for end users.

ABOVE

Hydrogen-powered fuel cell electric trucks offer a zero-emission trucking alternative to diesel trucks with similar operational conditions.

Credit: Volvo Trucks

In the shorter term, ports can directly deploy on-site multimodal hydrogen fuelling stations, which are capable of servicing heavy-duty trucks as well as other hydrogen-fuelled port handling equipment. Hydrogen refuelling stations are in construction in several ports, including the Port of Antwerp, Port of Rotterdam, and Port of Los Angeles. Rolling out these stations on an initially small scale will allow for faster deployment timelines and helps to develop the much-needed hydrogen handling capacities within the ports. This investment in hydrogen supply will come just in time to support what the H2Accelerate collaboration views as the first deployment phase for the hydrogen trucking system, which is the period up to 2025 that will witness the deployment of hundreds of hydrogen trucks and tens of refuelling stations.

The vehicle suppliers within the H2Accelerate collaboration are planning truck rollout across Europe as early as 2025, with series production planned in the second half of the decade. This planned deployment can provide a secured high-value demand for the Hydrogen Refuelling Stations (HRS) installed by the ports, while the refuelling stations in turn provide the fuel supply for the vehicles at strategic locations.

There is a clear opportunity for ports to aid the decarbonisation of the heavy-duty trucking sector while progressing towards their emissions reduction goals. The much-needed collaborations to make this a reality are already in play, and it is becoming increasingly important that we see more of them. The H2Accelerate collaboration is bringing together all the necessary players to enable the rapid scale-up of the hydrogen sector and catalyse the large-scale import of energy in the form of hydrogen into Europe.

If you would like to find out more about the H2Accelerate collaboration, please visit www.h2accelerate.eu or follow the group on Twitter (@H2AccelerateEU).

ABOUT THE AUTHOR

Hannah Bryson-Jones is a Principal consultant at Element Energy (an ERM group company), a specialist energy consultancy that is acting as a secretariat for the H2Accelerate collaboration.

ABOUT THE ORGANISATION:

Through the H2Accelerate collaboration agreement, participants will work together to:

- seek public support to fund pre-commercial projects to drive the market towards a mass roll-out;
- communicate the technical and commercial viability of large-scale hydrogen-fuelled trucking; and
- engage with decision-makers to encourage policies establishing the zero emissions long haul trucking market.

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MAIN

Hydrogen refuelling station.

Credit: OMV

