

Hyundai H2 Xcient fuel cell truck  
Credit: Hyundai Motor Company



## FLEETS AHEAD

Fleets of platinum-based fuel cell electric heavy duty vehicles are set to grow – and, with them, vital refuelling infrastructure

Ambitious global CO<sub>2</sub> reduction targets remain on the agenda, despite the current economic setback suffered by many governments in response to the COVID-19 pandemic. Across the European Union, heavy duty vehicles – trucks, buses and coaches – are responsible for about a quarter of all road-transport related CO<sub>2</sub> emissions. Last year saw the implementation of EU regulations to reduce CO<sub>2</sub> emissions from new heavy duty vehicles by 15 percent in 2025 and 30 percent in 2030, compared to current\* emissions.

Measures such as this are providing further impetus to the growing market for zero-tailpipe emission, heavy duty fuel cell electric vehicles (FCEVs), which use a platinum catalyst as a key component. Hyundai, the South Korean automaker, is a major backer of hydrogen-powered fuel cell technology and is about to begin deployment of its H2 XCIENT fuel cell trucks in Switzerland. This initiative plans to grow the fleet of such vehicles on Swiss roads from 50 this year to 1,300 in 2023.

All FCEVs, including the fuel cell H2 XCIENT which can travel up to 400 km without the need to refuel,

have a significantly greater range than their battery-only electric vehicle (BEV) counterparts.

Fuel cells in heavy duty vehicles like trucks have a further advantage in as much as they are able to maintain a consistent power output even as the load increases, for example when carrying more weight or going up mountains – avoiding the loss of capacity and payload associated with the large, heavy batteries a BEV would need if it were to fulfil a haulage function.

In North America, Hyundai has partnered with Cummins, the 100 year-old engine maker, to develop electric fuel cell powertrains for the commercial vehicle market. Elsewhere, global truck giants Daimler and Volvo are planning to work together to develop fuel cells for trucks. Their intention is to bring fuel cell trucks to the market in the second half of the decade.

Hyundai's initiative with its partners in Switzerland brings further benefits. By combining with the food retail sector, the project will deliver a zero emissions freight solution for two of the country's leading grocery chains which will result in the roll-out of a

### DID YOU KNOW?

Hydrogen - the fuel source for FCEVs - is the most abundant element on earth

network of hydrogen refuelling stations to, in the first instance, service the fuel cell H2 XCIENT truck fleet.

A network of between 100 and 150 refuelling stations is expected to be in place by 2025 - infrastructure that is viable as it only takes c.15 trucks per station to turn a profit as opposed to the c.700 FCEV passenger cars that would otherwise be needed.

### Platinum benefits

Platinum is especially suited as the catalyst in mobile fuel cell applications as it enables the reactions

between hydrogen and oxygen that take place to occur at an optimal rate, while being stable enough to withstand the complex chemical environment within a fuel cell and the high electrical current density necessary, performing efficiently over the long-term.

Platinum in FCEVs is currently a small, but growing, demand sector for platinum, with future demand growth coming predominantly from the heavy duty sector, especially in the near term.

\* Current EU emissions measured from 1 July 2019 to 30 June 2020

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