GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

RAJYA SABHA
UNSTARRED QUESTION NO. 3946
ANSWERED ON 27.03.2026

HYDROGEN FOR HERITAGE AND GREEN TRACTION

3946 SHRI HARSH MAHAJAN:
SMT. KIRAN CHOUDHRY:
DR. MEDHA VISHRAM KULKARNI:

Will the Minister of RAILWAYS be pleased to state:

(a) manner in which the dedicated Hydrogen Production Plant at Jind successfully supported the zero-emission refueling requirements for the eight-coach rakes;

(b) the positive environmental findings regarding the elimination of carbon emissions during the 20-km Jind-LalitKhera test stretch;

(c) whether the Ministry is on track to operationalise the Jind-Sonipat hydrogen circuit for regular passenger service by mid-2026;

(d) if so, the details thereof; and

(e) manner in which the energy efficiency of one kilogram of hydrogen compares to traditional diesel traction in these heritage circuit trials?

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (e) Indian Railways (IR) has taken up a state-of-the-art project for running of its first hydrogen train on pilot basis to demonstrate the use of hydrogen powered train technology in Railways. The project establishes the commitment of IR towards advancements in alternative energy-powered train travel thereby ensuring a cleaner and greener future for the country's transportation sector in order to meet net-zero carbon emission targets of IR.

This project involved designing from first stages, prototype manufacturing and first-time development of hydrogen traction technology in Indian Railways. Manufacturing of Hydrogen Train-set has been completed. Prominent features of Hydrogen Train-set are as below:

- 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 Train-set on Broad Gauge platform.
- The train-set comprises of two Driving Power Cars (DPCs) of 1200 kW each, totalling 2400 kW along with eight passenger cars.

- Zero CO2 emissions; only emission is water vapour.
- Major step in development of next generation fuel technology in Railways.
- Oscillation trial of Hydrogen trainset has been successfully completed.

For providing hydrogen for use in this train-set, a dedicated Hydrogen Production Plant has been setup at Jind, where hydrogen is produced through electrolysis process, which is a key element of green hydrogen generation.

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