

Industry Research Report on Infrastructure EPC and Cable Manufacturing Sector

September 2026

Disclaimer

This report is prepared by CARE Analytics and Advisory Private Limited (CareEdge Research). CareEdge Research has taken utmost care to ensure accuracy and objectivity while developing this report based on information available in CareEdge Research's proprietary database, and other sources considered by CareEdge Research as accurate and reliable including the information in public domain. The views and opinions expressed herein do not constitute the opinion of CareEdge Research to buy or invest in this industry, sector or companies operating in this sector or industry and is also not a recommendation to enter into any transaction in this industry or sector in any manner whatsoever.

This report has to be seen in its entirety; the selective review of portions of the report may lead to inaccurate assessments. All forecasts in this report are based on assumptions considered to be reasonable by CareEdge Research; however, the actual outcome may be materially affected by changes in the industry and economic circumstances, which could be different from the projections.

Nothing contained in this report is capable or intended to create any legally binding obligations on the sender or CareEdge Research which accepts no responsibility, whatsoever, for loss or damage from the use of the said information. CareEdge Research is also not responsible for any errors in transmission and specifically states that it, or its Directors, employees, parent company – CARE Ratings Ltd., or its Directors, employees do not have any financial liabilities whatsoever to the subscribers/users of this report. The subscriber/user assumes the entire risk of any use made of this report or data herein. This report is for the information of the authorized recipient in India only and any reproduction of the report or part of it would require explicit written prior approval of CareEdge Research.

CareEdge Research shall reveal the report to the extent necessary and called for by appropriate regulatory agencies, viz., SEBI, RBI, Government authorities, etc., if it is required to do so. By accepting a copy of this Report, the recipient accepts the terms of this Disclaimer, which forms an integral part of this Report.

Table of Contents

1 Economic Overview	8
1.1 Global Macro-economic Outlook.....	8
1.2 India Macro-economic Overview	9
1.2.1 India GDP Growth and Outlook	9
1.2.2 Fiscal Deficit (% of GDP)	10
1.2.3 Consumer Price Index	11
1.2.4 Investment Trend in Infrastructure.....	12
1.2.5 Per Capita PFCE and GNDI.....	13
1.2.6 Budgetary Expenditure on Infrastructure	14
1.2.7 Industrial Growth.....	15
1.2.8 Gross Value Added (GVA)	15
1.2.9 Concluding Remarks.....	16
2 Indian Power Sector	17
2.1 Overview of the Indian Power Sector	17
2.2 Operating and Regulatory Structure	17
2.3 Power Demand, Supply and Deficit in India	19
2.4 India's Per Capita Power Consumption	20
2.5 Source-wise Installed Capacity	21
2.6 Electricity Generation in India.....	22
2.7 Projected Investments in Conventional and Renewable Sources of Energy	23
2.8 Sector-wise Electricity Consumption in India	23
2.9 Drivers and Constraints in Growth of the Indian Power Sector.....	24
3 Indian Solar Power Sector.....	27
3.1 Evolution and Rise of Solar Power in India.....	27
3.2 Review of Overall Grid-Connected Solar Energy Capacity Additions.....	28
3.3 Review of Policies Driving Solar Capacity Additions.....	29
3.4 Trend of Solar Power Tariff	33
3.5 Potential of Solar Power in India.....	33
3.6 Assessment of Solar Power Parks in India.....	35
3.7 Overview of Solar Rooftop Segment.....	38
3.7.1 Capacity Additions	38
3.7.2 Subsidy structure.....	40
3.7.3 Growth Drivers	40
3.8 PM-KUSUM Scheme (Solar Water Pumping).....	41
3.8.1 Scheme Structure	41
3.8.2 Central and State Subsidy Mechanism.....	41
3.9 Market Size and Growth Outlook for Solar Agri-water Pumping Segment.....	41
3.10 Renewable Purchase Obligation (RPO)	42
3.11 Potential Long-term Drivers and Constraints of the Indian Solar Sector	43
3.12 Government Initiatives.....	44
4 Overview of Indian Solar EPC Market.....	45
4.1 Market Size of Solar EPC.....	45

4.2	Assessment of Solar EPC Contract	46
4.3	Key Covenants of an EPC Contract.....	48
4.4	In-house vs Outsourced EPC	49
4.5	Eligibility Criteria for Tenders.....	49
4.6	Outlook for Solar EPC Market	50
5	Overview of Power Transmission Sector in India	51
5.1	Overview of T&D Network in India.....	51
5.2	Structure of Indian Electricity Transmission Sector	52
5.3	Review for Transmission Infrastructure Growth (in 000'ckm).....	54
5.4	Details on Transmission Capacity Growth (in GVA)	55
5.5	Review of Transmission System Augmentation during the Period.....	56
5.6	Inter-regional Projected Installed Capacity	57
5.7	Facilitation Measures by Government for Execution of Transmission Projects.....	58
5.8	Demand Drivers in India	59
6	Power Distribution Sector in India	60
6.1	Overview of Power Distribution Sector in India.....	60
6.2	Electricity Sales and Revenue Breakup of State Discoms	60
6.3	Financial Health of the Discoms.....	60
6.4	Projected Distribution Infrastructure Plan	61
6.5	Insight on Standard Voltage Level and its Application	62
6.6	Impact of Government Power Policy on T&D Infrastructure.....	63
6.7	Overview of RDSS (Revamped Distribution Sector Scheme)	64
6.7.1	Outlay.....	64
6.7.2	Scope	64
6.7.3	State-wise Rollout Status.....	64
6.8	Rural Electrification Schemes.....	65
6.9	State-wise Transmission Line Planned and likely Investment for the same as the end of the period.....	65
6.10	Overview: EPC Services & Advantages	66
7	Water Infrastructure Sector in India.....	68
7.1	Overview of Water Infrastructure Sector in India	68
7.2	Jal Jeevan Mission.....	70
7.3	Indian Water Infrastructure Market.....	72
7.4	Key Government Schemes and State Water Sanitation Missions (SWSM).....	73
7.5	Key Players in Water EPC and O&M	75
8	Electrical Cables and Conductor Manufacturing	77
8.1	Overview of the Indian Wires and Cables Industry	77
8.2	Market Size of the Indian Wires and Cables Industry – By Voltage.....	77
8.3	Market Size of the Indian Wires and Cables Industry – By End-user Industries Type	78
8.4	Overview of Electrical Conductors	79
8.4.1	Types and Application of Electrical Conductors	79
8.5	Key Demand Drivers.....	80
8.6	Key Challenges	81
8.7	Key Government Policies/Regulations.....	82

8.8	Tailwinds Supporting Sustainable Growth	82
9	Risks and Challenges to the Product of the Issuer Company	85
10	Company Profile	86
11	Competitive Landscape	90
11.1	Peer Profile.....	90
11.2	Operational Parameter.....	90
11.3	Financial Parameter.....	91

List of Charts

Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y Change in %)	8
Chart 2: Trend in Real Indian GDP Growth Rate	10
Chart 3: Gross Fiscal Deficit (% of GDP).....	11
Chart 4: Retail Price Inflation in Terms of Index and Y-o-Y Growth in % (Base: 2011-12=100, 2023-24=100)	11
Chart 5: RBI's Historical Repo Rate	12
Chart 6: Gross Fixed Capital Formation (GFCF) at Current Prices (as % of GDP)	13
Chart 7: Trend of Per Capita GNDI and Per Capita PFCE (at Current Prices)	13
Chart 8: Budgetary Outlay Towards Infrastructure	14
Chart 9: Year-on-Year Growth in IIP (in %).....	15
Chart 10: Power Demand, Supply and Deficit in India	19
Chart 11: Power Supply Position in India	20
Chart 12: Growth of Electricity Sector in India - Installed Capacity and Per Capita Consumption	21
Chart 13: Source-wise Installed Capacity.....	21
Chart 14: Power Generation Over the Years	22
Chart 15: Installed Capacity of Solar vs Thermal.....	27
Chart 16: Trend in Yearly Solar Capacity	28
Chart 17: Solar Energy Capacity Additions	29
Chart 18: States with Solar Park Facilities in India (Feb 2024)	30
Chart 19: Trend in Solar Tariff	33
Chart 20: Market size of Solar Agri-water Pumping Segment	42
Chart 21: RPO Trajectory from FY23 to FY30.....	42
Chart 22: India Solar EPC Additions	45
Chart 23: Investments in Solar EPC Opportunity	50
Chart 24: ISTS Transmission Network of India.....	52
Chart 25: Structure of India's Transmission Sector	53
Chart 26: Transmission Line Network (220 kV & above)	55
Chart 27: Transformation (Substation) Capacity (220 kV & above).....	56

Chart 28: State DISCOMs - Sales and Revenue Breakup	60
Chart 29: Outstanding Payments by DISCOMs to Conventional Generation Companies	61
Chart 30: Market Size for Water Requirement for Different Uses (in Billion Cubic Meters)	68
Chart 31: Functional Household Tap Connection Under Jal Jeevan Mission	70
Chart 32: Market Size of Water and Sanitation Infrastructure in India	73
Chart 33: Market Size of India Wires and Cables Industry - By Voltage	77
Chart 34: Market Size- by End-user Industry	78
Chart 35: Bifurcation of EPC order book	89

List of Tables

Table 1: GDP Growth Trend Comparison - India vs Other Economies (Real GDP, Y-o-Y Change in %)	8
Table 2: RBI's GDP Growth Outlook (Y-o-Y in %)	10
Table 3: Sectoral Growth at Constant Prices (Y-o-Y % Growth)	15
Table 4: Regulatory Capabilities of Different Bodies	18
Table 5: Expected Investments in Generation (Rs Crore)	23
Table 6: Year-wise Consumption of Electricity Sector-wise (in GWh)	23
Table 7: Installed Capacity and Capex Target for FY25	33
Table 8: Top 10 States by Ground Mounted Solar PV Potential	34
Table 9: List of State-wise Under-construction Solar Projects (in MW) as of June 2026	34
Table 10: List of Approved Solar Parks (June 26)	36
Table 11: Different Modes of Solar Park Development	38
Table 12: State/UT-wise Rooftop Solar Capacity Installed under PM-Surya Ghar Yojna (Solar Rooftop) and Total Solar Power Installed Capacity (Jun26)	39
Table 13: Subsidy benefits under PM-SGMBY	40
Table 14: Solar Projects Pipeline of Public Sector Entities	46
Table 15: Tender Eligibility Criteria	49
Table 16: States in Regional Grids	53
Table 17: Distribution of Voltage Lines	54
Table 18: Inter-State Transmission Lines	55
Table 19: Inter-state Transformation Capacity (Substation)	56
Table 20: Summary of Achievement of Transmission Capacity Addition During FY26-32	56
Table 21: Region-wise planned transmission capacity additions	57
Table 22: Transmission Line Investments (Rs crores)	57
Table 23: Summary of Distribution Infrastructure Plan	61
Table 23: Projected Investments in The Indian Electricity Distribution Sector (in Rs trillion)	62
Table 24: Summary of Intra-state Transmission System Planned for the Period 2022-32	65

Table 25: State-wise Central Fund Reimbursement Released	71
Table 26: Project Details Under AMRUT	73
Table 27: Progress Made Under Namami Gange	74
Table 28: Competitive Landscape	75
Table 29: List of Ongoing Projects:	88
Table 31: List of Solar EPC Projects.....	89
Table 30: Key Clientele	89
Table 31: Peer comparison	90
Table 32: Sector presence	91
Table 34: Revenue from Operations (in Rs Lakhs)	91
Table 35: EBITDA (in Rs Lakhs)	92
Table 36: EBITA Margin	92
Table 37: Profit After Tax (in Rs Lakhs).....	92
Table 38: PAT Margin.....	92
Table 39: Return on Equity.....	93
Table 40: Return on Capital Employed	93
Table 41: Debt-to-Equity ratio	93
Table 42: Net Debt (in Rs Lakhs)	93

1 Economic Overview

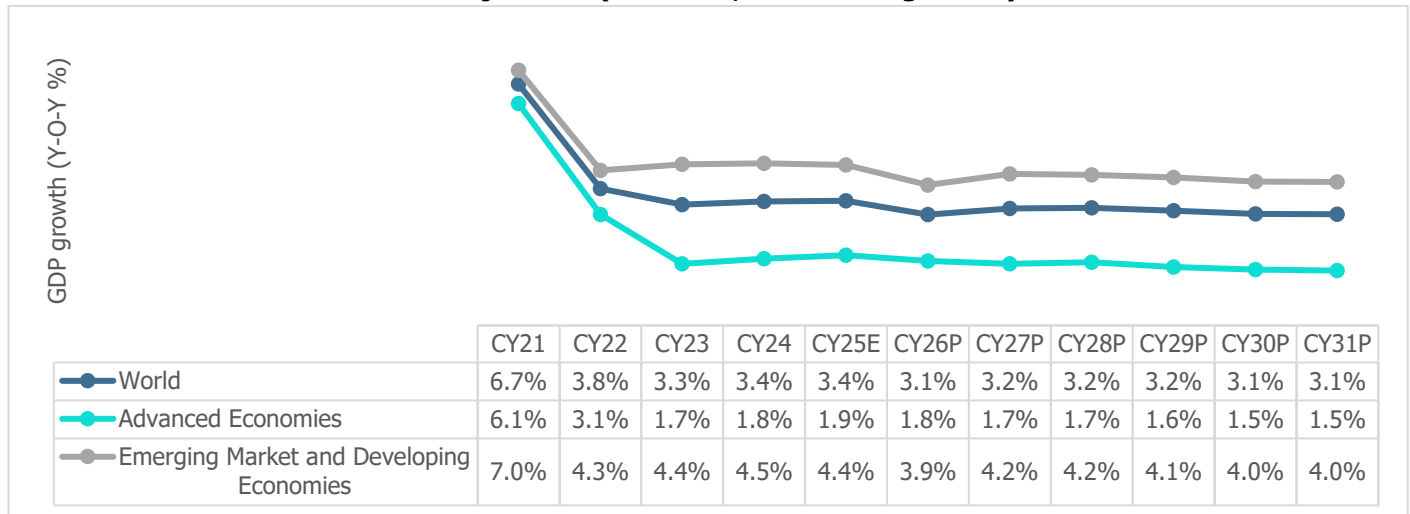
1.1 Global Macro-economic Outlook

Global Economic Growth Expected to Sustain at ~3% in Near Term

Global economic growth is projected to moderate to around 3.1% in 2026, reflecting the impact of geopolitical tensions on energy and trade flows. The ongoing Middle East conflict poses downside risks, with prolonged disruptions potentially reducing growth further to 2.5%, or lower.

However, supportive factors such as continued investment momentum and policy support are helping offset some of these pressures.

Chart 1: Global Growth Outlook Projections (Real GDP, Y-o-Y Change in %)



Source: IMF – World Economic Outlook, April 2026; Notes: E-Estimate, P-Projections

Table 1: GDP Growth Trend Comparison - India vs Other Economies (Real GDP, Y-o-Y Change in %)

	Real GDP (Y-o-Y Change in %)										
	CY21	CY22	CY23	CY24	CY25E	CY26P	CY27P	CY28P	CY29P	CY30P	CY31P
India	9.7	7.6	7.2	7.1	7.6	6.5	6.5	6.5	6.5	6.5	6.5
China	8.6	3.1	5.4	5.0	5.0	4.4	4.0	4.0	3.7	3.3	3.3
Indonesia	3.7	5.3	5.0	5.0	5.1	5.0	5.1	5.2	5.2	5.2	5.2
Saudi Arabia	6.5	12.0	0.5	2.6	4.5	3.1	4.5	3.6	3.5	3.5	3.6
Middle East and Central Asia	4.7	6.4	2.6	2.8	3.6	1.9	4.6	4.0	4.0	3.8	3.8
Latin America	7.5	4.3	2.3	2.4	2.4	2.3	2.7	2.9	2.9	2.7	2.6
Brazil	4.8	3.0	3.2	3.4	2.3	1.9	2.0	2.4	2.5	2.5	2.5
Euro Area	6.4	3.6	0.4	0.9	1.4	1.1	1.2	1.4	1.2	1.1	1.1
United States	6.2	2.5	2.9	2.8	2.1	2.3	2.1	2.1	1.9	1.8	1.8

Source: IMF- World Economic Outlook Database (April 2026)

Note: E-Estimate, P- Projections E-Estimated; India's fiscal year (FY) aligns with the IMF's calendar year (CY). For instance, FY24 corresponds to CY23

Advanced economies are projected to grow at around 1.70% in CY26 and 1.8% in CY27, with the overall effect of the Middle East conflict on growth in advanced economies being modest.

In the United States, growth is forecast at about 2.30% in CY26, supported by fiscal measures and lower interest rates, even as the increase in trade barriers since April 25 continues to weigh on trade relations.

The Euro Area growth is expected to decline in CY26 to 0.90% from 1.40% in CY25 and moderate to 1.20% in CY27, due to the negative impact of the war in the Middle East over time, even though there was substantial growth in CY25.

Developing Countries Group

Emerging and developing economies are expected to fall to 3.80% in CY26 and recover to 4.5% in CY27, due to the global conflicts having a greater net impact on emerging economies than advanced economies.

China's growth remains steady at around 4.60% in CY26 and is expected to fall to 4.10% in CY27 due to higher global oil prices as well as global uncertainty. India's growth has been among the fastest-growing major economies, with projections of 6.400% in CY26, driven by strong private consumption and services activity.

Indonesia is expected to maintain consistent growth of around 5.00% in CY26 and 5.10% in CY27. Saudi Arabia's growth in CY26 has a downward projection to have a growth rate of 1.70% on account of the damage due to the ongoing tensions. On the other hand, Brazil's growth is projected to be 2.40% in CY26 and 2.20% in CY27, as the war has a small net positive effect in 2026, as a result of the country being a net energy exporter.

Despite the turmoil in the last two to three years, India bears good tidings to become a USD 5 trillion economy by CY28. According to the IMF dataset on Gross Domestic Product (GDP) at current prices, the nominal GDP is projected to be at USD 4.2 trillion for CY26 and is projected to reach USD 4.5 trillion by CY27 and USD 6.8 trillion by CY30. India's expected GDP growth rate for the coming years is almost double compared to the world economy. The Indian economy shows resilience amid global inflation, supported by a stable financial sector, strong service exports, and robust investment driven by government spending and high-income consumer consumption, positioning it for better growth than other economies.

Besides, India stands out as the fastest-growing economy among the major economies. The country is expected to grow at 6.5% in the period of CY25-CY30, outshining China's growth rate. By CY30, the Indian economy is estimated to emerge as the third-largest economy globally, surpassing Japan and Germany. Currently, it is the third-largest economy globally in terms of Purchasing Power Parity (PPP), with an ~8.5% share in the global economy, with China at the top followed by the United States.

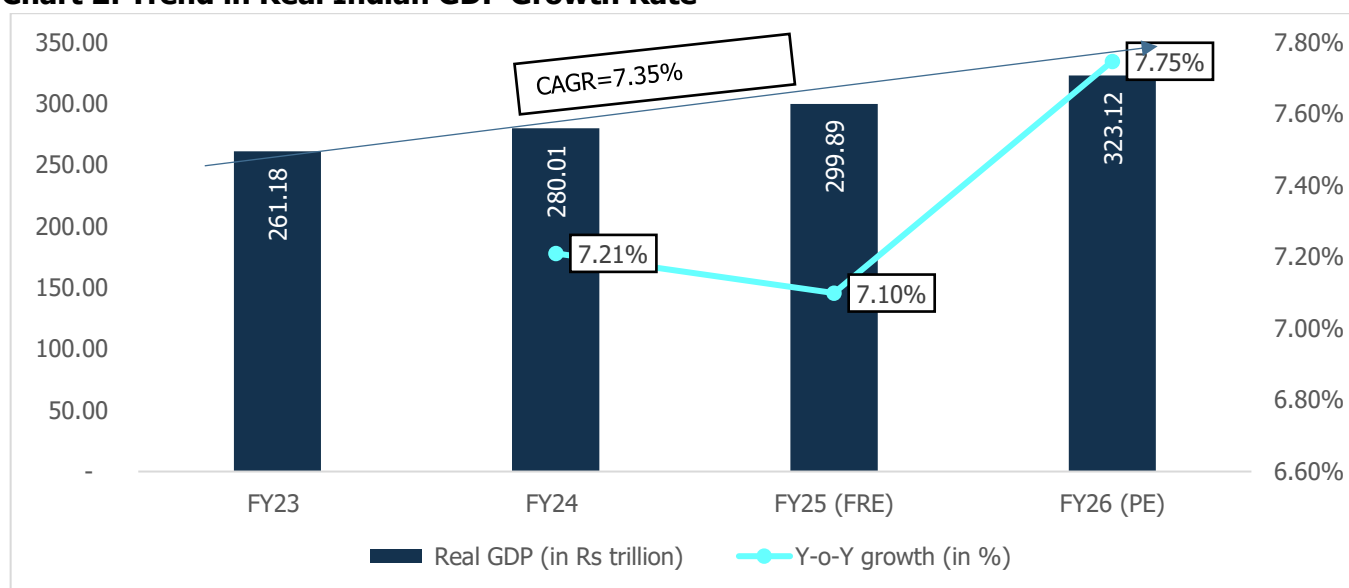
1.2 India Macro-economic Overview

1.2.1 India GDP Growth and Outlook

Resilience to External Shocks Remains Critical for Near-term Outlook

The Indian economy continues to grow as per provisional estimates, GDP in FY26 is expected to have grown by 7.75%, supported by strong domestic consumption, investment, manufacturing and services activity. The economy showed resilience while the global economic environment remains challenging due to geopolitical tensions, trade-policy uncertainty and financial vulnerabilities.

For FY25, first revised estimates show a growth of 7.10% (Rs 299.89 trillion), led by robust performance in manufacturing, construction and financial services. Consumer spending rose by 7.70%, and government spending increased by 5.50%, both contributing to the overall growth. In FY23, the real GDP stood at Rs 261.18 trillion and registered Y-o-Y growth of 7.21% in FY24 (Rs 280.01 trillion).

Chart 2: Trend in Real Indian GDP Growth Rate

Source: MOSPI; Note: PE – Provisional Estimates, FRE- First Revised Estimates. Note: The trend for FY23-FY26 is based on new series base year 2022-23

GDP Growth Outlook (August 2026)

FY27 GDP Outlook: The Reserve Bank of India (RBI) projects real GDP growth at 6.70% for 2026–27, supported by sustained momentum in the services sector, strong reservoir levels aiding the agricultural sector, and private consumption expected to remain uplifted by discretionary spending.

However, elevated energy and other commodity prices, cost pressures, as well as the travel disruptions in the Strait of Hormuz are likely to affect growth this year. However, the government is working towards minimising the impact of the supply chain disruptions on critical sectors to ensure limited interruptions.

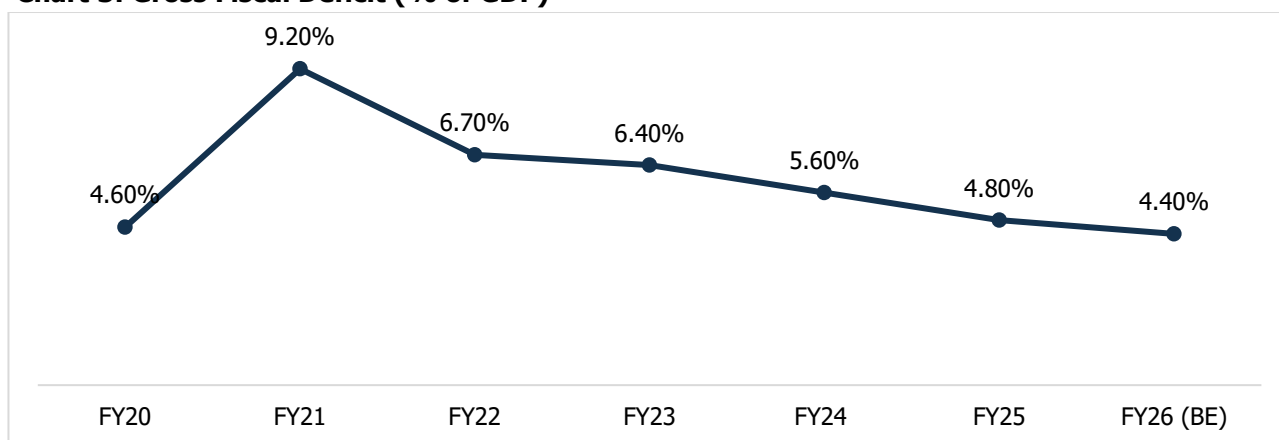
Table 2: RBI's GDP Growth Outlook (Y-o-Y in %)

FY27P (Complete Year)	Q1FY27P	Q2FY27P	Q3FY27P	Q4FY27P	Q1FY28P
6.70%	7.00%	6.40%	6.50%	6.80%	7.30%

Source: RBI; Note: P-Projected

1.2.2 Fiscal Deficit (% of GDP)

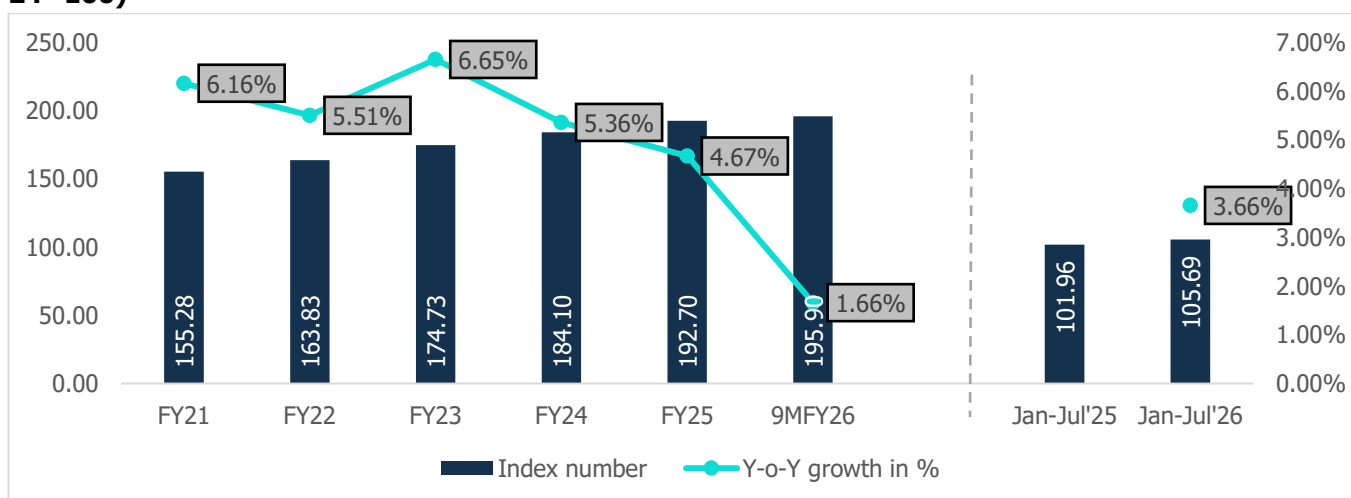
In FY21, India's fiscal deficit was 9.20% due to the impact of the COVID-19 pandemic; since then, it has seen a steady improvement and is expected to reduce to 4.8% of GDP in FY25 (RE), driven by strong economic growth and higher tax and non-tax revenues. The government aims for further fiscal consolidation, setting a target of 4.40% of GDP for FY26 to maintain fiscal prudence.

Chart 3: Gross Fiscal Deficit (% of GDP)


Source: RBI; Note: RE-Revised Estimates, BE-Budget Estimates

1.2.3 Consumer Price Index

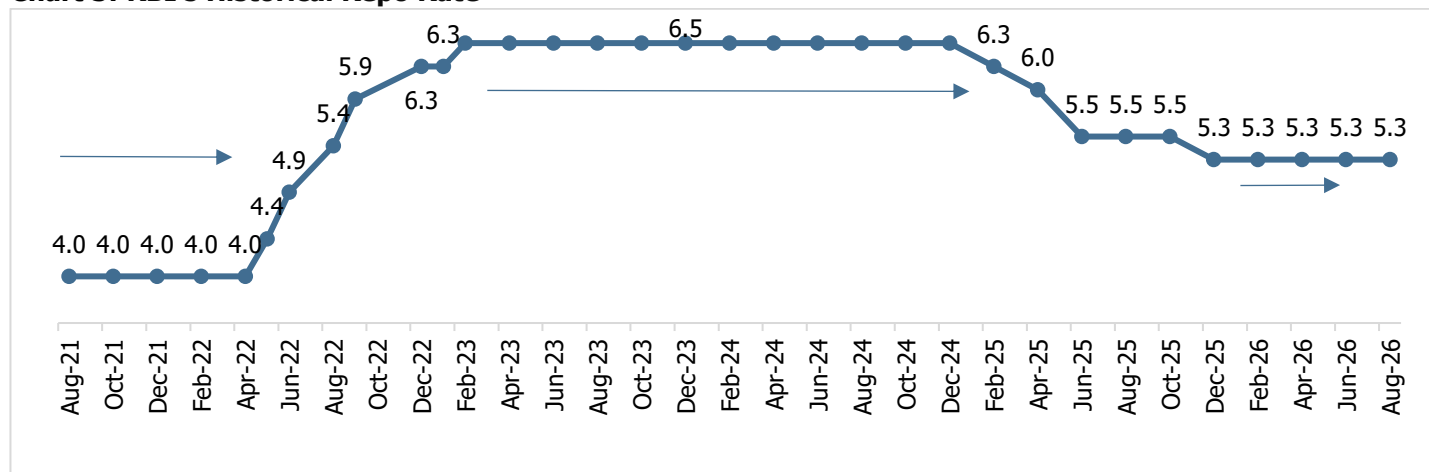
Between January and July 2026, inflation averaged around 3.66% across the Consumer Price Index. By July 2026, inflation increased to 4.45% on a Year-on-Year basis, compared with 4.38% in June 2026 over June 2025. Within this, the rural inflation rate stood at 4.84%, while the urban inflation rate was comparatively lower at 3.96%. This indicates an overall modest inflationary trend, with rural areas experiencing relatively higher price pressures than urban regions.

Chart 4: Retail Price Inflation in Terms of Index and Y-o-Y Growth in % (Base: 2011-12=100, 2023-24=100)


Source: MOSPI

The CPI is primarily factored in by the RBI while preparing its bi-monthly monetary policy. At the bi-monthly meeting held in August 2026, the RBI projected inflation at 5.00% for FY27, with inflation during Q2FY27 at 4.70%, Q3FY27 at 5.90%, Q4FY27 at 5.50%, and Q1FY28 at 5.30%.

Considering the current inflation situation, RBI has maintained the repo rate at 5.25% in the August 2026 meeting of the Monetary Policy Committee (MPC).

Chart 5: RBI's Historical Repo Rate

Source: RBI

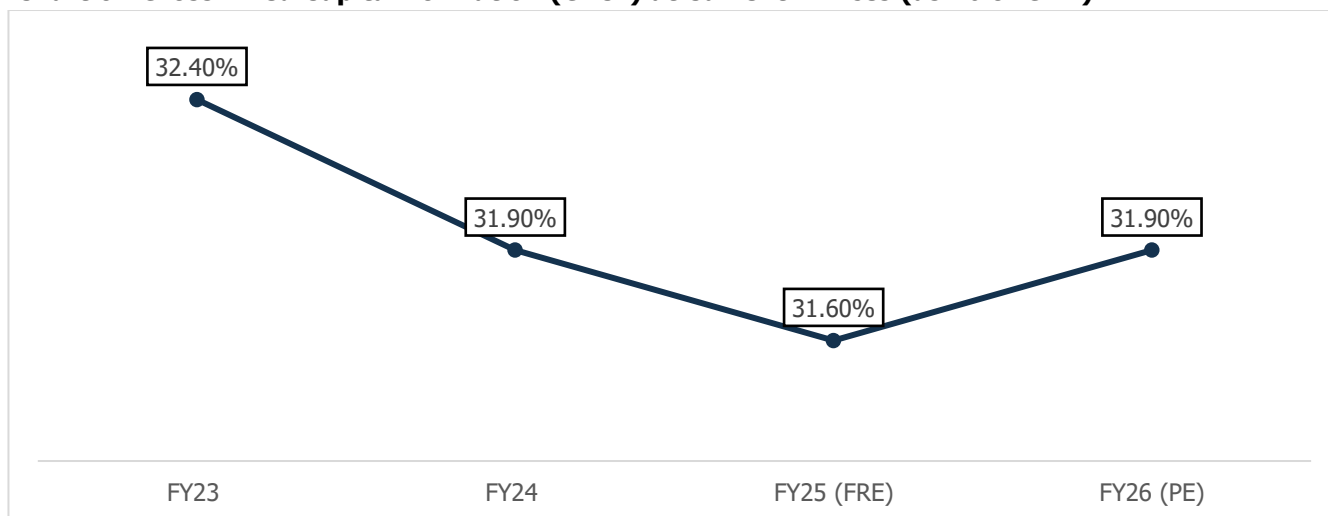
RBI maintained a 'neutral' monetary policy stance, even as the Monetary Policy Committee (MPC) noted an increase in geopolitical tensions. The RBI has adopted a non-inflationary growth strategy, supported by strong demand and supply fundamentals while maintaining macroeconomic stability. With volatile trade conditions in view, the domestic growth and inflation curve requires policies to be supportive.

The India Meteorological Department (IMD) expects a below-normal monsoon, with rains in most parts of the country, except in some areas of the northeast, southern peninsula, and northwest India, which is likely to affect inflation levels.

Despite elevated global crude oil prices, India initially kept retail petrol and diesel prices stable by reducing central excise duty and absorbing part of the cost through state-owned oil marketing companies. Subsequently, retail fuel prices were increased in a phased manner to partly pass on the higher input costs to consumers. The rise in energy prices and weather disturbances affecting food prices are upside risks to inflation.

1.2.4 Investment Trend in Infrastructure

Gross Fixed Capital Formation (GFCF) is a measure of net increase in physical assets. GFCF as a share of GDP eased during FY23–FY25 and was estimated to be broadly stable in FY26. This pattern is aligned with a period in which nominal GDP expanded, while investment growth remained positive, it did not outpace the overall nominal expansion. GFCF rose by 8.9% in FY25 and 9.9% in FY26 in real terms, alongside continued growth in consumption, indicating that the movement in the ratio reflects relative GDP shares rather than a decline in investment activity.

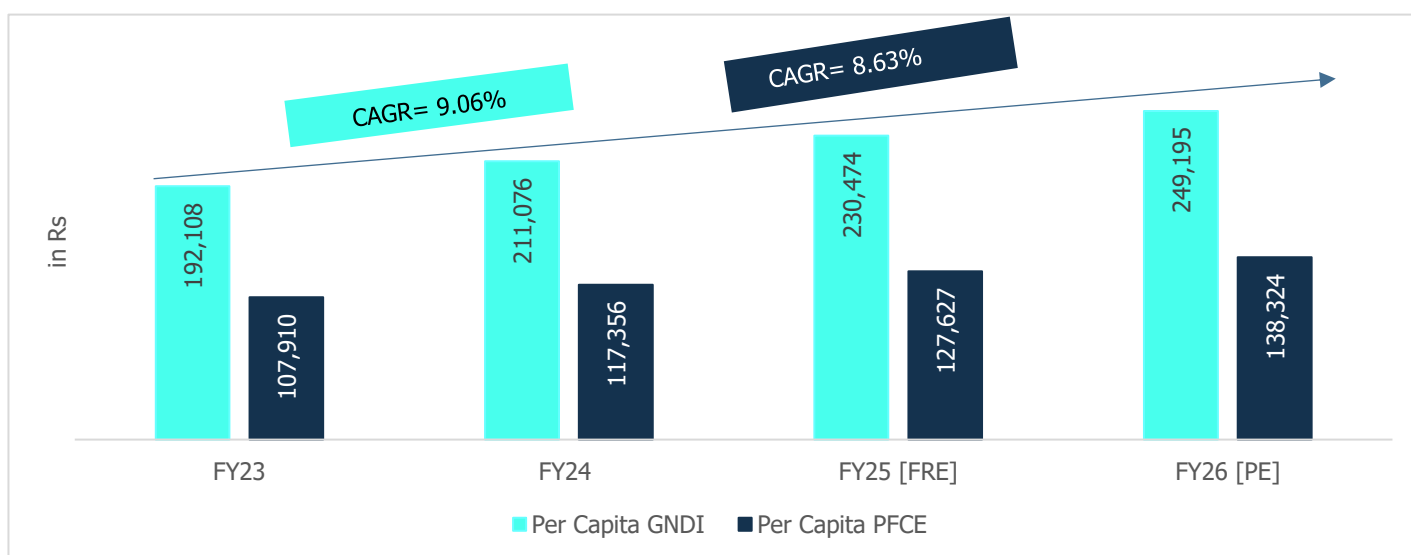
Chart 6: Gross Fixed Capital Formation (GFCF) at Current Prices (as % of GDP)


Source: MOSPI; Note: FRE- First Revised Estimates, PE- Provisional Estimates

1.2.5 Per Capita PFCE and GNDI

Gross National Disposable Income (GNDI) is a measure of the income available to the nation for final consumption and gross savings. Between the period FY23 and FY26, per capita GNDI at current prices registered a CAGR of 9.1%. More disposable income drives more consumption, thereby driving economic growth.

