

Market Assessment & Industry Report on Polymer Compounding for cables & coatings Industry

BLS Polymers Limited

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Consulting

Contents

1	Global Macroeconomic Overview.....	8
1.1	Global GDP	10
1.2	Global Inflation	12
1.3	Global Population.....	13
2	India Macroeconomic Overview	14
2.1	India's GDP	14
2.2	India's Inflation	17
2.3	India's Population Growth	18
2.4	GDP Per Capita at Current Prices	18
2.5	Private Final Consumption Expenditure	19
2.6	Index of Industrial Production	20
3	Polymer Compounding Market	21
3.1	Polymer Industry	21
3.2	Polymer Compounding	21
3.3	Indian Polymer Compounding Market	30
3.4	Segmentation by Applications.....	31
3.5	Key Growth Drivers & Trends	33
3.6	Key Manufacturers	35
3.7	Key Challenges.....	36
3.8	Barriers to Enter for New Players	36
4	Wires & Cables Market Assessment	38
4.1	Introduction	38
4.2	Industrial and Household Wires & Cables	39
4.3	Types & Importance of Polymer Compounds	40
4.4	Wires & Cables Production in India	42
4.4.1	Housing Wires	44
4.4.2	Telephone Cables.....	45
4.4.3	Instrumentation Cables.....	46
4.4.4	Power Cables	47
5	Power & Renewable Sector Assessment.....	50
5.1	Review of India's Installed Capacity	50
5.2	India's Electricity Requirement.....	50
5.3	Key Government Initiatives to Support Growth of Electricity Demand	51
5.4	Projected Power Demand and Capacity Addition	52
5.4.1	Long Term Drivers and Constraints for Demand Growth	52
5.4.2	Electricity Demand Forecast.....	53
5.4.3	Expected Capacity Installation by FY31	53
5.5	Investments in Power Sector	54
5.6	Projected Capacity Addition in Power Transmission and Distribution Segment	57

Consulting

5.6.1	National grid.....	57
5.6.2	Plans to increase grid infrastructure	58
5.6.3	Distribution network addition.....	59
5.7	Private Investments in Power Transmission Sector	60
5.8	Market Size for Power Cables for Upgradation of Power Infrastructure	62
5.8.1	Overview of Power Cables	62
5.8.2	Existing Trend in Power Cable Production	62
5.8.3	Key growth drivers for power cables	63
5.8.4	Outlook on Market Size of Power Cables	64
6	Renewable Sector Assessment	65
6.1	Overview of Different Renewable Energy Sources.....	65
6.2	Benefits of Renewable Energy Over Conventional Sources	65
6.3	Historical Trend in Segment Wise Installed RE Capacity	66
6.4	Historical Trend in RE Generation	66
6.5	Renewable Purchase Obligation	67
6.6	India's RE Targets Announced by the Government	67
6.7	Growth of Renewable Energy Sector	68
6.7.1	Solar.....	68
6.7.2	Wind.....	69
7	Telecom Sector Assessment	71
7.1	Growth of telecom sector.....	72
7.2	Internet Penetration in India.....	73
7.3	Telecom Cables	74
7.4	Optic Fiber Sector	75
7.5	Indian IT Services	76
8	Oil & Natural Gas Pipeline Sector Assessment	79
8.1	City Gas Distribution	79
8.2	Midstream Oil Pipeline Infrastructure.....	80
8.3	Petroleum Products Pipelines.....	81
8.4	Natural Gas Transmission Pipelines.....	82
8.5	Types of coatings for Oil & Natural Gas Pipelines	83
8.6	Types of Polymers for Coatings.....	84
8.7	Pipe Coating Manufacturers	86
8.8	Government Policies & Initiatives	87
9	Water Pipeline Sector	88
9.1	Types of Coatings in Water Pipeline.....	88
9.2	Demand Drivers for Water Pipeline Network	89
9.3	Key Players	90
9.4	Government Policies & Initiatives	90
10	Strategic Positioning of BLS Polymers	91
10.1	BLS Polymers: Introduction	91

10.2	Competency in Manufacturing	92
10.3	R&D Capabilities	94
10.4	Exports	95
10.5	Strategic Location	95
10.6	PESTLE Analysis	95
11	Competition Landscape and Benchmarking	97
11.1	Kkalpana Industries India Ltd.....	97
11.2	Ddev Plastiks Industries Ltd.....	98
11.3	Shakun Polymers Pvt Ltd.....	99
11.4	KLJ Polymers & Chemicals Ltd.....	100
11.5	Kingfa Science & Technology India Ltd	100
11.6	Plastiblends India Ltd	101
11.7	Operational Performance Benchmarking.....	102
11.8	Financial Benchmarking with Peers	103
11.8.1	Revenue & Growth	103
11.8.2	Gross Profit & Margins.....	103
11.8.3	EBITDA & Margins.....	104
11.8.4	PAT & Margins.....	105
11.8.5	ROE & ROCE	106
11.8.6	Working Capital Cycle	106
11.8.7	Current Ratio	107
11.8.8	Debt to Equity	107
11.8.9	Return on Total Assets	108

