

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAJYA SABHA
STARRED QUESTION NO. 142
ANSWERED ON 31.07.2026

STATUS OF ELECTRIFICATION OF INDIAN RAILWAYS

*142 SHRI SANJAY SETH:

Will the Minister of RAILWAYS be pleased to state:

- (a) the targets and current progress made by Indian Railways towards achieving 100 per cent electrification by financial year 2025–26;
- (b) the contribution of the 1,500 MW renewable energy portfolio, including the 170 MW solar Power Purchase Agreement (PPA), in achieving Net Zero emissions;
- (c) the benefits of electrification and clean energy adoption in reducing operational costs and carbon footprint for the common passenger; and
- (d) the role of this transition in fostering energy security, creating green jobs and modernizing rail infrastructure in alignment with national sustainability goals?

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (d): A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (d) OF STARRED QUESTION NO.142 BY SHRI SANJAY SETH ANSWERED IN RAJYA SABHA ON 31.07.2026 REGARDING STATUS OF ELECTRIFICATION OF INDIAN RAILWAYS

(a) to (d) Electrification of railway network on Indian Railways has been taken up in mission mode. So far, about 99.6% of Broad Gauge (BG) network has been electrified. The electrification in remaining network has been taken up. Electrification carried out during 2014-26 and before 2014 is as under:

Period	Route Kilometer
Before 2014 (about 60 years)	21,801
2014-26	48,072

Further, all new line / multi-tracking projects are being sanctioned and constructed with electrification.

Indian Railways (IR) has undertaken one of the fastest railway electrification programs in the world. While many countries prioritize electrifying only their busiest passenger and freight corridors, India has chosen to electrify its entire broad gauge network. Indian Railways' achievement in railway electrification stand out globally. According to the latest report of International Union of Railways (UIC) of June, 2025, railway electrification in important railway systems is as under:

Country	Railway Electrification
Switzerland	100%
India	99.6%
China	82%
Spain	67%
Japan	64%
France	60%
United Kingdom	39%

By network coverage, Indian Railways is now among the most extensively electrified large railway systems in the world. Indian Railways had electrified 99.6% of its broad-gauge network, completing one of the world's largest infrastructure transformation programs in a decade.

Electric traction is not only environmental friendly but energy efficient also. Reduction in CO2 emissions in transportation by railways as compared to transportation by road is as under (Ref:- NITI Aayog Report titled "Fast Tracking Freight In India", June 2021)

Mode of Transportation	CO2 emission for transportation of 1 tonne for 1 km
Road	101 gm
Rail	11.5 gm (about 89% less)

Further, electrification of railway tracks reduces dependency on fossil fuels, decreased diesel consumption resulting in lower carbon emission. Electrification enables better haulage capacity and higher train speeds, leading to reduced travel time and enhanced efficiency.

Reduction in IR's diesel consumption for traction purpose by 185 crore litres with about 108 crore litres consumption in 2024-25 as compared to 293 crore litres in 2015-16. This has resulted in saving of precious foreign exchange with Government of India exchequer, which would have otherwise been needed for import of fuel which has been saved due to electrification.

By shifting from diesel to electricity, expanding renewable energy, improving energy efficiency, and exploring alternative technologies, Indian Railways is reducing its dependence on imported fuels while making rail transport more reliable, economical, and environmentally sustainable. Nearly complete electrification has also reduced exposure to global oil market disruptions, strengthening the resilience of India's transport sector.

Electrified railways are well suited for integrating solar, wind & other renewable energy into traction power systems, making them most effective transport systems for utilizing renewable electricity. Indian Railways is committed to sustainable operations through near total Railway Electrification combined with use of renewable energy sources, based on strategic power procurement planning, thus contributing to carbon footprint reduction.

The comprehensive renewable energy adoption by Indian Railways, plays an important role in the Government's target to achieve Net Zero carbon emissions, as replacing higher cost of conventional, fossil fuel-based electricity with green energy substantially mitigates carbon emissions. This integration of renewable energy directly decarbonizes the traction network, ensuring that the transition towards a sustainable transport infrastructure.

As of June, 2026, about 1161 Mega Watt (MW) of solar plants (both on rooftops and on land) and about 103 MW of wind power plants have been commissioned. Further, 100 MW of renewable power under Round the Clock (RTC) mode tied up from solar Energy Corporation of India (SECI) has also started flowing. In addition to this, 2500 MW renewable capacity under RTC mode which is a

hybrid solution consisting of solar, wind and storage component, has also been tied up through Power Purchase Agreements (PPA).

The adoption of clean renewable energy provides benefits in terms of operational efficiency and environmental sustainability by sourcing power from renewable sources which reduces dependence on imported and fossil fuels resulting in savings of energy expenses thereby improving overall operational efficiency, providing with a sustainable, eco-friendly mode of transportation.

The transition to green energy in the Railways strengthens India's energy security and promotes green employment. By adopting renewable energy sources such as solar and wind power, Railways reduces its dependence on fossil fuels, lowers carbon emissions contributing to the achievement of India's climate commitments.

The transition to green energy also promotes green employment through the expansion of renewable energy infrastructure including renewable energy generation, energy management, manufacturing, installation and maintenance of solar plants, energy-efficient technologies, electric traction systems, and other sustainable infrastructure projects.

Indian Railways has envisioned to become net zero carbon emitter through the usage of non-fossil sources power, saving in diesel consumption by electrification of railway tracks, consistent efforts directed towards modal shifting of cargo and passenger from road to rail, harnessing hydrogen gas to drive train sets etc. Through these efforts, Indian Railways are on way to become net zero carbon emitter.

These measures are in line with the Government's commitment to sustainable development and are expected to contribute significantly towards achieving the national objectives of Net Zero emissions, energy security and environmental sustainability.