With an increase in disposable income, there has been a gradual change in the country's consumer spending behaviour. Per capita **Private Final Consumption Expenditure (PFCE)**, which is a measure of consumer spending, has also shown significant growth from FY23 to FY26 at a CAGR of 8.6%.

Chart 7: Trend of Per Capita GNDI and Per Capita PFCE (at Current Prices)


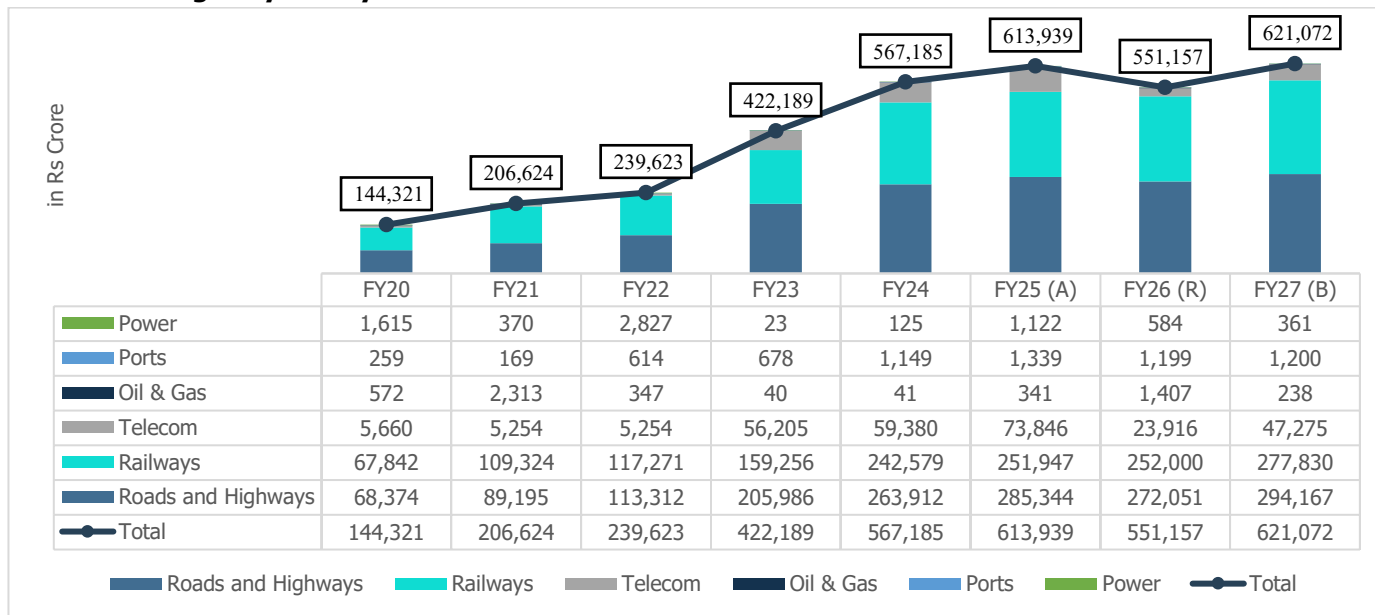
Source: MOSPI; Note: FRE – First Revised Estimates, PE- Provisional Estimates;

The trend for FY23-FY26 is based on the new series base year 2022-23

1.2.6 Budgetary Expenditure on Infrastructure

With the growing population, the long-term need for robust infrastructure is necessary for economic development. This generates the need for massive investments in the development and modernisation of infrastructure facilities, which will not only cater to the growing demand but will also ensure competitiveness in the global market.

Chart 8: Budgetary Outlay Towards Infrastructure



Source: Union Budget FY27 document; Note: A- Actual, R- Revised, B- Budgeted

Some of the key government infrastructure schemes include:

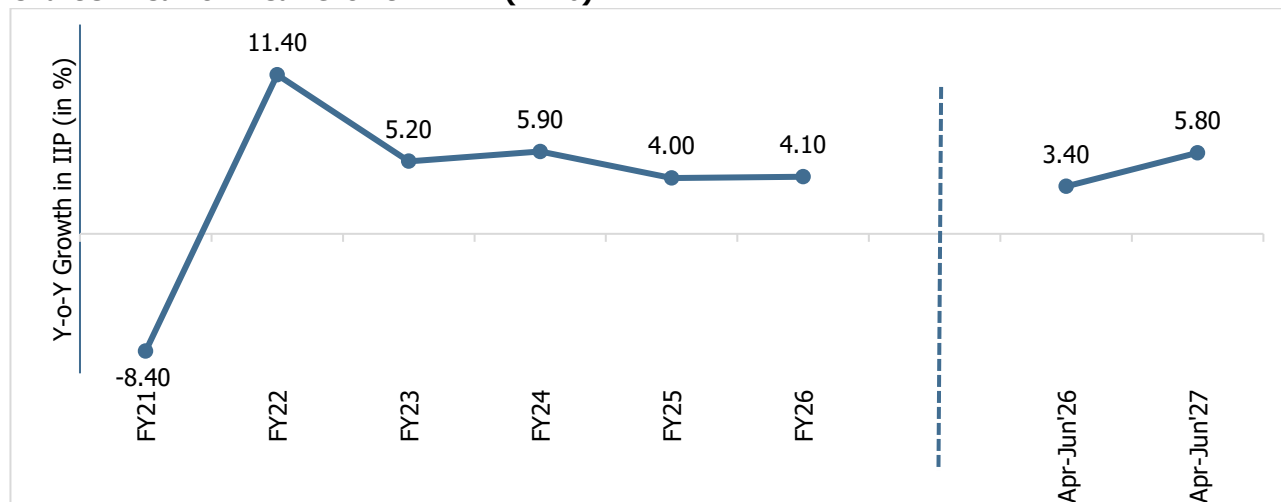
- **Infrastructure financing and asset monetisation (Budget 2026-27)**
 - **Infrastructure Risk Guarantee Fund** announced to strengthen private developer confidence by addressing construction-phase risk.
 - **Dedicated REITs for CPSE Assets** announced to accelerate recycling and monetisation of significant CPSE real estate assets, supporting capital redeployment into infrastructure.
 - **Public Capex Push** continues, with higher Central Government capital expenditure for FY 2026-27 to sustain infrastructure-led growth.
- **Urban Infrastructure and City Development (Budget 2026-27)**
 - **City Economic Regions (CER)** introduced to support competitive, region-based urban infrastructure and economic agglomerations (Tier II and Tier III focus), with multi-year funding support.
 - **Urban Rejuvenation Mission (including AMRUT and Smart Cities)** continues as the principal umbrella for water supply, sewerage and urban infrastructure investments, with FY 2026-27 allocations provided in the Budget documents.

PMAY-Urban 2.0 remains the primary affordable housing programme for urban areas, with FY27 allocations provided in the Budget documents.

1.2.7 Industrial Growth

The Index of Industrial Production (IIP) in India grew by 5.80% Year-on-Year from April-June (FY27), showing steady but moderate industrial momentum, supported by 7.80% growth in the manufacturing sector and strong growth of 10.60% in the Electricity & Gas Supply sector.

Chart 9: Year-on-Year Growth in IIP (in %)



Source: MOSPI

1.2.8 Gross Value Added (GVA)

GVA is the measure of the value of goods and services produced in an economy. GVA gives a picture of the supply side, whereas GDP represents consumption. GVA in FY25 was powered by a broad-based rebound across sectors.

In FY26 (PE), real GVA growth of 7.9% is primarily led by manufacturing, Trade, Hotels, Transport, Communication & Services related to Broadcasting. Industry is estimated at 8.5%, supported by a pickup in manufacturing and construction (10.7% and 7.4%, respectively). The gap between GDP and GVA growth stood at 0.15 percentage points in FY26, with GDP growing at 7.75% and GVA at 7.90%.

Table 3: Sectoral Growth at Constant Prices (Y-o-Y % Growth)

At Constant Prices	FY24	FY25 (FRE)	FY26 (PE)
Agriculture, Forestry & Fishing	2.60	4.20	3.00
Industry	10.90	8.30	8.50
Mining & Quarrying	2.40	11.70	5.20
Manufacturing	12.70	9.30	10.70
Electricity, Gas, Water Supply & Other Utility Services	10.70	2.90	1.70
Construction	9.90	7.30	7.40
Services	7.00	7.90	9.30
Trade, Hotels, Transport, Communication & Broadcasting	10.10	6.60	11.00
Financial, Real Estate & Professional Services	5.50	10.00	10.40
Public Administration, Defence and Other Services	6.80	5.00	5.00
GVA at Constant Price	7.20	7.30	7.90

Source: MOSPI; Note: FRE- First Revised Estimates, PE – Provisional Estimates;

The trend for FY24-FY26 is based on new series base year 2022-23

1.2.9 Concluding Remarks

From a macroeconomic standpoint, India remains one of the most resilient large economies in a challenging global environment. The IMF forecasts GDP growth for India at 6.40% in CY26, far outpacing the estimated CY26 global average of 3.00%. This performance reflects a combination of strong domestic fundamentals, policy stability and a sustained focus on capital formation. While the global economy continues to face uncertainty from geopolitical conflicts, commodity price volatility and rising public debt, India's diversified growth drivers, stable policy framework and expanding export ecosystem position it well to navigate these headwinds.

The key sectors with potential exposure to changes in US tariff policy include engineering goods, electronics, gems and jewellery, pharmaceuticals, textiles and automobiles/auto components, given their material export linkages to the US market.

As of August 2026, the US-India trade relationship faces renewed uncertainty. The US Senate has passed the Graham Sanctioning Russia and Iran Act of 2026, which could allow the US President to impose tariffs of up to 100% on goods from major buyers of Russian energy, including India. The bill is not itself a 100% tariff currently in force, but it creates a significant additional risk for Indian exporters if enacted and applied. In July 2026, the US had imposed a baseline tariff of 10% on roughly 70% of Indian manufactured exported goods (covering textiles, engineering items, gems, and machinery).

India continues to strengthen its position through diversification of trade partnerships and expansion of FTAs with the European Union, the United Kingdom, EFTA and other key economies. India further continues to strengthen its position through diversification of trade partnerships and expansion of FTAs. The India-UK Free Trade Agreement officially came into effect on 15th July 2026, providing improved market access and lower trade barriers between the two countries. The agreement is expected to support greater trade in goods and services and create new opportunities for Indian exporters. India is also continuing engagement with the EU, EFTA, GCC and other key markets to reduce dependence on any single trading partner.

The US-Iran conflict remains ongoing and uncertainties around the same remain. As of August 2026, negotiations have stalled, with the US stating that no formal talks are currently planned with Iran. The Iran conflict has led to an increase in prices of consumer products in India due to potentially higher fuel, freight and input costs, which can make everyday goods like FMCG items, plastics and packaged foods more expensive. Disruptions in shipping and fertiliser supplies are also pushing up food prices, affecting imports of agricultural inputs and leading to costlier food products for consumers. Overall, delays in trade routes and rising logistics costs are reducing availability and increasing prices of imported consumer goods, especially from Gulf-linked supply chains. Overall, this is leading to supply shortages, rising costs, and production slowdowns in India's chemical and pharma sectors, with the impact likely to worsen if the conflict continues. Prolonged geopolitical tensions or conflict in the region could lead to sustained increases in crude oil and LPG prices, which may translate into higher input costs across industries and contribute to inflationary pressures in the Indian economy.

Policy momentum remains strong. The 56th meeting of the GST Council marked a major structural reform by proposing a simplified two-rate system of 5% and 18%, replacing the earlier four-slab framework, along with a 40% demerit rate for luxury and sin goods. This rationalisation aims to reduce compliance burdens, enhance efficiency, and stimulate private consumption. Together with recent revisions in personal income tax rates, these measures are projected to release savings exceeding Rs 2.5 lakh crore into the economy, supporting demand and easing inflationary pressures.

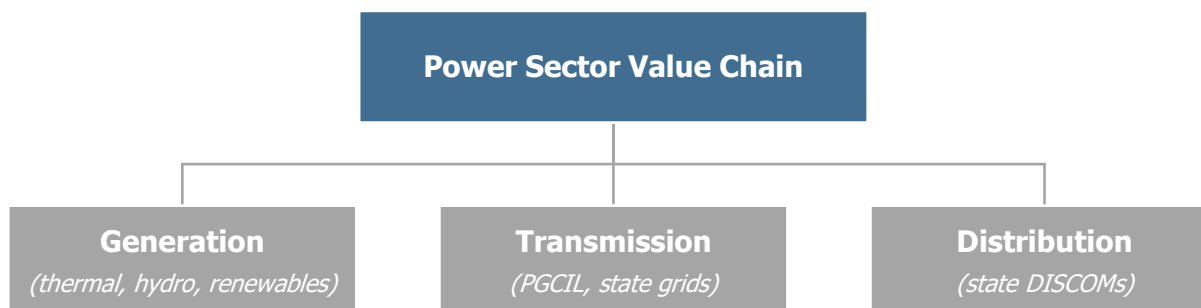
The Union Budget's allocation of Rs 12.20 lakh crore for capital expenditure in FY27 further reinforces the government's commitment to infrastructure-led growth. Public investment is expected to catalyse private sector activity, evidenced by rising project announcements and growing imports of capital goods. Improving rural demand, supported by healthy monsoon progress, favourable sowing conditions, and adequate reservoir levels, provides additional tailwinds for consumption and investment.

2 Indian Power Sector

2.1 Overview of the Indian Power Sector

India's power sector reforms have progressively transformed the electricity industry from a vertically integrated, state-controlled model to a more competitive and market-oriented framework. Key milestones include the opening of generation to private participation in the 1990s, the establishment of independent regulatory commissions through the Electricity Regulatory Commissions Act, 1998, and the enactment of the Electricity Act, 2003, which introduced competition, open access, and structural unbundling across the value chain.

The structure of the power industry is depicted in the figure below:



The power industry is divided into three core segments

- Generation - Production of electricity from fossil and non-fossil fuel-based sources like solar and wind.
- Transmission - Enables the bulk transfer of electricity from power plants to distribution substations through a high-voltage network.
- Distribution - Retail electricity distribution involves supply of electricity to consumers at lower voltage levels.

India's power and renewable energy sector is governed by the Ministry of Power (MoP) and the Ministry of New and Renewable Energy (MNRE), which serve as nodal ministries responsible for policy formulation and sectoral development. Regulatory oversight is provided by the Central Electricity Regulatory Commission (CERC) and State Electricity Regulatory Commissions (SERCs), which are independent statutory Electricity Regulatory Authorities that are responsible for tariff regulation, licensing, market development, consumer protection, and renewable energy promotion.

The Solar Energy Corporation of India (SECI), a Navratna PSU under MNRE, plays a key role in advancing renewable energy deployment. It facilitates the development of solar, wind and hybrid projects, and acts as an intermediary between renewable energy developers and distribution companies through Power Purchase Agreements (PPAs) and Power Sale Agreements (PSAs).

2.2 Operating and Regulatory Structure

India's power sector has undergone a gradual transformation from a state-controlled electricity system to a competitive and market-oriented framework. This evolution has been driven by successive policy reforms, institutional strengthening, and the introduction of independent regulatory mechanisms that support sector growth and private participation.

Pre 1956

- Electricity Supply Act 1948
- State Electricity Boards (SEB)

Until 1991

- Industrial Policy Resolution 1956
- Power Sector under state control

2003 Onwards

- Electricity Act 2003
- National Tariff Policy 2008

Ministry of (Conventional) Power (MoP)/ Ministry of New & Renewable Energy

Advisory	Regulatory	Developers	Statutory Bodies	Regulatory Stability
• Central Electricity Authority of India • Advisory arm of MoP on the matters of National Electricity Policy and formulating plans for the development of the sector.	• Central Electricity Regulatory Commission (CERC) • State Electricity Regulatory Commission (SERC)	• Private/Public Private Partnership • Develops Power generation plants • Recovery of Revenue as per PPA with bilateral users	• National Load Dispatch Centre (NLDC)/ Regional Load Dispatch Centre (RLDC) • State Load Dispatch Centre (SLDC)	• Stable and Established regulations with long history • No dependence on non-utility income • Proven contractual stability

Source: MoP, MNRE, CERC, and CEA

As shown in the figure above, India's power sector operates through a well-defined institutional framework comprising policymakers, regulators, system operators, and market participants.

Table 4: Regulatory Capabilities of Different Bodies

	Centre		State/Private		
Policy	Ministry of Power		State Government		
Planning	CEA - governs the generation, transmission, distribution, exchange and use of electricity				
Regulators	CERC; MNRE		SERC		
System Operators	National Load Dispatch Centre, Regional Load Dispatch Centre		State Load Dispatch Centre		
Generation	Central Generation Stations, MNRE, Department of Atomic Energy		State Gencos	Captive and Co-Generation Plants, Independent Power Producers	Private Licensees in Ahmedabad, Kolkata, Mumbai, Surat, Delhi, Noida, etc.
Transmission	Central Transmission Utility (PGCIL)	Transmission Licensee	State Transmiss ion Utility	Transmission Licensee	
Distribution	-		State Distribution Company		Private Discoms
Trading	Trading Licensee	Power Exchanges	Bilateral Markets		
Appeal	Appellate Tribunal (APTEL)				

Electricity generation, transmission and distribution are regulated and overseen by regulatory bodies at the federal and state levels. They are self-contained entities with responsibilities outlined in the Electricity Act. This governance structure

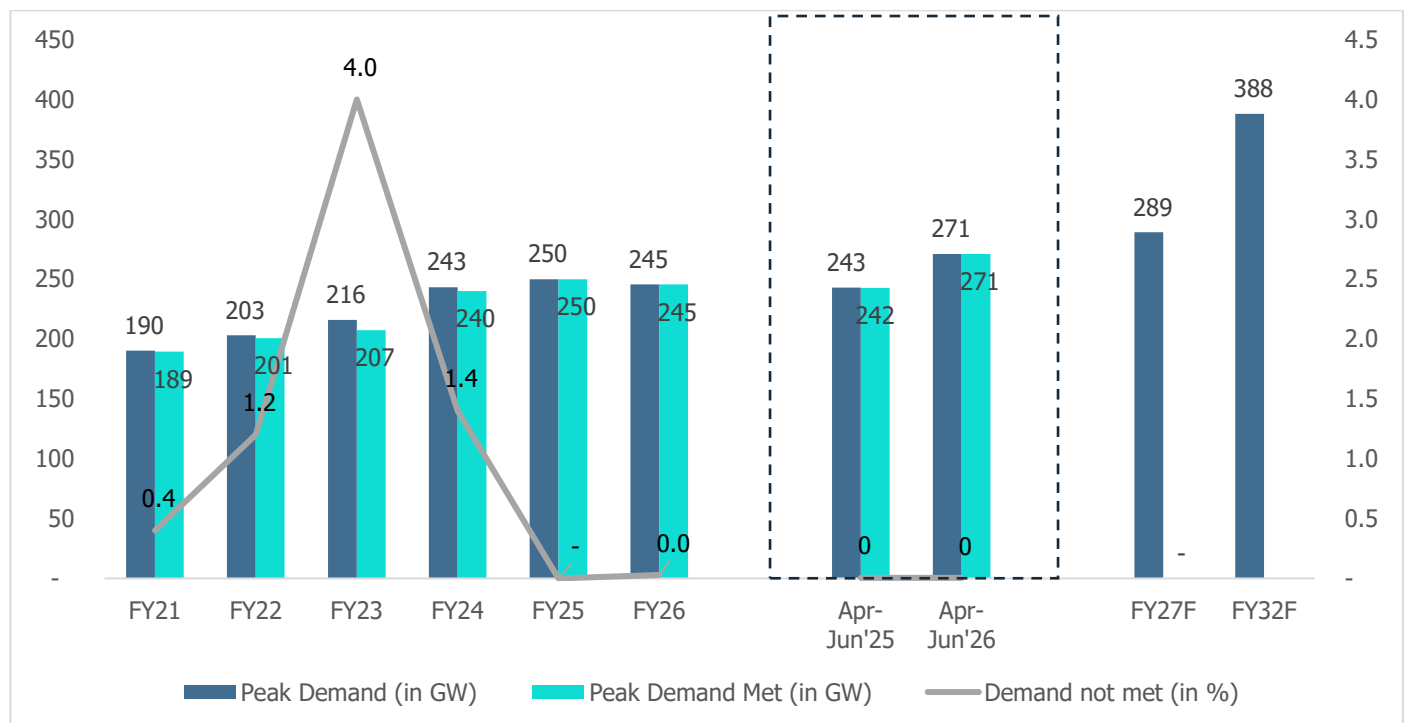
has enhanced regulatory certainty, improved investment attractiveness, and laid the foundation for large-scale renewable energy integration and grid modernisation.

2.3 Power Demand, Supply and Deficit in India

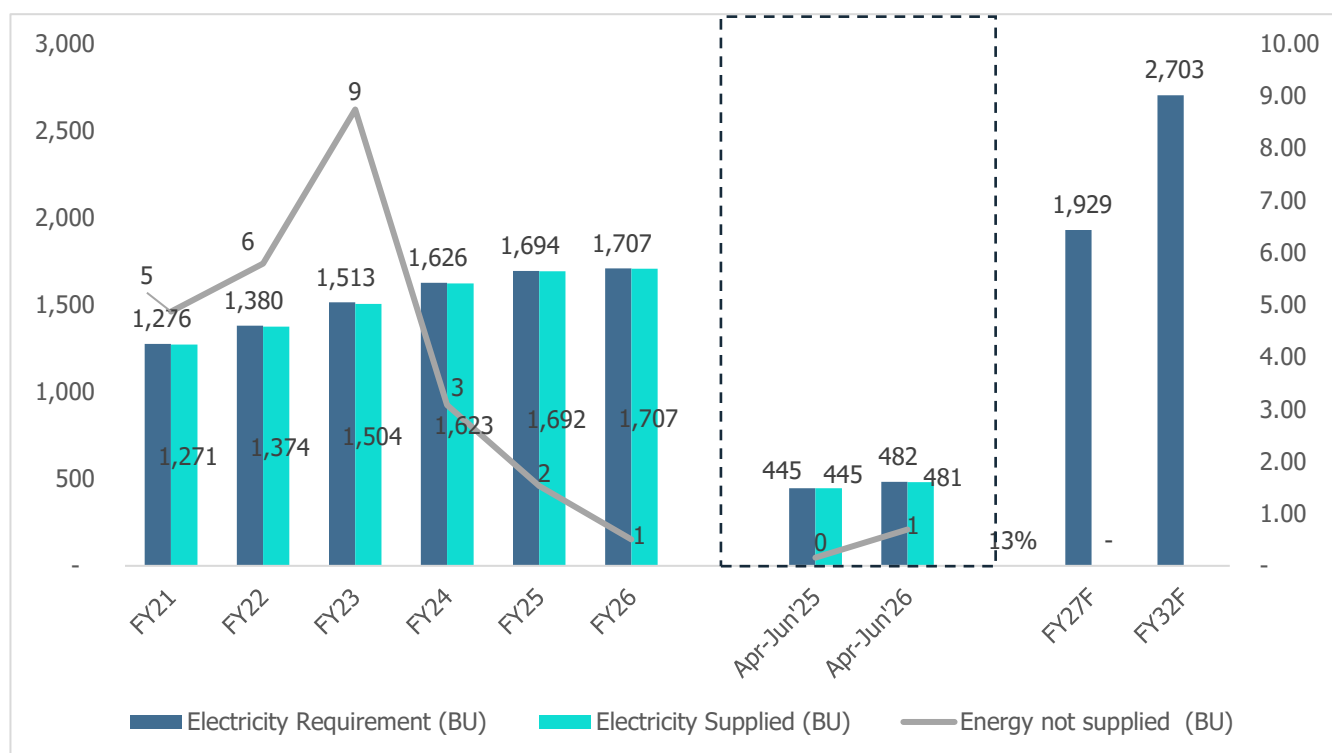
Power demand in the country has been on a rise in the past decade, with an exception during FY21 due to the COVID-19 pandemic. Peak energy demand grew at a CAGR of 5.2% from FY21 to FY26 and is expected to grow at a CAGR of 7.9% by FY32 reaching 388 GW.

Rising peak electricity demand is expected to structurally support solar capacity addition in India, as solar is one of the fastest deployable and cost-competitive sources for meeting incremental daytime demand from commercial, industrial, agricultural and cooling loads.

Chart 10: Power Demand, Supply and Deficit in India



Source: ICED, CEA, Long-term National Resource Adequacy Plan 2026-27 to 2035-36

Chart 11: Power Supply Position in India


Source: ICED, CEA, Long term National Resource Adequacy Plan 2026-27 to 2035-36

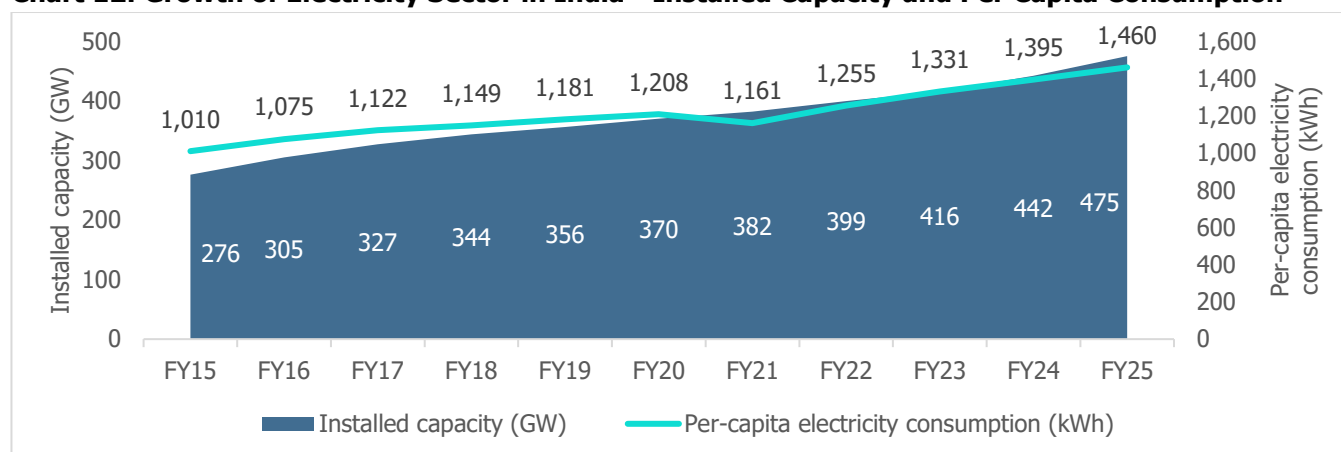
Note: 1 BU (Billion units)

India's power requirement recorded a steady CAGR of 6.0% during FY21-FY26. Over the same period, the gap between electricity requirement and supply narrowed sharply, declining from 5 BU in FY21 to nearly 0 BU in FY26, reflecting a significant improvement in supply adequacy and system reliability. Rapid capacity addition, especially in renewable energy (ref: Chart 13) and steady growth in thermal power improved overall power availability.

2.4 India's Per Capita Power Consumption

India's per capita electricity consumption has increased steadily over the past decade, alongside rising economic activity and greater electrification across end-use sectors. Per capita consumption grew from 1,010 kWh in FY15 to 1,460 kWh in FY25, while installed capacity increased from 276 GW to 475 GW during the same period.

The increase in per capita consumption has been driven by growing usage across residential, commercial and industrial segments, supported by continued urbanisation, industrialisation, and improving access to electricity. Going forward, continued electrification, rising income levels and adoption of electricity-intensive technologies are expected to support future growth in power demand.

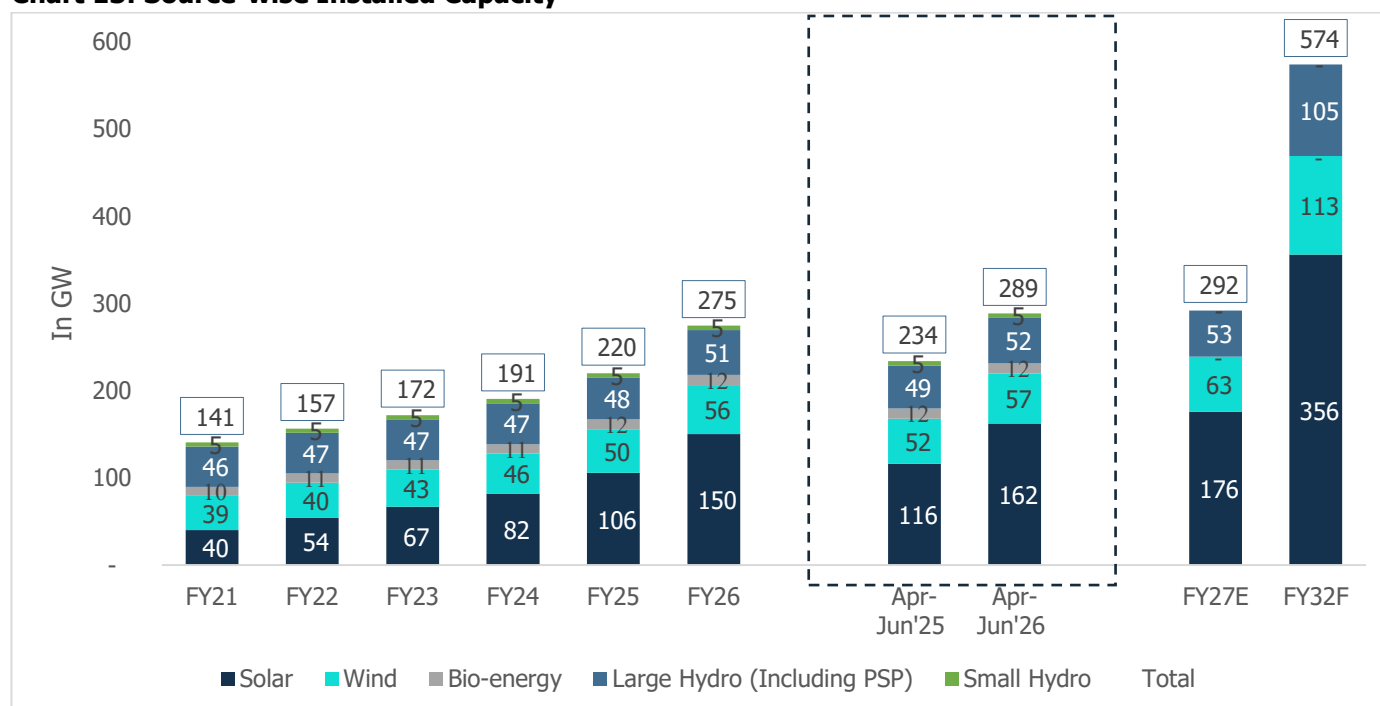
Chart 12: Growth of Electricity Sector in India - Installed Capacity and Per Capita Consumption


Source: CEA, CareEdge Research (*) Per Capita Consumption= Gross Electricity availability/ Mid-year Population

The sustained increase in per capita consumption highlights the structural growth in India's electricity demand and underscores the need for continued expansion of power infrastructure.

2.5 Source-wise Installed Capacity

India's installed renewable energy capacity increased from 141 GW in FY21 to 275 GW in FY26, registering a CAGR of 14.3%. Capacity addition accelerated in FY26 with an increase of 54.5 GW, reflecting 24.8% YoY growth, driven primarily by solar installations.

Chart 13: Source-wise Installed Capacity


Source: CEA, CareEdge Research; Note: Small Hydro denotes projects up to 25 MW, Hydro Power Plants denotes projects more than 25 MW; Bioenergy includes both Waste-to-energy and Bio-Power

Solar remains the largest contributor to renewable capacity additions, with installed capacity increasing at a CAGR of 30.2% from 40 GW in FY21 to 150 GW in FY26 and is projected to reach 356 GW by FY32F. The strong growth has been supported by large-scale project commissioning, policy support and a robust solar project pipeline, with 93 GW of solar projects accounting for approximately 62% of the total 150 GW of RE projects under development. Wind capacity increased from 39 GW in FY21 to 56 GW in FY26 and is expected to reach 113 GW by FY32P, supported by hybrid projects and transmission infrastructure expansion.

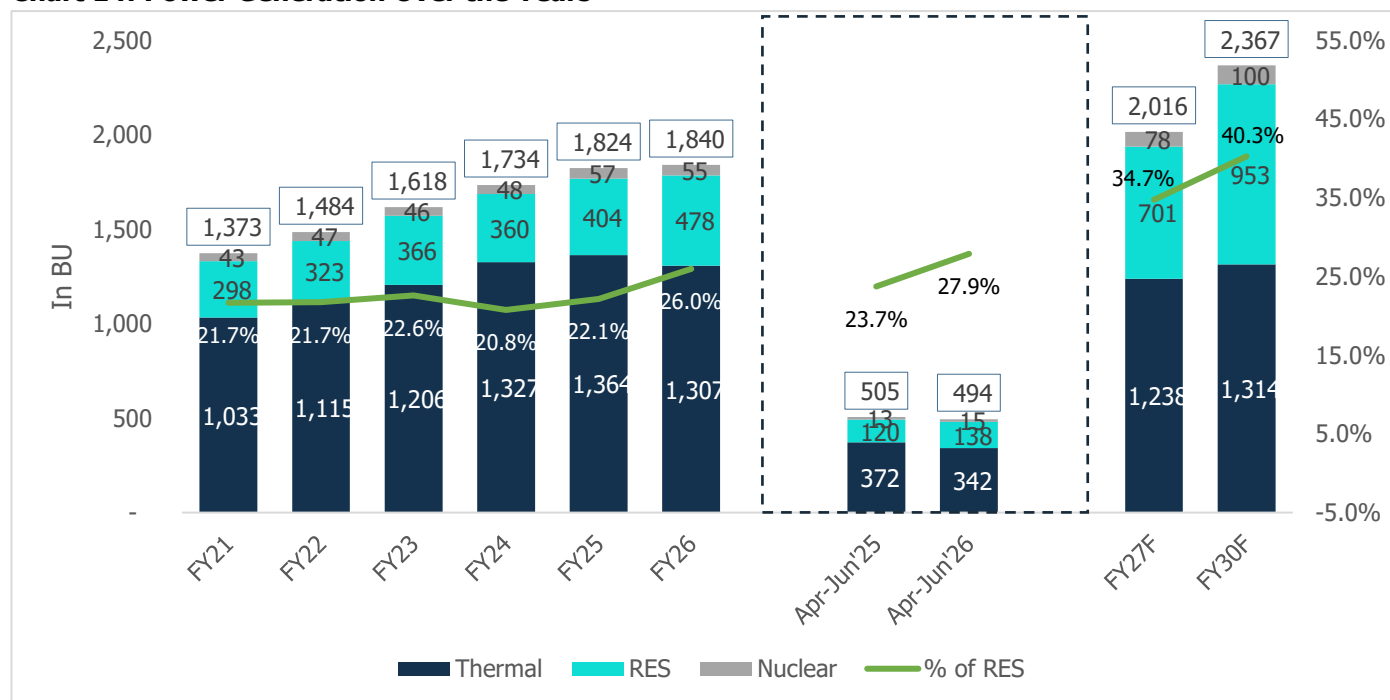
Hydropower capacity (including PSP and small hydro) increased from 51 GW in FY21 to 56 GW in FY26 and is projected to reach ~105 GW by FY32P, driven by significant pumped storage additions. Bioenergy capacity remained relatively stable at ~12 GW during the period. The future renewable capacity addition pipeline is expected to remain solar led, supported by growing storage deployment, grid expansion initiatives and India's long-term clean energy targets.

