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POWER TRANSMISSION IN INDIA 2021

Network Growth, Key Developments, Market Opportunities and Projections

- ❖ Report (PDF)
- ❖ Data-set (Excel)

The report will enable you to:

- ❖ Evaluate the growth performance of the sector at interstate and intrastate levels
- ❖ Analyse the developments and trends in the sector
- ❖ Learn about the recent policy and regulatory initiatives and their impact
- ❖ Compare the performance of state transcos on key operational and financial parameters
- ❖ Assess the current and future project pipeline, including TBCB, GEC and cross-border projects
- ❖ Get insights on network development, investment and equipment demand projections
- ❖ Evaluate the market opportunities for developers, contractors, equipment providers and investors
- ❖ Get access to detail profiles of central, state and private transmission companies
- ❖ Gauge the impact of Covid on projects and investments

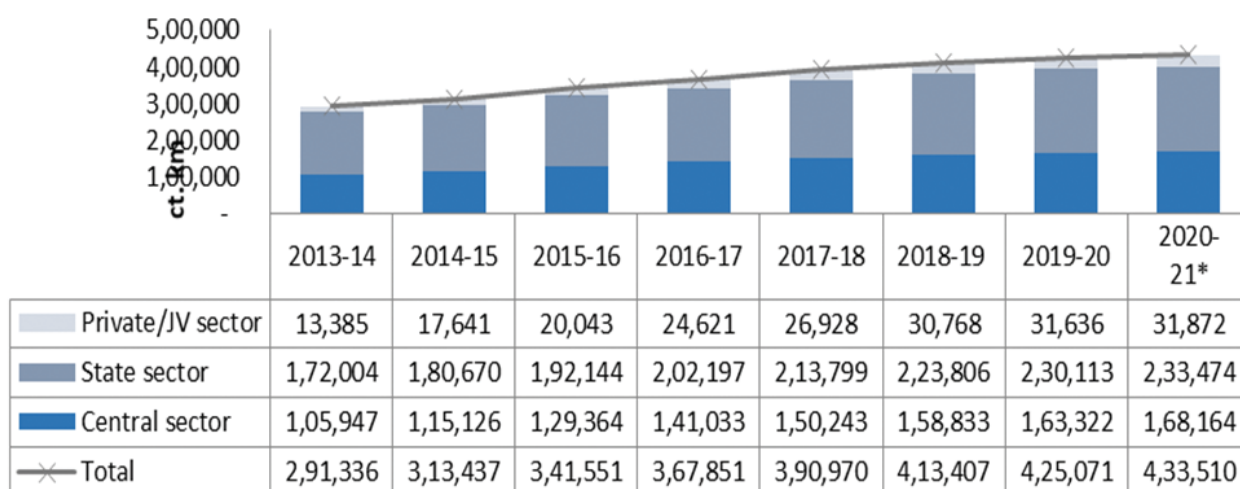
The transmission line length has grown considerably over the years in line to cater to the growth in generation capacity and power demand. As of November 2020, the aggregate transmission line above 220 kV, across all sectors, stood at 433,510 ct. km. The overall line length has increased from 291,336 ct. km in 2013-14 to about 425,000 ct. km in 2019-20, recording a CAGR of 7.5%. The state sector has major share (54%) in the aggregate line length, followed by central (38%) and private sectors (7%). However, in terms of growth rates, private sector (including JVs) leads with a CAGR of over 15% between 2013-14 and 2019-20, vis-à-vis 7.5% for central sector and about 5% for the state sector.

The AC substation capacity stood at 966,000 MVA as of November 2020, while HVDC substation capacity stood at 27,000 MW. They have increased at a CAGR of about 10.5% and 11.8% respectively in the last six years. Over three fourths of AC transformer capacity is concentrated at 220 kV and 400 kV levels while the rest is at 220 kV level. In terms of growth, 765 kV transformer capacity has recorded the highest CAGR of over 18.6% between 2013-14 and 2019-20, followed by 400 kV (11.32%) and 220 kV (6.46%).

