

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAJYA SABHA
UNSTARRED QUESTION NO. 2360
ANSWERED ON 07.08.2026

**MULTI LAYER SAFETY INFRASTRUCTURE AND CERTIFICATION FOR INDIA'S FIRST
HYDROGEN TRAIN**

2360 DR. SIKANDER KUMAR:

Will the Minister of RAILWAYS be pleased to state:

- (a) the total expenditure incurred in manufacturing the indigenous hydrogen fuel cell train set compared to standard electric or diesel multi-unit trains;
- (b) the pilot routes identified for initial commercial deployment of 2,600-passenger hydrogen train, along with operational status of green hydrogen production and refuelling stations along these routes;
- (c) the projected reduction in carbon emissions and fuel costs per annum expected from transitioning to this smokeless green propulsion; and
- (d) whether any evacuation protocols and specialised safety training modules developed for railway on-board staff to manage high-pressure hydrogen hazards, if so, the details thereof?

ANSWER

MINISTER OF RAILWAYS, INFORMATION & BROADCASTING AND
ELECTRONICS & INFORMATION TECHNOLOGY

(SHRI ASHWINI VAISHNAW)

(a) to (d) The Hydrogen powered train was inaugurated on 17.07.2026. Till 03.08.2026, this train has covered 2492 km of commercial run in 89 km long Jind-Sonipat section. The hydrogen train has been developed by Indian Railways on pilot basis to demonstrate the use of hydrogen powered train technology in Railways.

A dedicated Hydrogen Plant has been setup at Jind for providing hydrogen in this Trainset. The hydrogen storage facility has been set up in accordance with the guidelines of the Petroleum and Explosives Safety Organization (PESO), ensuring adherence to prescribed safety standards and protocols.

The Hydrogen Trainset operation ensures zero CO₂ emissions with water vapour being the only emission. The Trainset works on fuel cell technology that does not have any moving part and conventional engine for traction power generation therefore the operation is much quieter thereby reducing noise pollution. This project establishes Indian Railways in hydrogen technology.

This pilot project has been developed at a total cost of Rs. 141 Cr. As the Hydrogen Trainset and its infrastructure have been developed on a pilot basis, direct comparison of the cost of hydrogen-fuelled trains with established traction systems at this stage would not present a fair cost comparison.

Prominent features and advantages of this technology include:

- Indigenously designed and developed in India demonstrating IR's commitment to Atmanirbhar Bharat.
- Presently, it is the world's longest (10 coaches) and most powerful (2400 kW) Hydrogen Trainset on Broad Gauge platform.
- The Trainset comprises of two Driving Power Cars (DPCs) of 1200 kW each, totalling 2400 kW along with eight passenger cars.
- It represents a major step in development of next generation fuel technology in Railways, inherently optimizing noise reduction and curtailing reliance on imported fossil fuels.

At present, IR has taken up the running of hydrogen-powered train technology on a pilot basis on the Jind-Sonipat circuit. Safety documents along with specific instructions for the operating staff has been developed to manage high-pressure hydrogen hazards which provides a framework for identifying and mitigating risks associated with hydrogen systems. The staff has been provided with relevant training for safe operation and maintenance.