2.6 Electricity Generation in India

Indian power generation mix is diversified across thermal, renewable and nuclear sources. Total electricity generation increased from 1,373 BU in FY21 to 1,840 BU in FY26, registering a CAGR of 6%.

Despite the rapid expansion of renewable energy capacity, thermal power continues to dominate India's generation mix, accounting for around 71% of total generation in FY26. At the same time, the contribution of renewable energy sources (RES), including solar, wind and hydro, increased from 21.7% in FY21 to 26.0% in FY26, driven by sustained capacity additions and improving grid integration.

Chart 14: Power Generation Over the Years



Source: CEA; RES refers to power generated from Hydro, Wind, Solar, Small hydro and Bioenergy projects

Going forward, electricity generation is expected to remain thermal-led in the near term, while the share of renewables is projected to increase steadily, supported by capacity expansion, storage deployment and India's clean energy transition targets.

2.7 Projected Investments in Conventional and Renewable Sources of Energy

As per the National Electricity Plan (NEP), India's installed power capacity is projected to increase to 900 GW by FY32, requiring significant investments across the generation sector.

Table 5: Expected Investments in Generation (Rs Crore)

Particulars	FY27-FY32
A. Conventional	
Thermal	2,25,774
Nuclear	68,576
Sub-total	2,94,350
B. Renewables	
Hydro	1,39,335
PSP	1,03,390
Wind	3,84,006
Offshore Wind	27,401
SHP	2,057
Biomass	28,477
Solar	9,68,724
BESS	3,49,283
Sub-total	20,02,673
Total	22,97,023

Source: National Electricity Plan (NEP) March 2023, CareEdge Research

During FY27-FY32, total generation investments are estimated at Rs 22.9 lakh crore, with renewables accounting for ~87% of the planned investments. Solar is expected to attract the highest investment of around Rs 9.0 lakh crore, followed by wind of Rs 3.8 lakh crore and BESS around Rs 3.49 lakh crore. In comparison, investments in conventional power are projected at Rs 2.9 lakh crore.

The projected investment pipeline highlights India's increasing focus on renewable energy, storage and grid-balancing infrastructure to support future power demand growth and decarbonisation goals.

2.8 Sector-wise Electricity Consumption in India

The estimated electricity consumption increased from 9,48,521 GWh in FY15 to 16,22,969 GWh during FY25, with a CAGR of 6%. The commercial and industrial (C&I) segment accounted for the largest share of consumption at 40%, followed by domestic consumption at 25% and agricultural consumption at 16% which declined Y-o-Y by 6%.

Table 6: Year-wise Consumption of Electricity Sector-wise (in GWh)

Year	Industry	Commercial	Agriculture	Domestic	Traction & Railways	Others	Total Electricity Consumed
FY15	4,18,346	78,391	1,68,913	2,17,405	16,177	49,289	9,48,521
FY16	4,23,523	86,037	1,73,185	2,38,876	16,594	62,976	10,01,191

FY17	4,40,206	89,825	1,91,151	2,55,826	15,683	68,493	10,61,184
FY18	4,68,613	93,755	1,99,247	2,73,545	17,433	70,834	11,23,427
FY19	5,19,196	98,228	2,13,409	2,88,243	18,837	72,058	12,09,971
FY20	5,32,820	1,06,047	2,11,295	3,08,745	19,148	70,031	12,48,086
FY21	5,08,776	86,950	2,21,303	3,30,809	14,668	67,701	12,30,207
FY22	5,56,481	97,121	2,28,451	3,39,780	21,935	72,996	13,16,764
FY23	5,93,895	1,17,231	2,43,852	3,53,156	30,028	1,02,149	14,40,311
FY24	6,40,626	1,25,000	2,75,485	3,69,060	33,918	1,10,000	15,43,000
FY25	6,55,562	1,35,163	2,60,276	4,08,515	34,500	1,28,953	16,22,969
% share in 2024-25	40%	8%	16%	25%	2%	8%	100%
Growth rate of FY25 over FY24	2%	8%	-6%	11%	2%	17%	5%
CAGR FY15 to FY25	5%	6%	4%	7%	8%	10%	6%

Source: MOSPI, Energy Statistics 2025, CareEdge Research

The consumption mix shows the continued dominance of industrial demand, while rising domestic consumption reflects increasing electrification and changing consumption patterns across the economy.

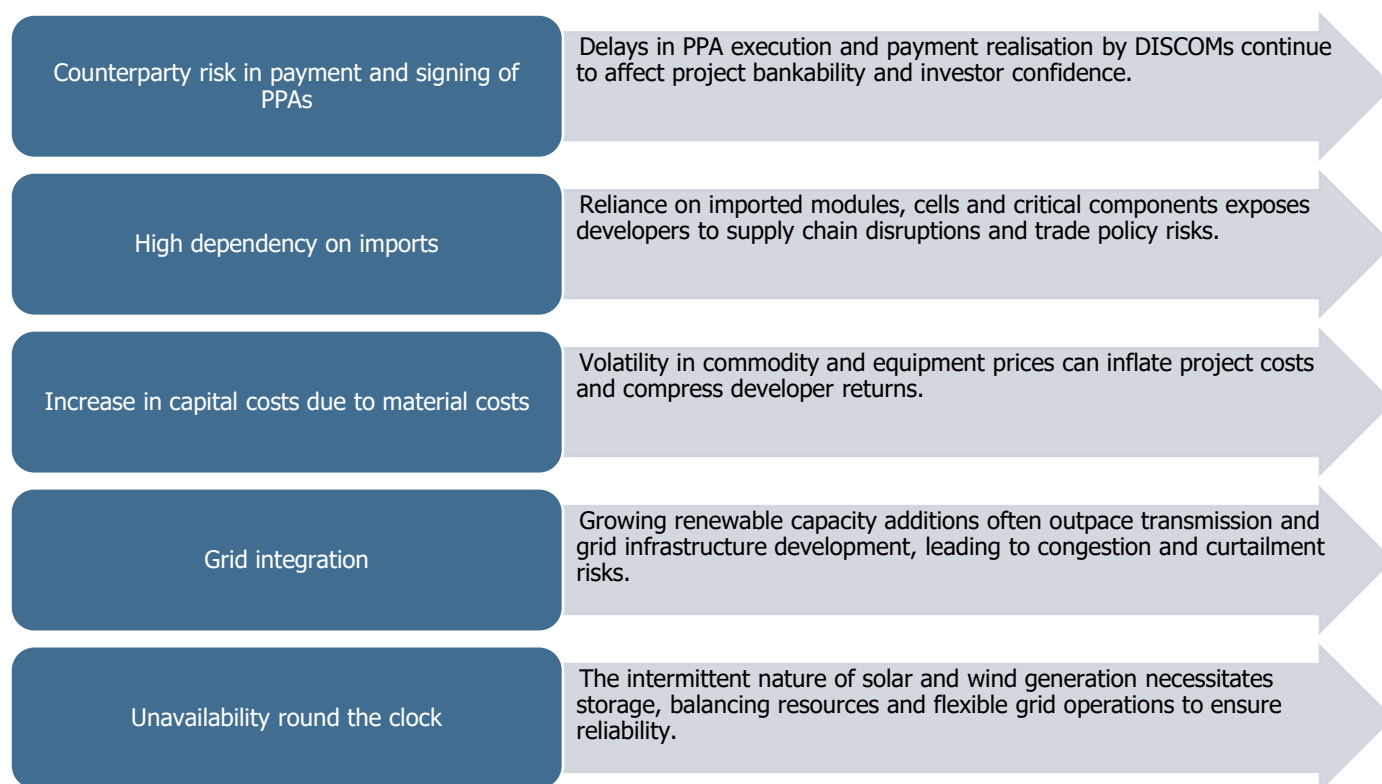
2.9 Drivers and Constraints in Growth of the Indian Power Sector

The consistent growth of the Indian power sector is supported by favourable government policies, renewable energy targets, declining technology costs, improving transmission infrastructure and rising power demand from the commercial and industrial segments.

- Growth Drivers**

Declining prices of modules and other system components	Falling component costs have improved project economics, making renewable power increasingly competitive with conventional generation.
Fiscal and regulatory incentives	Government incentives, policy support, and favourable regulations have accelerated capacity additions and attracted private investment.
Renewable purchase obligation	Mandatory renewable procurement targets have created a stable demand base for renewable energy across states and obligated entities.
Infrastructure support from government	Initiatives such as Green Energy Corridors, transmission expansion and grid modernisation have strengthened renewable energy evacuation and integration.
Traction in C&I segment	Growing demand for cost savings and sustainability commitments has increased renewable energy adoption among commercial and industrial consumers.
Green-Term ahead market	The introduction of dedicated renewable energy trading platforms has enhanced market liquidity and enabled flexible power procurement.
Low cost, construction and operation risk	Renewable projects generally have shorter gestation periods, lower operating costs and limited fuel price exposure compared to conventional power plants.
Waiver of ISTS charges	Transmission charge waivers have improved project viability by reducing delivered power costs, particularly for interstate renewable energy projects.
Fewer environmental concerns unlike thermal power	Renewable energy projects face lower emissions-related risks and are better aligned with evolving environmental regulations.
Advancement of module technology	Improvements in module efficiency and performance have increased energy yields and lowered the levelised cost of generation.

- Constraints**



Despite structural challenges, policies support by the Government, improving economics and rising demand are expected to sustain growth in India's power sector. Addressing grid readiness, supply-chain dependencies and offtake risks will be critical to accelerating renewable energy deployment and achieving long-term decarbonisation targets.

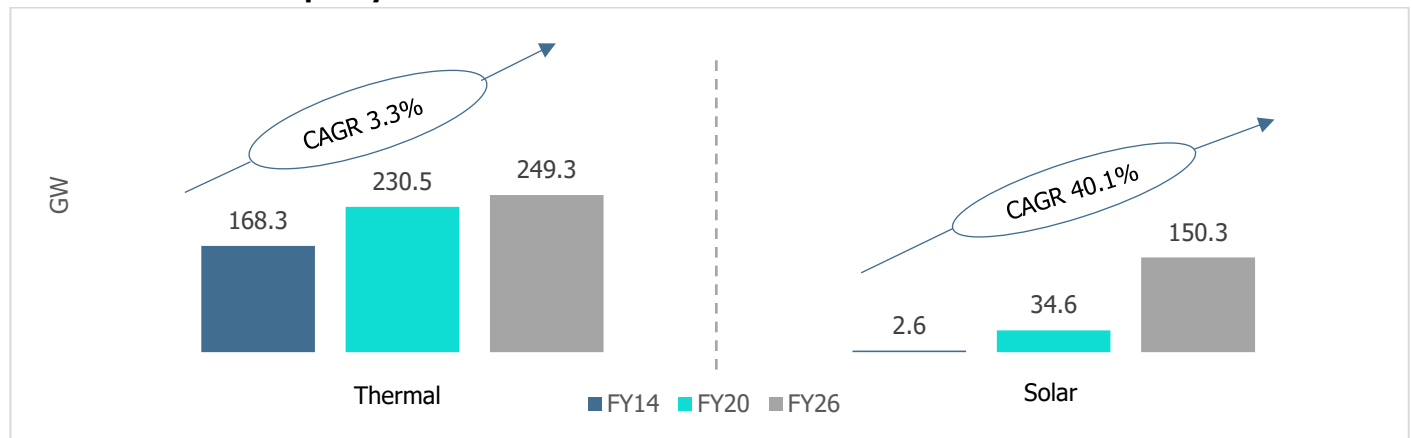
3 Indian Solar Power Sector

Solar power has emerged as the key driver of India's renewable energy transition, with solar capacity having 54.7% of total renewable energy capacity in India supported by favourable policy interventions, competitive tariffs and large-scale capacity additions and ambitious renewable energy targets, the sector is expected to remain at the forefront of capacity expansion over the medium term.

3.1 Evolution and Rise of Solar Power in India

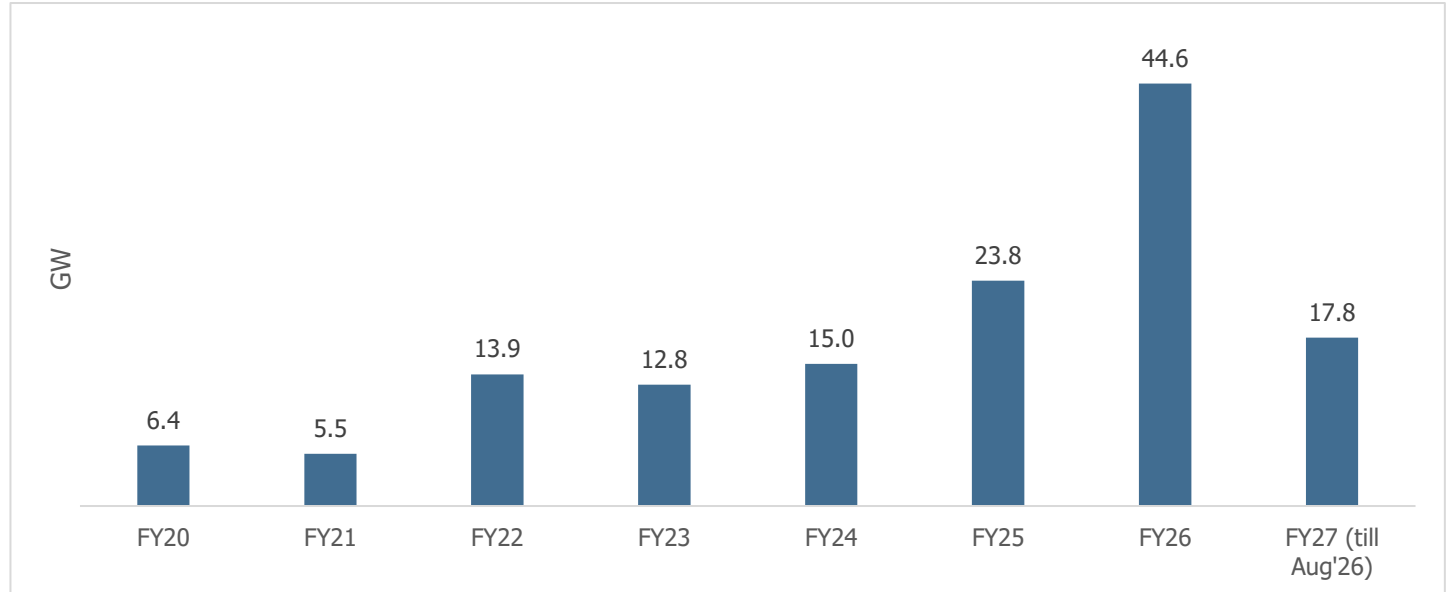
India's solar power sector has witnessed rapid growth with installed solar capacity increasing from 2.6 GW in FY14 to 150.3 GW in FY26, registering a CAGR of 40.1%, significantly outpacing thermal capacity growth. In comparison, thermal capacity increased from 168.3 GW to 249.3 GW during the same period, with growth moderating in recent years. The growth is driven by policy support under the National Solar Mission, competitive bidding mechanisms and significant cost reductions in solar technology. Solar tariffs have declined from around Rs 17/kWh in the early years to approximately Rs 2.55/kWh, enhancing the competitiveness of solar power.

Chart 15: Installed Capacity of Solar vs Thermal



Source: CEA, CareEdge Research

Note: Thermal is excluding nuclear power

Chart 16: Trend in Yearly Solar Capacity

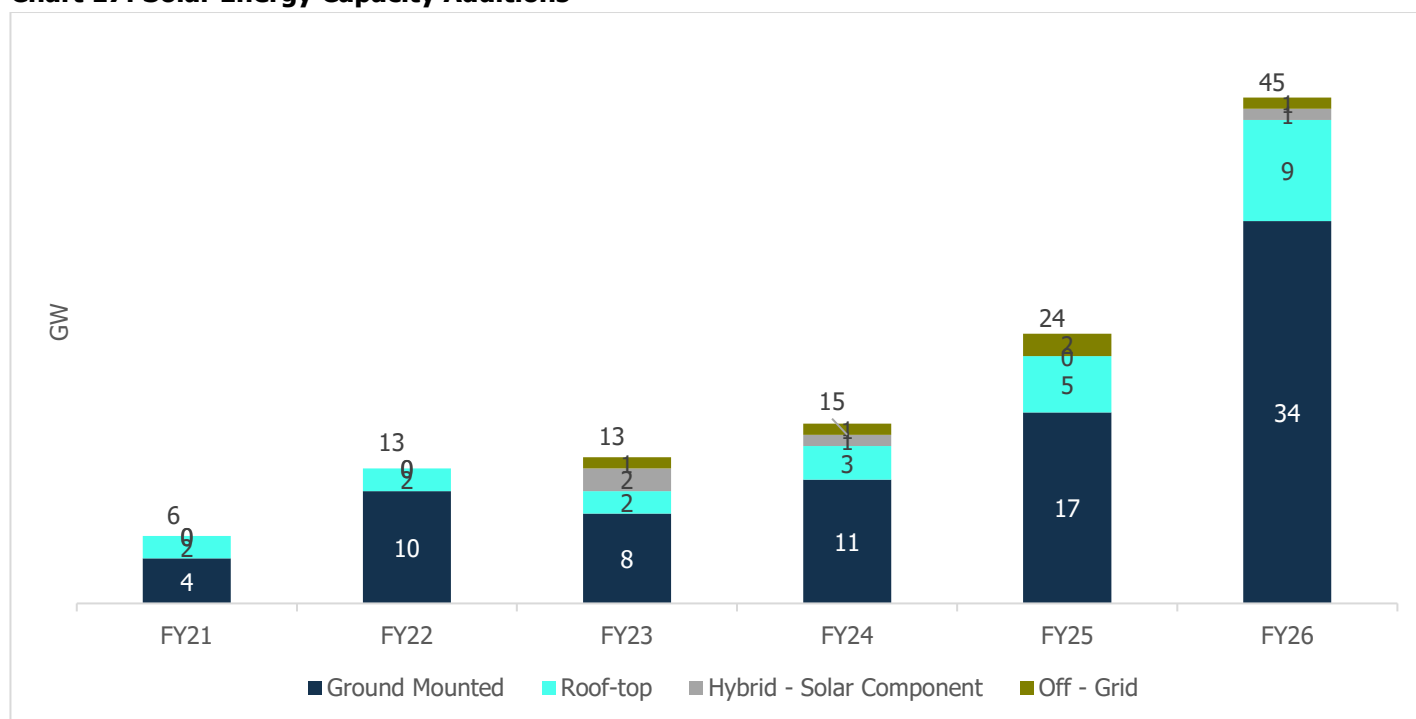
Source: Central Electricity Authority Generation Adequacy Plan 2035-36, MNRE, CareEdge Research

Solar capacity additions have accelerated considerably, rising from 6.4 GW in FY20 to a record 44.6 GW in FY26. The strong pace of installations is expected to continue, with annual additions projected at 31-40 GW during FY27-FY30F, supported by, improving grid infrastructure and India's renewable energy targets.

The sector has transitioned from policy-led adoption to scale-driven growth, positioning solar energy as a key contributor to India's future power capacity additions.

3.2 Review of Overall Grid-Connected Solar Energy Capacity Additions

A grid-connected solar system is a photovoltaic setup connected directly to utility power grid allowing users to generate and consume solar energy without using battery storage. Grid-connected solar capacity in India increased from 36 GW in FY19 to 144.5 GW in FY26, accounting for 96.2% of the country's total installed solar capacity. Solar capacity additions accelerated significantly in FY26, with around 45 GW added during the year, driven by policy support, improving project execution and growing demand from utility and C&I consumers.

Chart 17: Solar Energy Capacity Additions

Source: MNRE, CareEdge Research

Ground-mounted projects remained the dominant segment, contributing ~76% of total additions in FY26, followed by rooftop solar with a share of ~20%. The sharp increase in installations was supported by large-scale project commissioning, declining technology costs and a strong execution pipeline.

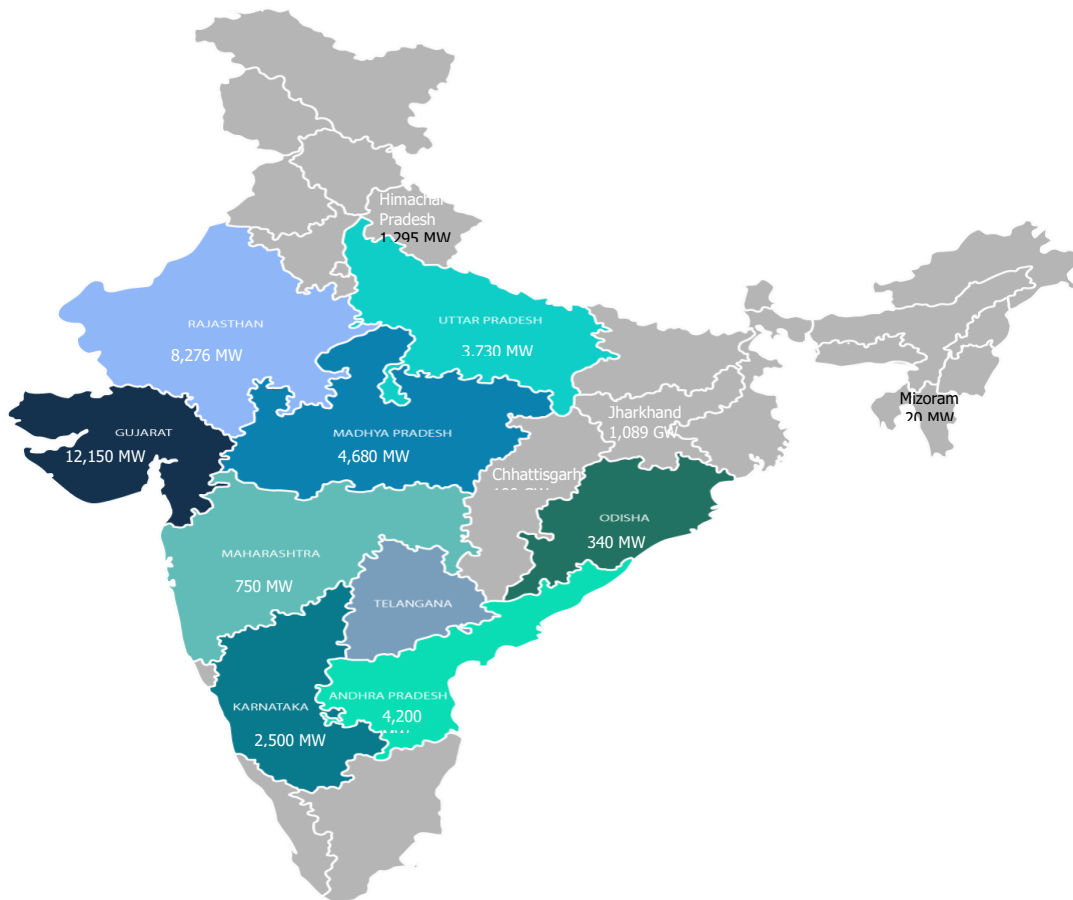
3.3 Review of Policies Driving Solar Capacity Additions

India's solar sector growth has been underpinned by policy support aimed at achieving the country's renewable energy and decarbonisation targets. Under its Nationally Determined Contributions (NDCs), India targets 500 GW of non-fossil fuel capacity by 2030 and net-zero emissions by 2070, with solar expected to play a central role in this transition.

Government Support Schemes:

• Solar Parks:

The Government of India is implementing 'Development of Solar Parks and Ultra Mega Power Projects' in the country. Under this scheme, 55 Solar Parks with aggregate capacity of 40 GW across 13 states have been sanctioned.

Chart 18: States with Solar Park Facilities in India (Feb 2024)


As per the FY25 annual report, 18 solar projects with a total capacity of 10.8 GW have been fully developed and 6 solar parks of 4.8 GW are partially developed.

• Rooftop Solar (RTS) Programme:

The Ministry of New and Renewable Energy (MNRE) launched the Rooftop Solar Programme Phase I in December 2015 in which incentives and subsidies were provided for residential, institutional and social sectors. Phase II was launched in February 2019 with the objective of achieving 40 GW of rooftop solar (RTS). The programme aims to install 4,000 MW of RTS capacity in the residential sector by providing Central Financial Assistance (CFA).

For general category states, the CFA is Rs 14,588/kW for the first 3 kW of RTS capacity and Rs 7,294/kW for RTS capacity beyond 3 kW and up to 10 kW. For special category states (including the North-eastern states, Sikkim, Uttarakhand, Himachal Pradesh, the UT of Jammu & Kashmir, Ladakh, Lakshadweep, and the Andaman & Nicobar Islands), the admissible CFA is Rs 17,662/kW for the first 3 kW of RTS capacity and Rs 8,831/kW for RTS capacity beyond 3 kW and up to 10 kW.

Resident Welfare Associations/Group Housing Societies (RWA/GHS) are also eligible for CFA for RTS installation in common facilities, up to a maximum of 500 kW capacity. The CFA for RWA/GHS is Rs 7,294/kW in general category states and Rs 8,831/kW in special category states.

• **Solar Cities:**

Under this scheme, at least one city in every Indian state is being developed as a solar city, where the entire electricity demand will be met through renewable sources primarily solar. All households will have rooftop solar systems, along with solar streetlights and waste-to-energy plants. The program aims to empower urban local bodies to tackle energy challenges by offering a framework to create a master plan that assesses current energy use, forecasts future demand, and outlines action steps. Sanchi in Madhya Pradesh became the first city to be developed under this initiative.

• **International Solar Alliance:**

The International Solar Alliance (ISA) is a treaty-based inter-governmental organisation working to create a global market system to tap the benefits of solar power and create clean energy applications. The aim of ISA is to pave the way for future solar generation, storage and technologies for the member countries by mobilising over USD 1,000 billion by 2030. The achievement of ISA's objective will help the member countries fulfil the NDC commitments.

• **Greening of Islands:**

The government plans to convert the electricity systems in the islands of Andaman and Nicobar and Lakshadweep to green electricity, with RE sources meeting all energy demands. The Ministry grants a capital subsidy of 40% for projects under this plan.

• **Off-Grid Solar PV Applications Programme Phase III:**

The Off-grid and Decentralised Solar PV Application Program (Phase III), launched by MNRE on 7th August 2018, aims to provide solar-based solutions in areas with limited or no grid access. As one of the oldest programs, it supports applications like solar home lighting systems, streetlights, solar power plants, pumps, lanterns, and study lamps to improve energy access in remote and underserved regions.

The North-Eastern States' participation in Phase III of the Off-Grid Solar PV Applications Programme for Solar Street Lights, Solar Study Lamps, and Solar Power Packs was extended. The Scheme has sanctioned 0.174 million solar streetlights, 1.35 million solar study lamps, and 4 MW solar power parks, all of which are now being implemented by state nodal agencies at various levels.

• **Green Energy Corridor:**

The Green Energy Corridor scheme was launched in 2015 for setting up transmission and evacuation infrastructure to facilitate evacuation of electricity from renewable energy projects. The intra-state transmission system (ISTS) projects have been sanctioned to eight renewable energy states i.e., Tamil Nadu, Rajasthan, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Himachal Pradesh and Madhya Pradesh for evacuation of over 20,000 MW of renewable energy. As of December 2024, 9136 km of intra-state transmission lines have been constructed, and 21413 MVA intra-state substations have been charged under Phase-I of the Intra-State Transmission System (ISTS) and a grant of Rs 2,827.25 crore has been disbursed to the States.

• **Round-the-Clock-Power (RTC) for RE projects:**

The round-the-clock power mechanism is a bundling of power that has been bought by the government to overcome the issues of intermittency and low-capacity utilisation of transmission infrastructure. Here, the RE power is bundled with other sources and/or storage. Further, the Government is focusing towards promoting increased adoption of renewable energy and use of green hydrogen as envisaged in the National Green Hydrogen Mission, the Ministry of New

and Renewable Energy is working on the modalities for promoting the use of green hydrogen in supporting round-the-clock electricity.

- **Competitive Bidding Guidelines for Solar Projects:**

The bidding guidelines have been issued for long-term procurement of power to promote competitive procurement from solar and to protect consumer interests. The guidelines for tariff-based competitive bidding process for procurement of power from grid-connected solar PV power projects were issued vide resolution on 3rd August 2017.

- **Approved List of Models and Manufacturers (ALMM):**

The Ministry of New and Renewable Energy (MNRE) introduced a regulatory mechanism in 2019 to ensure that reliable, high-quality, tested and certified solar photovoltaic (PV) modules are used in solar projects. It was introduced to address concerns over poor-quality imports, promote domestic manufacturing under Make in India, and build a long-term, reliable domestic market of solar assets. This list includes approved models and manufacturers that meet specified technical and quality standards like BIS certification, and the projects using modules from the ALMM are eligible for government schemes or incentives. This initiative has improved reliability, boosted domestic manufacturing, enhanced transparency for developers, and supports India's energy security and self-reliance goals.

- **PLI Scheme:**

The government introduced the Production Linked Incentive (PLI) Scheme to promote local manufacturing in the country. Of the 14 sectors for which PLI has been approved, 'High Efficiency Solar PV Modules' has also been included, with MNRE as the designated ministry.

MNRE has appointed India Renewable Energy Development Agency Limited (IREDA) as the implementing agency for the PLI Scheme 'National Programme on High Efficiency Solar PV Modules' Tranche-1. The financial outlay for PLI for 'High Efficiency Solar PV Modules' Tranche-1 over five years is Rs 45 billion. Under Tranche-1 of the PLI scheme, a total integrated capacity of 8,737 MW was allocated. The overall financial outlay for the PLI Scheme for High Efficiency Solar PV Modules, including both tranches, stands at Rs 240 billion.

The government has further allocated a total capacity of 39,600 MW of domestic Solar PV module manufacturing across 11 companies as beneficiaries are under the PLI Scheme for High Efficiency Solar PV Modules (Tranche-II), with a total outlay of Rs 1495 billion. Together with Tranche-I, Letters of Award have been issued for setting up 48,337 MW of fully/partially integrated solar PV module manufacturing capacity under the scheme.

Tranche-II is expected to bring in an investment of Rs 930 billion. The PLI scheme is expected to add 48 GW of domestic Solar Module manufacturing capacity in the next 3 years as per MNRE's 2025 annual report, 48,337 MW fully/ partially integrated solar PV manufacturing capacities have already been awarded. Apart from this, the government is projected to focus on fostering a conducive environment to increase domestic production and improving the local supply chain.

- **BCD:**

Effective April 1, 2022, Basic Customs Duty (BCD) was introduced. In the 2025 budget, the finance minister reduced the BCD on imported solar PV cells from 25% to 20%, and on solar PV modules from 40% to 20%. This move aims to accelerate solar PV installations and support the achievement of renewable energy targets

- **National Infrastructure Pipeline:**

Under NIP, the Government of India has envisaged Vision 2025 targets like 24*7 clean and low-cost power available to all households, industry, commercial businesses, and agriculture. The installed capacity is also targeted to increase to

619 GW from the current 356 GW which consists of Thermal: 50%, Renewable: 39%, Hydro: 9%, Nuclear: 2%. The renewable energy share consumption is also set to increase to 19% from current 9%.

Table 7: Installed Capacity and Capex Target for FY25

Category	Installed Capacity Target by Dec 25 (GW)	Installed Capacity Achieved by Mar 25 (GW)	Capex Over (FY20-FY25) (Rs Cr)
Solar Power	149.7	106	4,72,000
Wind Power	97	50	4,19,300
Small Hydro Power	7	5	23,500
Bio Power	12	11	14,700
Total	266	172	9,29,500

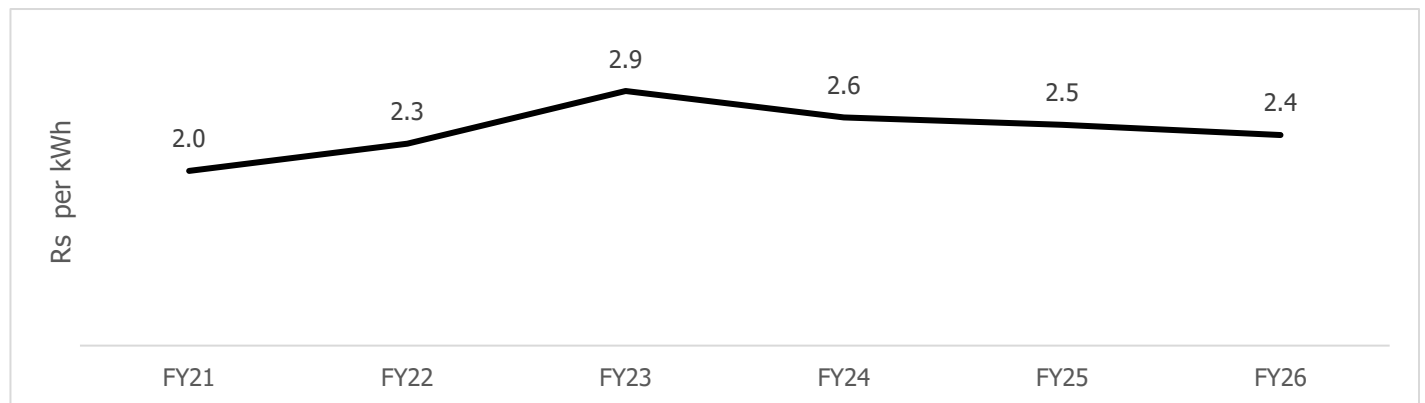
Source: NIP, CareEdge Research

The continued policy focus on capacity addition, transmission infrastructure and domestic manufacturing is expected to support sustained growth in India's solar sector over the medium term.

3.4 Trend of Solar Power Tariff

The increasing competitiveness of solar power, supported by technological advancements, economies of scale and declining module prices, has enabled solar tariffs to achieve grid parity in India. Solar tariffs moderated from Rs 2.9/kWh in FY23 to Rs 2.4/kWh in FY26, reflecting improving project economics and lower equipment costs.

Chart 19: Trend in Solar Tariff



Source: MNRE Annual Report, CareEdge Research

Tariffs declined from Rs 2.6/kWh in FY24 to Rs 2.4/kWh in FY26, driven by lower module prices, expanding domestic manufacturing capacity and improved access to financing. The adoption of advanced technologies and competitive bidding mechanisms has further enhanced the cost competitiveness of solar power. The sustained decline in solar tariffs has strengthened the viability of solar power and supported its increasing adoption across utility-scale and commercial & industrial segments.

3.5 Potential of Solar Power in India

India possesses one of the world's largest solar energy resources, supported by favourable solar irradiation levels and vast land availability across several states. Reflecting this potential, the National Institute of Solar Energy (NISE) has

estimated India's ground-mounted solar PV potential at 3,343 GW, significantly higher than the earlier estimate of 749 GW.

As per NISE's feasibility analysis, a total grounded-mounted solar PV potential (DC capacity) is pegged at **3,343.4 GW** across India.

