

Ministry of Railways



India Emerges as Global Leader in Railway Electrification with 99.6% Broad Gauge Network Electrified, Second Only to Switzerland

Diesel Consumption for Railway Traction Falls from 293 Crore Litres in 2015-16 to 108 Crore Litres in 2024-25, Saving Foreign Exchange and Reducing Carbon Emissions

Indian Railways' Electrification Drive Promotes Cleaner Mobility, as Rail Transport Emits About 89% Less CO₂ than Road Transport

Over 1,260 MW of Solar and Wind Power Capacity Commissioned to Support Low-Carbon Operations on Indian Railways

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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	CO ₂ 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.

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.

Indian Railways aims to progressively meet its electric traction power requirements through renewable energy sources including solar, wind and hybrid systems (solar, wind and energy storage) thereby reducing carbon footprints of IR. 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.

Mission 100% Electrification is a highly challenging project, as it involves electrifying railway lines that are already in operation and encountering unforeseen various challenges during execution. To expedite railway electrification work, various steps have been taken by Indian Railways which include among others; formation of Project Monitoring Group (PMG) portal to resolve the constraints being faced during commissioning, ensuring effective project monitoring mechanism, assured funding and enhanced financial powers to field units.

Zone wise status of electrification is as under:

SN	ZONE	% Electrified
1	Central Railway	100%
2	East Coast Railway	100%
3	East Central Railway	100%
4	Eastern Railway	100%
5	Konkan Railway	100%
6	Kolkata Metro	100%

7	North Central Railway	100%
8	North Eastern Railway	100%
9	Northern Railway	100%
10	South Central Railway	100%
11	South Coast Railway	100%
12	South East Central Railway	100%
13	South Eastern Railway	100%
14	West Central Railway	100%
15	Western Railway	100%
16	North Western Railway	99.8%
17	Northeast Frontier Railway	98.7%
18	Southern Railway	98.7%
19	South Western Railway	96.1%

State/UT wise status of electrification including Bihar, Uttar Pradesh, Andhra Pradesh and Madhya Pradesh is as under:

SN	STATE	% Electrified	SN	STATE	% Electrified
1	Andhra Pradesh	100%	16	Mizoram	100%
2	Arunachal Pradesh	100%	17	Nagaland	100%
3	Bihar	100%	18	Odisha	100%

4	Chandigarh	100%	19	Puducherry	100%
5	Chhattisgarh	100%	20	Punjab	100%
6	Delhi	100%	21	Telangana	100%
7	Gujarat	100%	22	Tripura	100%
8	Haryana	100%	23	Uttar Pradesh	100%
9	Himachal Pradesh	100%	24	Uttarakhand	100%
10	Jammu & Kashmir	100%	25	West Bengal	100%
11	Jharkhand	100%	26	Rajasthan	99.8%
12	Kerala	100%	27	Tamil Nadu	98.3%
13	Madhya Pradesh	100%	28	Assam	97.9%
14	Maharashtra	100%	29	Karnataka	96.8%
15	Meghalaya	100%	30	Goa	91.4%

This information was provided by the Union Minister for Railways, Information & Broadcasting and Electronics & Information Technology, Shri Ashwini Vaishnaw, in a reply to a question in Lok Sabha today.

Dharmendra Tewari/ Dr. Nayan Solanki/ Ritu Raj/ Manik Sharma

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