List of Tables

Table 1: Real GDP Growth Comparison.....	11
Table 2: Population (billions of people) 2010-2031F	18
Table 3: India Polymer Imports, Metric Tons, FY-21 to FY-26	21
Table 4: Commodity Polymer Base Materials	22
Table 5: Engineering Polymer Base Materials	23
Table 6: Polymer Compounding Applications.....	31
Table 7: Polymer Compounding Growth Drivers	33
Table 8: Key Trends in Power Cables	34
Table 9: Key Trends in Telecom Cables.....	34
Table 10: Key Trends in Oil & Gas and Water Pipeline.....	34
Table 11: Polymer Compounding Manufacturers	35
Table 12: Challenges in Polymer Compounding	36
Table 13: Type of Wires & Cables	38
Table 14: Types of Industrial Wires & Cables	39
Table 15: Types of Household Wires & Cables.....	40
Table 16: Wires & Cables Production in India, FY-19 to FY-26	42
Table 17: Wires & Cables Production in India, MT, FY23 to FY26	43
Table 18: Polymer Compound Weight in Wires & Cables, MT, FY23 to FY26	43
Table 19: Types of Housing Wires.....	45
Table 20: Types of Telephone Cables.....	46
Table 21: Types of Instrumentation Cables.....	46
Table 22: Types of Power Cables.....	47
Table 23: All India installed estimated capacity addition by FY31 (in GW)	54
Table 24: Key projects under execution/planning/partially completed in the power distribution sector	55
Table 25: Key projects under execution/planning/partially completed in power transmission sector in India	56
Table 26: Planned Transmission capacity additions by CEA till 2030.....	58
Table 27: Inter-regional capacity addition till 2032	59
Table 28: Year wise details of infrastructure proposed for distribution sector.....	59
Table 29: Types of Power Cable	62
Table 30: RPO targets by MoP notified in October 2023	67
Table 31: Types of Telecom Cables	75
Table 32: CGD Players in India	80
Table 33: Petroleum products pipelines	81

Table 34: Partially Commissioned & Underconstruction Petroleum & Petroleum Product Pipelines	81
Table 35: Gas transmission pipelines	82
Table 36: Major Upcoming natural gas pipelines	83
Table 37: Types of Coatings	83
Table 38: Types of Thermosetting Polymers	84
Table 39: Types of Thermoplastic Polymers	85
Table 40: Technological Advancements in Coatings	85
Table 41: Some Indian Pipe Coating Manufacturers	86
Table 42: Some Global Pipe Coating Manufacturers	86
Table 43: Types of Coatings	88
Table 44: Players involved in Water Pipeline Infrastructure	90
Table 45: Product wise sales, INR Millions, FY23-FY26	91
Table 46: Production Capacity, FY26	94
Table 47: BLS Polymers Exports, FY23 to FY26	95
Table 48: PESTLE Analysis	95
Table 49: Kkalpana Industries India Ltd Financials	97
Table 50: Kkalpana Industries Business Segment wise Revenue, FY-22 to FY-26	97
Table 51: Ddev Plastik Industries Ltd Financials	98
Table 52: Ddev Plastik Business Segment wise Revenue, FY-22 to FY-26	98
Table 53: Shakun Polymers Pvt Ltd Financials	99
Table 54: Shakun Polymers Business Segment wise Revenue, FY-22 to FY-25	99
Table 55: KLJ Polymers & Chemicals Ltd Financials	100
Table 56: KLJ Polymers & Chemicals Business Segment wise Revenue, FY-22 to FY-25	100
Table 57: Kingfa Science & Technology India Ltd Financials	101
Table 58: Plastiblends India Ltd Financials	101
Table 59: Operational Performance of Peers	102
Table 60: Revenue Benchmarking	103
Table 61: Gross Profit Benchmarking	103
Table 62: Gross Profit Margins Benchmarking	104
Table 63: EBITDA Benchmarking	104
Table 64: EBITDA Margins Benchmarking	104
Table 65: PAT Benchmarking	105
Table 66: PAT Margins Benchmarking	105
Table 67: ROE Benchmarking	106

Table 68: ROCE Benchmarking	106
Table 69: Working Capital Cycle Benchmarking	106
Table 70: Current Ratio Benchmarking	107
Table 71: Debt to Equity Benchmarking	107
Table 72: Return on Total Assets Benchmarking	108

List of Figures

Figure 1: Real GDP Growth(%) 2010-2031F	11
Figure 2: Inflation Rate (Average Consumer Prices) (%) 2010-2031F	13
Figure 3: Global Population Growth Trend 2010-2031F, billion	13
Figure 4: Real GDP Growth Comparison (%) 2010-2031F	15
Figure 5: India Inflation Rate (Average Consumer Prices) (%) 2010-2031F	17
Figure 6: GDP per capita, at current prices (US Dollars) and growth, %, India, 2010-2031F	19
Figure 7: Private Final Consumption (INR 000'Bn) and Growth, %, India, FY12 to FY26	19
Figure 8: IIP Growth (%) April 2023 - July 2026	20
Figure 9: Global Polymer Compounding Market, Industry Size (USD million), 2019-2031F	25
Figure 10: Global Polymer Compounding Market by Application, USD 72,526 million, CY2025	26
Figure 11: Global Polymer Compounding Market by Region, USD 75,526 million, CY2025	27
Figure 12: Global Polymer Compounding Market by Country, USD 75,526 million, CY2025	28
Figure 13: Indian Polymer Compounding Market, Industry Size (USD million), 2019-2031F	30
Figure 14: India Polymer Compounding Market by Application, USD 9,934 million, CY2025	32
Figure 15: India Polymer Import Prices, USD/Kg, FY-21 to FY-26	41
Figure 16: Fuel-wise installed capacity	50
Figure 17: Historical electricity requirement trend	51
Figure 18: Factors influencing power demand	52
Figure 19: Energy demand outlook (FY25 – FY31)	53
Figure 20: Segment-wise break-up of total investments-dominance of the generation segment (Rs trillion, %)	54
Figure 21: Integration and growth of transmission network in India	58
Figure 22: Sector-Wise share of transmission line additions	60
Figure 23: Robust growth in high voltage sub-station transformation capacity (above 220 kV)	61
Figure 24: Sector-Wise share of substation additions	61
Figure 25: Share of private sector in substation investments	61
Figure 26: Production of Power Cables (in lakh km)	63
Figure 27: Projected domestic consumption volume of power cables	64
Figure 28: Projected market size of power cables (FY26-31F)	64
Figure 29: India's RE (incl. large hydro) capacity was 52% at the end of March 2026	65
Figure 30: Historical RE Capacity Additions in India	66
Figure 31: Share of energy generation of various renewable sources in the total RE supply mix	67
Figure 32: Expected Solar Capacity Additions	68
Figure 33: Wind Power Capacity Additions	70