Table 8: Top 10 States by Ground Mounted Solar PV Potential

States	Potential (GW)
Rajasthan	828.8
Maharashtra	486.7
Madhya Pradesh	319.0
Andhra Pradesh	299.3
Gujarat	243.2
Karnataka	223.3
Tamil Nadu	204.8
Telangana	140.5
Odisha	139.5
Chhattisgarh	126.5
Sub-total Top 10 States	3,011.4
Other states	331.9
Total	3,343.4

Source: NISE Solar PV Potential of India Report, September 2025, CareEdge Research

Solar potential is concentrated in western and southern India, with Rajasthan (829 GW), Maharashtra (487 GW), Madhya Pradesh (319 GW) and Andhra Pradesh (299 GW) emerging as the leading states. The top 10 states together account for over 3,000 GW, or nearly 90% of the country's estimated solar potential.

India's substantial solar resource base provides a strong foundation for achieving its renewable energy targets and supports the long-term expansion of solar power across the country.

Table 9: List of State-wise Under-construction Solar Projects (in MW) as of June 2026

Name of State	Solar projects under development	Total RE projects under development	% share of Solar Projects under development
Andhra Pradesh	2,798	11,415	25%
Assam	330	330	100%
Chhattisgarh	26	26	100%
Gujarat	22,118	37,322	59%
Himachal Pradesh	360	360	100%
Jharkhand	118	118	100%
Karnataka	3,964	16,003	25%
Kerala	50	175	29%
Madhya Pradesh	2,360	5,989	39%
Maharashtra	4,197	10,781	39%
Odisha	60	60	100%
Punjab	15	15	100%
Rajasthan	52,302	62,031	84%
Tamil Nadu	241	1,692	14%
Uttar Pradesh	3,620	3,620	100%

West Bengal	578	578	100%
Yet to be finalized	300	450	67%
Grand Total	93,436	150,966	62%

Source: CEA Quarterly Report on Under-construction Renewable Energy Projects June-2026; CareEdge Research

3.6 Assessment of Solar Power Parks in India

Solar Parks are large parts of land developed with all the necessary infrastructure and clearances for setting up solar projects. A solar park development project involves the planned development of a designated area for the establishment of multiple solar power projects, together with the common infrastructure and facilities required for their development and operation. Such infrastructure may include developed land, internal roads, power evacuation and transmission facilities, water supply and other common utilities and amenities, thereby enabling solar power developers to establish and operate their projects in a more efficient and coordinated manner.

Generally, the capacity of solar parks is 500 MW and above. However, due to a shortage of non-agricultural land, smaller parks that are up to 20 MW are also considered in states and union territories. Around 4 to 5 acres of land is required for setting up solar parks.

Schemes for Development of Solar Parks

In December 2014, the Government of India introduced the Scheme for the Development of Solar Parks and Ultra-Mega Solar Power Projects, initially aiming for a capacity of 20,000 MW. This target was later raised to 40,000 MW in March 2017, with the goal of establishing at least 50 solar parks. The scheme is set to continue until 31 March 2026. The Solar Energy Corporation of India (SECI) and the Indian Renewable Energy Development Agency (IREDA) are tasked with implementing the scheme and managing its funds on behalf of the government.

Under the schemes, central financial assistance (CFA) of up to Rs 25 lakhs per solar park is provided for preparation of detailed project report (DPR). Along with this, CFA of Rs 20 lakh per MW or 30% of the project cost, whichever is lower, is also provided on achieving the milestones prescribed in the scheme. The total grant approved under the scheme is Rs 8,100 crores.

Approved and Established Solar Parks

The government under its Development of Solar Parks and Ultra Mega Solar Power Projects scheme has targeted a cumulative installation of 40 GW of large-scale, grid-connected solar power plants. Under this initiative, 56 solar parks with an aggregate capacity of 42,107 MW have been approved across 12 states.

As of CEA June 2026, 23 solar parks, with an aggregate capacity of approximately 14,491 MW, have been fully developed, with around 14,066 MW of operational solar projects within these parks. Additionally, solar projects have been commissioned in several other solar parks which are still under various stages of development. Together, 21,312 MW of solar projects have already been commissioned across Solar Parks/UMREPPs in the country, while 9,065 MW is currently under construction and 11,155 MW is under the award/tendering process.

Out of the total envisaged capacity of 42,107 MW, 30,657 MW has been awarded, which includes 21,312 MW that has already been commissioned and 9,065 MW currently under construction. In FY25, a total Central Financial Assistance of around Rs 163.6 Crore has been released to various Park Developers/CTU/STU under the scheme.

State-wise list of the solar parks sanctioned under the scheme along with details of installed capacity and location.

Table 10: List of Approved Solar Parks (June 26)

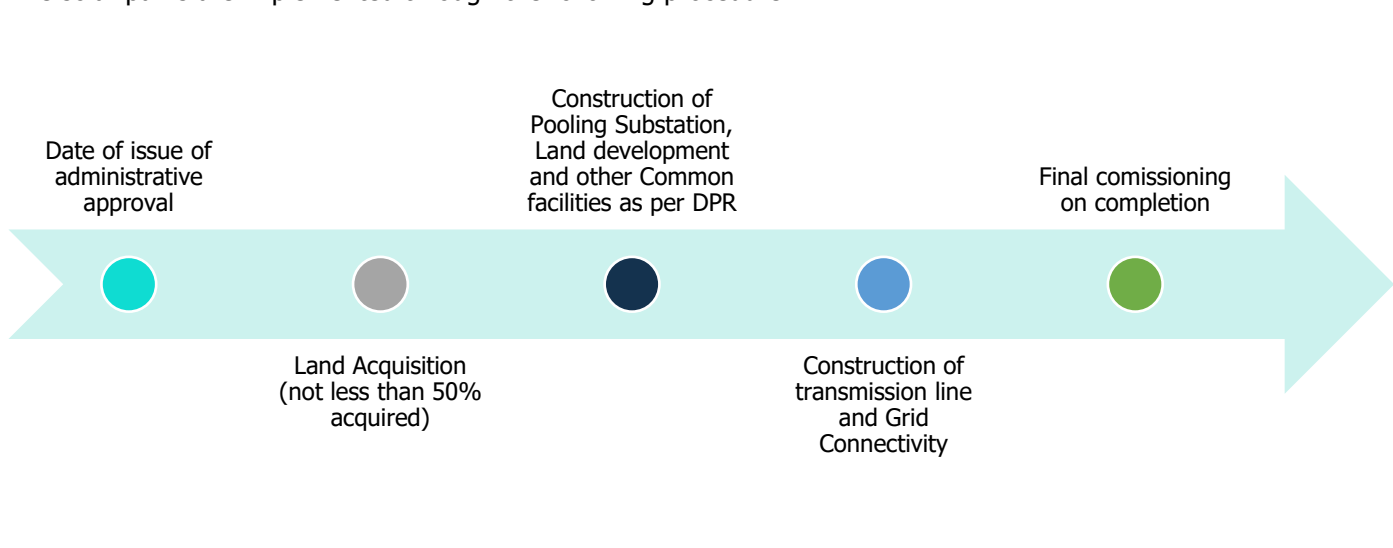
Sr. No.	State	Name of Park and Location	Capacity Sanctioned MW	Projects Installed MW
1	Andhra Pradesh	Ananthapuramu-I Solar Park, Ananthapuramu & Kadapa districts	1,500	1,400
2		Kurnool Solar Park, Kurnool district	1,000	1,000
3		Kadapa Solar Park, Kadapa district	1,000	1,000
4		Ananthapuramu-II Solar Park, Ananthapuramu district	500	400
5		Ramagiri Solar Park, Ananthapuramu district	300	-
6	Chhattisgarh	Rajnandgaon Solar Park, Rajnandgaon district	100	100
7	Gujarat	Radhnesada Solar Park, Banaskantha district	700	700
8		Radhanesada Solar Park Ph-II, Banaskantha district	700	-
9		Dholera Solar Park, Ahmedabad district	1,000	300
10		NTPC RE Park, Kutch district	4,750	2,560
11		GSECL RE Park, Kutch district	3,325	1,600
12		GIPCL RE Park Ph-I, Kutch district	600	600
13		GIPCL RE Park Ph-II, Kutch district	1,200	1,200
14		GIPCL RE Park Ph-III, Kutch district	575	-
15	Jharkhand	SECI Floating Solar Park, Getalsud dam, Ranchi district	100	-
16		Floating solar park at Konar dam reservoir	228	-
17		DVC Floating Solar Park Ph-II, Maithon dam, Dhanbad	234	-
18		DVC Floating Solar Park Ph-I, Tilaiya Dam (Jharkhand) & Panchet Dam (in Jharkhand & partly in West Bengal)	755	-
19	Karnataka	Pavagada Solar Park, Tumkur district	2,000	2,000
20	Kerala	Kasargod Solar Park, Kasaragod district	105	105
21		Floating Solar Park, Kollam district	50	-
22		Kasargod Solar Park Ph-II, Kasaragod district	100	-
23	Madhya Pradesh	Rewa Solar Park, Rewa district	750	750
24		Mandsaur Solar Park, Mandsaur district	250	250
25		Neemuch Solar Park, Neemuch district	500	330
26		Agar Solar Park, Agar district	550	550
27		Shajapur Solar Park, Shajapur district	450	450
28		Omkareswar Floating Solar Park, Khandwa	600	278
29		Barethi Solar Park, Chhatarpur district	630	-
30		Morena Solar Park, Morena district	600	-
31		Dhar Solar Park, Dhar district	200	-
32	Maharashtra	Sai Guru Solar Park, Dhule district	500	-
33		Dondaicha Solar Park, Dhule district	250	200
34		Patoda Solar Park, Beed district	250	-
35		Aurangabad Solar Park	150	-
36	Mizoram	Vankal Solar Park, Champai district	20	20

Sr. No.	State	Name of Park and Location	Capacity Sanctioned MW	Projects Installed MW
37	Odisha	Solar Park by NHPC, Ganjam district	40	-
38	Rajasthan	Bhadla-II Solar Park, Jodhpur district	680	680
39		Bhadla-III Solar Park, Jodhpur district	1,000	1,000
40		Bhadla-IV Solar Park, Jodhpur district	500	500
41		Phalodi-Pokaran Solar Park, Jodhpur & Jaisalmer district	750	450
42		Fatehgarh Phase-1B Solar Park, Jaisalmer district	1,500	1,234
43		Nokh Solar Park, Jaisalmer district	925	925
44		Pugal Solar Park Ph-I, Bikaner district	1,000	-
45		Pugal Solar Park Ph-II, Bikaner district	1,000	-
46		Pugal Solar Park Phase-III	450	-
47		RVUN Solar Park, Bikaner district	2,000	-
48		Bodana Solar Park, Jaisalmer district	2,000	-
49	Uttar Pradesh	Solar Park in UP (Jalaun, Allahabad, Mirzapur & Kanpur Dehat districts)	365	365
50		Jalaun Solar Park, Jalaun district	1,200	-
51		Kalpi Solar Park, Jalaun district	65	65
52		Lalitpur Solar Park, Lalitpur district	600	-
53		Jhansi Solar Park, Jhansi district	600	-
54		Chitrakoot Solar Park, Chitrakoot district	800	-
55		Kanpur Dehat Park, Kanpur Dehat district	75	-
56		Kanpur Nagar Park, Kanpur Nagar district	35	-
Total			42,107	21,312

Source: CEA Quarterly status report on development of Solar Parks & UMREPPs June26, CareEdge Research

Model of Solar Park Operations:

The solar parks are implemented through the following procedure-



Solar Parks are developed in collaboration with the state governments and their agencies, Central Public Sector Undertakings (CPSUs) and private entrepreneurs. The implementing agency is termed as Solar Power Park Developer (SPPD) and is selected from any of the eight modes as per the scheme. The various modes for selection of SPPD and eligibility of CFA under the modes are given below:

Table 11: Different Modes of Solar Park Development

Mode	Brief Description	CFA Pattern
Mode-1	The State-designated nodal agency or a State Government Public Sector Undertaking (PSU) or a Special Purpose Vehicle (SPV) of the State Government.	Rs 12 lakh/MW or 30% of the project cost, whichever is lower, to SPPD for development of internal infrastructure, And Rs 8 lakh/MW or 30% of the project cost, whichever is lower, to the CTU/STU for creation of external transmission infrastructure
Mode-2	A Joint Venture Company of State-designated nodal, agency and Solar Energy Corporation of India Ltd (SECI).	
Mode-3	The State designates SECI as the nodal agency	
Mode-4	(i) Private entrepreneurs with/without equity participation from the State Government (ii) Selection of private entrepreneurs based on open, transparent bidding process.	
Mode-5	Central Public Sector Undertakings (CPSUs) like SECI, NTPC etc.	No CFA
Mode-6	Private entrepreneurs without any Central Financial Assistance from MNRE	
Mode-7	SECI will act as the Solar Power Park Developer (SPPD) for Renewable Energy Parks	Rs 20 lakh/MW or 30% of the project cost, whichever is lower or external transmission infrastructure only
Mode-8	CPSU/ state PSU/ Government organisation/ their subsidiaries or the JV of above entities can act as SPPD.	Rs 20 lakh/MW or 30% of the project cost, whichever is lower, for internal infrastructure

Source: MNRE Annual Report 2022-23, CareEdge Research

The bidding usually takes place through a reverse bidding auction process under the operation model. As per MNRE, the state in which the solar park is developed must buy at least 20% of the power produced in the park through its Discoms.

Outlook

Solar parks are expected to remain a key growth driver for India's utility-scale solar segment. With substantial capacity under implementation and a plug-and-play development model, the scheme is likely to support continued solar capacity additions and attract investments across the solar value chain.

3.7 Overview of Solar Rooftop Segment

3.7.1 Capacity Additions

The rooftop solar segment has emerged as a key growth area within India's solar sector, driven by increasing consumer awareness, rising retail electricity tariffs and supportive government policies. Growth has been particularly strong in the residential and commercial & industrial (C&I) segments, where consumers are increasingly adopting rooftop solar to reduce energy costs and improve energy security.

The Government of India has accelerated rooftop solar deployment through the Rooftop Solar Programme Phase-II and the PM Surya Ghar: Muft Bijli Yojana, which provide financial assistance for residential installations and incentives to DISCOMs. The Rooftop Solar Programme has a total outlay of Rs 118.1 billion and has been extended until November 2026.

Table 12: State/UT-wise Rooftop Solar Capacity Installed under PM-Surya Ghar Yojna (Solar Rooftop) and Total Solar Power Installed Capacity (Jun26)

S.N.	State/UT	PM-Surya Ghar Yojna (Solar Rooftop)	Total Installed Capacity Solar Power
1	Andaman & Nicobar 1	7.50	32.82
2	Andhra Pradesh	894.80	8,069.76
3	Arunachal Pradesh	6.68	15.72
4	Assam	459.00	687.90
5	Bihar	218.00	452.26
6	Chandigarh	71.70	78.85
7	Chhattisgarh	240.90	2,026.67
8	Dadra & Nagar Haveli and Daman & Diu	129.10	143.40
9	Delhi	444.60	455.90
10	Goa	79.50	89.51
11	Gujarat	7,435.20	33,220.04
12	Haryana	1,323.50	2,802.18
13	Himachal Pradesh	66.70	380.29
14	Jammu & Kashmir	126.70	167.91
15	Jharkhand	95.80	304.23
16	Karnataka	932.40	11,535.04
17	Kerala	2,037.00	2,404.20
18	Ladakh	11.40	18.42
19	Lakshadweep	4.30	9.27
20	Madhya Pradesh	1,034.10	6,332.42
21	Maharashtra	5,973.60	20,312.37
22	Manipur	10.60	17.56
23	Meghalaya	0.21	4.28
24	Mizoram	5.30	34.40
25	Nagaland	1.10	3.68
26	Odisha	317.60	1,120.97
27	Others		45.01
28	Puducherry	84.50	85.71
29	Punjab	599.40	1,603.19
30	Rajasthan	2,315.60	43,317.81
31	Sikkim	5.12	7.56
32	Tamil Nadu	1,635.80	14,121.46
33	Telangana	795.90	5,165.10
34	Tripura	13.50	42.62
35	Uttar Pradesh	2,350.60	5,788.82
36	Uttarakhand	318.91	891.14
	West Bengal	69.13	363.50
	Total (MW)	30,115.75	1,62,152.00

Source: MNRE

Rooftop solar adoption is being supported by declining system costs, government subsidies, net-metering benefits, rising grid tariffs and increasing sustainability initiatives among C&I consumers. These factors are expected to support steady growth in rooftop capacity additions over the medium term.

Technical Factors to Hinder Growth in Rooftop Solar Capacity Additions

Despite the favourable policy environment, rooftop solar deployment continues to face several structural challenges. Consumer awareness remains relatively low, particularly in smaller cities and rural areas, while delays in net-metering approvals and variations in state-level regulations continue to affect project implementation timelines.

Financing remains another key constraint, especially for residential consumers and small businesses, due to high upfront costs and limited access to affordable financing. In addition, DISCOMs' concerns regarding revenue losses from high-paying consumers often result in slower approvals and policy uncertainties. Technical constraints such as roof suitability, shadow-free space availability and integration with local distribution networks also limit adoption in certain regions.

While government support schemes are expected to drive rooftop solar growth, faster approvals, regulatory uniformity and improved financing access will be critical to achieving the segment's long-term potential.

3.7.2 Subsidy structure

Under the PM Surya Ghar: Muft Bijli Yojana, residential consumers are eligible for Central Financial Assistance (CFA) for rooftop solar installations, with the subsidy linked to the installed system capacity. The subsidy structure is as follows:

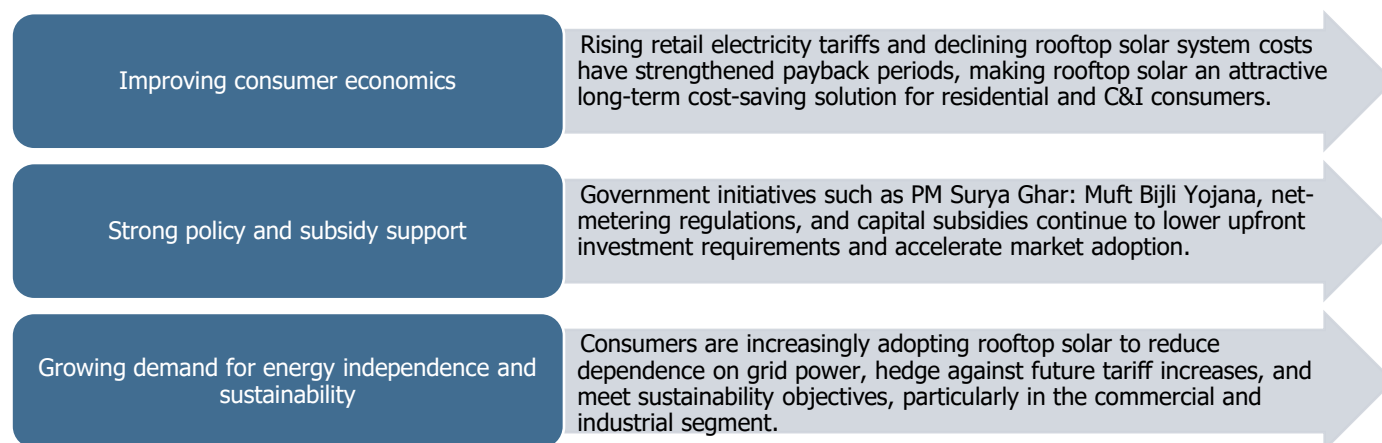
Table 13: Subsidy benefits under PM-SGMBY

Rooftop Solar Capacity	Subsidy rate	Maximum Subsidy to be Availed
Upto 2 kW	Rs 30,000 per kW	Rs 60,000
Additional Capacity between 2 kW	Rs 18,000 per kW	Rs 18,000
3 kW and Above	6.68	Rs 78,000

Source: PM-SGMBY, MNRE

The subsidy is credited directly to the beneficiary's bank account through the Direct Benefit Transfer (DBT) mechanism upon successful installation, inspection, and commissioning of the rooftop solar system.

3.7.3 Growth Drivers



3.8 PM-KUSUM Scheme (Solar Water Pumping)

3.8.1 Scheme Structure

The Government of India initiated the Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM) Yojana in March 2019. Its objective is to increase farmers' income while offering options for irrigation and reducing diesel dependency in the agricultural sector.

The primary goal of PM KUSUM is to ensure energy security for farmers in India, while fulfilling India's commitment to increase the proportion of installed electric power capacity from non-fossil-fuel sources to 40% by 2030, as part of its Intended Nationally Determined Contributions (INDCs). The scheme aims to increase solar capacity by 34,800 MW, with a total central financial support of Rs 344.22 billion.

The scheme was approved by the Cabinet Committee on 19th February, 2019, and consists of 3 components:

During 2024,

- Component A: 10,000 MW of decentralised, ground-mounted, grid-connected solar power plants.
- Component B: Installation of 20 lakh standalone solar-powered agriculture pumps.
- Component C: Solarisation of 15 lakh existing grid-connected agriculture pumps.

All components combined would support the installation of additional solar capacity of 34.80 GW.

As of July 2026, 1,986.30 MW of solar capacity has been installed under Component A against the sanctioned capacity of 10,000 MW, representing 19.9% achievement. Under Component B, 11,68,667 standalone solar-powered agricultural pumps have been installed against 13,07,190 sanctioned pumps, representing 89.4% achievement. Under Component C, 16,259 individual grid-connected agricultural pumps have been solarised under Individual Pump Solarisation (IPS) against 55,392 sanctioned pumps, representing 29.4% achievement. Further, under Feeder Level Solarisation (FLS), 35,36,602 agricultural pumps have been sanctioned, of which 46.8% have been solarised. The PM-KUSUM scheme has been extended up to 31st March 2027 to facilitate completion of the sanctioned projects.

3.8.2 Central and State Subsidy Mechanism

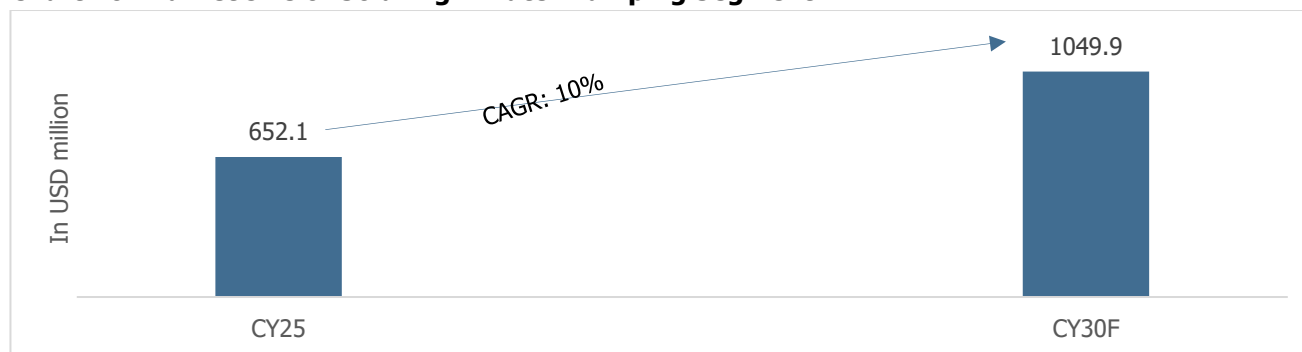
Central Government Support: Under PM-KUSUM, the Central Government provides a subsidy of 30% of the benchmark or tender cost for standalone solar pumps and solarisation of grid-connected agricultural pumps. For special category states, including North-Eastern States, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Lakshadweep, and Andaman & Nicobar Islands, the central subsidy is increased to 50%.

State Government Support: State Governments are required to provide a subsidy of at least 30% of the project cost. The remaining cost is borne by the farmer, which may be partially financed through institutional loans. Under Component A, states facilitate project implementation and power procurement through DISCOMs, while project developers benefit from assured offtake arrangements.

Farmer Contribution: Farmers typically contribute up to 40% of the project cost, which can be reduced through bank financing. In special category states, the farmer contribution is limited to up to 20% due to the higher central subsidy support.

3.9 Market Size and Growth Outlook for Solar Agri-water Pumping Segment

The solar agri-water pumping segment is expected to remain the largest end-user segment within India's solar pump market, driven by sustained government support under PM-KUSUM, rising farm mechanisation, and increasing adoption of clean irrigation solutions. The segment is projected to grow from USD 652.1 million in CY2025 to USD 1,049.9 million in CY2030, registering a CAGR of 10% during the period. Despite growing slower than the overall solar pump market, the segment will continue to account for the majority of industry demand, supported by large-scale deployment of standalone and feeder-connected solar pumps across key agricultural states.

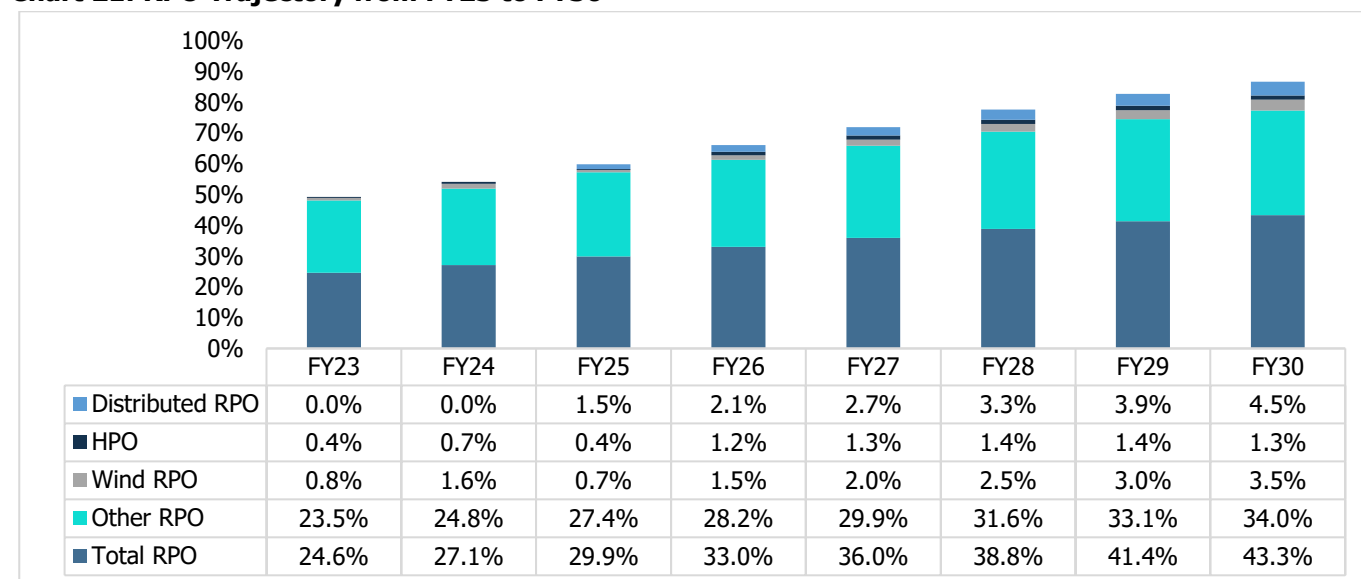
Chart 20: Market size of Solar Agri-water Pumping Segment


Source: Technavio, CareEdge

Continued policy emphasis on reducing diesel-based irrigation, improving farm productivity, and enhancing energy access in rural areas is expected to sustain strong demand for solar-powered irrigation solutions.

3.10 Renewable Purchase Obligation (RPO)

The Ministry of Power has also provided RPO targets up to FY30, and obligated entities have to buy a certain percentage of their electricity from renewable sources. Alternatively, they can purchase Renewable Energy Certificates (REC) from the market. The target is to meet an RPO of 43.33% by FY30.

Chart 21: RPO Trajectory from FY23 to FY30


Source: Renewable Purchase Obligation and Energy Storage Obligation Trajectory Report dated 22nd July 2023

Renewable Purchase Obligation and Energy Storage Obligation Trajectory Report dated 20th October 2023,

Ministry of Power, CareEdge Research

Note: Distributed RPO is not available for FY23 and FY24

- Wind RPO shall be met only through energy generated from wind power projects commissioned after 31st March 2024.
- Hydro purchase obligation (HPO) shall be met only by energy generated from hydro-power projects, Pumped Storage Plants (PSPs) and Small Hydro Projects commissioned after 31st March 2024.

- Distributed renewable energy target shall be met from capacities of less than 10 MW, including various solar installation configurations such as net metering, gross metering, virtual net metering etc.
- Other RPO targets shall be met by energy produced from any RE power projects not included above including all wind and hydropower projects commissioned before 1st April 2024.

3.11 Potential Long-term Drivers and Constraints of the Indian Solar Sector

India's solar sector is expected to witness sustained long-term growth, supported by favourable policy measures, improving cost competitiveness, technological advancements and the country's ambitious renewable energy targets.

• Growth Drivers:

Declining module and system costs	Falling equipment prices continue to improve project economics and accelerate solar capacity additions.
Fiscal and regulatory incentives	Supportive policies, subsidies, and regulatory reforms have strengthened investment attractiveness across the solar value chain.
Renewable Purchase Obligations (RPOs)	Mandatory renewable procurement targets provide long-term demand visibility for solar power developers.
Government infrastructure support	Solar parks, green energy corridors, and transmission investments have reduced execution risks and improved project viability.
Growing traction in the C&I segment	Rising sustainability commitments and electricity cost savings are driving corporate adoption of solar power.
Green Term Ahead Market	Short-term renewable power trading platforms have enhanced market access, liquidity, and merchant opportunities.
Low construction and operating risks	Short gestation periods, low operating costs, and absence of fuel price risk support the competitiveness of solar projects.
Waiver of ISTS charges	Transmission charge waivers improve project returns and facilitate renewable energy procurement across states.
Lower environmental footprint	Minimal emissions and environmental impacts make solar power a preferred alternative to conventional generation.
Advancement in module technology	Higher efficiency modules and improved system performance continue to enhance energy yields and project returns.
Deployment of emerging technologies	Agrivoltaics, floating solar, canal-top solar, and energy storage solutions are creating new avenues for sector growth.
PLI scheme for domestic manufacturing	Incentives for domestic solar manufacturing are strengthening supply-chain resilience and reducing import dependence.

• Constraints:

Counterparty and offtake risks	Delays in PPA execution and payment realisation by DISCOMs continue to impact project bankability.
High import dependence	Reliance on imported cells, modules, and components exposes the sector to supply-chain disruptions and trade policy risks.
Rising Capital costs	Volatility in commodity prices, equipment costs, and interest rates can adversely affect project economics.
Grid Integration Challenges	Delays in transmission infrastructure and evacuation facilities may constrain renewable energy absorption.
Intermittent power generation	The variable nature of solar generation necessitates storage, balancing resources, and flexible grid operations to ensure reliability.

Overall, favourable policy support, improving economics, and rising demand are expected to sustain long-term growth in India's solar sector. However, strengthening grid infrastructure, reducing import dependence, and improving offtake security will be critical to unlocking the sector's full potential.

3.12 Government Initiatives

Segment	Source of Capacity Addition	Key Growth Drivers
Utility-Scale	Solar Parks & Ultra-Mega RE Parks	Plug-and-play infrastructure significantly lowers land acquisition and evacuation risk, enabling faster execution and scale-led cost reductions. Policy momentum is strong with 55 solar parks approved across 13 Indian states (41.2 GW capacity), 16.8 GW already commissioned across 26 parks. Solar parks benefit from superior access to supply chains due to project clustering, which attracts EPC contractors, equipment suppliers and logistics providers.
	SECI / Central Agency Tendering	Centralised tendering provides long-tenor (25-year) bankable PPAs, transparent tariff discovery and consistent large-scale auctions. Solar remains the anchor technology in hybrid and RTC bids, with tariffs largely stabilizing in the Rs 2.5 – Rs 2.8/kWh range and a sustained tender pipeline.
Open Access (C&I)	Green Open Access Regulations	Regulatory reforms have expanded consumer eligibility, reduced minimum load requirements, introduced time-bound approvals, and improved banking and settlement mechanisms, significantly easing adoption for C&I consumers.
	Captive / Group Captive Solar	Captive and group captive models offer sustained cost arbitrage versus grid power, with open-access solar tariffs structurally below industrial grid tariffs, providing long-term tariff certainty for corporates.
	Corporate ESG & Net-Zero Targets	Rising commitments under RE100, net-zero, and broader ESG frameworks are driving incremental demand, reinforced by increasing renewable sourcing mandates among large corporates.
Rooftop	PM Surya Ghar & Rooftop Phase-II	Capital subsidy support, direct incentives for residential systems, and benefits such as free electricity up to defined limits improve household payback and drive mass-market rooftop adoption. Allocation towards PM Surya Ghar has been increased by 29% y-o-y in FY27 budget to Rs 22,000 crores, strengthening policy support for the rollout of rooftop solar capacity.
	Net Metering & Digital Processes	Supportive net-metering policies for small systems, coupled with online approval portals and digital processes, reduce procedural friction and improve project IRRs.
	Urban Power Demand Growth	Rising urban electricity consumption driven by higher appliance ownership and cooling penetration supports rooftop solar adoption while helping DISCOMs manage peak load demand.

4 Overview of Indian Solar EPC Market

Solar EPC refers to the engineering, procurement and execution/commissioning services provided for setting up solar power installations. EPC services can be classified into various subcategories based on the scale and type of installations, i.e., Utility Scale Solar, rooftop solar and Distributed/Off-grid solar installations. Favourable government initiatives, such as MNRE's target of achieving 280 GW of solar energy capacity by fiscal year 2030, have led to a sharp rise in ground-mounted utility-scale solar installations, accounting for the majority of India's solar capacity. In parallel, increased demand for green energy and rooftop installations by corporate consumers have also boosted solar installations. However, the Solar EPC sector in India presents high entry barriers, as it demands a minimum level of technical expertise and experience to qualify for tenders, along with restrictions on joint ventures participating in bids.

Solar EPC projects are generally executed through separate supply and services contracts rather than a single EPC arrangement. High-value equipment such as modules, inverters, transformers and cables, which together account for about 70–75% of project cost, is usually sourced directly by developers. Execution-related activities, including civil works, installation and commissioning, form the balance 25–30% of costs and are assigned to specialised service contractors. In certain cases, solar module manufacturers also undertake full EPC responsibilities, covering both supply and project execution.

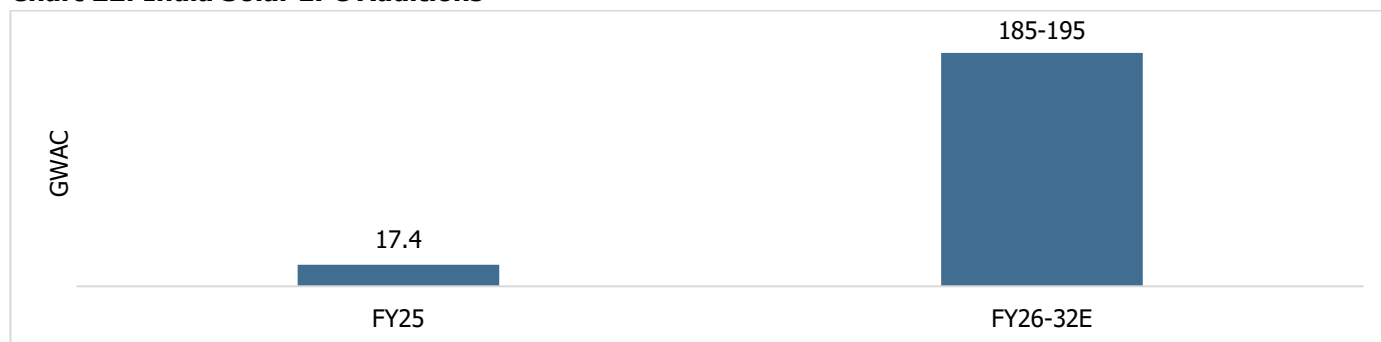
Solar EPC contracts vary based on the assignment of roles and responsibilities and penalties. Based on these differences, various project delivery mechanisms have been devised. The size and nature of the project also influence the choice of the project delivery mechanism.

