GOVERNMENT OF INDIA
MINISTRY OF POWER

**RAJYA SABHA**
**STARRED QUESTION NO.323**
ANSWERED ON 23.03.2026

**BOTTLENECKS IN POWER TRANSMISSION DUE TO SHORTAGE OF TRANSFORMER AND REACTOR**

323 SMT. JEBI MATHER HISHAM:

Will the Minister of **POWER** be pleased to state:

(a) whether transformer and reactor shortages caused bottlenecks in power transmission projects, details of current shortfall and affected States/UTs;

(b) whether such shortages have delayed capacity addition in generation and renewable energy integration, the details of projects impacted and timeline slippages;

(c) whether Government has relaxed procurement norms, including imports of critical transmission equipment, to address these constraints, the details thereof;

(d) whether a comprehensive assessment has been undertaken on grid infrastructure readiness to meet the 2030 capacity targets, the details thereof; and

(e) whether any steps have been taken to strengthen domestic manufacturing of transmission equipment to reduce import dependence, the details thereof?

**A N S W E R**

THE MINISTER OF POWER

(SHRI MANOHAR LAL)

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

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**STATEMENT**

**STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (e) IN RESPECT OF RAJYA SABHA STARRED QUESTION NO.323 FOR REPLY ON 23.03.2026 REGARDING BOTTLENECKS IN POWER TRANSMISSION DUE TO SHORTAGE OF TRANSFORMER AND REACTOR ASKED BY SMT. JEBI MATHER HISHAM.**

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**(a) & (b) :** Transformers and reactors are critical for transmission systems, and their timely availability is essential for meeting project timelines. While supply of transformers and reactors depends on manufacturing capacity and key components such as Cold-Rolled Grain-Oriented (CRGO) steel, bushings, insulation, and copper conductors, the supply chain constraints of these components have been observed. As regards augmentation of Transformation Capacity (of 220 kV & above) targeted for FY 2025-26, Transmission Corporation of Andhra Pradesh (APTRANSCO) and Tamil Nadu Transmission Corporation Limited (TANTRANSCO) have reported delay in implementation of intra-state substations due to delay in transformer supply (**Annexure**).

To address the capacity constraints, the industry is undertaking significant expansion in production, adding about 315 GVA over next three years, which will increase total manufacturing capacity from 375 Giga Volt Ampere (GVA) (viz. 95 GVA in FY 25-26, 180 GVA in FY 26-27 & 40 GVA in FY 27-28) to around 690 GVA by FY 2027–28. Simultaneously, steps are being taken to strengthen the supply of critical raw materials through capacity augmentation and new manufacturing facilities. At present, current delivery timelines are about 11–15 months for 220 kV transformers, around 15 months for 400 kV transformers and around 20-24 months for 765 kV transformers.

**(c):** Government has not relaxed procurement norms to import the critical items. The Ministry of Power has granted project-specific relaxations in Minimum Local Content (MLC) requirements for certain High Voltage Direct Current (HVDC) projects. In July 2024, the MLC requirement was reduced to 25% for key projects including the Khavda–Nagpur HVDC transmission line, and the Bhadrawati HVDC back-to-back station. Further, in September 2024, the MLC requirement for the Khavda Pooling Station-3 (KPS3)–South Olpad HVDC transmission line was also reduced from 60% to 25%.

**(d) :** Yes, a comprehensive assessment of grid infrastructure readiness has been undertaken. The National Electricity Plan (Transmission) for the period 2023–32 was launched in October 2024. The Plan provides a detailed transmission roadmap up to the year 2031–32 and aligns with national energy transition and energy security goals. It outlines the development of a robust, efficient and sustainable transmission network to meet future electricity demand and generation expansion.

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Over the ten-year period from 2022–23 to 2031–32, more than 1.91 lakh circuit kilometres (ckm) of transmission lines and about 1,270 Giga Volt Ampere (GVA) of transformation capacity (220 kV and above) are planned to be added. Inter-regional transmission capacity is planned to increase to 168 GW by 2032.

Grid readiness is continuously evaluated through detailed technical studies, including load flow, stability, and contingency analyses. Additionally, multiple operational, regulatory, and technological measures such as grid standards, ancillary services, energy storage integration, advanced reactive power compensation systems, and flexible generation are being implemented to ensure reliable grid operation and smooth integration of renewable energy.

**(e):** To strengthen domestic manufacturing of transmission equipment and reduce import dependence, the Ministry of Power issued the Public Procurement (Preference to Make in India) Order on 16.11.2021. The Order mandates minimum local content in procurement and classifies 210 items across generation, transmission, and distribution as "self-sufficient and competitive" with at least 50% local content, thereby prioritizing domestic suppliers. Additionally, XLPE cables (above 220 kV and up to 400 kV) and Head-End Systems (HES) and Meter Data Management Systems (MDMS) have been included in the list of such items vide MoP PPP-MII modification orders dated 23.04.2024 and 30.12.2024, respectively. The Order aims to reduce import dependence, strengthen supply chains, and enhance manufacturing capabilities in line with the objectives of Atmanirbhar Bharat and Make in India.

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**ANNEXURE**

**ANNEXURE REFERRED TO IN PARTS (a) & (b) OF THE STATEMENT LAID IN REPLY TO STARRED QUESTION NO. 323 ANSWERED IN THE RAJY SABHA ON 23.03.2026 REGARDING BOTTLENECKS IN POWER TRANSMISSION DUE TO SHORTAGE OF TRANSFORMER AND REACTOR**

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The reported delay by Transmission Corporation of Andhra Pradesh (APTRANSCO) and Tamil Nadu Transmission Corporation Limited (TANTRANSCO) for Transformation Capacity (of 220 kV & above) targeted for Financial Year 2025-26 in implementation of intra-state substations due to delay in transformer supply

| Sl. No. | Name of Substation | Developer | State | Voltage Ratio (kV/kV) | Target date | Anticipated Commercial Operation Date |
|---|---|---|---|---|---|---|
| 1 | Vepakayaladibba | APTRANSCO | Andhra Pradesh | 220/33 | Feb-26 | Mar-26 |
| 2 | Nanguneri (Augmentation) | TANTRANSCO | Tamil Nadu | 230/110 | Dec-25 | Jun-26 |
| 3 | Thiruvannamalai (Augmentation) | TANTRANSCO | Tamil Nadu | 230/110 | Dec-25 | Sep-26 |
| 4 | Oragadam (Augmentation) | TANTRANSCO | Tamil Nadu | 230/110 | Dec-25 | Sep-26 |

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