

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS  
**RAJYA SABHA**  
**UNSTARRED QUESTION NO. 3936**  
**ANSWERED ON 27.03.2026**

**HYDROGEN-POWERED TRAIN OPERATIONS**

3936 SHRI S.R. SIVALINGAM:

Will the Minister of RAILWAYS be pleased to state:

- (a) whether Government has examined the readiness of railway infrastructure to support hydrogen-powered train operations initiated on a pilot basis;
- (b) if so, the details of technical preparedness, safety protocols and institutional coordination put in place by Government for such trials; and
- (c) the steps proposed to be taken by Government to progress from pilot deployment to scalable adoption of hydrogen traction technology?

**ANSWER**

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

(SHRI ASHWINI VAISHNAW)

(a) to (c) 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.

The work of hydrogen storage facility has been taken up in accordance with the guidelines of the Petroleum and Explosives Safety Organization (PESO), ensuring adherence to prescribed safety standards and protocols.

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