4.1 Market Size of Solar EPC

India's installed solar capacity is rising rapidly, supported by MNRE's plan to invite ~50 GW of renewable bids annually from FY24–FY28 to achieve 500 GW by 2030. EPC players are critical in delivering generation and evacuation infrastructure through design optimisation, equipment sourcing and grid connectivity.

The solar EPC market is expected to add 185-195 GW_{Ac} during FY26-FY32E.

Chart 22: India Solar EPC Additions



Source: CareEdge Research, *GW_{Ac} refers to Gigawatts Alternating Current i.e. actually delivered power output to the electrical grid

It has been observed that most private developers have their in-house EPC teams, while third-party solar EPC contractors are generally engaged by both public and private sector entities. Therefore, the opportunity for third-party solar EPC contractors will depend on the overall share of public sector entities in the solar capacities added over FY24-27. Summary of solar capacity addition pipeline announced by key public sector entities is given in the following table.

Table 14: Solar Projects Pipeline of Public Sector Entities

Company	Projected Pipeline (GWp)	
	FY25P	FY26P
NTPC	8.7	10
NHPC	1.4	1.7
GSECL	1.3	1.8
SJVN	1.8	2.2
Coal India Ltd	1.4	1.2

Source: Company Reports, Sterling and Wilson Renewable Energy Investor Presentation

4.2 Assessment of Solar EPC Contract

The framework of an EPC contract is such that it enables the owner to transfer the risk of design, procurement and construction entirely to the contractor. The contractor is then solely responsible for completing the project and handing it over to the owner in a turnkey project condition. The EPC phase of a project is called as the execution phase, which is after the feasibility study and front-end engineering design study phase. But some EPC players also do feasibility studies to participate in tenders.

The Key Features of an EPC contract are as follows:

- Single point ownership and responsibility
- Clearly defined deliverables and project specifications
- Fixed completion date
- Fixed completion price
- Procurement responsibilities
- Output Guarantees
- Liquidated damages to the client company for both delay and performance
- Security from the contractor or its parent company
- Caps on liability

Solar EPC contracts vary based on assignment of roles and responsibilities and penalty. Based on these differences, various project delivery mechanisms have been devised. The size and nature of the project also influence the choice of the project delivery mechanism.

EPC Project: Turnkey vs Balance of Plant

There are two types of modes for the EPC contract to be executed – the turnkey project structure and balance of plant structure.

Under the turnkey project structure, the EPC company/contractor takes care of everything from design to execution of the work, which includes EPC. The contractor delivers ready-to-use facilities. The project must be completed within an agreed-upon budget and schedule. If these conditions are not met, the contractor may need to offer financial compensation. The turnkey solar project consists of the following process-

Survey of the site to check solar viability - The location of the project is surveyed to determine the future weather forecast and solar isolation.

Determination of solar power generation capacity and connection type - Solar PV installations can be made in grid-connection or off-grid connection types depending on the installation capacity and consumption pattern of the client.

The solar companies would determine the power generation capacity by considering the structure of the terrain and the amount of incident sunlight.

Engineering and design of solar PV system - While designing and engineering of the solar panels, angle, height, weather, roof structure, etc. are considered. The mounting structure for the solar array is constructed according to approved design and study.

Solar Power Plant Installation - After carefully considering all the project requirements, the panels are carefully installed.

Metering of Solar Power Plant- A turnkey solution provider considers factors such as electricity tariffs, power output and usage to prepare a net metering agreement that best suits your needs.

Solar Financing Solutions and Approvals- The turnkey solution providers might also have tie-ups with the financing organizations, private investors, etc., whenever required by the client.

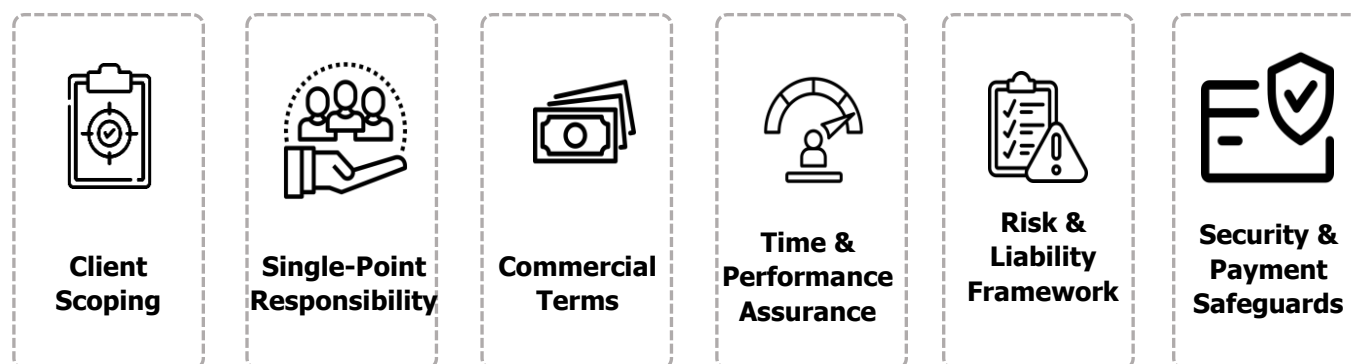
Monitoring of Solar Panel Efficiency- The efficiency of solar PV modules is due to depreciation over a longer period. The solar turnkey solution providers monitor the efficiency of the panels and maintain the uniform efficiency of the panels by taking care of their sub-parts.

Operation and Maintenance- After the installation of the solar panels, it requires occasional cleaning and is performed by the turnkey solution providers. They also manage the operations of the installed equipment and accessories.

Under the balance of plant (BoP) or the balance of system (BoS) structure, the entire project is divided into different parts. Generally, the modules, which form majority of the cost of the solar plant, are procured separately by the developer and the remaining segments including wiring, switches, mounting system, inverters, batteries etc. are procured under the EPC contract along with the project installation services

Third Party EPC Contracts - refers to an agreements where a solar project developer or investor outsources the complete responsibility of Engineering, Procurement, and Construction (EPC) to an external contractor instead of executing the project in-house. This model is widely adopted in utility-scale and increasingly in commercial & industrial (C&I) solar projects, where developers seek efficiency, speed, and technical expertise. This type of contracts provides flexibility in terms of risk mitigation, access to expertise, cost and time efficiency, quality assurance. The full lifecycle of project execution is managed by them, including site survey, design and engineering, procurement of modules, inverters, and balance-of-system components, installation, commissioning, and O&M support. As India accelerates toward its renewable energy targets, the demand for professional EPC services is rising. Many investors, IPPs (Independent Power Producers), and C&I customers prefer third-party EPC models to avoid the capital intensity of building in-house execution capabilities.

4.3 Key Covenants of an EPC Contract



The EPC contract is established between the client (the owner) and the EPC contractor for a specific project or scope that the contractor is obligated to deliver

Clearly specifies technical standards, performance criteria and deliverables.	EPC contractor assumes end-to-end responsibility for execution and issue resolution	Covers contract price structure, payment terms, variations and escalation provisions.	Includes guaranteed completion timelines and performance guarantees, backed by delay and performance liquidated damages.	Defines caps on liability, termination rights, suspension provisions and variation mechanisms .	Incorporates performance security and retention to protect the owner against non-performance
---	---	---	--	---	--

4.4 In-house vs Outsourced EPC

In India, the solar power developers consist of both public and private sector entities. The public sector entities include NTPC Renewable Energy, NHPC, SJVN, Gujarat State Electricity Corporation (GSECL), etc., while the private sector entities include Adani Group, Renew, Acme Solar, Ayana, Enfinity, Radiance, Serentica, Bluepine, IMC etc. Most of the established private sector companies have mobilised in-house EPC teams which have the capability of executing large projects. Both public and private sector players engage EPC contractors for execution of the project.

In-house EPC	Outsource/Third Party EPC
Advantages - Full control over design, procurement and execution. - Easier to customise projects to meet specific technical and operational requirements - Direct coordination within the organisation often speeds up approvals and reduces delays. Challenges - Significant investment in equipment, skilled manpower and technology is required. - Difficult to ramp up quickly for large projects. - All execution risks borne by the company	Advantages - Low capital investment as no need to build internal infrastructure or hire large teams - Access to experienced EPC contractors with proven capabilities - Greater flexibility and scalability for multiple projects Challenges - Reduced control over timelines and quality. - Coordination gaps can lead to delays. - Margin pressure from competitive bidding may impact quality

4.5 Eligibility Criteria for Tenders

Following key parameters are considered for selection of an EPC contractor for solar project development.

Table 15: Tender Eligibility Criteria

Criteria	Details
Credibility and Past Experience	The developer should assess the credibility and past track record of the solar EPC contractor, including its experience of working under various conditions – geographical, terrain-related, and time constraints. The number and scale of projects executed, the contractor's years of experience in the industry, relationships with vendors, land acquisition capabilities, operational regions, and past performance should all be evaluated.
Technical Team	The availability of an experienced team across various areas, technological partnerships, and the capability to deliver consistent results should be assessed.
Full-Service Solar Solution Provider	The EPC contractor must be able to deliver comprehensive solutions for the implementation of solar power plants. This encompasses all aspects, including site analysis, design, project management, procurement, installation, and commissioning.
Equipment Knowledge	An EPC company is expected to have in-depth knowledge of the equipment and its components. The sources of equipment, warranties, and deliverables should be clearly communicated to the client. Both the

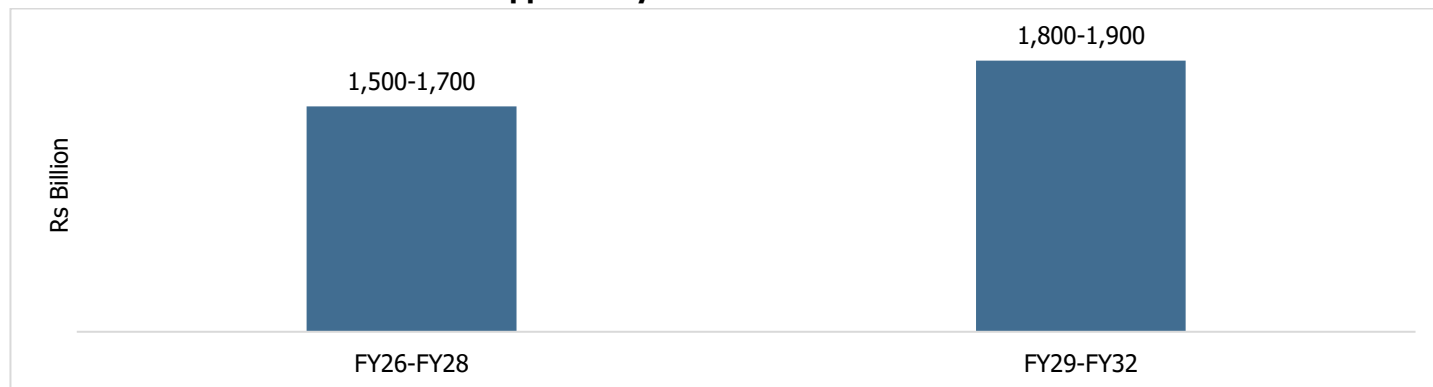
	project and management teams should be experienced, with a deep understanding of the technical details of the products, utility setup, and engineering.
Licensing and Approvals	The EPC contractor should be well-versed in obtaining the necessary licenses and government approvals. The contractor should be responsible for arranging the licence to install the PV system.
Operation and Maintenance	Post-implementation support is essential for the long-term efficiency of the solar power plant. The client company should ensure the chosen EPC contractor offers comprehensive operation and maintenance services to support optimal plant performance. EPC contractors are primarily responsible for design and execution, their ability to provide robust operation and maintenance (O&M) services significantly impacts plant performance, generation output, and return on investment. O&M offerings include regular inspections, performance monitoring, preventive maintenance, module cleaning, and timely resolution of technical issues. Most O&M contracts are not typically for the plant's entire lifespan. These contracts usually cover a fixed tenure, typically ranging from 3 to 5 years post-commissioning, similar to a manufacturer's warranty. The duration can be negotiated and extended based on the terms outlined in the contract. The contract duration, scope of services, and performance guarantees can be negotiated upfront and extended periodically, depending on the client's requirements and the EPC contractor's capabilities. By ensuring strong O&M commitments, clients safeguard against performance degradation, minimize downtime, and secure long-term operational stability of their renewable energy assets.
Financial Health	The EPC contractor should be in satisfactory financial health, free from issues such as negative net worth or ongoing losses. Poor financial health can present challenges during project execution and may lead to delays.
Local Experience	A solar developer may also consider the EPC contractor's past experience in the project's geographical area or state, as familiarity with local regulations, approval processes, and vendors can provide a distinct advantage.

4.6 Outlook for Solar EPC Market

The growth drivers discussed above are expected to support sustained expansion of the solar EPC industry over the coming years. Rising solar capacity additions, continued policy support, increasing participation from commercial and industrial consumers, and the strengthening domestic manufacturing ecosystem are collectively creating a robust project pipeline. As a result, the outlook for the solar EPC market remains favourable, supported by both long-term renewable energy targets and increasing investment across the solar value chain.

Investment in EPC enhances execution capacity, shortens timelines and ensures grid readiness for faster capacity addition. Domestic solar module production is set to grow under initiatives like the PLI scheme, reducing import dependence and lowering project costs.

Chart 23: Investments in Solar EPC Opportunity



Source: CareEdge Research

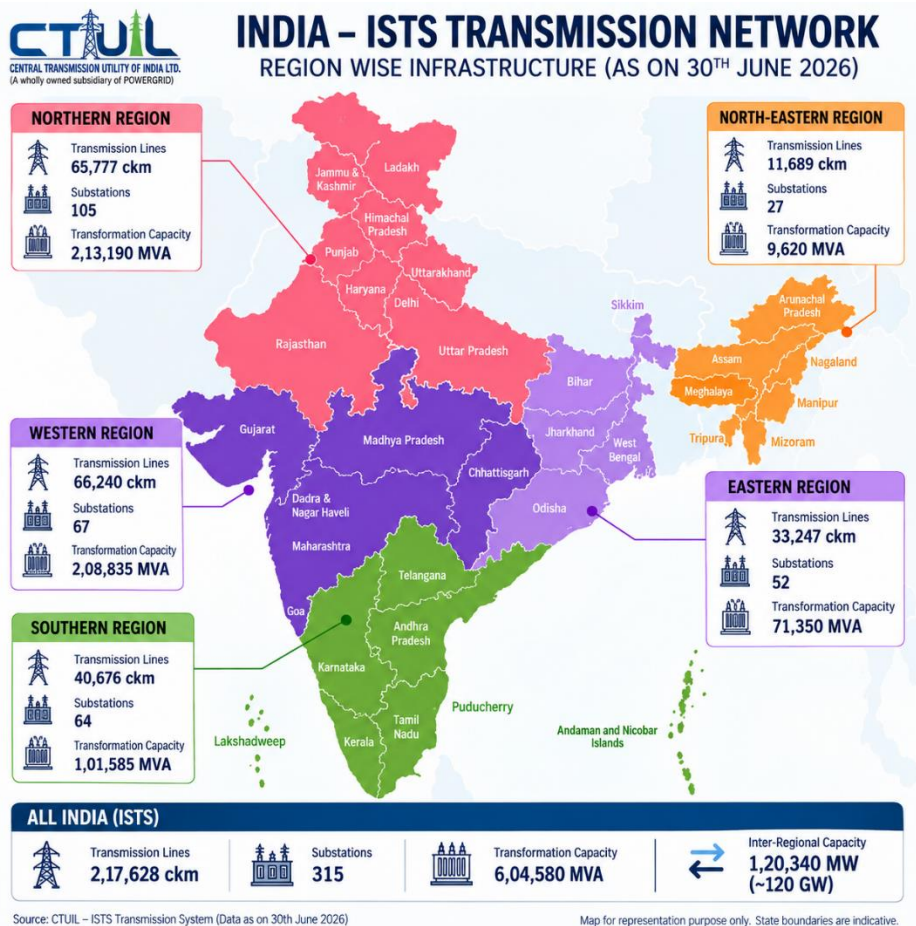
5 Overview of Power Transmission Sector in India

5.1 Overview of T&D Network in India

Transmission and distribution infrastructure forms the backbone of India's power sector, enabling the transfer of electricity from generation sources to end consumers. The transmission network facilitates long-distance bulk transfer of electricity from generating stations to load centres through high-voltage networks, while the distribution system delivers electricity from substations to residential, commercial, industrial and agricultural consumers at lower voltage levels.

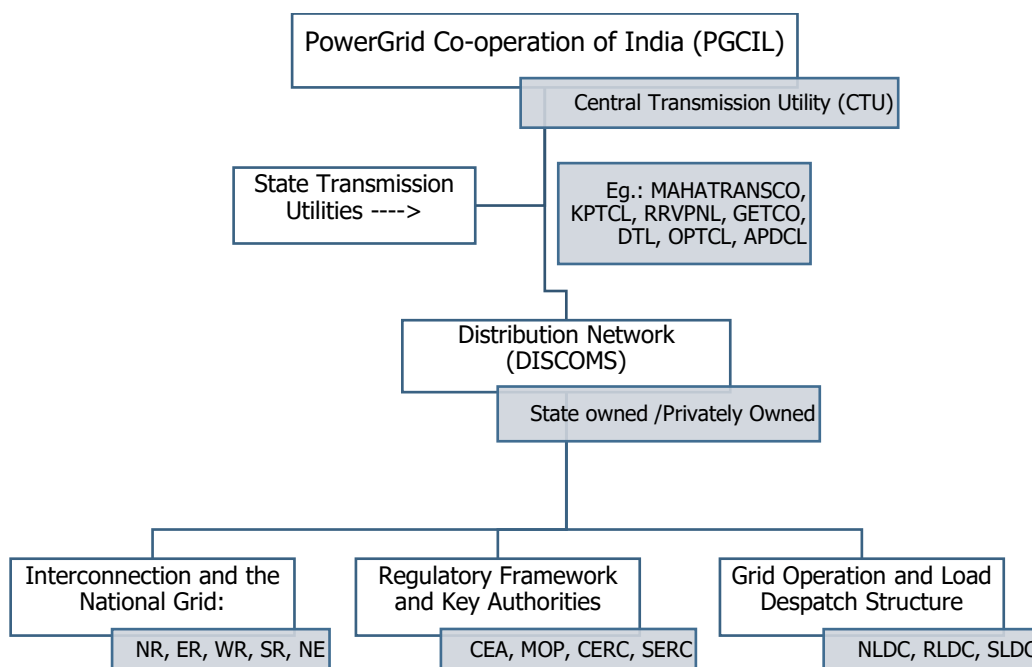
India's T&D network has expanded significantly over the past decade in line with rising electricity demand, universal electrification and increasing renewable energy capacity additions. The transmission network at 220 kV and above increased from 2.91 lakh ckm in 2014 to 5.09 lakh ckm as of June 2026, reflecting sustained investments in grid infrastructure. Going forward, transmission investments are expected to accelerate further to support renewable energy integration and growing power demand.

On the distribution side, the government has been implementing reforms to improve network efficiency and strengthen DISCOM finances. Under the Revamped Distribution Sector Scheme (RDSS), projects worth Rs 1.53 lakh crore for loss-reduction infrastructure and Rs 1.31 lakh crore for smart metering have been sanctioned. These initiatives are expected to reduce distribution losses, improve supply reliability and support the transition towards a more efficient and renewable-centric power system.

Chart 24: ISTS Transmission Network of India


5.2 Structure of Indian Electricity Transmission Sector

The Indian electricity transmission sector is structured as a three-tiered system, comprising inter-state, intra-state and distribution networks, enabling the transfer of electricity from generation sources to end consumers. The central government, through the Power Grid Corporation of India Limited (PGCIL), manages the inter-state transmission, while state governments and private entities handle intra-state and distribution networks, respectively. The national grid is interconnected, meaning power can be transmitted across different regions.

Chart 25: Structure of India's Transmission Sector

Power Grid Corporation of India Limited (PGCIL): Power Grid Corporation of India Limited (PGCIL), through CTUIL, is responsible for planning and coordinating the inter-state transmission system (ISTS), facilitating power transfer across regions and states.

State Transmission Utilities (STUs): STUs manage and maintain intra-state transmission networks, connecting generating stations to substations and distribution systems within their respective states. Private transmission developers also participate in network expansion through tariff-based competitive bidding.

Distribution Networks: Distribution companies (DISCOMs), majorly owned by states but with some private players, are responsible for the distribution of electricity to end-consumers. These DISCOMs provide last mile delivery of power, managing local grids and substations.

Interconnection and the National Grid: India operates a unified national grid under the principle of 'One Nation, One Grid, One Frequency.' The grid comprises five regional systems: Northern Region (NR), Southern Region (SR), Eastern Region (ER), Western Region (WR) and North-Eastern (NE).

Table 16: States in Regional Grids

Eastern Region	Western Region	Northern Region	Southern Region	North-Eastern Region
Bihar	Chhattisgarh	Haryana	Andhra Pradesh	Arunachal Pradesh
Jharkhand	Goa	Himachal Pradesh	Karnataka	Assam
Odisha	Gujarat	Punjab	Kerala	Manipur
Sikkim	Madhya Pradesh	Rajasthan	Tamil Nadu	Meghalaya
West Bengal	Maharashtra	Uttar Pradesh	Telangana	Mizoram
	Dadra and Nagar Haveli	Uttarakhand		Nagaland & Tripura
		Chandigarh - Delhi		

As of June 2026, the inter-state transmission system comprised 2.18 lakh ckm of transmission lines, 315 substations and transformation capacity of 6,04,580 MVA, highlighting the scale of India's national transmission network.

Regulatory Framework: The sector is governed by the Electricity Act, 2003. The Ministry of Power (MoP) formulates policies, the Central Electricity Authority (CEA) oversees planning and technical standards, while the Central Electricity Regulatory Commission (CERC) regulates interstate transmission tariffs and market operations. At the state level, State Electricity Regulatory Commissions (SERCs) regulate transmission and distribution activities within their jurisdictions.

Grid Operation and Load Despatch Structure: Grid management follows a three-tier load despatch structure comprising the National Load Despatch Centre (NLDC), Regional Load Despatch Centres (RLDCs) and State Load Despatch Centres (SLDCs). These entities ensure real-time balancing of demand and supply, maintain grid stability, and facilitate open-access transactions across the network.

5.3 Review for Transmission Infrastructure Growth (in 000'ckm)

The transmission network in India operates at different voltages to cater to different needs in the industry. The different voltage levels include Extra High Voltage (EHV), high voltage, medium voltage, and low voltage.

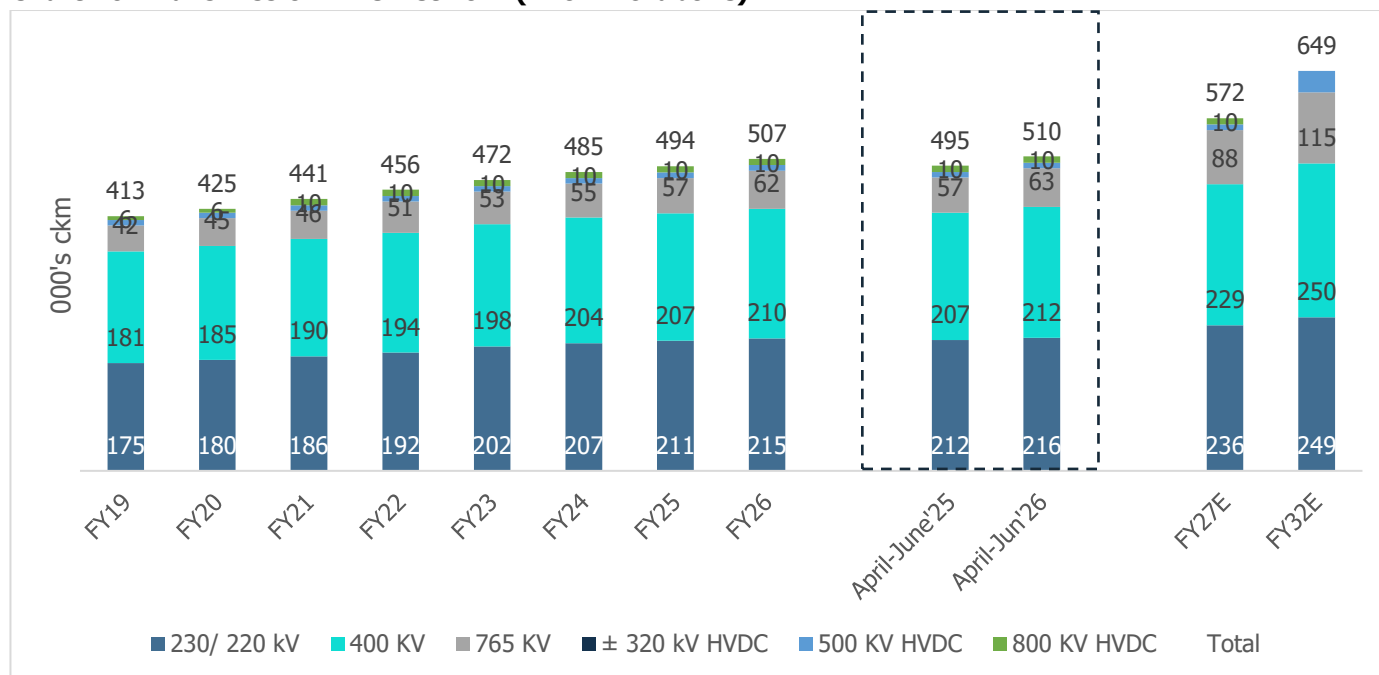
The following table shows the distribution of the voltage lines:

Table 17: Distribution of Voltage Lines

Extra High Voltage	Above 220 kV (220kV, 400 kV, 765 kV, ± 500 kV HVDC, ± 800 kV HVDC)
High Voltage	Up to 220 kV (66 kV, 110 kV, 132 kV, 220 kV)
Medium Voltage	Up to 33 kV (3.3 kV, 6.6 kV, 11 kV, 33kV)
Low Voltage	Up to 1kV (single-phase)

Further, India's power transmission system has expanded at a significant pace driven by growing demand, the government's focus on providing electricity in rural areas, and the need to connect the generation stations including integration of RE sources from the RE-rich states. In addition, with the implementation of two Central Sector Schemes namely the North-Eastern Regional Power System Improvement Project (NERPSIP) and Comprehensive Scheme of Transmission & Distribution System in Arunachal Pradesh & Sikkim, the transmission and distribution infrastructure of Northeastern states are being strengthened.

The transmission network expanded at a CAGR of ~6.6%, increasing from 4,13,407 ckm in March 2019 to 6,04,580 ckm in June 2026. Network expansion accelerated in FY26, with 12,139 ckm of transmission lines added compared to 8,830 ckm in FY25, reflecting continued investments to support growing power demand and renewable energy integration.

Chart 26: Transmission Line Network (220 kV & above)


Source: Central Electricity Authority, NEP, CareEdge Research

Overall Intra-transmission and Inter-transmission Lines

In FY26, India saw a line addition of ~12,000 Ckm of lines where ~5000 Ckm of lines was added in 765kV segment followed by ~4,000 Ckm of lines was added in 230/220 kV. By FY27 ~21,000 Ckm of lines are expected to be added in 220 kV from FY26 where overall line additions will be ~66,000 Ckm lines. It is expected to reach a total addition of 1,43,000 Ckm lines till FY32 where 765kV will have a maximum share of line additions.

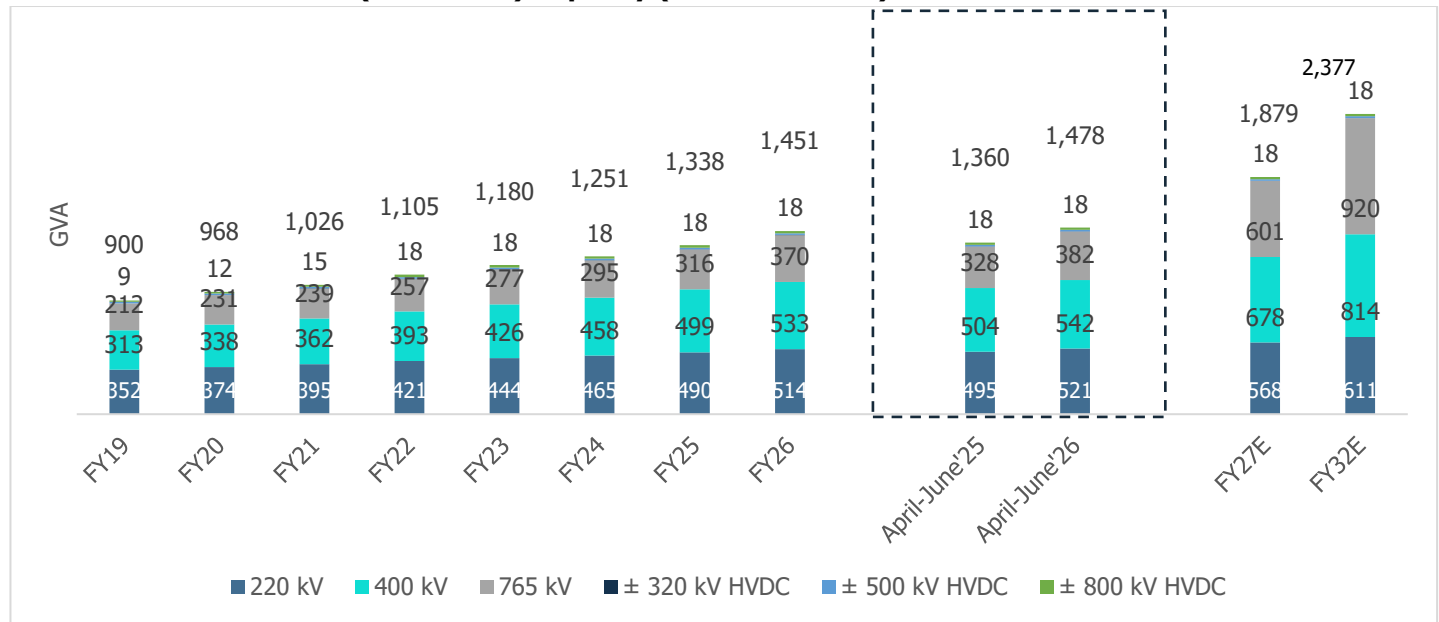
Table 18: Inter-State Transmission Lines

Transmission Lines ISTS in '000 Ckm	At the end of 2017	At the end of 2022	At the end of 2026	At the end of 2027E	At the end of 2032E
	158.9	200.0	220.4	251.2	294.5

Source: NEP, CareEdge Research

5.4 Details on Transmission Capacity Growth (in GVA)

The transformation (Substation) capacity (in GVA) for various voltage levels in India's electricity transmission network from FY19 to FY32E, including 220 kV, 400 kV, 765 kV, and HVDC systems (500 kV and 800 kV). The 220 kV, 400 kV, and 765 kV capacities show steady growth to meet rising electricity demand and support renewable energy integration, with projections reaching 611 MW, 814 MW, and 920 MW, respectively, by FY32E. HVDC systems, critical for long-distance transmission, maintain stable or slow growth, with 500 kV HVDC at 14 MW and 800 kV HVDC gradually increasing to 18 MW. Overall, the transformation capacity is expected to grow significantly, especially in higher voltage categories, to support India's energy goals. Transformation capacity includes Overall Intra and inter-transmission capacity.

Chart 27: Transformation (Substation) Capacity (220 kV & above)


Source: Central Electricity Authority, NEP, CareEdge Research

Table 19: Inter-state Transformation Capacity (Substation)

Transformation Capacity (MVA) ISTS	At the end of 2017	At the end of 2022	At the end of 2026	At the end of 2027E	At the end of 2032E
	284.2	461.0	628.8	933.2	1,281.4

Source: NEP, CareEdge Research

5.5 Review of Transmission System Augmentation during the Period

As of FY26, about 88.6% of the targeted transmission line length and approximately 76.7% of the planned transformation capacity at substations (220 kV and above) for FY27 were achieved. In addition, 99.6% of the targeted HVDC bi-pole transmission line capacity had been achieved during the same period.

Table 20: Summary of Achievement of Transmission Capacity Addition During FY26-32

Transmission System Type / Voltage Class	At the end of 2025-26	Likely Addition during 2027-32	Likely at the end of 2031-32
Transmission Lines			
(a) HVDC (320 kV/ 500 kV/800 kV Bipole)	19,375	15,432	34,887
(b) 765 kV	62,066	27,138	1,14,719
(c) 400 kV	2,09,856	20,989	2,49,585
(d) 230/220 kV	2,15,216	13,228	2,48,999
Total Transmission Lines	5,06,513	76,787	6,48,190
Sub-stations			
(a) 765 kV	3,69,700	3,19,500	9,20,200
(b) 400 kV	5,33,333	1,35,745	8,13,828
(c) 230/220 kV	5,13,993	42,610	6,11,107
Total – Sub-stations	14,17,026	4,97,855	23,45,135

Source: CareEdge Research

As of FY26, the transmission network at voltage levels of 220 kV and above comprised approximately 5,06,513 ckm of transmission lines, representing around 88.64% of the FY27 target of 5,71,403 ckm. The total substation transformation capacity stood at around 14,17,026 MVA, achieving approximately 76.71% of the FY27 target of 18,47,280 MVA. Among transmission lines, HVDC, 400 kV and 230/220 kV networks have achieved around 99.59%, 91.80% and 90.14% of their respective FY27 targets, while the 765 kV network stood at around 70.87%. The continued expansion of the transmission network is expected to support growing power demand, facilitate renewable energy integration and strengthen the efficient transfer of electricity across regions.

5.6 Inter-regional Projected Installed Capacity

India's Northern, Western, Southern, Eastern and North-Eastern regional grids are synchronously interconnected, forming a unified national grid that enables electricity to be transferred from power-surplus regions to power-deficit regions. The country's inter-regional transmission capacity increased from 112 GW in 2022 to approximately 120 GW as of June 2026. Under the National Electricity Plan, this capacity is projected to increase to 143 GW by FY27 and approximately 168 GW by FY32. Accordingly, around 25 GW of additional inter-regional capacity is planned during FY27–FY32, supporting higher electricity demand, renewable-energy integration and improved utilisation of generation resources across regions.

Table 21: Region-wise planned transmission capacity additions

Inter-Regional Transmission Capacity (GW)			
Inter-Regional corridors	At the end of 2026-27 (31.03.2027)	Addition planned during the period 2027-32	At the end of 2027-32 (31.03.2032)
West - North	55	6	61
Northeast - North	3	0	3
East - North	23	6	29
East - West	23	0	23
East - South	8	4	12
West - South	28	8	37
East - Northeast	4	0	4
Total	143	25	168

Source: NEP Volume II, CareEdge Research

A total of Rs 42,998 crore by the end of FY28 with highest investments in the western region of Rs 19,298 cr.

Table 22: Transmission Line Investments (Rs crores)

FY	WR	SR	NR	ER	NER	Total
FY24	7,365	6,659	10,770	285	417	25,495
FY25	11,320	3,391	1,077	594	77	16,459
FY26	614	-	-	-	430	1,044
FY27	-	-	-	-	-	-
FY28	-	-	-	-	-	-
Total	19,298	10,050	11,847	879	925	42,998

Source: ISTS Rolling Plan 2027-28, CareEdge Research

5.7 Facilitation Measures by Government for Execution of Transmission Projects

Tariff-Based Competitive Bidding (TBCB)

- The government introduced TBCB for the development of transmission projects to encourage private sector participation and drive efficiency through competitive processes.
- Under TBCB, transmission projects are awarded to the lowest bidder, ensuring cost-effectiveness. This also we can put in form of some smart art.

Inter-State Transmission System (ISTS)

- The government identified specific transmission projects as ISTS, which are vital for the national grid.
- The costs of these projects are shared across all states, reducing the financial burden on individual states and ensuring their execution.

Green Energy Corridors

- Special attention has been given to the development of Green Energy Corridors, which include funding from international agencies like the World Bank and KfW to ensure timely execution of projects aimed at integrating renewable energy into the grid.

