

Hyundai has upgraded both the design and performance of its XCIENT Fuel Cell Truck and will begin production of its latest model later this year. Picture Credit: Hyundai Motor Company



HYDROGEN MOBILITY SOLUTIONS

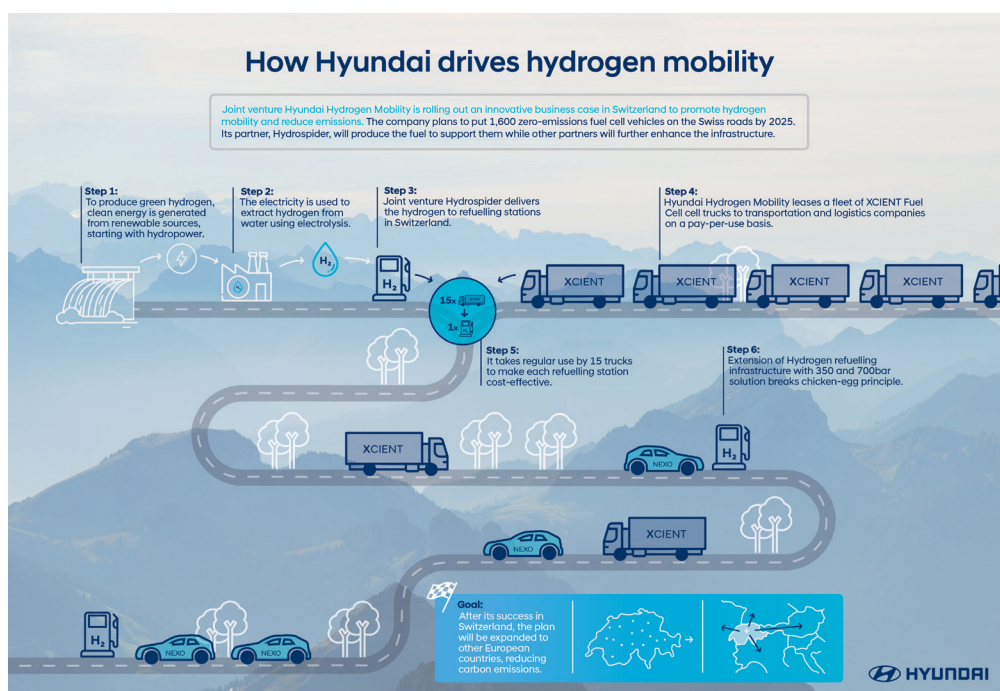
Public policy developments and private partnerships are incentivising adoption of hydrogen-fuelled heavy transport

The transport sector is huge; it is critical to the economy of the European Union (EU), contributing around five per cent to EU GDP, connecting it with global supply chains and employing more than 10 million people. Yet it is also responsible for around one quarter of the region's total greenhouse gas emissions and, if the climate neutrality objectives of the European Green Deal are to be met, transport emissions need to reduce by 90 per cent by 2050.

In its 'Sustainable and Smart Mobility Strategy' announced at the end of last year, the European

Commission emphasised the need to put the right incentives in place to drive the transition away from fossil fuels. Appropriately targeted policies are an important lever that can boost the uptake of zero-emissions vehicles, as well as renewable zero-carbon fuels and related infrastructure.

Take, for example, hydrogen fuel cell electric vehicles (FCEVs) that use platinum-based proton exchange membrane (PEM) fuel cells. Growing demand for FCEVs, especially from fleet owners operating heavy-duty vehicles like trucks and



Picture Credit: Hyundai Motor Company

buses, is already driving down manufacturing costs, reducing the all-important total cost of ownership (TCO) for truck fleet operators.

Reducing total cost of ownership

TCO is a way of assessing the efficiency and total operating cost of a truck over time and its value to the operator. It takes into account not only the purchase price of the vehicle, but also the costs of operation, including maintenance and running costs. By performing TCO analysis businesses can make an informed purchasing decision – it is a major consideration in the transport sector when investing in new stock.

TCO for heavy-duty FCEVs could fall further under new measures recently announced by the EU, which intends to introduce revised road charging rules that will reduce greenhouse gas emissions by incentivising cleaner transport operations.

Under the new rules, road charges will reflect a vehicle's carbon emissions, with zero- and low-emissions vehicles, including FCEVs, receiving a substantial discount, of at least 50 per cent. Annual road charging costs are estimated to be in the region of €25,000 per annum, per vehicle, so the new charges will represent a significant saving in running costs for hauliers who operate hydrogen trucks, providing a further boost to competitiveness for the heavy-duty FCEV segment.

It is not only government initiatives that are shaping and developing the market for hydrogen mobility solutions. Hyundai Motor Company has been at the forefront of a private sector project which is making a major contribution to Switzerland's decarbonisation efforts in the heavy-duty transport industry.

Hyundai Hydrogen Mobility was established in April 2019 as a joint venture between Hyundai Motor Company and H2 Energy AG. Its main business activity is renting out emission-free hydrogen FCEVs to commercial customers, using the Hyundai XCIENT Fuel Cell heavy-duty truck, with the aim of creating an integrated hydrogen eco-system in Switzerland and its neighbouring European countries. Effectively, Hyundai and its partners have developed a new business model encompassing hydrogen-powered trucks, hydrogen refuelling stations and hydrogen production and shipping. Furthermore, by producing green hydrogen, which also uses platinum-based PEM technology, from renewable energies such as hydro, solar and wind, the project has tangibly boosted both the supply of and demand for this zero-emissions fuel.

Hyundai Hydrogen Mobility started with 50 units of Hyundai XCIENT Fuel Cell trucks, with another 140 vehicles due to come on board by the end of this year. The plan is to have 1,600 XCIENT units in operation by 2025 and the business is also working on the introduction of XCIENT Fuel Cell trucks in other European markets.

Contacts:

Brendan Clifford, Institutional Distribution, bclifford@platinuminvestment.com

Trevor Raymond, Research, traymond@platinuminvestment.com

David Wilson, Research, dwilson@platinuminvestment.com

Vicki Barker, Investor Communications, vbarker@platinuminvestment.com



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