



# FC4HD

## TRUCK

**Heavy-Duty Fuel Cell Road Demonstrator –  
Developing a 40 tons long-haul zero emission  
semi-trailer truck for the decarbonisation of  
the mobility sector**



## Bringing fuel cell technologies on the road – Solutions for the heavy-duty segment

The aim of the FC4HD project is to develop a fully-fledged 40(42)-ton zero-emission fuel cell truck that shall be sent on a tour on public roads from Graz to Linz via Wiener Neudorf and back in 2023. In total, the truck will be tested and demonstrated for six months, including real-life operation in a logistics environment.

### Predictive Energy Management

Intelligent, forward-looking and holistic energy management system, which reaches the transport performance of a modern diesel truck in a typical long-distance driving cycle

### Integrated e-axle

2 E-Motor Electric drive axle with 400 kW cont./540 kW Peak Power. Gear- and torque distribution control for maximum efficiency and lifetime

### 700 bar H<sub>2</sub> Storage System

Implementation of a tank system consisting of two new Hydrogen Type 4 Vessels on the truck in order to reach a total storage capacity of 30 kg.



### 310 kW Fuel Cell System

Optimized modular heavy-duty fuel cell system, upscaled from 155kW to 310 kW

### Advanced Vehicle Cooling

Novel cooling system, which makes it possible to install a FC power of 310 kW in the truck

### Smart System Integration

Integration of innovative concepts for battery, power electronics, tank system, highly compact electric drive axle and E/E architecture.

## Towards zero-emission of heavy-goods road traffic

CO<sub>2</sub>- and pollution-free vehicle drives offer the opportunity to significantly reduce or ultimately avoid transport-related greenhouse gas emissions and create a sustainable mobility system. Fuel cell drives are currently the best solution, especially for medium and long-distance heavy goods traffic on the roads. Currently, 2/3 of heavy goods traffic is handled by conventionally powered tractor units (with an upward trend), which generate a correspondingly high amount of CO<sub>2</sub>.

## The project and its goals

The FC4HD project therefore aims to develop and demonstrate a zero-emission 40(42)-t fuel cell heavy-duty semi-trailer tractor. This will allow direct, simple and smooth integration into the predominant tractor + semi-trailer logistics system in Europe and beyond, and thus a correspondingly efficient smooth market penetration and reduction of CO<sub>2</sub> and other pollutants.

For this, FC4HD is pursuing a comprehensive systemic approach, which will make the Austrian zero-emission technology internationally visible, significantly strengthen the Austrian economy in international competition and promoting long-term growth prospects, especially in the field of fuel-cell powered long-distance road freight transport.



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FC4HD 

**The FC4HD** project and its consortium bundles the necessary scientific, technical, economic and regulatory expertise for the development and demonstration of an energy-efficient, user-optimised and competitive fuel cell truck in real-world operation.

By developing CO<sub>2</sub>- and pollutant-free solutions for the road transport sector, FC4HD will strongly contribute to major Austrian and European climate and energy targets.



For further information,  
please visit also the project homepage

Project coordination · AVL List GmbH · DI Hans-Peter Klein · [research@avl.com](mailto:research@avl.com)

This project is funded by the Austrian Climate and Energy Fund and is carried out under the program „zero emission mobility“