National Electricity Plan – Transmission

- The National Electricity Plan for 2023–32 provides a coordinated roadmap for expanding the transmission network to support rising demand and integrate renewable energy, storage and green-hydrogen loads. It envisages expansion of the network to approximately 6.48 lakh ckm and inter-regional transfer capacity to 168 GW by 2032

Revamped Distribution Sector Scheme (RDSS)

- Launched to improve the operational efficiencies and financial sustainability of DISCOMs, which in turn supports the transmission sector by ensuring reliable payments for transmission services.

Ease of Doing Business

- The government has streamlined the process of acquiring clearances and approvals for transmission projects, reducing delays and facilitating faster project execution. This includes the introduction of single-window clearance systems.

5.8 Demand Drivers in India

The Indian transmission sector is witnessing strong growth, driven by rising renewable energy capacity, increasing electricity demand, urbanization, and continued grid modernization. Key demand drivers include:

Integration of Renewable Energy Sources	The global push for clean energy has shifted the demand for transmission infrastructure that can integrate renewable energy sources like solar, wind, and hydroelectric power into existing grids. Technologies like high-voltage direct current (HVDC) transmission are crucial in this integration, providing efficient long-distance electricity transmission
Electrification Initiatives in Emerging Economies	Electrification drives in emerging economies are increasing the deployment of regional transmission lines, which need bulk power transformers to distribute electricity effectively across vast distance. Extending transmission networks to rural or hilly regions necessitates custom-built, compact, and high-voltage transformers that can operate under tough environmental and logistical conditions
Cross-Border and Regional Interconnections	Cross-border transmission projects and regional interconnectors require standardised and compatible high-voltage transformers that can manage power transfer between national grids. Inter-regional balancing of renewable and conventional power involves flexible, high-capacity transformers to manage varying loads and maintain grid stability across geographies
Technological Advancements	High-voltage direct current (HVDC) transmission is a preferred technology for long-distance power transmission due to lower power losses. FACTS technologies enhance the controllability and efficiency of power grids, supporting the integration of renewables and the stability of complex grids. Modern grids incorporate smart technologies that facilitate better monitoring and control, improving efficiency and allowing for real-time adjustments to manage power flow
Economic Growth and Urbanisation	Expanding cities in countries like India demand robust grid infrastructure, driving investments in high MVA and high kV transformers to handle increased urban electricity loads. Growth in manufacturing and industrial zones requires high-capacity transformers to ensure stable and uninterrupted power supply at higher voltage levels. Economic corridors and smart city initiatives are boosting the need for bulk power transmission.

These factors are expected to sustain robust investments in India's transmission sector over the medium to long term, positioning the industry as a key enabler of the country's energy transition and growing power demand.

6 Power Distribution Sector in India

6.1 Overview of Power Distribution Sector in India

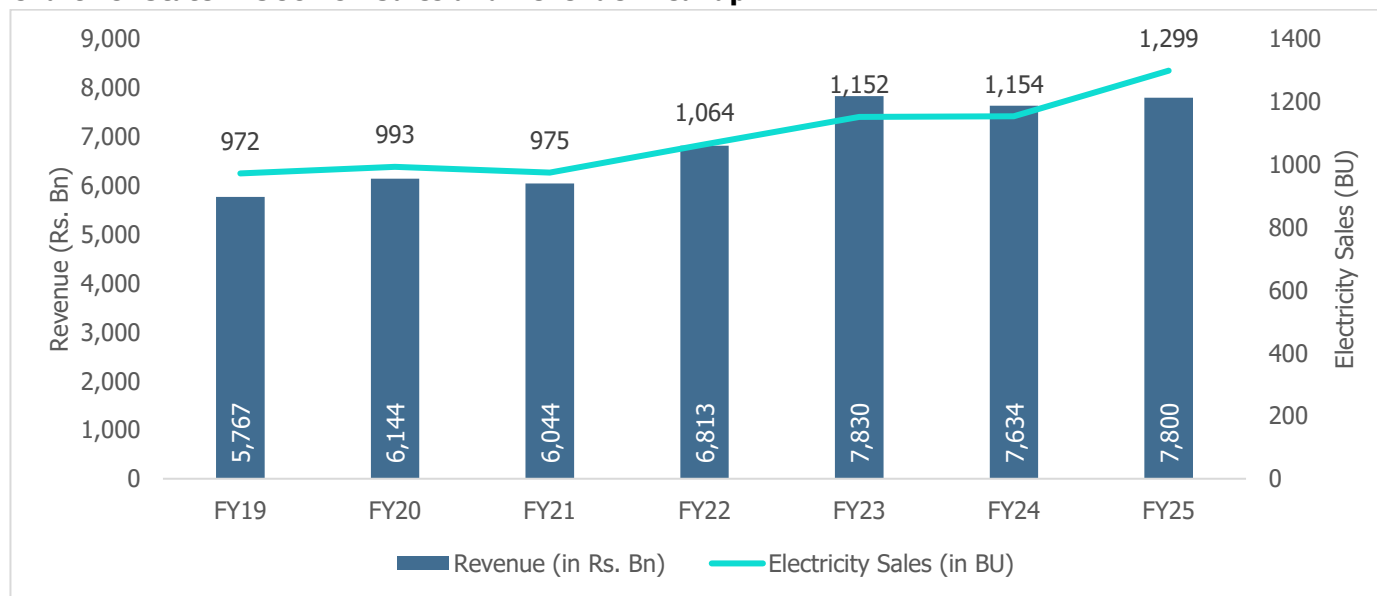
Distribution plays a crucial role in the power sector value chain, delivering electricity from transmission networks to end-users across residential, commercial, industrial and agricultural segments.

This segment is important for the power sector, as it generates revenue that is then passed on to the generation and transmission sectors. State-owned distribution companies (DISCOMs) primarily oversee this process. To encourage competition among DISCOMs and improve operational efficiency, the government allowed private participation in power distribution through the Electricity Act, 2003. While most DISCOMs in India are state-owned, private distribution licensees cater to about 10% of the population. Moreover, distribution franchises have played a significant role in reducing distribution losses in the areas they serve. In cities like Delhi, Surat, Ahmedabad, Kolkata and Mumbai, private licenses have been granted distribution rights and have demonstrated efficient operations.

The consumer base of DISCOMs is made up of five main segments: domestic, commercial, agricultural, industrial and others. The industrial sector contributes most revenue to DISCOMs, followed by the agricultural and domestic sectors.

6.2 Electricity Sales and Revenue Breakup of State Discoms

Chart 28: State DISCOMs - Sales and Revenue Breakup



Source: ICED Niti Aayog Dashboard, CareEdge Research

Electricity sales grew from 972 BU in FY19 to 1,299 BU in FY25 a CAGR of 4.9% and the revenue generated by state DISCOMs grew at a CAGR of 5% from Rs 5,767 billion in FY19 to Rs 7,800 billion in FY25.

6.3 Financial Health of the Discoms

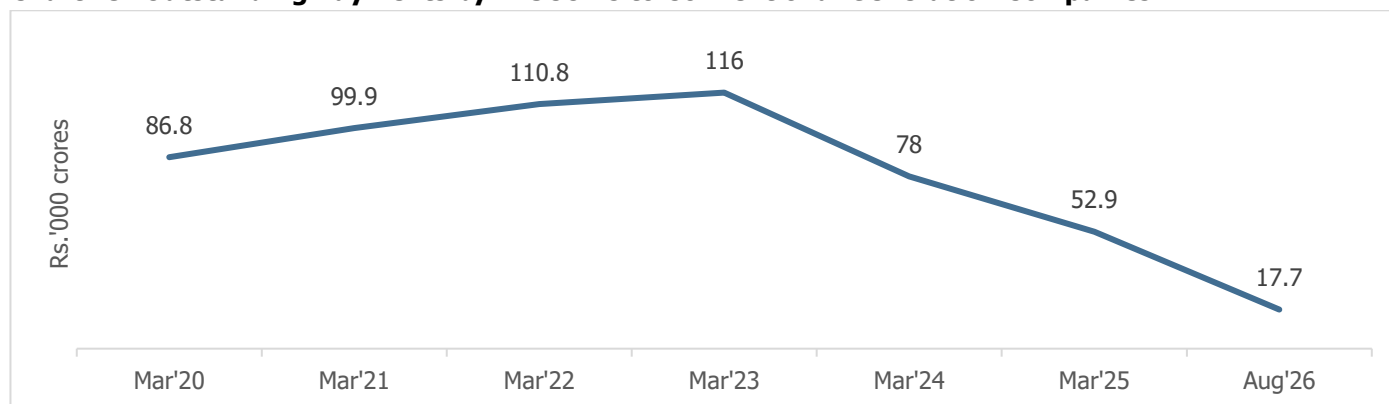
Total outstanding dues owed by the distribution companies stood at Rs 17,744 crore as of August, 2026 as compared to Rs 78,000 crore as of March, 2024. The improvement in recovery of outstanding dues has been due to the implementation of Electricity (Late Payment Surcharge and Related Matters) Rules, 2022, which were notified in August 2022.

The rules were introduced to strengthen the regulatory provisions for recovery of outstanding dues of generating, transmission and electricity trading licenses from distribution companies. The rules include late payment surcharge, prior intimation of payment schedule, priority-wise adjustment of payment and EMI schedule structure. Further, under these

rules, it has become difficult for DISCOMs to access power after the trigger date or in case of payment defaults unless the dues are settled.

The DISCOMs are now given forty-five days by the power producers to pay bills towards electricity supplied, after which the outstanding dues become overdue and the DISCOMs are penalised in most cases. Delay in payments by the DISCOMs adversely affect the cash flows of the generating companies, and hence, the generating companies need to make provisions for purchasing inputs like coal and keep adequate working capital. This impacts the entire value chain of the power sector. Schemes like the Revamped Distribution Sector Scheme (RDSS) have been introduced to improve the operational efficiency and financial sustainability of DISCOMs. The government is now seeking a 2-year extension of the RDSS scheme until FY28 to accelerate smart-meter rollouts and strengthen distribution infrastructure.

Chart 29: Outstanding Payments by DISCOMs to Conventional Generation Companies



Source: PRAAPTI

6.4 Projected Distribution Infrastructure Plan

Power distribution is the last stage in the electricity supply chain that delivers power to consumers. However, this sector faces various issues like frequent power cuts and high AT&C losses, which affect the financial health of distribution companies (DISCOMs). To ensure the electricity network can handle future demand up to the year 2030, the Central Electricity Authority (CEA), along with distribution companies has created a Distribution Perspective Plan for the years up to 2029-30. This plan outlines the infrastructure that DISCOMs across the country aim to develop to meet the expected electricity demand by then.

Table 23: Summary of Distribution Infrastructure Plan

Sr	Description	Unit	Mar-22	Mar-30	% increase
1	Substation Count (66/33/22 kV)	Nos	39,965	52,157	31%
2	Substation Capacity (66/33/22 kV)	MVA	4,82,810	6,24,332	29%
3	Feeders Count (66/33/22kV)	No	36,804	54,639	48%
4	Feeders Length (66/33/22kV)	CKM	5,89,304	7,77,994	32%
5	Feeders (11kV) Nos	Nos	2,30,979	3,23,899	40%
6	Feeders (11kV) Length	CKM	49,35,279	59,03,782	20%
7	Distribution Transformer (DT) count	Nos	1,46,74,261	1,93,32,115	32%
8	Distribution Transformer (DT)	MVA	6,89,192	9,27,656	35%
9	LT Feeders (1-Ph & 3 Ph)	CKM	79,45,758	97,74,634	23%
10	Capacitor Bank	MVAR	59,255	1,05,209	78%
11	Consumers (in Crores)	Nos	33	52	58%

Source: Distribution Perspective Plan 2030, CEA, CareEdge Research

Distribution

A total of Rs 7.42 trillion is expected to be added under this section from FY22 to FY30.

Table 24: Projected Investments in The Indian Electricity Distribution Sector (in Rs trillion)

Investment Required from 2022-27	Total Investment available with the DISCOM from various sources for period 2022-27 including RDSS	Investment Required from 2027-30	% of required investment already sanctioned up to 2027 under RDSS and other schemes
Rs 4.28	Rs 1.89	Rs 2.86	44%

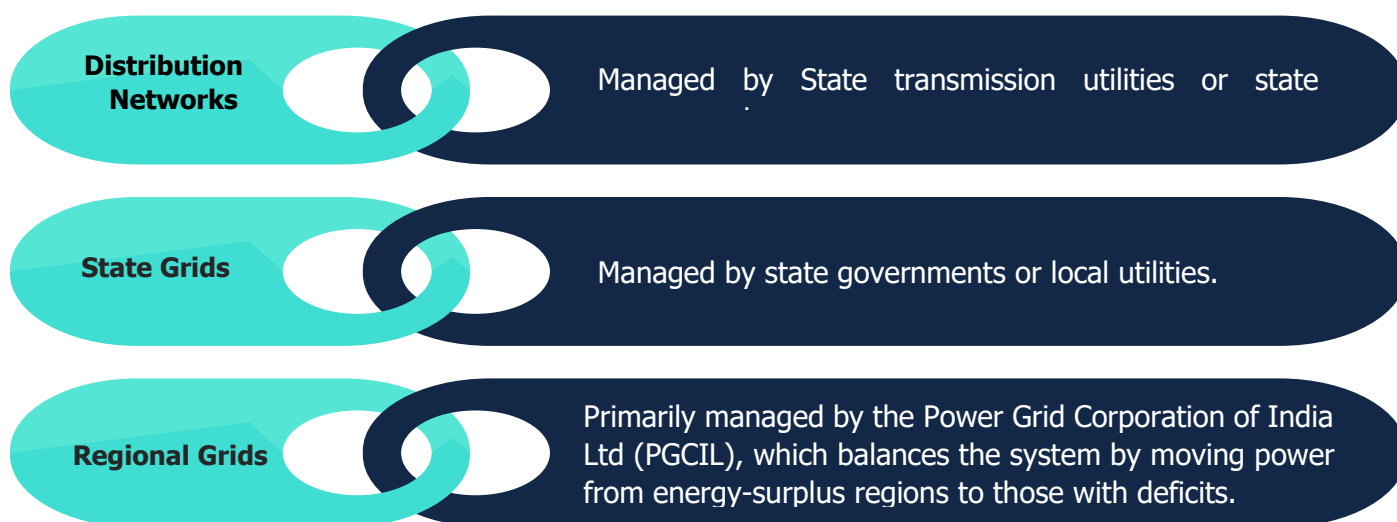
Source: Distribution Perspective Plan 2030, CEA

The projected investments in the power distribution segment are expected to create opportunities for EPC contractors across distribution infrastructure and system strengthening works, including substations, feeder segregation and bifurcation, network augmentation, reconductoring, cabling and smart metering. As per industry sources 40-45% of projects in the power distribution sector are executed through the EPC route suggesting an addressable market opportunity during FY27–FY30, although this may vary depending on the mode of project execution, scope of work and the proportion of investments undertaken through in-house or other procurement models.

6.5 Insight on Standard Voltage Level and its Application

To maintain a continuous flow of electricity, the transmission sector expands its capacity in line with power generation growth. This sector relies on a complex grid of transmission lines, substations, and transformers that link power plants to load centres. This interconnected grid ensures that if a local generator fails or a line is out for maintenance, electricity can be rerouted to prevent outages.

In India, the transmission and distribution (T&D) network follows a three-level hierarchy



The system operates across four primary voltage categories as mentioned above EHV, HV, MV and LV

The electricity supply system in India operates across a hierarchy of standardised voltage levels to ensure efficient transmission, reliable distribution, and safe end-use consumption of power. Extra High Voltage (EHV) levels, including 220 kV, 400 kV, and 765 kV (along with ± 500 kV and ± 800 kV HVDC systems), are primarily used for long-distance bulk power transmission from generation sources to major load centres, inter-state transmission networks and renewable energy evacuation corridors, as higher voltages significantly reduce transmission losses.

Power received at EHV substations is stepped down to High Voltage (HV) levels such as 66 kV, 110 kV, and 132 kV, which serve as sub-transmission networks supplying power to urban load centres, large industrial consumers, traction systems, and primary distribution substations. From there, electricity is further stepped down to Medium Voltage (MV) levels of 33 kV, 22 kV, and 11 kV for primary distribution within cities, towns, industrial estates, and rural areas, forming the key part of the distribution network. Finally, power is delivered to end-consumers at Low Voltage (LV) levels, typically 415 V for three-phase and 230 V for single-phase supply, catering to residential households, small commercial establishments and public infrastructure such as street lighting. This standardised voltage framework enables optimal system efficiency, equipment interoperability, grid stability, and safe electricity delivery across the entire power sector value chain.

6.6 Impact of Government Power Policy on T&D Infrastructure

Over the past decade, India's power transmission and distribution infrastructure has transformed considerably. This evolution was primarily driven by strategic policy initiatives focused on several key areas: expanding grid capacity, boosting system reliability, integrating renewable energy sources and improving the financial stability of utility companies. These collective efforts have successfully channelled substantial capital investment, extended the reach of the power network, and enhanced the overall operational efficiency throughout the entire T&D value chain.

1. National Electricity Policy (NEP) and Electricity Act Framework

The National Electricity Policy and the Electricity Act, 2003 provide the overarching regulatory and policy framework for the power sector. These policies emphasise non-discriminatory open access, development of a robust national grid, and promotion of competition and private sector participation. As a result, transmission planning has shifted towards creating a strong inter-regional and inter-state transmission network, enabling seamless power flow across regions and optimal utilisation of generation capacity. The policy framework has also encouraged standardisation of grid codes, technical norms, and planning criteria, thereby improving system stability and long-term network resilience.

2. Renewable Energy Policies and Green Energy Corridors

India's aggressive renewable energy targets of 500 GW of non-fossil fuel capacity by 2030 are having a transformative impact on transmission infrastructure. Policies promoting large-scale solar and wind development have necessitated the creation of dedicated renewable energy evacuation systems, including Green Energy Corridors and high-capacity interstate transmission systems (ISTS). These initiatives have driven investments in extra-high voltage (EHV) AC and HVDC lines, pooling substations, and advanced grid management systems to handle intermittency. Consequently, transmission planning has become more forward-looking, focused on integrating geographically dispersed renewable resources with major demand centres.

3. Tariff-based Competitive Bidding (TBCB) Guidelines

The introduction of tariff-based competitive bidding for transmission projects has significantly altered the sector's execution landscape. Under TBCB, private developers compete to build and operate transmission assets at the lowest discovered tariff, improving cost efficiency and accelerating project timelines. This policy has increased private sector participation, reduced dependence on public funding, and introduced global best practices in project execution, risk management, and asset operation. The resulting competitive environment has contributed to faster expansion of transmission capacity and more disciplined capital deployment.

4. Revamped Distribution Sector Scheme (RDSS)

The RDSS focuses on improving the operational and financial performance of distribution companies through targeted investments in infrastructure and technology. Key components include feeder segregation, system strengthening, underground cabling in urban areas, deployment of smart prepaid meters, and modernisation of substations. By reducing technical and commercial losses and improving billing and collection efficiency, RDSS indirectly strengthens the transmission segment as well, as financially healthier DISCOMs are better positioned to support grid expansion and

honour transmission charges. The scheme also supports enhanced load forecasting and network planning at the distribution level.

5. Late Payment Surcharge (LPS) Rules, 2022

The LPS Rules were introduced to address chronic payment delays by DISCOMs to generators and transmission utilities. By mandating timely payments, restructuring legacy dues into fixed instalments, and linking access to scheduling with payment compliance, these rules have improved cash flow visibility and payment security across the sector. Improved financial discipline has reduced counterparty risk for transmission utilities and EPC players, enabling smoother project execution and encouraging continued investment in transmission infrastructure.

6. Integrated Transmission Planning and National Grid Initiatives

Policy emphasis on integrated generation and transmission planning, led by agencies such as the Central Electricity Authority (CEA), has resulted in coordinated development of transmission networks aligned with future demand and capacity additions. National Grid initiatives have strengthened inter-regional connectivity, enhanced transfer capability, and improved system reliability. This integrated approach has minimised congestion risks, reduced regional imbalances, and enabled efficient power markets.

6.7 Overview of RDSS (Revamped Distribution Sector Scheme)

6.7.1 Outlay

Launched in July 2021 with an outlay of Rs 3.04 trillion, including Gross Budgetary Support of Rs 976.3 billion, the RDSS is a reforms-based and results-linked scheme aimed at improving the operational efficiency and financial sustainability of power distribution utilities. The scheme provides financial support primarily for prepaid smart metering, system metering and upgradation of distribution infrastructure. It aims to reduce pan-India AT&C losses to 12-15% and eliminate the ACS-ARR gap.

6.7.2 Scope

The RDSS focuses on modernizing power distribution networks through replacement of old conductors, augmentation and creation of substations and Distribution Transformers (DTs), feeder segregation, smart metering and implementation of SCADA/DMS systems. As of August 2026, around Rs 2.84 trillion of works had been sanctioned under the scheme, comprising Rs 1.53 trillion for loss-reduction infrastructure and Rs 1.31 trillion for smart metering. Cumulative funds released under RDSS since FY23 stood at Rs 471.24 billion as of August 2026.

6.7.3 State-wise Rollout Status

Prepaid smart metering remains one of the key components of RDSS, aimed at improving billing and collection efficiency, energy accounting and the financial sustainability of DISCOMs. Smart metering works have been sanctioned across 28 States and 45 distribution utilities, covering 19.79 crore consumer meters, 52.53 lakh Distribution Transformer meters and 2.05 lakh feeder meters, aggregating to around 20.33 crore smart meters.

The pace of RDSS implementation has accelerated, with cumulative smart meter installations increasing by 1.83 crore meters within six months, reaching 5.73 crore as of June 2026 against the sanctioned target of 19.8 crore meters. Overall smart meter installations in India, including installations under State plans and other schemes, reached 7.24 crore by August 2026.

RDSS funding deployment remains concentrated in a few large states, with Uttar Pradesh (Rs 15,989 crore), Rajasthan (Rs 12,688 crore), Maharashtra (Rs 12,673 crore), and Tamil Nadu (Rs 8,659 crore) emerging as the largest beneficiaries of sanctioned Gross Budgetary Support (GBS). While the national progress of loss reduction works stood at 42.2%, states such as West Bengal (65.5%), Assam (61.5%), Tripura (59.3%), and Jharkhand (59.2%) have emerged as frontrunners, showing stronger on-ground execution despite comparatively lower funding allocations.

The allocation pattern indicates a strong focus on infrastructure strengthening and loss reduction, with the majority of sanctioned funding directed toward states having large distribution networks and significant efficiency improvement potential.

6.8 Rural Electrification Schemes

The Government of India, working along with the State Governments, has achieved electrification of all inhabited unelectrified census villages and all willing households identified under flagship programmes such as Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) and Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA). Under DDUGJY, 18,374 villages were electrified, while around 2.86 crore households were provided with electricity connections during the SAUBHAGYA period. The schemes also supported strengthening of rural distribution infrastructure through new and augmented substations, feeder segregation, installation of distribution transformers and expansion of HT/LT distribution lines. DDUGJY and SAUBHAGYA were closed as of March 2022.

Rural and household electrification is currently being supported under the Revamped Distribution Sector Scheme (RDSS). As of February 2026, on-grid electrification works worth Rs 65.21 billion had been sanctioned for 13.65 lakh households, including households belonging to Particularly Vulnerable Tribal Groups (PVTGs), Scheduled Tribes, Scheduled Castes and households in remote and border areas. Of these, around 2.93 lakh households were electrified. Continued investments in rural distribution infrastructure have also supported improvement in power availability, with average electricity supply in rural areas increasing from 12.5 hours in FY15 to 22.6 hours in FY25.

6.9 State-wise Transmission Line Planned and likely Investment for the same as the end of the period

The estimated expenditure for implementing additional transmission systems in India is projected to be Rs 4,252.2 billion for the period 2022-27 and Rs 4,909.2 billion for the period 2027-32. This expenditure will cover the development of transmission lines, substations, reactive compensation and other related infrastructure. However, since States/UTs are still finalising their intra-State transmission plans for 2027-32, the final cost estimates for intra-State transmission systems and the overall investment may change in the future.

The projections for transmission lines, transformation capacity, and likely investment amounts in different states and Union Territories (UTs) in India for two periods: 2022-27 and 2027-32 are given below: Among the states, Gujarat, Uttar Pradesh, and Maharashtra stand out as the largest contributors to investments and infrastructure growth. For the 2022-27 period, Gujarat leads with the highest likely investment of Rs 2,28,590 million, followed by Uttar Pradesh with Rs 2,23,860 million, and Maharashtra with Rs 1,99,590 million. Gujarat also dominates the transmission line and transformation capacity metrics, with the highest values in both categories (10,449 ckm of transmission lines and 37,445 MVA of transformation capacity). Uttar Pradesh and Maharashtra are also major contributors, with Uttar Pradesh having the most significant transmission line coverage (9,858 ckm) and transformation capacity (50,205 MVA), while Maharashtra focuses more on transmission (6,705 km) and relatively lower transformation capacity (31,950 MVA).

Table 25: Summary of Intra-state Transmission System Planned for the Period 2022-32

State/ UT	For 2022-27			For 2027-32		
	Transmission lines (Ckm)	Transformati on Capacity (MVA)	Likely Investment (Rs Million)	Transmissio n lines (Ckm)	Transformation Capacity (MVA)	Likely Investment (Rs Million)
Haryana	1,934	14,805	47,670	369	3,500	12,910
Himachal Pradesh	393	2,521	10,410	370	320	3,540
Uttar Pradesh	9,858	50,205	2,23,860	4,230	23,250	1,61,140
Uttarakhand	294	2,660	10,890	347	2,430	7,970

Rajasthan	3,932	21,720	1,45,370	1,857	15,160	89,140
Maharashtra	6,705	31,950	1,99,590	179	2,370	8,260
Gujarat	10,449	37,445	2,28,590	15,870	90,430	4,94,940
Madhya Pradesh	2,923	10,525	59,000	1,369	6,190	30,080
Chhattisgarh	1,497	5,090	26,150	1,210	3,460	25,900
Tamil Nadu	4,940	32,857	1,69,930	864	3,000	36,410
Karnataka	702	14,800	29,380	121	2,300	4,700
Andhra Pradesh	4,005	13,040	81,760	2,704	14,300	56,240
Odisha	2,143	5,000	37,500	1,625	7,000	39,980
Others	13,727	62,487	2,90,620	2,347	8,230	21,750
Total (Intra-state)	63,502	3,05,105	15,60,720	33,462	1,81,940	9,92,960

Source: NEP, CareEdge Research

For the 2027-32 period, Gujarat continues to hold the lead, with a massive projected investment of Rs 4,94,940 million, alongside the highest increase in both transmission lines (15,870 ckm) and transformation capacity (90,430 MVA). Uttar Pradesh follows with Rs 1,61,140 million in investments, showing a decrease in transmission line additions (4,230 ckm) compared to the previous period but still maintaining significant growth. Maharashtra's investments drop to Rs 8,260 million in the 2027-32 period, with minimal transmission line and transformation capacity additions. Other states such as Rajasthan, Tamil Nadu, and Andhra Pradesh also show notable investments and infrastructure expansion, contributing to a total investment of Rs 9,92,960 million for the 2027-32 period across the country. Overall, Gujarat, Uttar Pradesh and Maharashtra are the largest contributors to the energy transmission infrastructure in India, with substantial investments and infrastructural developments projected for the future.

6.10 Overview: EPC Services & Advantages

Transmission EPC services in India involve the end-to-end execution of power transmission projects, covering engineering, procurement, construction, testing and commissioning of transmission lines and substations. These services are essential for evacuating power from generation sources, integrating renewable energy, and strengthening inter-state and inter-regional grid connectivity. Transmission EPC projects are executed across extra-high, high, and sub-transmission voltage levels and are undertaken for central utilities, state transmission utilities and private developers under turnkey and competitive bidding frameworks. Overall, the transmission EPC segment plays a vital role in expanding grid capacity, improving reliability, and supporting India's long-term power sector growth.

Benefits	Description
Smooth Management of Projects	When working on a turnkey basis, EPC companies handle every aspect of the project, eliminating the need for the project owner to coordinate with various parties.
Quality Assurance	EPC companies hire skilled engineers and technicians to carry out projects. They focus on delivering high-quality construction while reducing malfunctions, ultimately enhancing long-term performance.

Cost Efficiency	The EPC contractors have their own suppliers and procurement methods for easy procurement at competitive prices. With efficient designing of systems and cost-effective procurement, EPC companies can help achieve optimal construction costs for the project.
Timely Completion	Transmission EPC projects consist of several stages. EPC companies are hired to finish the project on schedule, and a skilled EPC company guarantees its prompt commissioning. Delays in completion usually result in penalties outlined in the EPC contract.

7 Water Infrastructure Sector in India

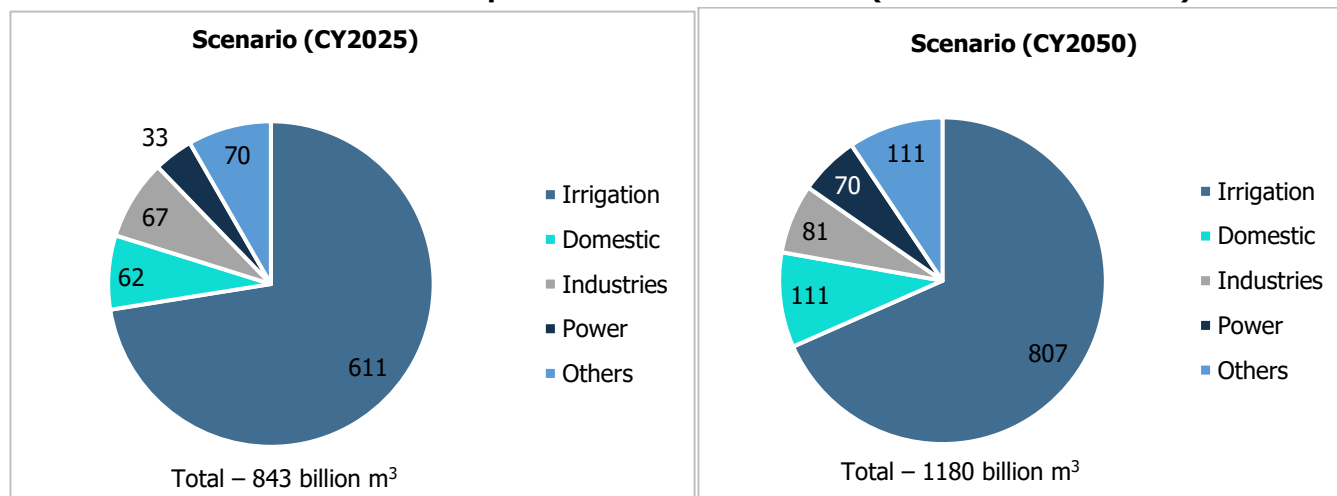
7.1 Overview of Water Infrastructure Sector in India

India, with 1.43 billion people is currently the world's most populous country. According to the United Nations (2023), 64% of its population resides in rural areas, while the remaining 36% is concentrated in urban centres. India has a challenge of serving 18% of the world population with 4% of the world's freshwater resources. Currently, India stores less than one-tenth of the annual rainfall and is designated to be a water-stressed nation. Disproportionate use of water for agricultural use, excessive groundwater pumping and deficient monsoon in the last couple of years make the demand-supply balance more critical. India is facing water crisis with around 50% of the population experiencing high-to-extreme water shortage, as per NITI Aayog.

Annual per capita water availability is largely determined by regional hydro-meteorological and geological factors. With a steadily rising population, India's per capita water availability has been declining. As per the "Reassessment of Water Availability in India using Space Inputs (2019)," the annual per capita availability has fallen below 1,700 cubic metres and is projected to decline further to 1,367 cubic metres by 2031. The Dynamic Ground Water Resource Assessment 2024 reports that of the 6,746 assessed units including blocks, talukas, mandals, watersheds, and firkas 751 units (11.13%) have been classified as 'over-exploited'. It is expected that by 2050, about 1,450 km³ of water will be required out of which approximately 75% will be used in agriculture, ~7% for drinking water, ~4% in industries, ~9% for energy generation.

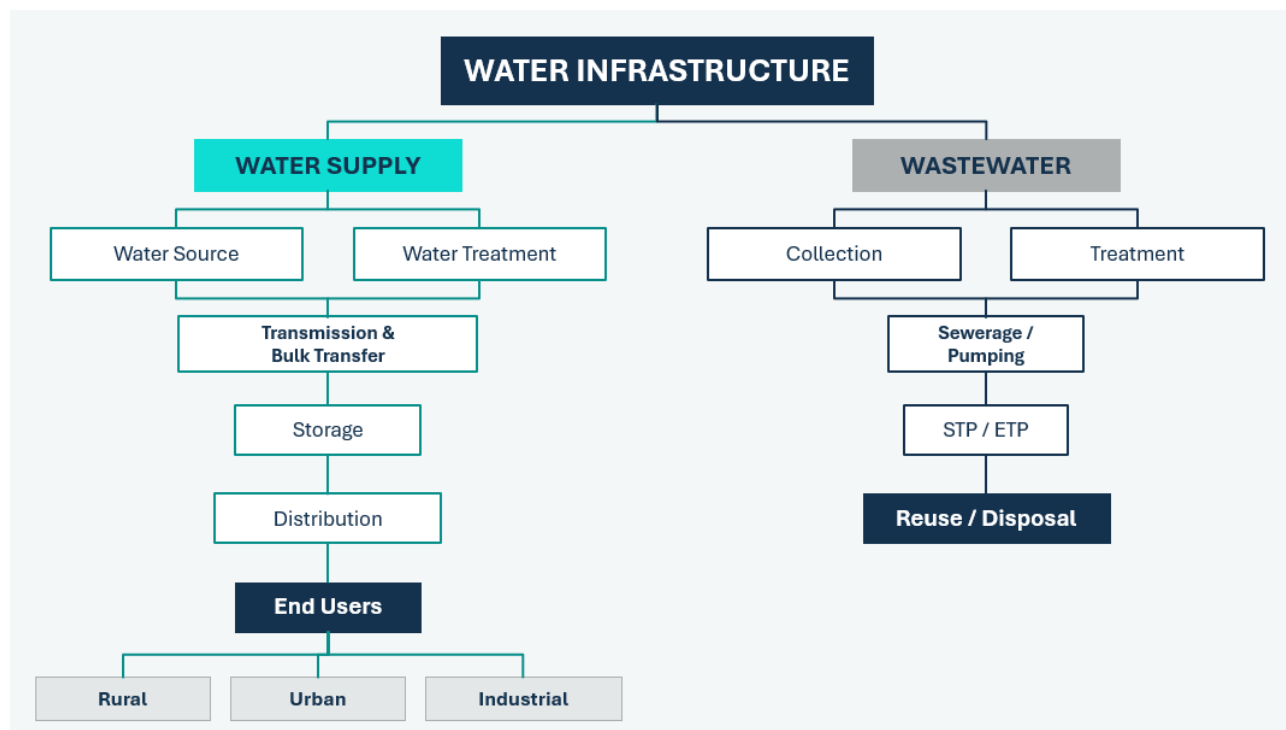
Water Supply Management

Chart 30: Market Size for Water Requirement for Different Uses (in Billion Cubic Meters)



Source: Central Water Commission Survey 2019, CareEdge Research

India's water infrastructure sector comprises infrastructure for water sourcing, treatment, transmission, storage and distribution, along with wastewater collection, treatment and reuse. The sector serves rural households, urban centres and industrial users, with infrastructure development largely undertaken through government programmes, state agencies, urban local bodies and industrial investments.



Key Focus Areas:

Rural Areas: Expansion of piped drinking-water infrastructure, including water treatment, bulk water transmission, distribution networks, storage facilities, household tap connections and greywater management.

Urban Areas: Development and augmentation of water supply networks, water treatment plants, pumping stations, reservoirs, sewerage networks, sewage treatment plants and treated-water reuse infrastructure.

