GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

**RAJYA SABHA**
**UNSTARRED QUESTION NO. 2178**
**ANSWERED ON 09.08.2024**

# ELECTRIFICATION OF RAILWAY NETWORK

2178 SHRI JAWHAR SIRCAR:

Will the Minister of RAILWAYS be pleased to state:

(a) whether traffic break-even points justify 100 per cent electrification of entire railway network as the Gross Million Tonnes (GMT) on different routes just do not appear economically viable;

(b) whether operating costs really go down when amortised costs of fixed investments are factored into and the fuel costs is saved;

(c) if so, whether this would lead to increase in average cost of transportation;

(d) whether Railways is prepared with 25 KW overhead lines and the required number of Traction Substations (TSS); and

(e) whether adequate uninterrupted power supply will be assured on all routes if power supply fails?

## ANSWER

MINISTER OF RAILWAYS, INFORMATION & BROADCASTING 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 UNSTARRED QUESTION NO. 2178 BY SHRI JAWHAR SIRCAR ANSWERED IN RAJYA SABHA ON 09.08.2024 REGARDING ELECTRIFICATION OF RAILWAY NETWORK

(a) to (e) Indian Railways has taken a conscious decision to go for 100 % electrification of its Broad Gauge network. Railway electrification is a game-changer in terms of environmental sustainability besides fuel efficiency. Indian Railways have made significant strides in reducing its carbon footprint by switching from diesel to electric traction, which is far more energy-efficient, consuming significantly less fuel & drastically reduces greenhouse gas emissions. Further, increased transportation capacity & significant foreign exchange savings are other major benefits. Railway electrification emerges as a crucial step in reducing our reliance on fossil fuels and mitigating the impacts of climate change.

Electric traction is more economical than diesel traction. Line haul cost (covering fuel, maintenance, depreciation cost etc.) of freight & passenger trains (of both Electric and diesel traction is as under:

| **Type of traffic** | **Diesel Traction** (in Rs per thousand Gross Track Kilometers) | **Electric Traction** (in Rs per thousand Gross Tack Kilometers) |
|---|---|---|
| Passenger | 888.35 | 218.31 (**75% less**) |
| Freight | 497.27 | 149.93 (**70% less**) |

Electrification projects are implemented systematically across the rail network to maximize benefits. A comprehensive approach is necessary, considering the entire rail network rather than focusing solely on individual sections based on freight volume. Thereby eliminating delays caused by switching between electric and diesel traction and reducing the need to keep spare parts, manpower, and maintenance associated with diesel locomotives.

The railway infrastructure is equipped with 25 kV overhead lines and necessary traction substations for electric train operations. Reliable power supply is crucial for electric train operations. The system incorporates multiple safeguards, including connections to the national grid through state and central transmission utilities. Redundant power sources are available at both grid substations and traction substations to ensure uninterrupted service.

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