Indian trucks take hydrogen highway to future

SHINE JACOB & SOHINI DAS
Chennai/Mumbai, 16 June

From the industrial sprawl of Reliance Industries' Jamnagar refinery to the frost-bitten heights of Leh and the traffic-choked avenues of New Delhi, a quiet shift is underway in India's commercial vehicle (CV) sector. Hydrogen-powered trucks and buses — once a speculative future — are now rolling out onto the country's roads, driven by auto giants like Ashok Leyland and Tata Motors. Others are not far behind.

While many of these efforts are aligned with the government's National Green Hydrogen Mission, original equipment manufacturers (OEMs) are also shaping their own road maps to remain future-ready. Ashok Leyland, for instance, made headlines in 2023 when it unveiled the country's first hydrogen internal combustion engine (H2-ICE) truck, developed in collaboration with Reliance Industries Ltd (RIL).

ASHOK LEYLAND HAS PARTNERED NTPC GREEN TO DEPLOY HYDROGEN FUEL CELL BUSES IN KEY LOCATIONS, INCLUDING DELHI AND LADAKH

Since then, over 20 of these heavy-duty vehicles have clocked nearly 250,000 kilometres, and have rivalled the efficiency of traditional ICE vehicles.

The firm has partnered NTPC Green to deploy hydrogen fuel cell buses in key locations, including Delhi and Ladakh.

"Among the alternative fuels, the ultimate destination of the CV market is going to be hydrogen. However, it needs the cost structure to be right," Sanjeev Kumar, president and head of the medium and heavy commercial vehicle division at Ashok Leyland, told *Business Standard*. "As an organisation, we are ready with technology; it is only a question of when and how, as the cost of hydrogen continues to be very high. Recently, we have also delivered one 55-tonne fuel cell vehicle to Adani (group) for its mining application in Chhattisgarh."

Tata Motors, too, is carrying out trials of hydrogen-powered CVs. Since March, the firm has been testing two trucks — one powered by H2-ICE, the other by hydrogen fuel cell — across a 24-month pilot programme. A total of 16 hydrogen-powered vehicles, with varying payloads and configurations, will ply on some of India's busiest freight routes in Mumbai, Pune, Delhi-NCR, Surat, Vadodara, Jamshedpur, and Kalinganagar.

"We've also started shipping our first hydrogen trucks, which are now going to ply on specific lanes," P B Balaji, group chief financial officer at Tata Motors, said during a recent post-earnings call.

The pilot, undertaken in partnership with Indian Oil Corporation, aims to gather on-ground data — both to finetune the vehicles and to map out hydrogen availability along key transport routes.

Turn to Page 6

■ Ultraviolette revs up global play with 2 launches in Paris P2

Govt's pilot projects to put 37 hydrogen-powered vehicles on the road

At the Bharat Mobility Global Expo earlier this year, Tata Motors Executive Director Girish Wagh signalled that the company was targeting a commercial launch window within the next 12 to 24 months. The company did not wish to share further updates at the moment.

The momentum isn't limited to Indian firms. Daimler Truck, one of the world's leading CV manufacturers, is preparing to enter the Indian hydrogen race. "On the path towards decarbonising transport, Daimler Truck is entering the next development phase of its fuel cell trucks," said Pradeep Kumar T, president of product engineering and chief technology officer, Daimler India Commercial Vehicles.

Following extensive testing, both on tracks and public roads, Daimler's Mercedes-Benz GenH2 trucks are now approaching the customer deployment phase. "We are currently evaluating customer readiness, infrastructure availability, and local operating conditions to ensure that when our hydrogen trucks enter Indian roads, it will be with full commitment to the quality, safety and reliability that define Daimler Truck worldwide," he added.

The central government, too, is ramping up its hydrogen play. Through the Ministry of New and Renewable Energy, five pilot projects have been allocated to a group of private players — Tata Motors, RIL, NTPC, Ashok Leyland, Hindustan Petroleum Corporation Ltd, Bharat Petroleum Corporation Ltd, and Indian Oil Corporation Ltd. Together, these projects will put 37 hydrogen-powered vehicles (a mix of buses and trucks) on the road, supported by nine hydrogen-refuelling stations.

The vehicles include 15 powered by hydrogen fuel cells and 22 by hydrogen ICEs. The trials will take place on 10 routes across the country — from Delhi to Thiruvananthapuram. Launched in January 2023, the National Green Hydrogen Mission has an allocated budget of ₹19,744 crore through to the end of the decade.

It is the centrepiece of India's push towards becoming aatmanirbhar (self-reliant) in clean energy and serving as an inspiration for the global clean energy transition.