Industrial Areas: Development of industrial water supply and treatment systems, including process-water treatment, effluent treatment plants (ETPs), wastewater treatment and recycling systems, water reuse and related pumping and distribution infrastructure

Key Steps Taken by the Government:

- Improving the overall water use efficiency in irrigation and drinking water supply system
- Adoption of piped distribution system in place of open canal system to reduce the conveyance water loss
- Command area development by implementing more micro irrigation systems and participatory irrigation management
- Dam safety, dam rehabilitation and performance improvement
- Repair, renovation and restoration of existing water bodies for irrigation, drinking water supply, cultural activities, etc.
- Improving the rural drinking water supply system and sanitation

7.2 Jal Jeevan Mission

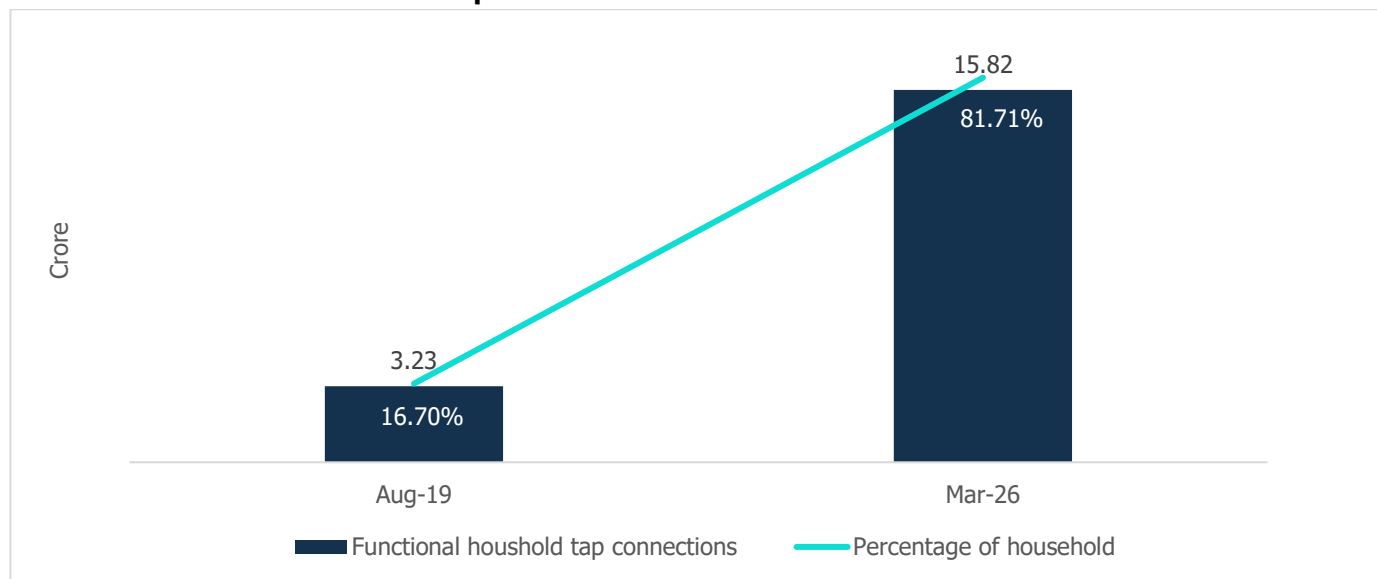
Jal Jeevan Mission (JJM) is a Central Government initiative undertaken by the Ministry of JAL SHAKTI. It aims to ensure piped water access to every household in rural India. The initiative was launched on 15 August 2019 by the Prime Minister of India.

The programme is implemented in partnership with States to ensure tap water supply in adequate quantity, prescribed quality, adequate pressure, on a regular and long-term basis in all rural households and public institutions, which includes anganwadi, schools, ashramshalas, public/ community health centres, sub-centres, wellness centres, community centres, gram panchayat buildings, etc., by the year 2024.

Under JJM, 30% weightage was assigned for difficult terrains, which include areas under Desert Development Programme (DDP) and Drought Prone Area Programme (DPAP) while allocating the fund, to prioritise the coverage in these areas. Further, provisions have been made in the operational guidelines for planning and implementation of bulk water transfer from long distances and regional water supply schemes for ensuring tap water supply in drought-prone & water-scarce areas/ areas with inadequate rainfall or dependable groundwater sources. In addition, provisions have also been made for source recharging, viz. dedicated bore well recharge structures, rain water recharge, rejuvenation of existing water bodies, etc., in convergence with other schemes such as the Mahatma Gandhi National Rural Employment Guarantee Act 2005 (MGNREGA), Integrated Watershed Management Programme (IWMP), 15th Finance Commission tied grants to Rural Local Bodies (RLB)/ Panchayat Raj Institutions (PRI), State schemes, Corporate Social Responsibility funds, etc.

For villages in water-scarce areas, in order to save the precious fresh water, states are also being encouraged to plan new water supply schemes with dual piped water supply system, i.e. supply of fresh water in one and treated grey/ wastewater in another pipe for non-potable/ gardening/ toilet flushing use. Moreover, the households in these areas are to be encouraged to use faucet aerators that save a significant amount of water, in multiple taps that they may be using inside their house.

Chart 31: Functional Household Tap Connection Under Jal Jeevan Mission



Source: Jal Jeevan Mission, CareEdge Research

The total number of households in India as of 3rd March 2026 was 19.36 crore, out of which around 15.82 crore households have received tap water connections.

Achievements under JJM:

- More than 12.58 crore additional rural households had been provided tap water connections under JJM as of 3rd March 2026
- Direct support of USD 18.94 billion has been added under the 15th Finance Commission for 5 years from 2021-2026
- Tap water supply has been provided in more than 9.23 lakh schools and 9.66 lakh anganwadi centres, representing coverage of 89.62% and 85.60%, respectively
- 0.53 million village water and sanitation committees with at least 50% women have been formed under the community engagement
- 2,863 water testing laboratories have been established across the country and 2.5 million women have been trained to use the test kits

Jal Jeevan Mission 2.0

In March 2026, the Union Cabinet approved Jal Jeevan Mission 2.0, extending the original Jal Jeevan Mission up to December 2028, with an enhanced outlay of Rs 8.69 trillion, including Central assistance of Rs 3.59 trillion to support States and Union Territories in achieving sustainable rural drinking water coverage. The restructured mission shifts the focus from infrastructure creation towards reliable service delivery, sustainability, operation and maintenance of rural water supply systems, supported by digital monitoring and institutional reforms.

Under JJM 2.0, the Government aims to provide tap-water connections to all 19.36 crore rural households by December 2028 and facilitate certification of all Gram Panchayats as 'Har Ghar Jal'.

During FY27, the Government of India reimbursed Rs 5288.9 crore as Central share to 10 States for expenditure incurred on approved rural water supply schemes during the transition from Jal Jeevan Mission 1.0 to 2.0. In addition, Rs 865.9 crore has been released through SNA SPARSH across 13 States during the financial year.

Table 26: State-wise Central Fund Reimbursement Released

SI No	State	State-wise Central Fund Reimbursement Released Amount (Rs crore)	State-wise Central Fund Released Through SNA SPARSH under JJM 2.0 Amount (Rs crore)
1	Andhra Pradesh	23.25	10.58
2	Assam	-	669.92
3	Chhattisgarh	149.50	3.88
4	Himachal Pradesh	-	2.02
5	Jharkhand	-	0.35
6	Karnataka	795.74	47.30
7	Kerala	144.66	-
8	Madhya Pradesh	14.10	-
9	Maharashtra	594.44	-
10	Odisha	221.44	0.51
11	Punjab	-	0.01
12	Rajasthan	537.72	3.88
13	Tamil Nadu	96.52	0.01
14	Tripura	-	5.98

15	Uttar Pradesh	2,711.52	90.98
16	West Bengal	-	30.45
	Total	5,288.89	865.87

Source: PIB dated 6th August 2026, CareEdge Research

Funding Mechanism Under JJM

The Jal Jeevan Mission is funded through Central and State/UT government resources, with the Central allocation comprising Gross Budgetary Support (GBS) and Extra-Budgetary Resources (EBR). The funding share varies by geography, with higher Central assistance for North-Eastern/Himalayan States and Union Territories.

Particulars	Share / Treatment
Annual JJM allocation	GBS + Extra-Budgetary Resources
Department / National Mission activities	Up to 2% of Annual allocation
Japanese Encephalitis – Acute Encephalitis Syndrome (JE-AES)	0.5% of Annual allocation
North-Eastern States (NE states)	10% of Annual allocation
Externally Aided Project (EAP) of Rural Water Supply and Sanitation Project (RWSSP) – LIS (Low Income States)	As per requirement of States decided by Department/ National Mission
National Water Quality Sub-Mission (NWQSM)	As per requirement of States decided by Department/ National Mission
Balance	Allocated to non-NE States / UTs

Source: Jal Jeevan Mission, CareEdge Research

Criteria for Allocation of Fund

Allocation Criterion	Weightage
Rural population (as per last Census)	30%
Rural SC/ST population (as per last Census)	10%
Rural areas under DDP, DPAP, HADP and special-category Hill States	30%
Population residing in habitations affected by chemical contaminants (as on 31 March of preceding financial year)	10%
Balance individual household connections to be provided	20%
Total	100%

Source: Jal Jeevan Mission, CareEdge Research;

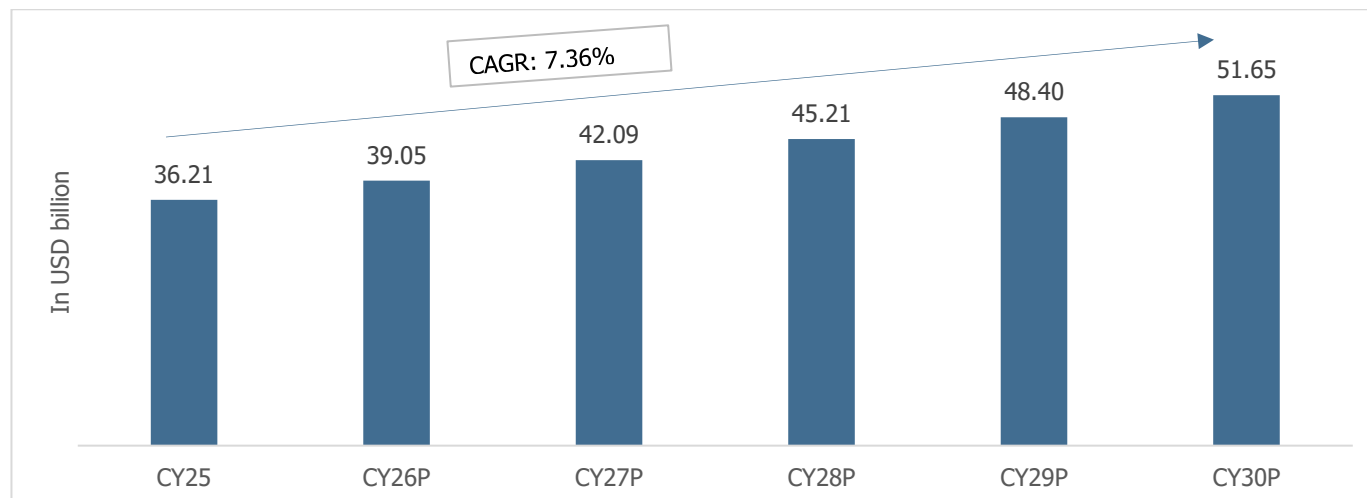
Note: DDP: Desert Development Programme, DPAP: Drought Prone Area Programme, HADP: Hill Area Development Programme

7.3 Indian Water Infrastructure Market

The Indian water infrastructure market was valued at USD 36.21 billion in CY25 and is estimated to increase to USD 39.05 billion in CY26 and USD 51.65 billion by CY30P, registering a CAGR of 7.36% during CY26-CY30P. The expected growth is supported by increasing water requirements across industrial and other end-use sectors, rising focus on water conservation and wastewater management, and continued investments in water infrastructure.

Growth in the sector is also being supported by government programmes aimed at improving water supply and sanitation infrastructure, increasing wastewater treatment and promoting efficient water use. The adoption of technologies such as IoT-enabled monitoring, advanced wastewater treatment and smart water management systems is further contributing to the development of the sector across residential, industrial and commercial applications.

Chart 32: Market Size of Water and Sanitation Infrastructure in India



Source: Inkwood Research, CareEdge Research

7.4 Key Government Schemes and State Water Sanitation Missions (SWSM)

• Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) was launched on 25 June 2015 to develop basic urban infrastructure across selected cities, covering water supply, sewerage and septage management, storm water drainage, green spaces and non-motorised urban transport. AMRUT 2.0 was launched on 1 October 2021 with a wider focus on making cities water secure and self-reliant, including universal water supply coverage in statutory towns and sewerage/septage coverage in the original AMRUT cities. The total indicative outlay for AMRUT 2.0 remains Rs 2,99,000 crore, including central share of Rs 76,760 crore.

Under AMRUT and AMRUT 2.0, over the last 10 years, 2.03 crore tap connections and 1.50 crore sewer connections have been provided, while projects worth Rs 2.73 lakh crore have been sanctioned and works worth around Rs 1.12 lakh crore have been completed as of June 2025.

As per the AMRUT 2.0 National Progress Comparison Report for the week of 19 July 2026, 8,777 projects worth Rs 1,97,191.85 crore had been approved. Of these, contracts had been awarded for 7,702 projects worth Rs 1,50,976.00 crore, while 2,767 projects worth Rs 10,593.0 crore had been completed. For sewerage and septage specifically, 605 projects worth Rs 71,133.01 crore had been approved, with contracts awarded for 515 projects worth Rs 49,433.75 crore and 123 projects worth Rs 2,453.76 crore completed.

Table 27: Project Details Under AMRUT

Particulars	Projects Approved	Approved Cost (Rs crore)	Contracts Awarded	Awarded Cost (Rs crore)	Projects Completed	Completed Cost (Rs crore)
AMRUT 2.0 – Overall	8,777	1,97,191.85	7,702	1,50,976.00	2,767	10,593.00

Sewerage & Septage Management	605	71,133.01	515	49,433.75	123	2,453.476
--	-----	-----------	-----	-----------	-----	-----------

Source: AMRUT 2.0 National Progress Comparison Report for the week of 19 July 2026

On the budgetary side, the allocation for AMRUT has been revised to Rs 7,500.00 crore in RE FY26, while BE FY27 has been kept at Rs 8,000 crore, indicating continued budgetary support for urban water and sewerage infrastructure.

• **Namami Gange programme**

It is an integrated Conservation Mission approved as 'Flagship Programme' by the Union Government in June 2014 with a budget outlay of Rs 200 billion to accomplish the twin objectives of:

- i. effective abatement of pollution
- ii. conservation and rejuvenation of the National River Ganga

The Programme has the main objectives of Sewerage Treatment Infrastructure, River Surface Cleaning, Afforestation, Industrial Effluent Monitoring, etc. For conservation of rivers, the Ministry of Jal Sakti has been supplementing efforts with the states and Union Territories by providing financial and technical assistance for abatement of pollution under the programme.

The programme was initially approved with a budgetary outlay of Rs 20,000.00 crore up to March 2021 and was subsequently extended under Namami Gange Mission-II up to March 2026 with an additional budgetary outlay of Rs 22,500.00 crore. As of February 2026, a total of 524 projects had been sanctioned under the programme at an estimated cost of Rs 43,030.00 crore, of which 355 projects had been completed.

Sewerage infrastructure continues to remain the core focus area of the programme, as untreated sewage is one of the key sources of pollution in the Ganga and its tributaries. As of February 2026, 218 sewerage infrastructure projects costing Rs 35,794.00 crore had been taken up, with planned treatment capacity of 6,610 MLD. Of these, 138 STP projects with treatment capacity of 4,050 MLD had been completed and made operational.

Table 28: Progress Made Under Namami Gange

Particulars	Updated Status
Total projects sanctioned	524
Total sanctioned cost	Rs 43,030 crore
Total projects completed	355
Sewerage infrastructure projects taken up	218
Cost of sewerage infrastructure projects	Rs 35,794 crore
Planned sewage treatment capacity	6,610 MLD
Completed / operational STP projects	138
Completed / operational STP capacity	4,050 MLD

PIB, Ministry of Jal Shakti, dated 2 April 2026

• **Swachh Bharat Mission (Urban)**

Swachh Bharat Mission (SBM) (Urban) was launched by the GoI with the vision of ensuring hygiene, waste management and sanitation across the country on 2nd October 2014. The SBM (Urban) was implemented under the Ministry of Housing and Urban Affairs. The key focus area under this is eliminating open defecation, eradication of manual scavenging by converting insanitary toilets to sanitary, solid waste manager, behavioural change, general sanitation awareness etc.

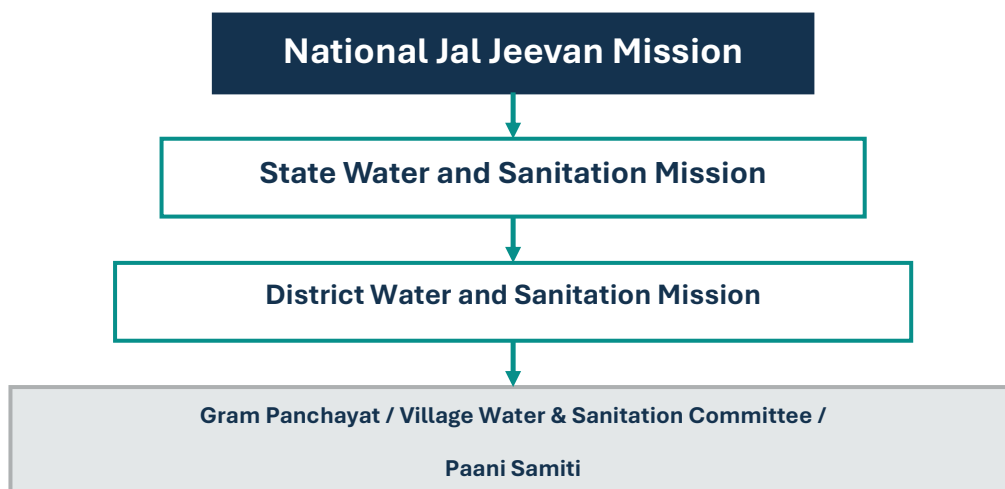
Under Swachh Bharat Mission (Urban) 2.0, launched in October 2021 an amount of Rs 158.83 billion has been allocated to states and union territories for wastewater management, including setup of sewage treatment plants and faecal sludge treatment plants.

• State Water and Sanitation Mission (SWSM)

The 'State Water and Sanitation Mission (SWSM)' is a state-level institutional mechanism under the 'Jal Jeevan Mission (JJM)' for coordinating and supporting the implementation of rural drinking water programmes. The SWSM framework is envisaged across States and Union Territories, with the specific administrative structure and nodal department varying by State. The concept of SWSM predates the Jal Jeevan Mission and was introduced in the year 1999 to facilitate coordination, convergence and policy guidance for rural water supply and sanitation programmes.

Under JJM, SWSM forms the second tier of the implementation structure, between the National Jal Jeevan Mission and the District Water and Sanitation Missions. Its responsibilities include preparation and finalisation of State Action Plans, coordination among State departments and implementing agencies, monitoring of physical and financial progress, facilitation of fund utilisation, capacity building and supporting long-term drinking water security.

Structure for SWSM:



As drinking water is a state subject, state governments are responsible for planning and implementing rural water supply schemes, while the Government of India provides financial, technical and policy support through JJM. Accordingly, SWSMs serve as an important coordination and implementation mechanism for translating national programme objectives into state-level action plans and projects.

7.5 Key Players in Water EPC and O&M

The competitive landscape of the Indian water infrastructure industry features a mix of public and private sector players, with state-owned entities dominating service delivery.

Table 29: Competitive Landscape

Company Name	Revenue from Operations (in million)	PAT (in million)	Order Book (in million)	Business Segment/ Services	Geographical Presence
VA Tech WABAG	39,442	3,698	1,72,350	Drinking Water Treatment, Wastewater Treatment, Desalination Plant Solutions Industrial Water Treatment, Effluent Treatment, Sludge Treatment	-

Vikran Engineering Limited	12,493	917	Total order book: 5,20,600 Water infra order book: 63,440	Water Infrastructure: Underground water distribution, Surface water extraction, Overhead tanks, and Distribution network Power transmission & Distribution EPC, IPP: Solar energy Railway Electrification	18 states
Enviro Infra Engineers Ltd	11,456	1,884	68,136	EPC, O&M: Water Treatment Plants, Sewage Treatment Plants, Common Effluent Treatment Plants, Water Supply Schemes. EPC, IPP: Solar, Wind, BESS	17 states
Technocraft Ventures Limited	3,450	433	11,288	EPC, O&M: Wastewater Treatment and Sewerage Network, Water Supply Schemes Electrical Transmission Other: Road and Urban Infra	NA
Denta Water & Infra Solutions Ltd	2,504	609	7,278	Water Infrastructure Management, Groundwater recharging	NA
WOG Technologies*	1,654	442	10,130	EPC, O&M: Water Treatment, Seawater Desalination (SWRO), Effluent Treatment Plant, Sewage Treatment Plants (STPs), Solid Waste Management , Recovery of OIL from waste water, Generating Bio GAS through treatment of waste water	-

Source: Company disclosures; Note: WOG Technologies Limited: Revenue and PAT figures is as of FY25 as per latest disclosures, and Order Book is as on November'25; Rest figures are as of FY26

8 Electrical Cables and Conductor Manufacturing

8.1 Overview of the Indian Wires and Cables Industry

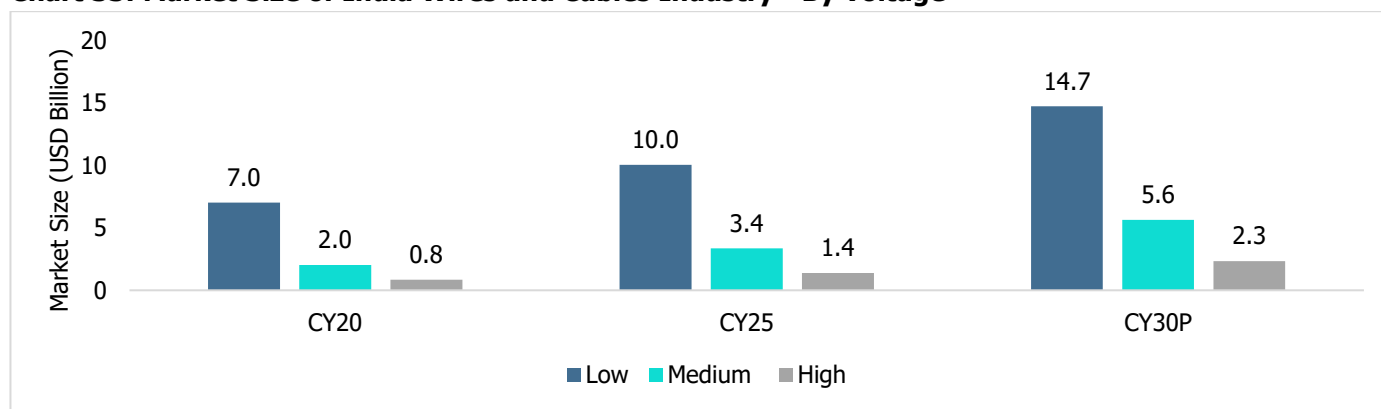
The Indian wires and cables industry is a critical component of the country's electrical infrastructure, supporting power transmission, distribution, industrial operations, telecommunications, and construction activities. The sector plays an essential role in enabling electricity flow and connectivity across residential, commercial, and industrial applications, making it an important part of India's infrastructure and economic development. Over the years, the industry has evolved from supplying conventional low-voltage wiring products to a broader portfolio of specialised cables, including high-voltage cables, instrumentation cables, fibre optic cables, and renewable energy cables. This transformation has been driven by growing electrification, rapid urbanisation, industrial expansion, and increasing investments in infrastructure projects.

The demand for wires and cables in India has been supported by key sectors such as power generation and transmission, real estate, transportation, telecom, and renewable energy. Government initiatives focused on rural electrification, smart cities, renewable energy expansion, and strengthening transmission networks have further accelerated industry growth. At the same time, the increasing focus on safety standards and energy efficiency has led to greater adoption of premium and advanced cable products. Going forward, the Indian wires and cables industry is expected to benefit from rising investments in infrastructure development, expansion of electric vehicle charging networks, growth in renewable energy capacity, and the rollout of digital and telecom infrastructure. With increasing emphasis on quality, safety compliance, and domestic manufacturing, the sector is expected to maintain steady growth and strengthen its contribution to India's infrastructure ecosystem.

8.2 Market Size of the Indian Wires and Cables Industry – By Voltage

The Indian wires and cables industry is segmented into low-voltage, medium-voltage, and high-voltage cables based on application and transmission requirements. Each segment serves different end-use industries, ranging from residential and commercial wiring to industrial operations, utility networks, and large-scale power transmission projects.

Chart 33: Market Size of India Wires and Cables Industry - By Voltage



Source: Inkwood Research, CareEdge Research, P denotes projected

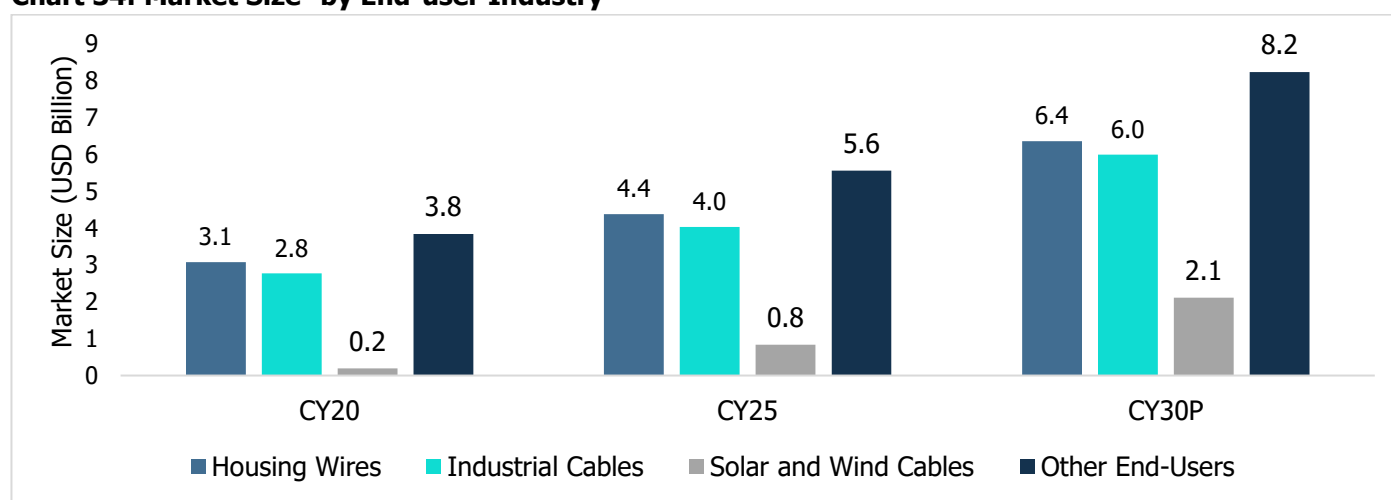
The voltage-wise analysis of the Indian wires and cables industry shows that the low-voltage segment continues to dominate the market, supported by strong demand from residential, commercial, and industrial applications. The segment grew from USD 7.0 billion in CY20 to USD 10.0 billion in CY25, and is projected to reach USD 14.7 billion by CY30, registering a CAGR of 7.5% during CY20–CY25 and 7.9% during CY25–CY30. In comparison, the medium-voltage and high-voltage segments have shown relatively faster growth, driven by rising investments in industrial infrastructure, utility distribution, power transmission, and renewable energy integration. The medium-voltage segment expanded from

USD 2.0 billion in CY20 to USD 3.4 billion in CY25 and is expected to reach USD 5.6 billion by CY30, while the high-voltage segment grew from USD 0.8 billion to USD 1.4 billion during the same period and is projected to reach USD 2.3 billion by CY30. This trend reflects the increasing diversification of demand across end-user segments, with low-voltage cables continuing to dominate due to widespread application, while medium- and high-voltage segments are gaining momentum supported by industrial expansion, infrastructure development, and growing power network requirements.

8.3 Market Size of the Indian Wires and Cables Industry – By End-user Industries Type

The Indian wires and cables industry caters to a broad range of end-use applications, including residential buildings, industrial facilities, renewable energy projects, utilities, railways, telecom networks, commercial infrastructure, and other institutional requirements. Demand across these segments is closely connected with construction activity, power infrastructure expansion, industrial investment, renewable energy deployment, railway electrification, and digital connectivity projects.

Chart 34: Market Size- by End-user Industry



Source: Inkwood Research, CareEdge Research, P-denotes Projected

Segmentation by End-user Industry

Housing Wires - are used across residential units, commercial premises, common building areas, small establishments and renovation activities. Demand is supported by new construction, redevelopment, replacement of ageing wiring, increasing appliance penetration and urban housing development. This segment has the maximum share across all the end-users and has grown at a CAGR of 7.3% between CY20 to CY25 and is further expected to reach USD 6.4 Billion, showing a CAGR of 7.8% by CY30

Industrial Cables include power, control, instrumentation, medium-voltage and high-voltage cables used across manufacturing plants, refineries, chemical and cement facilities, warehouses, data centres and infrastructure projects. Demand is supported by expansion of power transmission and distribution infrastructure, industrial capacity and infrastructure investment. The industrial cables market is expected to grow at a CAGR of 8.3% between CY25 to CY30.

Solar and Wind Cables segment includes solar DC and AC evacuation cables, wind turbine cables, earthing and control cables, medium-voltage cables and cables used for grid interconnection. Demand is linked to additions in renewable energy capacity, including utility-scale and rooftop solar, wind projects, hybrid projects, energy storage and associated evacuation infrastructure. Solar and Wind Cables is the fastest-growing segment, showing a CAGR of 33.5% between CY20 and CY25, and is expected to reach USD 2.1 billion by CY30, growing at a CAGR of 20.4% between CY25 to CY30.

Other End-users segment includes commercial buildings, utilities, railways and metro systems, telecommunications, data centres, airports, ports, oil and gas facilities, institutional infrastructure and other specialised applications. Demand is supported by railway electrification and signalling, digital connectivity, transportation infrastructure and other infrastructure development.

8.4 Overview of Electrical Conductors

Electrical conductors are materials that allows electric current to flow through it easily, they form a fundamental component of power transmission, distribution and electrical infrastructure. Conductors are manufactured using materials with high electrical conductivity, aluminium and copper being the primary materials used across power infrastructure applications.

Aluminium is widely used in overhead transmission and distribution lines due to its relatively lower weight and cost compared with copper, while copper is commonly used in applications requiring higher electrical conductivity and compact conductor dimensions.

In power transmission and distribution systems, conductors are used to carry electricity from generating stations to substations and subsequently to consumers. Overhead transmission and distribution lines generally use stranded conductors, wherein multiple wires are helically stranded together to provide the required combination of electrical conductivity, mechanical strength, flexibility and dimensional characteristics. Aluminium conductors, including Aluminium Conductor Steel Reinforced (ACSR), All Aluminium Alloy Conductor (AAAC) and All Aluminium Conductor (AAC), are among the commonly used conductors in India's transmission and distribution network.

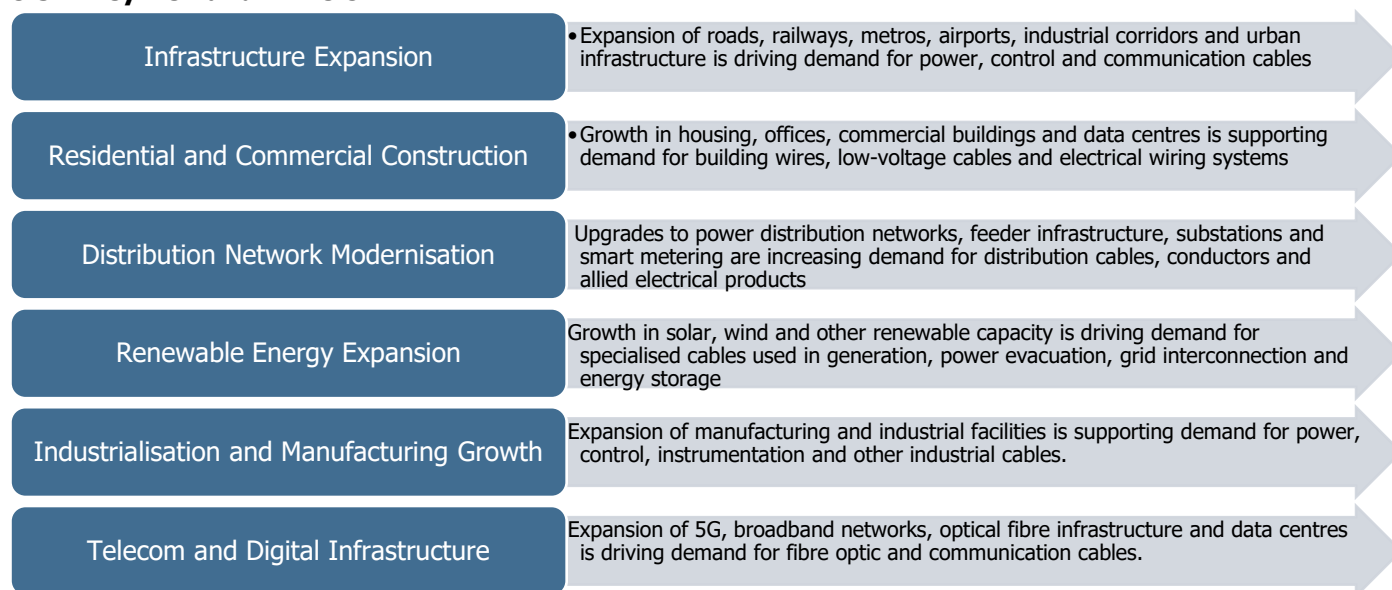
India's requirement for electrical conductors is linked to the expansion and modernisation of its transmission and distribution infrastructure, increasing electricity demand, renewable energy integration, replacement and augmentation of existing networks and distribution-system strengthening. As per the IEEMA's % Growth index for Electrical Equipment Industry conductors grew at 2.1% in FY24 vis-à-vis 18.4% in FY26 recording more than 8x growth. CareEdge estimates the market for electrical conductors to be between Rs 225-230 billion in FY26, the same is expected to grow at a CAGR of 4 to 5% in next 5 years.

8.4.1 Types and Application of Electrical Conductors

Types	Description	Application
AAC – All Aluminium Conductor	AAC consists of stranded aluminium wires and does not contain a separate reinforcing core. It offers high electrical conductivity and is relatively lightweight. However, its mechanical strength is lower than that of conductors incorporating a steel or high-strength core.	Used in distribution networks, substations and electrical connections.
AAAC – All Aluminium Alloy Conductor	AAAC is manufactured using aluminium alloy wires, generally providing higher mechanical strength than conventional AAC while maintaining aluminium-based construction. Its alloy composition provides improved mechanical and corrosion characteristics compared with conventional aluminium conductors.	Used in overhead transmission and distribution networks,

ACSR – Aluminium Conductor Steel Reinforced	ACSR comprises aluminium wires stranded around a galvanised steel core. The aluminium provides electrical conductivity while the steel core provides mechanical strength and enables longer spans. It is one of the commonly used conductors for overhead transmission and distribution lines in India.	Used in overhead transmission and distribution lines across different voltage levels.
ACSR-type / aluminium alloy reinforced conductors	These conductors combine aluminium or aluminium alloy conducting layers with a reinforcing core to provide a balance between electrical and mechanical characteristics. Variants include AACSR and other alloy-reinforced configurations.	Used in transmission and distribution systems where a specific configuration is selected based on voltage, span, loading and environmental requirements.
HTLS – High Temperature Low Sag Conductors	HTLS conductors are high-performance conductors designed to operate at higher temperatures while maintaining lower thermal elongation and sag compared with conventional conductors. Their characteristics enable higher power transfer through existing or constrained transmission corridors.	Used for uprating existing transmission lines, increasing power-transfer capability within existing rights-of-way and for new transmission lines where higher current-carrying capacity is required.
Copper Conductors	Copper has higher electrical conductivity than aluminium and can provide high current-carrying capacity within a comparatively smaller cross-sectional area. However, it is heavier and generally has a higher material cost.	Used in electrical equipment, substations, industrial electrical systems, building wiring, earthing and other applications where higher conductivity or compact dimensions are required.
Covered / insulated conductors	These comprise a conducting element with an insulating or protective covering. Unlike conventional bare overhead conductors, the covering provides additional protection against accidental contact and environmental conditions.	Used in distribution networks, particularly in areas with vegetation, constrained clearances, dense urban development or higher risk of accidental contact.

