

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS

**RAJYA SABHA**  
**STARRED QUESTION NO. 317**  
**ANSWERED ON 31.03.2023**

**INCREASE IN SHARE OF RENEWABLE ENERGY IN ENERGY MIX OF  
RAILWAYS**

\*317. SHRI DHIRAJ PRASAD SAHU:

Will the Minister of RAILWAYS be pleased to state:

- (a) details of increase in share of renewable energy in energy mix of Indian Railways in last Finance Year 2022-23;
- (b) whether Railways is planning to improve its energy efficiency for both diesel and electric traction to reduce GHG emissions in the country;
- (c) if so, the details thereof;
- (d) if not, the reasons therefor; and
- (e) steps taken by Government to ensure that Railways becomes net zero carbon emitter by 2030?

**ANSWER**

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

(a) to (e) A Statement is laid on the Table of the House

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**STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (e) OF STARRED QUESTION No.317 BY SHRI DHIRAJ PRASAD SAHU ANSWERED IN RAJYA SABHA ON 31.03.2023 REGARDING INCREASE IN SHARE OF RENEWABLE ENERGY IN ENERGY MIX OF RAILWAYS**

(a) The share of renewable energy in the overall energy mix of Indian Railways (IR) has increased from about 229 Million Units (MU) in Financial Year 2021-22 (upto 31.12.2021) to about 1175MUs in the Financial year 2022-23 (31.12.2022).

(b) and (c) Following steps have been taken with regard to reduction of Green House Gases (GHG) from Diesel and Electric Traction Locomotives:

- i) IR has stopped manufacturing of diesel locomotives since 2019-20 and switched to manufacturing of energy efficient three phase locomotives.
- ii) Introduction of Insulated Gate Bipolar Transistor (IGBT) based 3 phase propulsion system with regenerative braking in Electrical Multiple Unit (EMU) trains, Mainline Electrical Multiple Unit (MEMU) trains, Kolkata Metro rakes and Vande Bharat Trains.
- iii) Conversion of End on Generation (EOG) trains into Head on Generation (HOG) trains to reduce noise and air pollution at stations and in trains. Further, production units have also been advised to manufacture passenger locomotives with hotel load converter for deployment in Head on Generation (HOG) enabled coaching rakes/trains. It is expected to significantly reduce the diesel consumption of power cars.
- iv) In order to save fuel and increase efficiency, IR has provided a system called Auxiliary Power Unit (APU) in diesel locomotives.
- v) Loco Pilots/Assistant Loco Pilots are trained during training as well as during promotional training and refresher courses for saving of fuel to achieve better fuel efficiency.

(d) Does not arise.

(e) Indian Railway has set a target of becoming Net Zero Carbon Emitter by 2030. Following measures have, inter-alia, been undertaken in this regard:

- i) 100% Electrification of Broad Gauge Railway network.
- ii) About 147 Mega Watt (MW) of solar plants (both on Rooftops and on its vacant land) and about 103 MW of wind power plants have been commissioned (till 28.02.2023).

Further, about 2150 MW of renewable capacity from different sources and under different modes has also been tied up.

- iii) Use of Insulated Gate Bipolar Transistor(IGBT) based 3-phase propulsion system with regenerative braking in locomotives, Electrical Multiple Unit (EMU) trains, Mainline Electric Multiple Unit (MEMU) trains, Kolkata Metro rakes and Electric train sets.
- iv) Conversion of End on Generation (EOG) trains into Head on Generation (HOG) trains to reduce noise, air pollution and diesel consumption.
- v) Provision of Light emitting diode (LED) lighting in all Railway installations including Railway stations, service buildings, Residential quarters and coaches for reduction in electricity consumption.
- vi) Afforestation for carbon sequestration - In last 05 years, around 5 crore saplings have been planted.
- vii) Green Certifications –At present, 55 Industrial Units including 39 workshops, 7 PUs, 8 Loco Sheds, 1 Stores depots and 31 Railway establishments are “GreenCO” certified. Also, 37 railway stations have been GreenCo certified by Confederation of Indian Industries (CII). Around, 200 stations in total have been taken up for GreenCo certification. Further, 700 Railway stations, all 8 production units and 43 major workshops have been certified for Environment Management System (EMS): ISO 14001 certification.
- viii) Construction of Eastern and Western Dedicated Freight Corridors (DFCs).
- ix) Installation of waste to energy plants.

Further, IR has decided to progressively procure renewable energy to reduce energy consumption through conventional sources.

The above initiatives taken/being taken by IR would be helpful in becoming Net Zero Carbon Emitter by 2030.