Figure 34: Telecom Industry Segmentation.....	71
Figure 35: Telecom Sector Gross Revenue, USD billion, FY19 to FY26	71
Figure 36: Broadband Subscribers, millions, FY-19 to FY-26	72
Figure 37: Telephone Subscribers, million, FY-19 to FY-26	73
Figure 38: Internet Penetration, million, 2019 to 2025.....	74
Figure 39: Optical Fibre Cable Laid, million km, 2014 to 2025.....	76

1 Global Macroeconomic Overview

1.1 Global GDP

Following the COVID-19 pandemic induced 2.7% contraction in global GDP in 2020 - which led to a sharp slowdown in industrial activity, private consumption, and exports - the world economy grew by a robust 6.6% in 2021. The adoption of an accommodative monetary policy by major world economies and the injection of fiscal stimulus measures drove resurgence in consumer spending and business sentiment in 2021. During the year, emerging economies grew by 7.0%, while their developed counterparts grew by 6.0%. There were, however, also restraints emanating from the Omicron coronavirus variant, China's strict zero-Covid policy, and elevated budgetary deficits in 2021.

Developing economies experienced a varied but significant recovery from the COVID-19 pandemic, driven largely by the revival of grassroots consumption and the transportation sector. Despite income declines reported from late 2021 through 2022, grassroots consumption helped revive local economies by maintaining demand for goods and services essential to everyday life. Community-driven responses such as mutual aid initiatives, relief distribution, and urban gardening further supported this recovery by addressing immediate hardships and fostering social cohesion, thereby sustaining consumption even under challenging conditions. Government interventions and policy measures that provided direct support to households also contributed to a faster-than-expected stabilization of consumption patterns from mid-to-late 2021 onward, although the pace of recovery varied across regions depending on local economic and income trends.

Global economic growth fell to 3.6% in 2022, with emerging economies such as India, Vietnam, Indonesia, and Brazil driving momentum. Emerging market and developing economies grew by 4.1%, while advanced economies posted 2.9% GDP growth during the year. The Russia-Ukraine war led to a sharp growth pullback in 2022. High food and fuel prices, insecurity within the global energy markets, shortage of essential food products, and China's zero COVID-19 policy impacted global trade and economic growth in 2022.

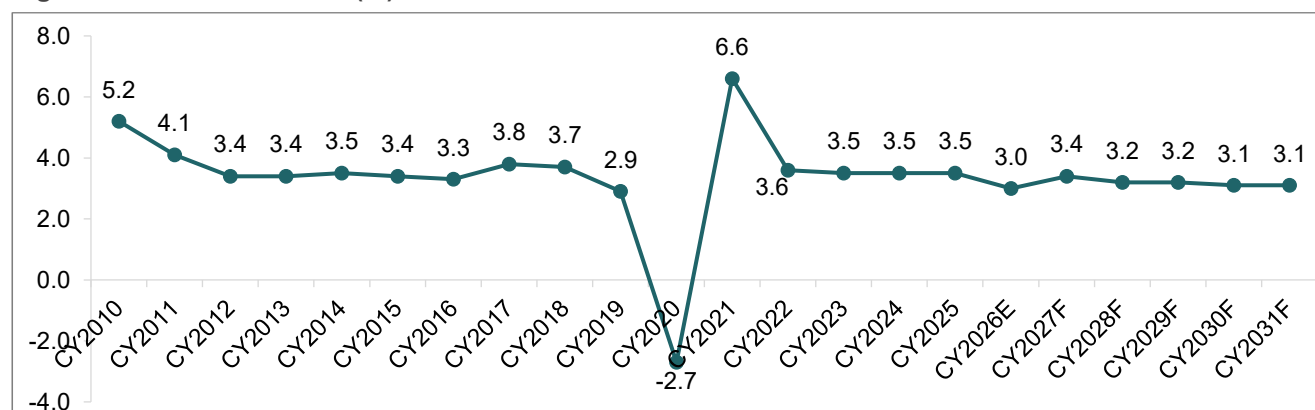
Global growth remained subdued in 2023, as elevated inflationary pressures and the resultant synchronised rate hikes by major central banks weighed on economic activity. Emerging and advanced countries are estimated to have grown by 4.7% and 1.7%, respectively, in 2023. High costs of raw materials and restrained labour market conditions within advanced economies weighed on growth in manufacturing-oriented nations such as Germany, while services-reliant countries such as France and Spain grew at a slightly stronger pace during the year. A subdued global economic climate also dampened export potential, with weaker-than-expected Chinese economic recovery causing spillover effects within the country's trading partners. Moreover, the onset of the Israel-Hamas war in Q4 2023 led to increased energy market volatility as well as raised concerns of a regional conflict spillover.

The global economy grew by 3.3% in 2024, as weakness continues to prevail in advanced economies such as the UK, Japan, and the Eurozone. While gradually easing price pressures, coupled with a normalization of monetary policy during H2 2024 provided some respite, mounting geopolitical tensions and sluggish trade flows caused some short-term setbacks.

Global real GDP growth stood at 3.4% in 2025, reflecting the completion of the post-pandemic normalization phase and signalling that the global economy has transitioned into a structurally moderate growth environment rather than a renewed expansion cycle. According to International Monetary Fund, global growth is projected to moderate to 3.0% in 2026 and remain broadly stable at around 3.1–3.2% through 2030. While inflation has eased considerably across most major economies and monetary tightening is gradually nearing its end, elevated real interest rates, weak productivity growth, ageing demographics in advanced economies, and high sovereign debt burdens continue to

constrain investment, capital formation, and private consumption. Consequently, the medium-term outlook points towards a resilient but structurally lower-growth global economy compared with pre-pandemic trends.

