



**Making an impact
on the clean
energy transition**

TRANSPORT

HYDROGEN FUEL CELL ELECTRIC CARS: THE CLEAN TRANSPORT SOLUTION



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Long-range zero emission

FCEVs emit no pollutants and hydrogen fuel can be produced cleanly using renewable energy. Compared to battery-powered vehicles, FCEVs have an extended range, can cover comparable distances to conventional petrol or diesel cars, with similar refuelling times. Although the technology is well established and the cost has fallen sharply in recent years, FCEVs are still only built in small numbers and prices remain high. The lack of refuelling infrastructure is another impediment to adoption.

To address these challenges, the FCH JU has co-funded several projects, including HyFIVE which put 185 hydrogen vehicles and six refuelling stations into operation. The Hydrogen Mobility Europe (H2ME) projects helped to significantly expand the number of hydrogen vehicles and the refuelling network. H2ME deployed 29 hydrogen refuelling stations and 325 vehicles, while H2ME2 is adding 20 hydrogen refuelling stations and over 1100 vehicles. In addition, ZEFER is exploring the use of this vehicles in new business models with 180 vehicles which are currently being deployed.

Supporting commercial uptake

Looking to overcome challenges to the commercial uptake of FCEVs, FCH JU projects are encouraging car manufacturers and infrastructure providers to work hand in hand to demonstrate the potential of hydrogen-powered transport as a viable and competitive alternative to fossil fuels. As the technology continues to improve, prices come down and consumer confidence grows, FCEVs are well positioned to underpin sustainable zero-emission transport in Europe – providing cleaner air for all citizens.

Hydrogen fuel cell electric vehicles reduce air pollution and fossil fuel use, while exceeding the performance and comfort of internal combustion engine cars. The FCH JU is laying the foundations for wider market uptake of FCEVs through projects addressing cost and infrastructure challenges.



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KEY ACHIEVEMENTS

385-700 km
average range of an FCEV

3-5 MINUTES
average refuelling time of an FCEV

80 %
the cost of fuel cells has fallen by over 80% in the last five years

UP TO 60 %
energy efficiency of a fuel cell is typically between 40 % and 60 %, compared to 25 % for a petrol engine



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IMPACT

8 MILLION
kilometres driven by FCEVs in the H2ME projects as of August 2019

10
countries with new FCEV refuelling stations built in HyFIVE and H2ME

1 425
FCEVs deployed in the H2ME projects

49
Refuelling stations built in the H2ME projects

185
FCEVs deployed in the HyFIVE project

6
refuelling stations built in the HyFIVE project

1000 TONNES
CO₂ emissions abated (based on FCEVs operating for 3 years 2016-2018)

**MORE THAN 2.6 MILLION CARS
COULD BE PRODUCED IN EUROPE BY
2030**
equivalent to EUR 3 billion European production value

ON THE ROAD TO MORE FCEVs

Lowering the price of vehicles and building adequate and widespread refuelling infrastructure will encourage the greater commercial adoption of FCEVs.

ADDRESSING COST AND INFRASTRUCTURE CHALLENGES

To support the wider adoption of fuel cell electric vehicles, the FCH JU brought together vehicle manufacturers, infrastructure providers and public authorities. **The goal?** To lower the cost of FCEVs, demonstrate their commercial potential, increase consumer confidence and expand the refuelling network to provide for a viable alternative to fossil-fuel-powered cars. FCH JU-funded projects have focused on demonstration trials and expanding the refuelling infrastructure network. **Key results?** More than 50 refuelling stations across 10 countries, and trials involving over 1 500 FCEVs.

FIND OUT MORE



www.fch.europa.eu/page/fch-ju-projects
<https://h2me.eu/>



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**FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING**

A partnership dedicated to clean energy and transport in Europe