Making an impact on the clean energy transition

TRANSPORT

TAKING CO_2 OUT WITH THE RUBBISH

© E-trucks

Clean power for big rigs

In Europe, around 16.5 million lorries transport freight on our roads and carry out public services like refuse collection in our cities. Such trucks are also responsible for 27 % of CO_2 road transport emissions, although they represent only 4 % of all road vehicles. With road freight traffic expected to grow 56 % by 2050, effective measures are needed to move the EU towards decarbonising its lorry sector.

The FCH JU is co-financing two projects testing hydrogen-powered lorries focusing on zero CO_2 emissions. The H2Haul project will demonstrate that large fuel cell trucks can carry freight in long-haul traffic with driving ranges, refuelling times and load capacities comparable to diesel lorries. The Refuse Vehicle Innovation and Validation in Europe (REVIVE) project will operate 15 fuel-cell trucks as dustbin lorries in 7 European cities, aiming to reduce the environmental impact of transport from pollutants, noise, etc.

Heavy-duty transport vehicles are disproportionately large contributors of CO_2 emissions. Now two FCH JU-funded projects are set-up to demonstrate that such vehicles can run on hydrogen, generating water vapour rather than CO_2 and supporting EU moves towards decarbonising the truck sector.

Fit for purpose

Conventional heavy-duty vehicles transporting freight in Europe average between 70 000 to 140 000 kilometres a year. For every kilometre they travel, these lorries can emit 690 to 1080 grams of CO_2. Conversely, fuel cell trucks release no CO_2 emissions and create fewer vibrations and almost no noise. Since they produce no particulate emissions, such as sulphur oxides, FC trucks will improve air quality in our cities. The H2Haul and REVIVE projects will help to overcome the technical and administrative obstacles preventing heavy-duty vehicle manufacturers and transport operators from entering the FC market, paying the way for widespread deployment in Europe.


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LIGHT GAS FOR HEAVY-DUTY USE

Hydrogen-powered heavy-duty vehicles can cut CO_2 road transport emissions while performing as well as conventional vehicles.

MAKING HYDROGEN THE NEW TRANSPORT NORMAL

To demonstrate the practical uses of hydrogen-powered heavy-duty vehicles, the FCH JU formed an alliance between manufacturers, municipal authorities, and operators. **The goal?** To remove technical and administrative barriers to the intensive use of these vehicles for tasks such as long-haul freight transport between cities and refuse pick-up within them. **Key results?** The projects will show that hydrogen-powered heavy-duty vehicles are safe, practical and cost-effective. Spill-over effects from anticipated technological advances will boost the broader fuel-cell transport sector.

KEY ACHIEVEMENTS

15
Hydrogen-powered dustbin lorries supported by the REVIVE project

16
Hydrogen-powered lorries designed, built and tested by the H2Haul project

11
Number of sites across Europe where REVIVE and H2Haul lorries will operate

0 g
of CO_2 emitted per km by hydrogen-powered lorries (assuming hydrogen deriving from renewable energy sources) vs **690 - 1 080** g by conventional lorries

15
project partners, including municipalities, operators and manufacturers

IMPACT

4 %
of all vehicles on the road are heavy-duty trucks

56 %
increase in road freight traffic predicted between 2010 and 2050

STRONG POTENTIAL FOR DECARBONISATION
(27% of total road transport emissions are emitted by heavy-duty vehicles)

STRONG POTENTIAL FOR EU LEADERSHIP
600 000 European SMEs in the heavy-duty vehicle sector and 6.5 million Europeans employed

17 000 UNITS COULD BE PRODUCED IN EUROPE BY 2030
equivalent to EUR 220 million European production value