A pipeline of transmission projects aggregating to over 39,357 ct km of line length and about 120,790 MVA of substation capacity is under development, These projects are likely to be commissioned over the next 4-5 years. To realise the vision of a unified regional grid, new cross border transmission networks are also being implemented/planned with Nepal, Bhutan, Bangladesh and Sri Lanka. As per India Investment Grid, there are over 170 opportunities in the power transmission segment, worth USD 69.65 billion.

Though the pipeline is strong, project completion has been hampered in the past by delays due to challenges in securing right of way, land acquisition, statutory approvals, and contractual disputes. Already the gestation period of renewable projects is just about 18 months vs 36 months for transmission projects, therefore such delays exacerbate renewable developers concerns. Recently, Covid impacted project construction activities, however, work has progressively resumed and transcos could see a delay in project implementation. Further, due to Covid-19, there was an impact on Transco receivables from states. However, overall the transmission segment remained largely unaffected and showed resilience during the Covid-induced lockdown.

Year-wise growth in transmission line length



1. Executive Summary

SECTION I: SECTOR ANALYSIS, TRENDS AND RECENT DEVELOPMENTS

2. Sector Size and Growth: Interstate

- ❖ Growth in Transmission Line Length
- ❖ Growth in Transmission Transformer Capacity
- ❖ Trends in Substation Additions
- ❖ Growth in Interregional Transfer Capacity
- ❖ Growth in Total Transfer Capacity
- ❖ Trends in Network Reliability
- ❖ One Nation One Grid
- ❖ Capex and Investments

3. Sector Size and Growth: Intrastate

- ❖ Growth in Transmission Line Length
- ❖ Growth in Substation Capacity
- ❖ Trends in Substation Additions
- ❖ Capex and Investments

4. Recent Developments

- ❖ Key Commissioned Projects
- ❖ Projects Awarded in last 12 months
- ❖ Recent M&A Deals
- ❖ Recent Financings
- ❖ InVIT Transactions
- ❖ One Sun, One World, One Grid Initiative
- ❖ New technology initiatives
- ❖ Other Developments (Powergrid's CTU status hive off, Mumbai grid outage, etc)

5. Policy Initiatives

- ❖ MoP Restrictions in Equipment Import and Indigenisation - Impact
- ❖ Draft Electricity LPS Rules, 2020
- ❖ Charges and Losses Waiver for RE

- ❖ Guidelines for Payment of Compensation for RoW for Lines in Urban Areas
- ❖ Draft Electricity Amendment Bill, 2020
- ❖ Draft SBDs for TBCB
- ❖ Others

6. Key Regulatory Moves and Impact

- ❖ CERC's Sharing of Interstate Transmission Charges and Losses Regulations and Procedures issued by POSOCO
- ❖ CERC's Sharing of Revenue Derived from Utilisation of Transmission Assets for Other Business Regulations, 2020
- ❖ CERC order on AGC Implementation
- ❖ CERC's DSM (Fifth Amendment) Regulations
- ❖ CERC's Power System Development Fund Regulations
- ❖ CERC's Recommendations for TBCB Bidding Guidelines
- ❖ CERC's Draft Amendment to Detailed Procedure for Grant of Connectivity to Projects Based on Renewable Sources to Inter-State Transmission System
- ❖ Intra-State Reserves and Ancillary Services for Balancing (SANTULAN) (FoR report)
- ❖ FoR's Draft Model Regulation for Intra-State Essential Reliability Services Operations Regulations
- ❖ Update on SAMAST Framework
- ❖ Consolidated First Time Charging Procedures (POSOCO)
- ❖ Market-related Updates (FRAS, SCED, RTM, G-TAM, derivative)
- ❖ Recent CEA Guidelines/Procedures

7. Impact of Covid-19

- ❖ Overall Impact on Power Sector
- ❖ Impact of 9 PM 9 Minutes event
- ❖ Impact on Demand and System Operations
- ❖ Impact on Transcos Plans and Capex
- ❖ Impact on Projects and Capacity Addition
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- ❖ Mitigation Measures by Stakeholders