8.5 Key Demand Drivers



8.6 Key Challenges

• Volatile Raw Material Costs

The sector is heavily reliant on critical inputs such as copper, aluminium, and PVC, which together account for a significant share of production expenses. Fluctuations in global commodity prices directly affect profitability and create uncertainty in pricing strategies. Given the competitive nature of the market, transferring these cost increases to end-users is often difficult, resulting in sustained margin pressure.

• Competitive Intensity And Pricing Stress

India's wires and cables market reflects a divided structure, with recognised brands facing competition from numerous unorganised players. The latter often undercuts prices aggressively, forcing established manufacturers to balance competitive pricing with quality, compliance, and service standards. This dynamic compresses margins and intensifies rivalry across the sector.

• Import Reliance for Specialised Inputs

While India has built a strong domestic base for conventional wires and cables, specialised products, advanced insulation materials, and high-end technology components are still largely imported. This reliance exposes the industry to risks such as supply chain disruptions, currency volatility, and changes in import duties, particularly during periods of geopolitical instability.

• Quality Risks from Unorganised Players

The widespread availability of low-cost, substandard products in the unorganised market remains a persistent challenge. These products often fail to meet safety and performance standards, increasing the risk of electrical hazards and eroding consumer confidence. For organised players, differentiating themselves purely on quality becomes difficult in such an environment.

• Delays in Infrastructure and Power Projects

A significant portion of demand for wires and cables is tied to infrastructure, construction, and power transmission projects. Delays caused by land acquisition hurdles, regulatory approvals, or funding constraints can directly affect order flows and revenue visibility for manufacturers, creating uncertainty in demand planning.

• High Working Capital Intensity

The industry requires substantial working capital due to inventory holding of raw materials, extended receivable cycles, and project-based execution models. Manufacturers often need to maintain adequate stock levels to manage raw material price swings and ensure timely delivery, which places financial strain on small and mid-sized players.

• Evolving Technology and Product Innovation Needs

The growing adoption of smart grids, renewable energy systems, electric vehicles, and advanced communication infrastructure has increased demand for specialised and technologically advanced cables. Continuous investment in product innovation, testing, and R&D is essential to remain competitive, but smaller firms often struggle to keep pace with these requirements.

• Compliance with Regulatory and Safety Norms

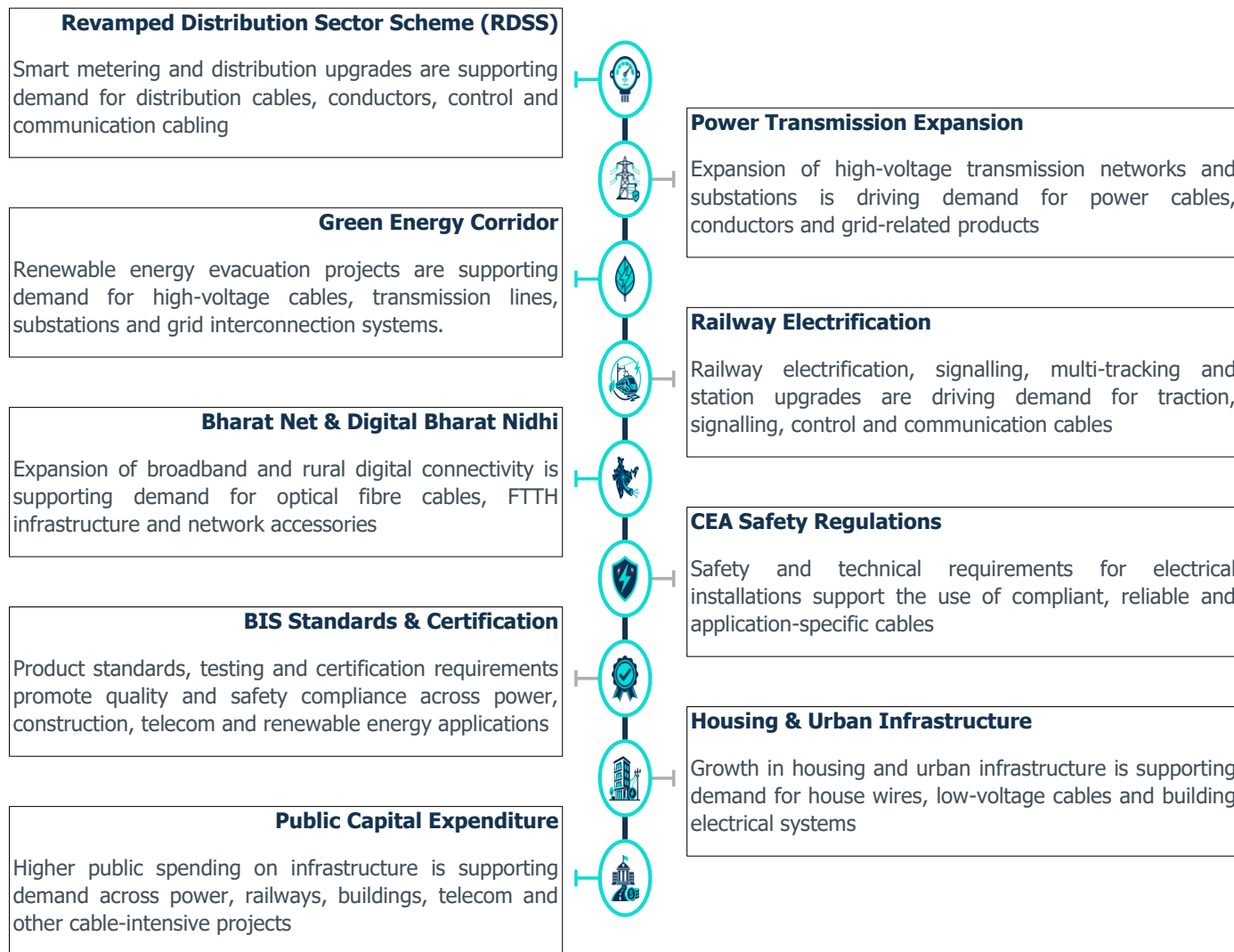
The sector operates under stringent quality and safety standards set by the Bureau of Indian Standards (BIS) and other regulatory authorities. Compliance requires regular testing, certifications, and adherence to technical specifications. While these regulations enhance product reliability, they also raise compliance costs and add operational complexity, particularly for smaller manufacturers.

• Rising Logistics and Operational Expenses

Transportation costs, fuel price volatility, and supply chain inefficiencies significantly affect the cost structure of wires and cables manufacturers. Given the bulky nature of these products and the need for large-scale distribution, logistics expenses form a critical component of overall costs, impacting operational efficiency and profitability.

8.7 Key Government Policies/Regulations

The Indian wires and cables industry is closely linked to the country's infrastructure, power, industrial, and telecom sectors, making government policies and regulations a key growth enabler for the industry. Over the years, the Government of India has introduced several initiatives aimed at improving electrification, strengthening transmission infrastructure, promoting renewable energy, and encouraging domestic manufacturing. These policies have significantly supported demand generation while also improving product quality, safety standards, and localisation of manufacturing.



8.8 Tailwinds Supporting Sustainable Growth

1. Infrastructure-led Demand Environment Remains Active

India's infrastructure spending continues to provide a demand base for wires and cables across power, construction, transportation, urban infrastructure, and industrial projects. Public capital expenditure increased from Rs 2 lakh crore in FY15 to a Budget Estimate of Rs 12.2 lakh crore in FY27, indicating continued emphasis on asset creation and infrastructure development. For the wires and cables industry, this supports demand across building wires, low-voltage

cables, medium-voltage cables, control cables, instrumentation cables, and speciality cables used in public infrastructure, utilities, industrial facilities, and urban projects.

2. Expansion of Power Transmission Network

Power transmission remains one of the key end-use segments for the wires and cables industry. India's transmission network crossed 5 lakh circuit kilometres of transmission lines at 220 kV and above, along with 1,407 GVA of transformation capacity, as of January 2026.

Ongoing transmission projects are expected to add approximately 40,000 circuit kilometres of inter-state transmission lines and 27,500 circuit kilometres of intra-state transmission lines. This development is directly relevant to demand for high-voltage cables, conductors, power cables, control cables, and substation-related cabling solutions.

3. Renewable Energy Capacity Addition Supporting Specialised Cable Demand

Renewable energy expansion continues to influence cable demand, particularly for solar cables, wind-energy cables, evacuation infrastructure, underground cabling, and grid-connection systems. As of 31 May 2026, India's total renewable energy capacity stood at 282.75 GW, while total non-fossil capacity stood at 291.53 GW.

Within this, solar power accounted for 157.05 GW, wind power accounted for 56.81 GW, large hydro accounted for 51.96 GW, and small hydro accounted for 5.18 GW. The expansion of renewable energy installations is relevant for cable demand across project sites, pooling substations, evacuation lines, storage integration, and grid interconnection infrastructure.

4. Distribution Network Modernisation and Smart Metering

Power distribution reforms are creating demand for distribution infrastructure, feeder-level systems, smart metering infrastructure, and associated cabling. Under the distribution reform programme, infrastructure works including smart metering works worth Rs 2.8 lakh crore have been sanctioned.

This includes Rs 1.53 lakh crore for loss-reduction infrastructure and Rs 1.31 lakh crore for smart metering. Smart metering works have been sanctioned for 19.79 crore consumers, 2.11 lakh feeders, and 52.53 lakh distribution transformers, totalling 20.33 crore smart meters. These works include replacement of old conductors, augmentation of substations and distribution transformers, creation of new substations, feeder segregation, and implementation of monitoring systems, all of which are relevant to wires, cables, conductors, and allied electrical products.

5. Railway Electrification and Transport Infrastructure

Railway electrification remains an important demand driver for traction cables, signalling cables, control cables, overhead equipment, and power-supply infrastructure. As of 31 December 2025, 69,712 route kilometres of the broad-gauge railway network had been electrified, representing 99.4% electrification.

Railway electrification during 2014–25 stood at 46,900 route kilometres, compared with 21,801 route kilometres before 2014. The continued electrification of balance sections and construction of new electrified lines supports ongoing demand for power and control cabling across railway infrastructure.

6. Digital Connectivity and Optical Fibre Expansion

Digital infrastructure expansion is supporting demand for optical fibre cables and related network cabling. Under BharatNet, 2,14,325 Gram Panchayats had been connected, and 6,93,303 km of optical fibre cable had been laid as of 26 May 2025.

The amended broadband programme is also being implemented to strengthen rural broadband connectivity, with the objective of optical fibre connectivity to approximately 2.64 lakh Gram Panchayats and demand-based connectivity to around 3.8 lakh villages. This creates a continued requirement for optical fibre cable, network accessories, last-mile connectivity components, and maintenance-related cabling infrastructure.

9 Risks and Challenges to the Product of the Issuer Company

- **Dependence on Government and Utility Projects:** The company derives a significant portion of its business from power infrastructure, electrification, substation, and distribution projects that are typically awarded by government departments and state utilities. Any reduction in government spending, delays in tender issuance, policy changes, or cancellation of schemes may adversely impact order inflows and revenue visibility. Additionally, payment delays from government entities could strain the company's cash flows and working capital position.
- **Project Execution and Completion Risk:** The company operates in the EPC segment, where successful execution depends on timely availability of materials, labour, site access, and regulatory approvals. Delays arising from land acquisition issues, contractor disputes, logistics disruptions, or adverse weather conditions may lead to cost overruns and contractual penalties. Failure to execute projects within stipulated timelines could negatively affect profitability and reputation.
- **Raw Material Price Volatility:** Manufacturing of cables, conductors, and other electrical products requires key raw materials such as copper, aluminium, and PVC compounds. Significant fluctuations in commodity prices can increase input costs and compress margins, particularly under fixed-price contracts where cost escalation may not be recoverable. Sustained inflation in raw material prices could adversely affect the company's financial performance.
- **High Working Capital Requirements:** The EPC and infrastructure business is inherently working-capital intensive, requiring substantial upfront expenditure on procurement, inventory, and project execution before receiving customer payments. Delays in certification of work or collection of receivables can lead to liquidity pressures. The company may therefore require continuous access to debt and banking facilities to support business growth and operations.
- **Intense Competitive Environment:** The company faces competition from established cable manufacturers, EPC contractors, and integrated infrastructure companies with larger scale, stronger financial resources, and longer operating track records. Competitive bidding for government and utility contracts can put pressure on margins and reduce the likelihood of securing new projects. Inability to compete effectively may impact market share and future growth prospects.
- **Regulatory and Sector-Specific Risks:** The power infrastructure sector is highly regulated and subject to changes in government policies, electrical safety standards, environmental norms, and procurement regulations. Any adverse regulatory changes could increase compliance costs or delay project approvals. Moreover, evolving technologies in renewable energy, smart grids, and power distribution may require additional investments to remain competitive.

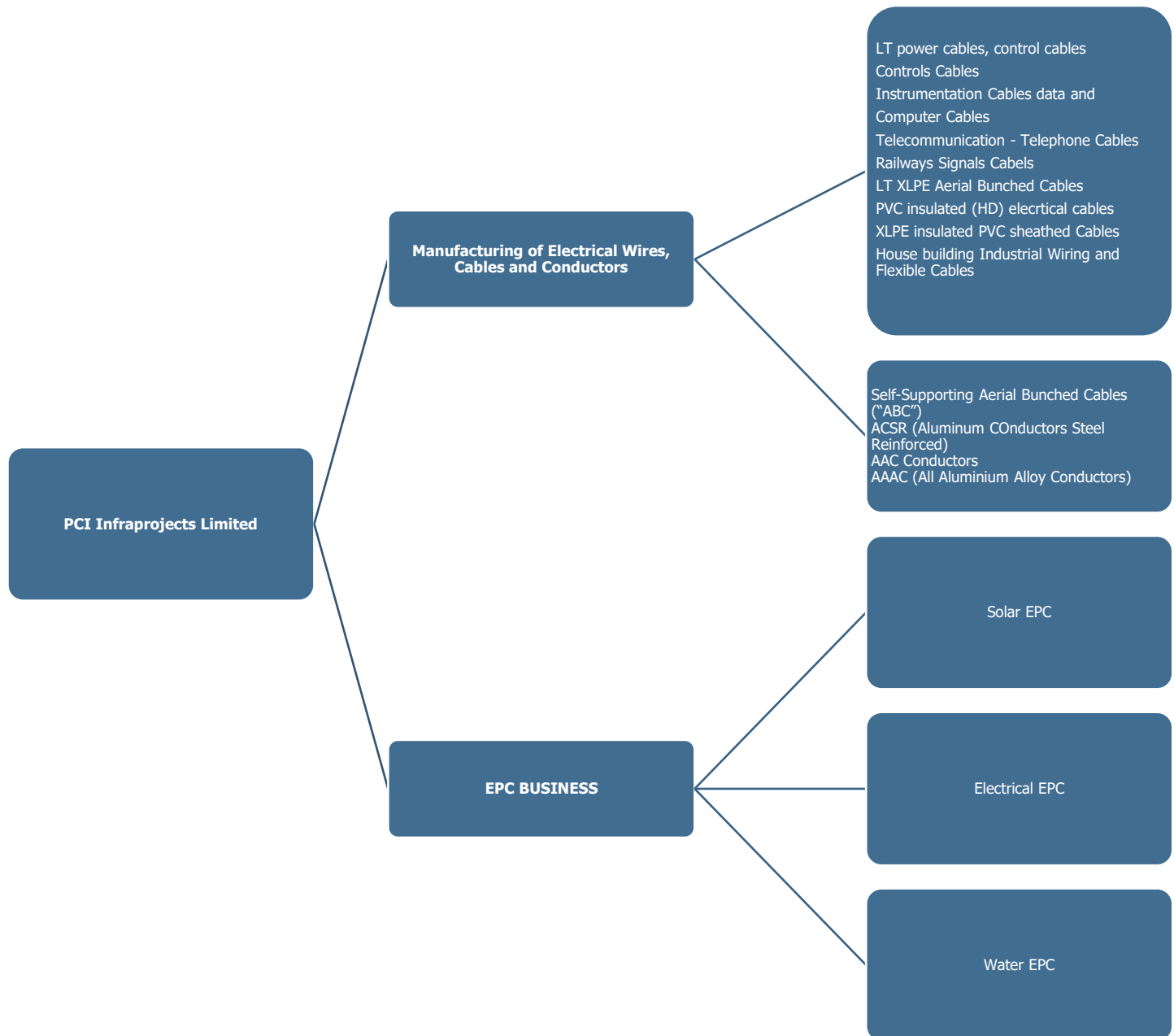
10 Company Profile

PCI Infraprojects Limited, is engaged in the manufacturing of electrical cables and conductors and execution of Engineering, Procurement and Construction (EPC) projects with operations across solar energy projects, electricity distribution & transmission, and water infrastructure solutions. Initially established in 2006 as a partnership firm under the name of Power Cable Industries and later incorporated in November 2021 as PCI Wires Private Limited, it was subsequently renamed as in October 2023.

The company manufactures LT power cables, control cables, instrumentation, data and computer cables, railway signalling cables, telecommunication and telephone cables, self supporting aerial bunched cables and conductors, house building industrial wiring and flexible cables, ACSR conductors and AAAC conductors . Its EPC activities include power transmission and distribution, substations, rural electrification, water supply and water infrastructure, and solar and renewable energy projects. The company undertakes activities across project stages including survey, design and engineering, procurement, construction, erection, testing and commissioning.

The company has undertaken projects for electricity distribution and rural electrification executing projects under programmes such as Jal Jeevan Mission and the Revamped Distribution Sector Scheme (RDSS). Its manufacturing facility is located at Sitapura Industrial Area, Jaipur, Rajasthan, while its corporate office is in Noida, Uttar Pradesh.

Business segment:



Solar EPC includes:

- Ground-mounted solar PV projects;
- Grid-connected solar PV projects;
- Rooftop solar projects;
- Solarisation of agricultural feeders;
- Solar water pumping systems;
- PM-KUSUM projects;
- Solar power plants;
- Solar mini-grid projects; and

Electrical EPC includes

- Construction of LV and MV distribution lines;
- Construction and development of 33/11 kV substations;
- Construction of 33 kV and 11 kV lines;
- Installation of distribution transformers;
- Feeder segregation;
- Distribution infrastructure development;
- Rural electrification;
- Household electrical connections;
- Supply and erection of electrical equipment;
- Testing and commissioning; and
- Other associated electrical infrastructure works

Water Infrastructure EPC includes: Design, Implementation and Execution of water supply, distribution and related infrastructure projects.

Table 30: List of Ongoing Projects:

Sl.No	Client / counterparty	Project Details	Region
1	Vindhya Telelink Limited	Supply and Installation of Water Distribution	U.P.
2	Vindhya Telelink Limited	Operation & Maintenance	U.P.
3	Kerela Electricity Board Ltd - PKG - 09	Supply and Erection of Electricity Distribution	Kerala
4	Kerela Electricity Board Ltd - PKG - 10	Supply and Erection of Electricity Distribution	Kerala
5	New & Renewable Energy Department (HAREDA)	Supply and Installation of Sollar Pumping System (PM KUSUM YOJNA)	Haryana
6	Maharashtra State Electricity Distribution Co. Ltd.	Supply and Installation of Sollar Pumping System (PM KUSUM YOJNA)	Maharashtra
7	Tripura Renewable Energy Development Agency	Supply and Installation of Sollar Pumping System (PM KUSUM YOJNA)	Tripura
8	Tripura State Electricity Corporation Limited	Supply & Construction of Electricity Distribution System	Tripura
9	Maharashtra State Power Generation Company Limited	Solar PV Power Plant	Maharashtra
10	Rajasthan Renewable Energy Corporation Limited	Supply & Erection of Rooftop Sollar	Rajasthan
11	Jodhpur Vidyut Vitran Nigam Ltd.	Supply and Erection of Electricity Distribution	Rajasthan
12	Madhya Pradesh Urja Vikas Nigam Limited	Supply and Installation of Sollar Pumping System (PM KUSUM YOJNA)	Madhya Pradesh
13	Konkan Railway Corporation Limited	Desing & Supply and Erection of Power Sub-Station	Maharashtra
14	Marshall Solar Pvt Ltd	EPC of Solar Power Plant	Hathras
15	Delhi - PWD	Supply and Construction of Pre-Cast RCC Drain	Delhi

Source: Company disclosures; CareEdge Research

Table 31: List of Solar EPC Projects

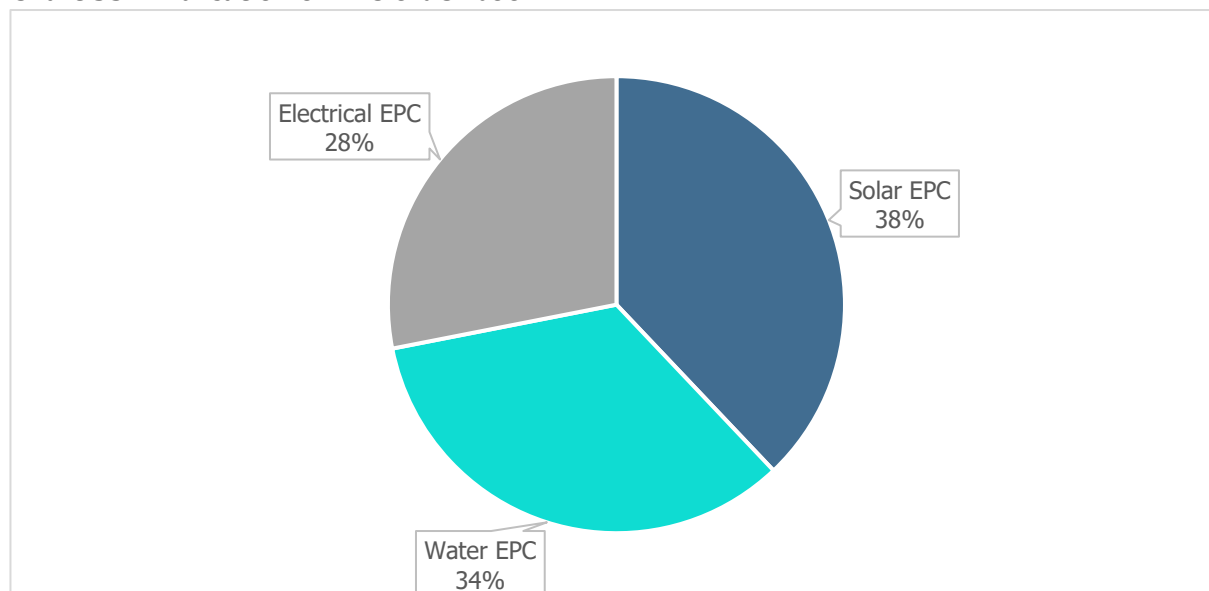
Project/Customer	Location	Nature of work
Rajasthan Rooftop Solar Project	Rajasthan	Rooftop Solar PV
MAHAGENCO / MSKVY 2.0	Maharashtra	Ground-mounted solar PV/ agriculture feeder solarisation
PM - KUSUM Projects	Various Locations	Solar PV water pumping systems
Rajasthan Renewable Energy Corporation Limited	Rajasthan	Supply and erection of rooftop solar
Maharashtra Renewable Energy / Solar Park	Maharashtra	Solar PV power Plant

Source: Company disclosures; CareEdge Research

Table 32: Key Clientele

Name of the Entities
New & Renewable Energy Department, HAREDA
Maharashtra State Electricity Distribution Company Limited
Tripura Renewable Energy Development Agency
Madhya Pradesh Urja Vikas Nigam Limited
Rajasthan Renewable Energy Corporation Limited
Maharashtra State Power Generation Company Limited
Tripura State Electricity Corporation Limited
Jodhpur Vidyut Vitran Nigam Limited
Kerala Electricity Board Limited
Konkan Railway Corporation Limited
Vindhya Telelinks Limited

Source: Company disclosures; CareEdge Research

Chart 35: Bifurcation of EPC order book


Source: Company disclosures; CareEdge Research

11 Competitive Landscape

11.1 Peer Profile

Company name	Description
Vikran Engineering Limited	Incorporated in 2008, Vikran Engineering Limited is an EPC company engaged in power transmission, EHV substations, power distribution, solar power, railway and metro electrification and water infrastructure. Its services include design, supply, civil works, construction, testing and commissioning of infrastructure projects, including transmission and substation projects up to 765 kV.
Laser Power & Infra Limited,	Incorporated in 1988 as Laser Cables Private Limited, is engaged in the manufacturing of power cables, conductors, aerial bunched cables, control and instrumentation cables, aluminum and aluminium alloy rods and armour rods. The company also undertakes EPC activities across power distribution, rural electrification, substations and power infrastructure projects, catering to power utilities, EPC companies, railways and industrial clients.
Lumino Industries Limited,	Incorporated in 2005, is engaged in the manufacturing of conductors, cables and house wires and in EPC activities across power transmission and distribution, EHV substations, railway electrification, HTLS reconductoring, solar power and water management. The company operates a manufacturing facility in Howrah, West Bengal.
PCI Infraprojects Limited	Established in 2006, PCI Infraprojects Limited is engaged in the manufacturing of electrical cables and conductors and execution of Engineering, Procurement and Construction (EPC) projects across power and infrastructure sectors. Its EPC activities include power transmission and distribution, substations, rural electrification, water supply and water infrastructure, and solar and renewable energy projects. The company undertakes activities across project stages including survey, design and engineering, procurement, construction, erection, testing and commissioning.

11.2 Operational Parameter

Table 33: Peer comparison

Particulars	Vikran Engineering Limited	Laser Power & Infra Limited	Lumino Industries Limited	PCI Infraprojects Limited
Year of Incorporation	2008	1988	2005	2006
Order book* (in Rs core)	6,496.00	2,788.40	3,150.00	651.71
Geographical presence	18 (states)	26 (states) 4 (UTs) 10 (countries)	26 (states) 4 (UTs) 17 (countries)	17 (states) 1 (UT)
Manufacturing Installed capacity of Cables and Conductors	-	85,448 MT	40,000 MT	13,000 KMS
Solar EPC	50 MW (Commissioned capacity)	50 MW (Awarded capacity)	41.03 MW (Commissioned Capacity)	49.3 MW (Awarded capacity) 2.5 (Commissioned capacity)

Source: Company disclosures; Annual report, Earnings Calls; Note: Order book for Vikran Engineering Limited and Laser Power & Infra Limited as on June 2026, for Lumino Industries Limited as of March 2026 and PCI Infraprojects Limited's as of 31st August 2026; PCI geographical presence includes for EPC and Manufacturing

Manufacturing Capacity includes cables and conductors manufacturing capacity for the relevant peers.

Table 34: Sector presence

Particulars	Power Transmission & Distribution	Water Infrastructure	Railways Infrastructure	Solar EPC	Electrical EPC	Manufacturing Segment (Cables, Wires and Conductors)
Vikran Engineering Limited	✓	✓	✓	✓		
Laser Power & Infra Limited				✓	✓	✓
Lumino Industries Limited	✓			✓	✓	✓
PCI Infraprojects Limited		✓		✓	✓	✓

Source: Company disclosures; Annual report, CareEdge Research

11.3 Financial Parameter

The revenue from operations and EBITDA for PCI Infraprojects Pvt Ltd grew at a CAGR of 22.09% and 41.46% respectively in last three years ranking second among the selected peers.

The companies average EBITDA Margin from FY24 to FY26 stood at 16.25% ranking highest among the selected peers. Their average PAT Margin for last three year stood at 7.61% ranking second among the peers considered for the analysis.

Based on the average ROE and ROCE for the last three years, PCI Infraprojects Pvt Ltd. ranked highest among the peers, with average ROE at 50.79% and average ROCE at 44.52% between FY24 to FY26.

The Company's average D/E ratio stood at 1.86 for the last three years.

Table 35: Revenue from Operations (in Rs Lakhs)

Particulars	FY24	FY25	FY26	CAGR (FY24-FY26)
Laser Power and Infra Ltd	174,757.87	257,039.75	232,610.35	15.37%
Lumino Industries Ltd	140,731.47	191,796.81	204,107.36	20.43%
Vikran Engineering Ltd	78,595.00	91,585.00	124,931.00	26.08%
PCI Infraprojects Pvt Ltd.	20,401.81	28,241.07	30,409.06	22.09%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 36: EBITDA (in Rs Lakhs)

Particulars	FY24	FY25	FY26	CAGR (FY24-FY26)
Laser Power and Infra Ltd	15,609.09	25,038.44	33,422.96	46.33%
Lumino Industries Ltd	14,506.53	22,239.45	23,897.98	28.35%
Vikran Engineering Ltd	13,330.00	16,023.00	17,392.00	14.22%
PCI Infraprojects Pvt Ltd.	2,673.67	5,100.05	5,350.37	41.46%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 37: EBITA Margin

Particulars	FY24	FY25	FY26	Average (FY24-FY26)
Laser Power and Infra Ltd	8.93%	9.74%	14.37%	11.01%
Lumino Industries Ltd	10.31%	11.60%	11.71%	11.20%
Vikran Engineering Ltd	16.96%	17.50%	13.92%	16.13%
PCI Infraprojects Pvt Ltd.	13.11%	18.06%	17.59%	16.25%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 38: Profit After Tax (in Rs Lakhs)

Particulars	FY24	FY25	FY26	CAGR (FY24-FY26)
Laser Power and Infra Ltd	3,892.47	10,675.18	15,159.34	97.35%
Lumino Industries Ltd	8,660.70	12,458.60	15,999.88	35.92%
Vikran Engineering Ltd	7,485.00	7,781.00	9,170.00	10.68%
PCI Infraprojects Pvt Ltd.	1,266.84	2,479.16	2,385.05	37.21%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 39: PAT Margin

PAT Margin	FY24	FY25	FY26	Average (FY24-FY26)
Laser Power and Infra Ltd	2.23%	4.15%	6.52%	4.30%
Lumino Industries Ltd	6.15%	6.50%	7.84%	6.83%
Vikran Engineering Ltd	9.52%	8.50%	7.34%	8.45%
PCI Infraprojects Pvt Ltd.	6.21%	8.78%	7.84%	7.61%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 40: Return on Equity

Return on Equity	FY24	FY25	FY26	Average (FY24-FY26)
Laser Power and Infra Ltd	9.67%	20.37%	23.32%	17.79%
Lumino Industries Ltd	21.50%	24.51%	24.61%	23.54%
Vikran Engineering Ltd	35.44%	20.50%	10.76%	22.23%
PCI Infraprojects Pvt Ltd.	56.16%	59.93%	36.29%	50.79%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 41: Return on Capital Employed

Return on Capital Employed	FY24	FY25	FY26	Average (FY24-FY26)
Laser Power and Infra Ltd	21.29%	27.53%	35.75%	28.19%
Lumino Industries Ltd	28.09%	35.39%	29.79%	31.09%
Vikran Engineering Ltd	43.60%	32.16%	13.49%	29.75%
PCI Infraprojects Pvt Ltd.	41.87%	51.70%	39.97%	44.52%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 42: Debt-to-Equity ratio

Debt Equity	FY24	FY25	FY26	Average (FY24-FY26)
Laser Power and Infra Ltd	0.61	0.68	1.14	0.81
Lumino Industries Ltd	0.09	0.73	0.53	0.45
Vikran Engineering Ltd	0.63	0.58	0.24	0.48
PCI Infraprojects Pvt Ltd.	2.04	1.52	2.02	1.86

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Table 43: Net Debt (in Rs Lakhs)

Particulars	FY24	FY25	FY26	CAGR (FY24-FY26)
Laser Power and Infra Ltd	39,319.43	49,979.49	80,135.84	42.76%
Lumino Industries Ltd	2,294.87	34,076.11	29,233.22	256.91%
Vikran Engineering Ltd	18,331.00	27,044.00	25,900.00	18.87%
PCI Infraprojects Pvt Ltd.	5,637.80	7,863.62	14,554.62	60.67%

Source: Company Annual report; DRHP Restated Financial statements based on latest available financial statements; CareEdge Research

Formula Sheet

Parameter	Formula
Revenue	Revenue from Operations
Total income	Revenue from Operations + Other Income
PAT	Profit After Tax
PBT	PAT minus tax, exceptional Items and Share of joint ventures and associates
EBITDA	PBT + Finance Cost + Depreciation & Amortization – Other income
EBIT	EBITDA - Depreciation & Amortization
Total Debt	Long term borrowing + Short term borrowing
Net Debt	Total Debt - Cash & Cash Equivalents
EBITDA Margin	EBITDA/Revenue from Operations
EBIT Margin	EBIT/Revenue from Operations
PAT Margin	PAT/Total Income
Total Equity	Equity + Non controlling interest
Debt to Equity	Total Debt/Total Equity (Including Non controlling interest)
Return on Equity (ROE)	PAT/Average Equity (Excluding Non controlling interest)
Return on Capital Employed (ROCE)	EBIT/Capital Employed
Capital Employed	Total Assets - Current Liabilities - Deferred Tax Assets

Contact

Tanvi Shah	Senior Director - Advisory & Research	tanvi.shah@careedge.in	+91 - 22 - 6837 4470
Vikram Thirani	Head - Business Development	vikram.thirani@careedge.in	+91 - 22 - 6837 4434

CARE Analytics and Advisory Pvt Ltd

(Wholly-owned subsidiary of CARE Ratings Ltd.)

B-Wing, 303, Times Square Building, Marol, Andheri-Kurla Road, Andheri East, Mumbai- 400059

Phone: +91-22-6837 4400

Connect:



About Us:

CareEdge is a knowledge-based analytical group offering services in Credit Ratings, Analytics, Consulting and Sustainability. Established in 1993, the parent company CARE Ratings Ltd (CareEdge Ratings) is India's second-largest rating agency, with a credible track record of rating companies across diverse sectors and strong position across the segments. The wholly-owned subsidiaries of CareEdge Ratings are (I) CARE Analytics & Advisory Private Ltd (previously known as CARE Risk Solutions Pvt Ltd), (II) CARE ESG Ratings Ltd, (previously known as CARE Advisory Research and Training Ltd) and (III) CareEdge Global IFSC Ltd. CareEdge Ratings' other international subsidiary entities include CARE Ratings (Africa) Private Ltd in Mauritius, CARE Ratings South Africa (Pty) Ltd, and CARE Ratings Nepal Ltd. For more information: www.careedgeadvisory.com

Disclaimer:

This report is prepared by CARE Analytics and Advisory Pvt Ltd (CareEdge Research). CareEdge Research has taken utmost care to ensure accuracy and objectivity while developing this report based on information available in public domain. However, neither the accuracy nor completeness of information contained in this report is guaranteed. CareEdge Research is not responsible for any errors or omissions in analysis / inferences / views or for results obtained from the use of information contained in this report and especially states that CareEdge Research has no financial liability whatsoever to the user of this report.

© 2025, CARE Analytics and Advisory Private Limited, a wholly owned subsidiary of CARE Ratings Limited. All Rights Reserved. This content is being published for the purpose of dissemination of information. Any use or reference to the contents herein on an "as-is" basis is permitted with due acknowledgement to CARE Analytics and Advisory Private Limited. Reproduction or retransmission in whole or in part is prohibited except with prior written consent from CARE Analytics and Advisory Private Limited.