Figure 1: Real GDP Growth(%) 2010-2031F



Note: E-Estimated, F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026 and July 2026

Table 1: Real GDP Growth Comparison

Year	World	India	United States	China	European Union	Japan	Advanced Economies	Emerging market and developing economies
CY2010	5.2	8.5	2.7	10.6	2.0	4.1	3.1	7.2
CY2011	4.1	5.2	1.6	9.6	2.0	0.0	1.8	6.1
CY2012	3.4	5.5	2.3	7.8	-0.7	1.4	1.2	5.3
CY2013	3.4	6.4	2.1	7.8	0.0	2.0	1.5	4.9
CY2014	3.5	7.4	2.5	7.5	1.7	0.3	2.1	4.7
CY2015	3.4	8.0	2.9	7.0	2.5	1.6	2.4	4.3
CY2016	3.3	8.3	1.8	6.8	2.0	0.8	1.8	4.4
CY2017	3.8	6.8	2.5	6.9	3.0	1.7	2.6	4.8
CY2018	3.7	6.5	3.0	6.8	2.3	0.6	2.3	4.7
CY2019	2.9	3.9	2.6	6.1	2.0	-0.4	1.9	3.7
CY2020	-2.7	-5.8	-2.2	2.3	-5.5	-4.2	-4.0	-1.7
CY2021	6.6	9.7	6.1	8.6	6.4	2.7	6.0	7.0
CY2022	3.6	7.6	2.5	3.1	3.7	0.9	2.9	4.1
CY2023	3.5	9.2	2.9	5.4	0.6	1.5	1.7	4.7
CY2024	3.5	7.1	2.8	5.0	1.2	-0.2	1.9	4.5
CY2025	3.5	7.7	2.1	5.0	1.6	1.1	1.9	4.5
CY2026E	3.0	6.4	2.3	4.6	1.2	0.6	1.7	3.8
CY2027F	3.4	6.7	2.2	4.1	1.4	0.7	1.8	4.5
CY2028F	3.2	6.5	2.1	4.0	1.6	0.6	1.7	4.2
CY2029F	3.2	6.5	1.9	3.7	1.5	0.6	1.6	4.1
CY2030F	3.1	6.5	1.8	3.3	1.4	0.6	1.5	4.0
CY2031F	3.1	6.5	1.8	3.3	1.4	0.6	1.5	4.0

Note: E-Estimated, F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026 and July 2026

United States: The table shows the US economy as the most stable large, advanced economy over the period, oscillating in a relatively narrow band from 2.7% in 2010 down to a pandemic contraction of -2.2% in 2020, followed by steady growth generally between 1.8% and 3.0% through the outlook years, settling near 1.8–2.3% from 2027 onward. This stability is echoed in the IMF's July 2026 WEO Update, which kept its 2026 growth forecast for the

United States steady at 2.3%, one of the few major economies where the Fund made no downward revision despite global headwinds from the Middle East conflict. Earlier in 2026, IMF had also flagged that US growth was being supported by fiscal policy, a lower policy rate, and gradually waning trade-barrier effects, alongside robust AI-related investment. The consistency of the US trajectory relative to more volatile peers like the euro area and Japan reflects deeper structural advantages, technology-sector leadership, and relative energy self-sufficiency that continue to insulate it from external shocks even as global growth moderates.

European Union: The European Union's growth in the table has been the most volatile among advanced economies: a -0.7% contraction in 2012 (euro debt crisis), a sharp -5.5% collapse in 2020, a 6.4% rebound in 2021, and then a persistently sluggish 0.6–2.3% range through the forecast horizon, the weakest sustained pace of any major economy. The euro area's underlying weakness is structural as much as cyclical: manufacturing output has struggled with limited signs of recovery, weighed down by competitiveness challenges and soft external demand, even as resilient services activity and stronger household consumption provide some offsetting support. With interest-rate cutting cycles largely concluded and fiscal policy expected to turn more expansionary only gradually as defence spending rises to meet NATO commitments, the euro area's growth story remains one of cautious stabilization rather than robust expansion.

China: China's growth path illustrates a clear structural deceleration: from a robust 10.6% in 2010, growth has steadily declined through the 6–7% range in the mid-2010s to the 4–5% band that now characterizes both recent outturns and forecasts through 2031. IMF's most recent assessment noted China's economy expanded 5% in 2025, meeting Beijing's official target, and kept its 2026 growth forecast at 4.5%, while flagging a deeper-than-expected downturn in the property sector as the primary domestic risk and renewed trade tensions as the key external threat. The property downturn's drag on GDP is expected to narrow gradually as policymakers pursue mortgage-rate cuts and destocking measures, but the broader story is one of a maturing economy deliberately rebalancing away from real estate and export dependence toward domestic demand and higher-value manufacturing.

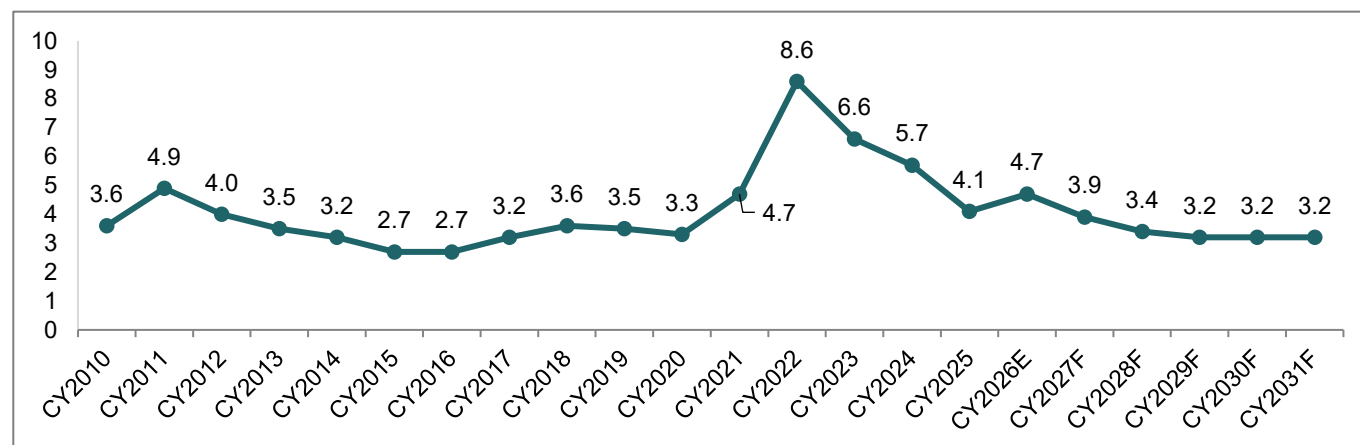
Japan: Japan's growth history is the most muted of the major economies, rarely exceeding 2%, with a deep -4.2% contraction in 2020, and forecasts converging toward a modest 0.6% by the early 2030s. Recent IMF data affirm this structurally low-growth path: Japan's real GDP for 2025 registered year-on-year growth of 1.1%, marking a year of positive growth, with momentum driven by a rebound in exports to the United States and steady private consumption and capital investment. Looking ahead, the IMF's July 2026 update projected Japan's growth moderating further to 0.6% in 2026. Japan's growth story is shaped less by cyclical swings than by deep structural constraints a shrinking, aging population and subdued productivity growth which the Bank of Japan and private forecasters alike expect to keep trend growth below 1% annually over the coming decade, even as a weaker yen and a buoyant tourism sector provide periodic tailwinds.