8. Private Sector Experience

- ❖ Private Participation Experience So Far
- ❖ Status of Projects Awarded through Tariff Based Competitive Bidding
- ❖ Analysis of Recent Bids
- ❖ Projects Under Bidding
- ❖ Future Project Pipeline
- ❖ Issues and Concerns

9. Focus on Renewable Energy Integration

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- ❖ Expected Penetration of Renewables
- ❖ Transmission Scheme for RE Zones by 2022
- ❖ Green Energy Corridors I and II
- ❖ Projects for RE Evacuation
- ❖ Battery Energy Storage Systems
- ❖ Issues in RE Integration
- ❖ Others (REMCs, Grid Operation during Eclipse- POSOCO report)
- ❖ State Initiatives for RE Evacuation

10. Cross-border Interconnections

- ❖ Overview
- ❖ Existing Transmission Links with Neighbouring Countries
- ❖ Recent Developments
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- ❖ Issues and Concerns
- ❖ The Way Forward

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- ❖ Interstate Transmission Tariffs
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- ❖ Projected Line Length
- ❖ Projected Transformer Capacity
- ❖ Projected Number of Substation
- ❖ Expansion in Inter-regional Transfer Capacity
- ❖ Forecasted Investment
- ❖ Issues and concerns

13. Project Pipeline and Market Opportunities

- ❖ Expected Project Pipeline
- ❖ Recently Awarded
- ❖ Under Bidding
- ❖ Proposed/Announced
- ❖ Market Opportunities for
 - ❖ Project Developers and Investors
 - ❖ EPC Players and Contractors
 - ❖ Equipment Providers

14. Equipment Demand

- ❖ Emerging Technology Trends
- ❖ Projected Equipment Demand
 - ❖ Conductors
 - ❖ Towers
 - ❖ Insulators
 - ❖ Transformers
 - ❖ Switchgear
 - ❖ Reactors

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15. Network Size and Operational Performance

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- ❖ Substation Capacity
- ❖ Number of substations
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16. Financial Performance

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- ❖ Planned Investments

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- ❖ Bhakra Beas Management Board

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- ❖ Gujarat Energy Transmission Corporation Limited
- ❖ Maharashtra State Electricity Transmission Company Limited
- ❖ Karnataka Power Transmission Corporation Limited
- ❖ Rajasthan Rajya Vidyut Prasaran Nigam Limited

- ❖ Madhya Pradesh Power Transmission Company Limited
- ❖ Uttar Pradesh Power Transmission Corporation Limited
- ❖ Tamil Nadu Transmission Corporation Limited
- ❖ Transmission Corporation of Andhra Pradesh Limited
- ❖ Transmission Corporation of Telangana Limited
- ❖ Haryana Vidyut Prasaran Nigam Limited
- ❖ Odisha Power Transmission Corporation Limited
- ❖ West Bengal State Electricity Transmission Company Limited
- ❖ Chhattisgarh State Power Transmission Company Limited
- ❖ Kerala State Electricity Board Limited
- ❖ Bihar State Power Transmission Company Limited
- ❖ Assam Electricity Grid Corporation Limited
- ❖ Himachal Pradesh Power Transmission Corporation Limited
- ❖ Jharkhand Urja Sancharan Nigam Limited
- ❖ Jammu and Kashmir Power Development Department
- ❖ Power Transmission Corporation of Uttarakhand Limited
- ❖ Meghalaya Power Transmission Corporation Limited
- ❖ Delhi Transco Limited
- ❖ Tripura State Electricity Corporation Limited

21. Profiles of Private Network Developers and Operators

- ❖ Adani Transmission Limited
- ❖ Sterlite Power Transmission Limited
- ❖ IndiGrid
- ❖ Kalpataru Power Transmission Limited
- ❖ CLP India
- ❖ Sekura Energy
- ❖ Essel Infraprojects
- ❖ Essar Power Transmission
- ❖ L&T Infrastructure Development Projects
- ❖ Others

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