GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

LOK SABHA
UNSTARRED QUESTION NO.1659
TO BE ANSWERED ON 10.12.2025

REDUCTION IN COAL BASED ENGINE

1659. SHRI ANIL YESHWANT DESAI
SHRI SANJAY HARIBHAU JADHAV

Will the Minister of RAILWAYS be pleased to state:

(a) the details of the technologies currently being used on railway routes and coaches in the country and the extent to which the success has been achieved through their use;

(b) whether Railways has reduced the use of coal for its engines and switched to diesel and electric locomotives in view of technological advancement;

(c) if so, the details and reasons therefor;

(d) the details of the financial expenses incurred in operating coal, diesel and electric locomotives;

(e) whether any form of non-conventional energy is being used for pulling railway coaches/goods trains;

(f) if so, the details thereof;

(g) the details of the sectors and sections where coal-powered railway engines are currently being operated; and

(h) the other similar ways to popularise rail based tourism?

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (h) : Indian Railways is continuously upgrading its infrastructure and rolling stock by adopting the latest technologies to enhance

safety, punctuality, reliability, and passenger comfort. These upgrades reflect a focused effort to modernize the system and meet growing passenger expectations.

With the adoption of modern technology and Electrification of rail network, there has been reduction in the use of coal based engines and Diesel engines.

Electrification of railway network on Indian Railways has been taken up in mission mode. So far, about 99.2% of Broad Gauge (BG) network has been electrified. The electrification in remaining network has been taken up. Electrification carried out during 2014-25 and before 2014 is as under:

Period	Route Km
Before 2014 (about 60 years)	21,801
2014-25	46,900

Indian Railways is now manufacturing and commissioning state of the art three-phase IGBT technology based locomotives. These locomotives have regenerative features and are therefore able to regenerate part of the energy consumed during braking and therefore more energy efficient.

The coal-fired steam engines are being utilised on UNESCO accredited mountain railways, seasonal steam hauled trains and in chartered trains in association with ICRTC. Their utilisation is on railway routes having heritage values.

Indian Railways has planned to progressively meet its electric power requirement for traction purpose through renewable energy sources with combination of solar, wind and other renewable sources based on

strategic power procurement planning, thereby reducing its carbon emissions.

Till November 2025, about 812 Mega Watt (MW) of solar plants and about 93 MW of wind power plants have been commissioned, which are meeting traction requirement of IR. 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 for traction purpose.

In addition to this, 1,500 MW renewable capacity under RTC mode has been tied up to meet traction power requirement. This is hybrid solution consisting of solar, wind and storage component.

During year 2023-24, the expenditure on traction on Indian Railways was Rs 29,614 cr which included all type traction.

Indian Railways has also taken up a state of the art project for running of its first hydrogen train, on pilot basis, as per specifications framed by the Research, Design & Standards Organization (RDSO) to demonstrate the use of hydrogen powered train technology in Railways. The project establishes a commitment of Indian Railways towards advancement in alternative energy powered train travel thereby ensuring a cleaner and greener future for the country's transportation sector.

Modernization and Improvement/up-gradation of Rolling Stock to enhance safety, convenience and comfort of passengers is a continuous and ongoing process on Indian Railways.

The work of replacement of earlier ICF coaches with safer and more modern LHB coaches has been taken up in a phased manner. Technologically superior LHB coaches have better riding, improved aesthetics and features like Lightweight design, Anti climbing

features, Air suspension (Secondary) with failure indication system, stainless steel shell and disc brake system etc.

Further, with a view to improve travel experience of the passengers, Indian Railways has introduced indigenously designed and manufactured Vande Bharat trains with modern coaches, advanced safety features and passenger amenities. Presently, 164 Vande Bharat services are in operation on the Indian Railway network.

These new Vande Bharat Trains have following superior features:

i. **Fitted with KAVACH.**
ii. **Jerk Free Semi-Permanent couplers.**
iii. **Centrally controlled Automatic Plug Doors and Fully Sealed wider gangways.**
iv. **Emergency Alarm Push buttons and Talk Back Units on all Coaches.**
v. **Improved fire safety – Aerosol based fire detection and suppression system in electrical cabinets and lavatories.**
vi. **Higher acceleration with design/operating speed of 180/160 KMPH.**
vii. **Driver-Guard communication with voice recording facility & Crash hardened memory.**
viii. **Air conditioning units with indigenously developed UV-C lamp based disinfection system.**
ix. **Better Ride Comfort.**
x. **CCTVs in all Coaches.**
xi. **For Divyangjan passengers special lavatory in the driving coaches on each end.**
xii. **Coach condition monitoring System (CCMS) display with remote monitoring.**

Railways have developed fully non-AC modern train named as Amrit Bharat express. Already 30 services are in operation. Presently, these modern trains comprise of 11 General Class coaches, 8 Sleeper Class coaches, 01 Pantry car and 02 Luggage cum Divyangjan coaches.

These trains have following enhanced features and amenities:

i. **Better aesthetics of seat and berths with enhanced look & feel on the lines of Vande Bharat Sleeper.**
ii. **Jerk Free Semi-Automatic Couplers.**
iii. **Improved Crashworthiness in coaches by provision of crash tube.**
iv. **Provision of CCTV system in all coaches and Luggage room.**
v. **Improved designs of toilets.**
vi. **Improved design of Ladder for ease of climbing on to the berth.**
vii. **Improved LED Light fitting & Charging Sockets.**
viii. **Provision of EP assisted braking system.**
ix. **Aerosol based fire suppression system in toilets and electrical cubicles.**
x. **USB Type-A and Type-C mobile charging sockets.**
xi. **Emergency Talk Back system for two-way communication between Passenger and Guard/Train Manager.**
xii. **Non-AC pantry with enhanced heating capacity.**
xiii. **Fully sealed gangways with quick release mechanism for easy attachment and detachment**

To promote rail based tourism, Indian Railways have issued 'Bharat Gaurav Trains' policy in November' 2021, under which theme based tourist circuit trains are being run with the objective to showcase India's rich cultural heritage and magnificent historical places. As per this policy, service providers have full flexibility to decide the themes/itineraries for operation of Bharat Gaurav tourist circuit trains which may include tourist circuits of any part of India based on market demand, commercial viability etc.

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