1.2 Global Inflation

Global inflation has followed a distinctly cyclical path over the past decade and a half. After hovering in a relatively contained 2.7–4.9% band through the 2010s, headline consumer price inflation surged to a multi-decade high of 8.6% in 2022, driven by pandemic-era supply disruptions, unprecedented fiscal and monetary stimulus, and the initial energy-price shock from Russia's invasion of Ukraine. Inflation then eased steadily through 2023–2025, falling back toward the 3–4% range as central banks' aggressive tightening cycles took hold and global supply chains normalized. However, this disinflation trend has since stalled: the IMF's July 2026 World Economic Outlook Update projects headline inflation rising from 4.1 percent in 2025 to 4.7 percent in 2026, before easing to 3.9 percent in 2027. IMF notes that this renewed pressure is driven mainly by higher energy and food prices and cautions that the return of core inflation to central bank targets will be gradual and uneven: not until mid-2027 in the United Kingdom, the end of 2027 in Japan and the United States, and only in 2028 in the euro area, while inflation in China is expected to rise from historically low levels. This divergence underscores that, unlike the broadly synchronized post-pandemic inflation wave, the current episode is being shaped by country-specific factors such as exchange-

rate pass-through, labor market tightness, and the persistence of services-price inflation that will likely keep global monetary policy fragmented over the next two years.

Figure 2: Inflation Rate (Average Consumer Prices) (%) 2010-2031F



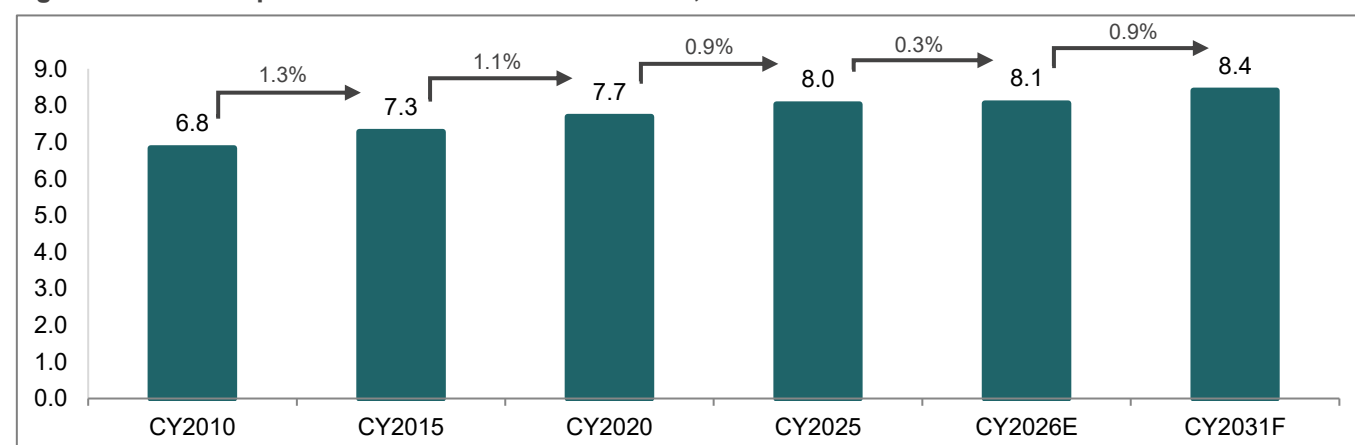
Note: E-Estimated, F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026 and July 2026

1.3 Global Population

The total population has more than doubled since the 1950s and is forecasted to surpass the 8.3 billion mark by 2029. Populous middle-income countries account for a considerable share of the growth in world population between 2010-25. Just five nations – China, India, Indonesia, Pakistan, and Nigeria – are expected to account for around 3.6 billion people in 2024. If the current trend continues, the majority of the next billion is destined to be born in low- and middle-income countries. However, the median age of the existing population in these nations – especially Nigeria, Pakistan, and India at an estimated 19.3 years, 22.9 years, and 29.8 years, respectively in 2024 underscore the massive demographic dividend potential. A young and cost-effective labour will drive the attractiveness of these nations as offshore manufacturing destinations.

