

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

**LOK SABHA
UNSTARRED QUESTION NO. 2943
TO BE ANSWERED ON 20.12.2023**

GREEN RAILWAY

**2943. SHRI RAHUL RAMESH SHEWALE:
SHRI CHANDRA SEKHAR SAHU:
DR. PRITAM GOPINATHRAO MUNDE:**

Will the Minister of RAILWAYS be pleased to State:

(a) whether the Indian Railways is working steadily towards achieving net zero Carbon Emissions by 2030 to become the world's largest Green Railway;

(b) if so, whether the Union Government has embarked upon an ambitious plan of electrification of its complete Broad-Gauge network;

(c) if so, the details thereof along with the achievement made in this regard, zone-wise;

(d) the details of the target fixed for rail routes electrification for the current financial year;

(e) the details of the rail routes electrified till 30 November, 2023, particularly in Maharashtra;

(f) whether the Union Government has proposed to develop dedicated freight corridors with a long-term low carbon roadmap;

(g) if so, the details thereof; and

(h) the steps taken by the Union Government to adopt more energy efficient and carbon-friendly technologies, processes and practices?

ANSWER

**MINISTER OF RAILWAYS, COMMUNICATIONS AND
ELECTRONICS & INFORMATION TECHNOLOGY
(SHRI ASHWINI VAISHNAW)**

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

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (h) OF UNSTARRED QUESTION NO. 2943 BY SHRI RAHUL RAMESH SHEWALE, SHRI CHANDRA SEKHAR SAHU AND DR. PRITAM GOPINATHRAO MUNDE TO BE ANSWERED IN LOK SABHA ON 20.12.2023 REGARDING GREEN RAILWAY

(a): Indian Railway has set a target of becoming Net Zero Carbon Emitter by 2030.

(b) and (c): Broad Gauge (BG) network of 60,814 km have been electrified upto November'2023. Of this, 39,013 km has been electrified during the period April'2014 to November' 2023, as against 5188 km during 2004-14.

Zone wise details of electrified network are as under:

SN	ZONAL RAILWAYS	Electrified as on 30.11.2023 (in RKM)
1	CENTRAL RAILWAY	3,888
2	EAST COAST RAILWAY	2,954
3	EAST CENTRAL RAILWAY	4,025
4	EASTERN RAILWAY	2,775
5	NORTH CENTRAL RAILWAY	3,257
6	NORTH EASTERN RAILWAY	3,195
7	NORTHEAST FRONTIER RAILWAY	2,004
8	NORTHERN RAILWAY	6,799
9	NORTH WESTERN RAILWAY	4,642
10	SOUTH CENTRAL RAILWAY	5,988
11	SOUTH EAST CENTRAL RAILWAY	2,348
12	SOUTH EASTERN RAILWAY	2,753
13	SOUTHERN RAILWAY	4,612
14	SOUTH WESTERN RAILWAY	2,899
15	WEST CENTRAL RAILWAY	3,067
16	WESTERN RAILWAY	4,827
17	KONKAN RAILWAY	738
18	METRO RAILWAY	43

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(d) and (e): 2,002 km of BG network has been electrified during 2023-24 upto November' 2023, including 146 km BG network falling in the State of Maharashtra. Electrification of balance BG routes has been taken up.

(f) and (g): The Dedicated Freight Corridors (DFCs) Projects are expected to help in reducing the carbon emissions as DFC operation will bring-in efficiency in freight operation in the country by higher throughput per wagon, lower energy consumption and reduction in transit time. Eastern DFC, which has been completed and Western DFC, which is currently under implementation are estimated to reduce emissions by about 457 million ton CO2 over a 30 year period.

(h): Indian Railways (IR) is committed to take steps for energy conservation and to increase energy efficiency. IR has also issued a comprehensive policy for adoption of energy efficiency measures in non-traction applications which, inter-alia, covers sustainable buildings; cloud based data monitoring and management portal; and energy efficiency in equipment and appliances. The policy also provides for procurement of Bureau of Energy Efficiency (BEE) 5 star rated equipment.

Some of the measures taken by IR for energy conservation are as follows:

- (i) Railways has introduced Insulated-Gate Bipolar Transistor (IGBT) based 3-phase propulsion system with regenerative braking in Electrical Multiple Unit (EMU) trains, Mainline Electrical Multiple Unit (MEMU), Kolkata Metro rakes and Vande Bharat Trains to conserve energy during the operations.**
- (ii) Production Units have completely switched over to production of energy efficient three-phase electric locomotives with regenerative braking features.**
- (iii) Provision of energy efficient Light Emitting Diode (LED) lighting in Railway installations including Railway stations, service buildings, coaches, EMUs/MEMUs for reduction in electricity consumption.**

- (iv) Use of energy efficient Brushless Direct Current (BLDC) motor fans in coaches and buildings.**
- (v) Conversion of End on Generation (EOG) trains into Head On Generation (HOG) system in trains to reduce diesel fuel consumption in power cars as well as noise and air pollution.**
- (vi) Regular energy audits at consumption points.**
- (vii) Regular counseling of Loco pilots for use of coasting, regenerative braking features and switching off blowers of electric locos in case yard detention is more than 15 minutes to save energy.**
- (viii) Locomotive pilots are trained during their initial training as well as during promotional training and refresher courses for saving of energy/fuel to achieve better energy/fuel efficiency by good driving technique and better road learning.**
- (ix) Guidelines have been issued for provision of energy saving mode on three phase locomotives wherein power supply to Oil Cooling Blower (OCB), Traction Motor Blower (TMB) and Scavenge Traction Motor Blower (ScTMB) will be switched off through software logic.**
- (x) Trailing locomotives of Multi Units (MU) hauling light loads are switched off to save energy.**
- (xi) Provision of 750V external power supply at washing/sick lines for maintenance and testing of LHB coaches.**
- (xii) IR has been made as designated consumer as part of Perform, Achieve and Trade (PAT) by Bureau of Energy Efficiency (BEE) for improving energy efficiency.**
- (xiii) Provision of Automatic Power Factor Controller panels in High Tension/Low Tension panels.**
- (xiv) Use of micro-controller based automatic platform lighting management system at stations as per train services/passenger requirements.**
- (xv) Use of capacitor banks in traction sub-stations to maintain near unity power factor for energy saving.**

(xvi) Use of timer on high mast tower lightings/street lighting/circulating area of Railway stations.

(xvii) Replacement of conventional geysers with solar geysers.
