H2Haul
Hydrogen Fuel Cell Trucks for Heavy Duty Zero Emissions Logistics

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Call year: 2018

Call topic: FCH-01-1-2018 - Large Scale Demonstration of H2 fuelled HD Trucks with High-Capacity Hydrogen Refuelling Stations (HRS)

Project dates: February 2019 - December 2025

% stage of implementation 01/11/2023: 60 %

Total project budget: 28,110,126.80 €

Clean Hydrogen Partnership max. contribution: 12,000,000 €

Partners: Air Liquide, BMW Group, Bosch, Colruyt Group, FPT, H2 Energy, ERM, Hydrogen Europe, IVECO Group, PowerCell, Sphera, TotalEnergies, VDL, Zeal

Co-funded by the European Union
**Project Summary**

**Objectives**

- Develop **long-haul heavy-duty (26-44t) fuel cell trucks** that meet customers’ requirements in a range of operating environments
- **Homologate and test new fuel cell trucks**
- **Install hydrogen refuelling infrastructure** at each site and provide high reliability hydrogen supplies that maximise environmental benefits
- **Achieve >2 million kilometres** of day-to-day driving, proving the viability of the technology
- **Monitor the performance of the vehicles and infrastructure** to provide evidence on the availability, efficiency, and environmental benefits
- Develop the business case to **prepare the European market for further roll-out** of fuel cell trucks
H2Haul Delivery Phases

**Truck specification & construction**
- Specification of truck requirements and customisation or build of vehicles.

**HRS site preparation**
- Assessment of proposed HRS sites. Preparation or expansion of HRS.

**Truck deployment, operation & maintenance**
- Launch of hydrogen fuel cell vehicles. Commence real world operations and maintenance. Scale-up of tests to challenge performance capabilities.

**Monitoring & analysis**
- Continuous collection, monitoring and analysis of operational data, controlled in line with the data management principles.

**Evaluation, dissemination & exploitation**
- Evaluation of performance and results. Sharing of information to consortium partners and selected end users throughout the project to leverage learnings and best practices to influence future developments.
Key Progress

- Development of fuel cell truck specifications & designs
- Work on functional prototype fuel cell systems integrated into the trucks for testing
- Truck construction, testing & homologation activities ongoing and undergoing final stages prior to delivery to customers and operation early 2024
- Official opening of the IVECO Ulm manufacturing site
- Unveiling of the H2Haul FC trucks at the IAA (IVECO in 2022, VDL in 2023)
Progress/Actions - HRS Development

Achievement to-date

Rothenburg
In operation since 2021
Refuelling trucks at 350 bar

Fos-sur-Mer
In operation since 2023
Refuelling trucks at 700 bar

Ollignies
In operation since 2023
Refuelling trucks at 350 bar

Nuremberg & Leipzig
Under development, expected commissioning 2024
Refuelling trucks at 700 bar

Project start

25% 50% 75%

5 HRS deployed in H2Haul

In operation since 2021

Refuelling trucks at 350 bar

In operation since 2023

Refuelling trucks at 700 bar

In operation since 2023

Refuelling trucks at 700 bar

In operation since 2023

Refuelling trucks at 350 bar
Risks and Challenges:

- Collaboration with other industry projects is essential:
- Divergent country-specific HRS planning/permitting procedures and approvals
- Built-in HRS redundancy enables stable freight operations
- High utilisation a key component for heavy-duty business case

Lessons Learned:

- 350 bar vs 700 bar refuelling
- Routes & mission profiles: 250-600km
- Customer requirements (e.g. specific trailer)

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<th>IMMORTAL</th>
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<th>AEVETO</th>
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<tbody>
<tr>
<td>Refuelling protocol</td>
<td>Durability and lifetime of heavy-duty FC stacks</td>
<td>Standardisation of FC modules for heavy-duty</td>
<td>Cluster of EU electric and H2 heavy-duty truck projects</td>
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- Customer requirements (e.g. specific trailer)
Communication and Dissemination Activities

- Hydrogen Europe
  - Communication lead
  - Sustainability is our business
- Observer Group
- IRU
- ERM
- Wordpress
- Events
- Co-funded by the European Union

Communication support partners

Website
LinkedIn
X (ex Twitter)