Figure 3: Global Population Growth Trend 2010-2031F, billion



Note: E-Estimated, F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026

2 India Macroeconomic Overview

2.1 India's GDP

The Indian economy posted a robust economic rebound of 9.7% in 2021, following the Covid-19 induced 5.8% GDP contraction in 2020. In response to the economic challenges posed by the COVID-19 pandemic, India implemented a series of comprehensive structural reforms aimed at revitalizing its manufacturing sector and enhancing its global competitiveness. The government's disinvestment strategy underwent a significant transformation, the new approach facilitated landmark privatizations such as Air India's acquisition by the Tata Group. The primary objectives behind this disinvestment push were to reduce the fiscal burden on government finances, improve operational efficiency through private sector management, and generate substantial resources for funding critical development programs. The Indian government as part of its proactive fiscal and monetary policies introduced several stimulus measures such as loan moratoriums, credit guarantees, and direct cash transfers to support businesses and households during the year. These measures helped sustain domestic consumption and mitigate the economic impact of the pandemic in 2021. Recovery within manufacturing as well as the services industry – particularly within segments such as information technology, healthcare, and e-commerce – provided further impetus.

GDP growth fell to 7.6% in 2022, mainly due to the Russia-Ukraine war and the resultant supply disruptions which led to a sharp increase in food and fuel prices. To curtail these high price pressures, the Reserve Bank of India (RBI) adopted a restrictive monetary policy – with the repo rate hiked to 6.25% by the end of 2022. This dampened consumer spending and business confidence during the year. As per International Monetary Fund (IMF) World Economic Outlook April 2023, GDP grew by 9.2% in 2023 considering strong domestic consumption and demand, public infrastructure investment and an upswing in household investments in real estate.

India's real GDP grew by 6.5% in 2024, a bright spot in an otherwise subdued global economic environment. The focus on infrastructural development, expanding manufacturing and services sectors, resilient credit growth and robust private consumption propelled economic momentum in 2024.

India's growth momentum through 2025 has been underpinned by resilient private consumption, a strong services sector, and steady government capital expenditure, even as global trade faced headwinds from tariff uncertainty and shifting supply chains. The performance reaffirmed India's position as the anchor of growth among major emerging markets, with the IMF explicitly noting that despite global headwinds, including elevated US tariffs on Indian exports, a strong first-quarter carryover allowed India's growth rate. Inflation, meanwhile, remained supportive of domestic demand, easing toward target levels on the back of subdued food prices through much of 2025, giving the Reserve Bank of India policy space that would prove valuable once external shocks emerged in 2026.

The outbreak of war in the Middle East in February 2026 posed a significant and multi-channel risk to India's growth story, given the country's deep economic interdependence with the Gulf region, which supplies roughly 30% of India's crude oil and around half of its natural gas imports, hosts about 9 million Indian workers whose remittances account for nearly 3.5% of GDP and ~38% of India's total remittance inflows and underpins close to USD 200 billion in annual two-way trade. As the Strait of Hormuz effectively closed to shipping and India's LPG supply came under acute pressure, the government invoked emergency measures, cut fuel excise duties, and expanded biofuel blending to cushion the impact, while the RBI deployed billions of dollars in forex reserves to defend the rupee against depreciation pressure.

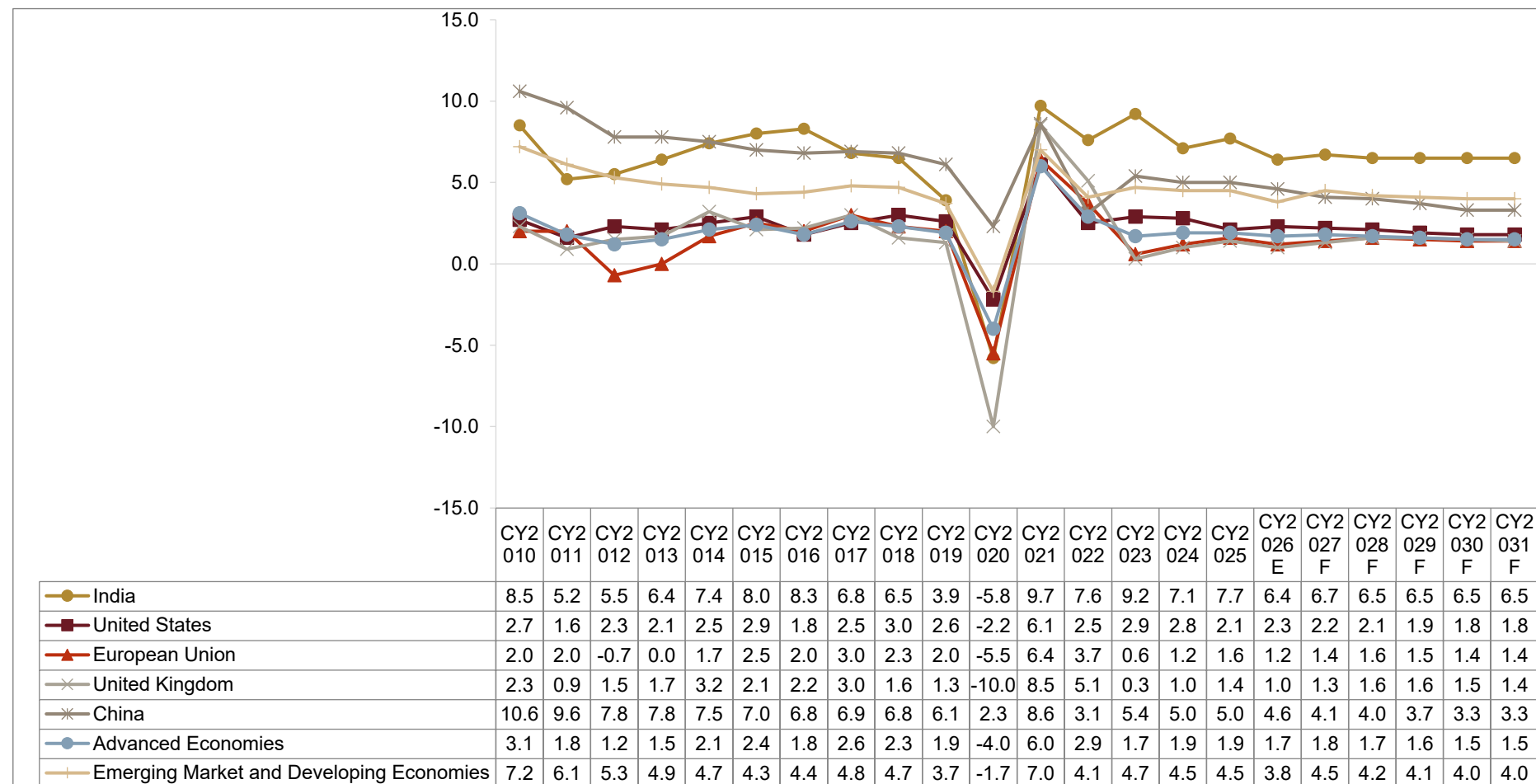
Beyond energy, the conflict disrupted trade in fertilizers, petrochemicals, and agricultural exports such as basmati rice and dependent food imports like Iranian apples and almonds, while raising the specter of reduced remittance flows with some estimates suggesting a 10–30% decline if the conflict persisted particularly affecting remittance-

