

# INDIAN POWER SECTOR

**Sharp ramp-up in transmission capacity with significant investments required for renewable integration till 2032**

**June 2026**



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## Highlights

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*Transmission infrastructure has scaled at a healthy pace over the last nine years, driven by rising generation capacity and electricity demand*

*CEA plans major transmission expansion to integrate ~900 GW non-fossil capacity by FY2036, along with Brahmaputra hydro evacuation*

*Implementation delays remain a key risk for power transmission projects, with median delays of over seven months observed for projects awarded through the bidding route*



- India's power transmission sector has demonstrated robust growth over the past decade, with healthy additions to transmission line length and substation capacity, increasing at a 9-year CAGR<sup>1</sup> of 3.6% and 7.8%, respectively. This steady expansion has been underpinned by the rise in installed generation capacity and electricity demand growth during this period. The inter-regional transmission capacity has concurrently increased to 120 GW, enabling greater power exchange across regions.



- Central Electricity Authority's (CEA) recent transmission plan envisages expansion of interstate (ISTS) and intrastate (InSTS) transmission system to support 900 GW non-fossil capacity by FY2036, concentrated in renewable energy (RE) rich states, alongside a Brahmaputra Basin plan adding 76 GW hydro evacuation capacity with extensive High-Voltage Direct Current (HVDC) corridors and large-scale transmission build-out to enable integration of geographically clustered generation.



- Transmission capacity addition experienced a marked slowdown over FY2022–FY2025. However, FY2026 saw a recovery to ~12,139 circuit kilometres (ckm) of lines and 1,13,013 MVA of substation capacity. The annual line addition stood at an average of 13-14,000 ckm for FY2022-2026 as compared to average annual addition of 18-19,000 ckm between FY2018-2021. This slowdown is due to a decline in project awards over 2020-2022 and execution related challenges. Subsequently, the pick-up in project awards over the past 30 months, coupled with a huge expansion requirement in future, is expected to scale up execution.



- Execution risks remain the sector's foremost challenge. Only 12% of the projects awarded by Central nodal agencies through the tariff-based competitive bidding (TBCB) route have been commissioned within scheduled timelines, with the median delay exceeding 10 months and some projects facing delays of up to three years. Key bottlenecks include Right of Way (RoW) issues with landowners demanding higher compensation, forest clearance delays, weather disruptions including floods and cyclones, supply chain constraints and project-specific litigations. Recent revision in RoW compensation clauses could provide some respite in alleviating these challenges.

<sup>1</sup>CAGR: Compound annual growth rate

*Instances of grid curtailment witnessed over the past one year for many RE projects owing to delays in completion of associated transmission infrastructure*



*Counterparty credit risk for ISTS projects remains well-mitigated through the pooled payment mechanism*



*Integration of the growing share of renewables with the grid necessitates large investments in the power transmission sector*



- Out of the total RE commissioned capacity of 54.8 GW, ~33% of the capacity is being evacuated under Temporary general network access route (TGNA) at an all-India level as on May 22, 2026. Both northern and western regions have experienced increasing instances of grid curtailment for several hours over the past one year. Grid curtailment for the RE projects in the ISTS network is largely driven by transmission constraints or inadequate TGNA margins, resulting in non-scheduling of power. In the absence of firm connectivity, generators generally receive no compensation, creating material commercial risks.
- Counterparty credit risk for ISTS projects remains low due to healthy collections on account of the pooled payment mechanism under Central Transmission Utility of India Limited (CTUIL). PGCIL's collection efficiency sustained above 100% in FY2026.
- The power transmission sector is entering a multi-year structural upcycle, and ICRA expects the transmission line length to increase to 6,27,000 ckm by March 2030, entailing an annual addition of 20,000 ckm. Also, the substation capacity is projected to rise to 2,171 GVA as of March 2030, necessitating an annual addition of 100 GVA against average addition of ~90 GVA over the past few years. Investment of Rs. 5-6 trillion is required to achieve this target over FY2027-FY2032. Such a significant scale-up in capacity addition requires the need to address challenges related to RoW and clearances effectively.



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