dependent states such as Kerala, Uttar Pradesh, and Bihar. Encouragingly, because the resulting inflationary pressure was assessed as largely "imported" rather than driven by domestic overheating, the RBI retained room to prioritize growth and employment over aggressive monetary tightening, and India's underlying economic fundamentals allowed it to absorb the shock more effectively than initially feared.

The conflict in West Asia has become a major disruption to the global economy. Shipping through the Strait of Hormuz, a key route for world oil and gas trade, has been severely restricted. This has led to volatile crude oil prices, higher freight and insurance costs, and a weaker global growth outlook with persistent inflation. The petrochemical and polymer value chain has been hit hard, since the Middle East is a leading supplier of polyethylene and polypropylene to Asian markets, including India. In India, this meant tighter availability of key polymers and sharp increases in raw material prices, which put particular pressure on smaller processors. The Government of India responded with temporary customs duty relief on critical petrochemical and polymer imports to support supply. For polymer compounders, the result has been higher and more volatile input costs and pressure on working capital. It has also made customers place more weight on supply security and reliable domestic sourcing. Global agencies expect supply conditions to normalise gradually into 2027, but the conflict remains unresolved and its long-term impact on the industry cannot be predicted with certainty.

Looking ahead, IMF's forecasts point to a moderation from the exceptional post-pandemic growth rates toward a more steady-state pace of roughly 6.4–7.7% through 2031, still well above the trajectories projected for advanced economies and China due as domestic demand continues to anchor growth even amid global uncertainty. The Reserve Bank of India has offered a more cautious near-term view, projecting FY27 growth of ~6.6%, with quarterly estimates ranging from 6.3% to 6.8%, citing risks from elevated energy prices, supply disruptions, and weather-related uncertainty as lingering legacies of the conflict.

Figure 4: Real GDP Growth Comparison (%) 2010-2031F

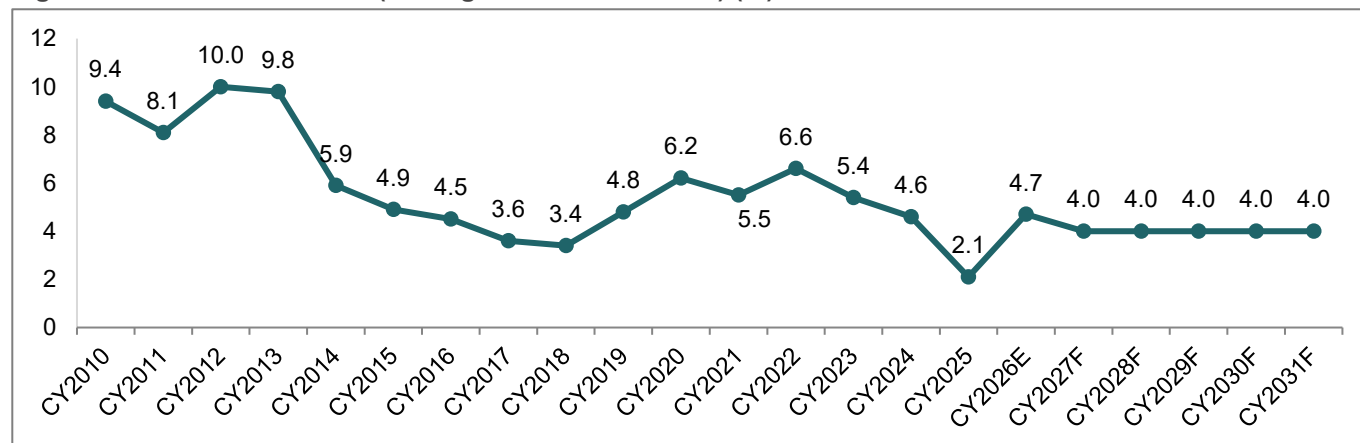


Note: E-Estimated, F: Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026 and July 2026

2.2 India's Inflation

Figure 5: India Inflation Rate (Average Consumer Prices) (%) 2010-2031F



Note: E-Estimated, F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026

India's inflation trajectory over the past decade and a half shows a decisive structural shift from a high, volatile regime to a more stable, target-consistent one. Inflation ran persistently high through 2010–2013, peaking near 10.0% in 2012, before a sustained disinflationary period took hold through the mid-to-late 2010s, aided by lower global commodity prices and the RBI's adoption of formal flexible inflation targeting in 2016, which anchored expectations around the medium-term 4% target within a 2–6% tolerance band. Inflation touched a low of 3.4% in 2018 before drifting up again through the pandemic and post-pandemic years, peaking at 6.6% in 2022 amid the global commodity-price shock triggered by Russia's invasion of Ukraine. What followed, however, was one of the sharpest disinflations in the series: headline CPI fell to just 2.1% in 2025, an eight-year low, driven by a prolonged, roughly nine-month streak of falling food prices, the longest such stretch in the CPI series' history. This gave the RBI unusual policy space heading into 2026, a cushion that would prove critical once external price pressures re-emerged during the year.

The disinflationary cushion was tested almost immediately in 2026, when the outbreak of war in the Middle East in February disrupted the Strait of Hormuz, pushing global energy prices sharply higher and feeding directly into India's import bill, transport costs, and cooking-gas prices. The RBI characterized the resulting price pressure as largely imported in nature, originating from a geopolitical supply shock rather than domestic overheating, which shaped its policy response: having already delivered a series of rate cuts through late 2025 and early 2026, the central bank held the repo rate steady at 5.25% through its February, May, and June 2026 meetings, preferring a calibrated, neutral stance over aggressive tightening even as inflation risks built up. The IMF's forecast path shows inflation stepping up to 4.7% in 2026 before settling into a steady 4.0% band from 2027 through 2031, reflects that the West Asia-driven price shock represents a temporary, absorbable disturbance rather than a durable regime shift, with the RBI's neutral policy stance designed to look through the near-term energy-driven spike while safeguarding India's hard-won gains in inflation anchoring over the following review cycles.

In the long run, India's annual inflation is forecast to average ~4.1%, well within the central bank's target range of 4.0±2%.

2.3 India's Population Growth

India's population has grown by more than 1 billion since 1950. India's population stood at 1.24 billion in 2010 and has grown with a CAGR of 3.8% till 2024 to reach 1.44 billion. In 2022, India surpassed China to become the most populous country in the world. It is estimated that India's population will surpass 1.5 billion people by 2029 and will continue to slowly increase till early 2060s, when it will peak at 1.7 billion people.

As of 2022, people under the age of 25 accounted for more than 40% of India's population. Adults with age 65 and above comprise only 7% of India's population, compared with 14% in China and 18% in the US. As per United Nations projections, the share of Indians who are 65 and above is likely to remain under 20% until 2063 and will not approach 30% until 2100.

Table 2: Population (billions of people) 2010-2031F

Year	World	Advanced Economies	Emerging markets & developing economies	China	India
CY2010	6.8	1.0	5.8	1.3	1.2
CY2011	6.9	1.0	5.9	1.3	1.3
CY2012	7.0	1.1	6.0	1.4	1.3
CY2013	7.1	1.1	6.0	1.4	1.3
CY2014	7.2	1.1	6.1	1.4	1.3
CY2015	7.3	1.1	6.2	1.4	1.3
CY2016	7.4	1.1	6.3	1.4	1.3
CY2017	7.5	1.1	6.4	1.4	1.4
CY2018	7.5	1.1	6.5	1.4	1.4
CY2019	7.6	1.1	6.5	1.4	1.4
CY2020	7.7	1.1	6.6	1.4	1.4
CY2021	7.8	1.1	6.7	1.4	1.4
CY2022	7.8	1.1	6.7	1.4	1.4
CY2023	7.9	1.1	6.8	1.4	1.4
CY2024	8.0	1.1	6.9	1.4	1.5
CY2025	8.0	1.1	6.9	1.4	1.5
CY2026E	8.1	1.1	6.9	1.4	1.5
CY2027F	8.1	1.1	7.0	1.4	1.5
CY2028F	8.2	1.1	7.1	1.4	1.5
CY2029F	8.3	1.1	7.1	1.4	1.5
CY2030F	8.3	1.1	7.2	1.4	1.5
CY2031F	8.4	1.1	7.3	1.4	1.5

Note: E-Estimated, F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026

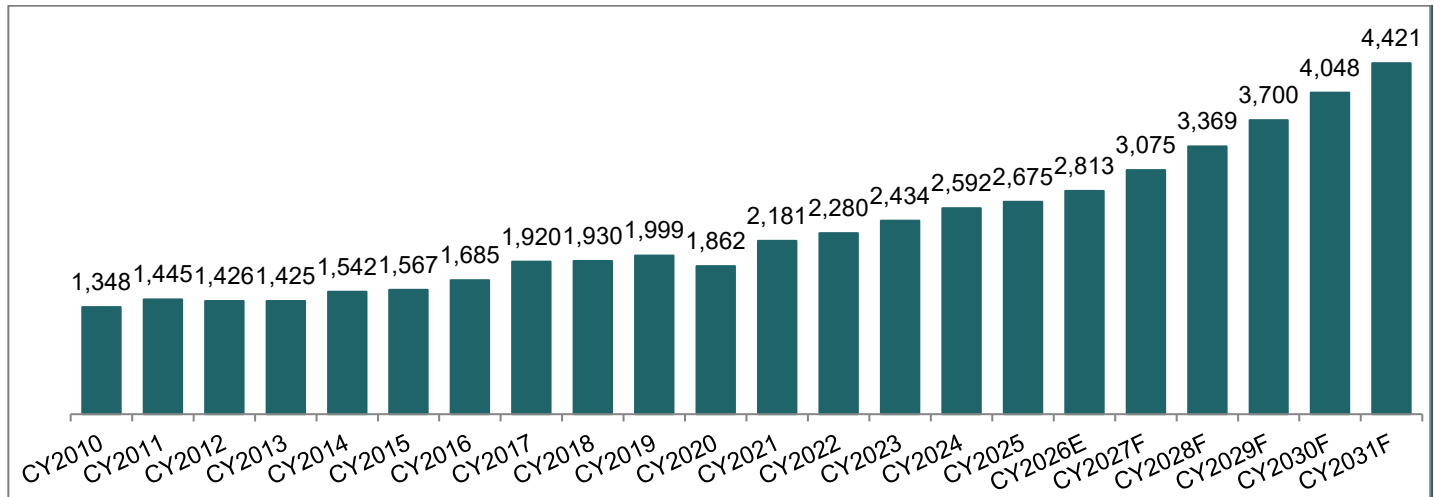
2.4 GDP Per Capita at Current Prices

India's GDP Per Capita (at current prices) is likely to reach ~USD 4,421 by 2031, growing at a CAGR of 9.5% between 2026 and 2031. This boost in per capita GDP levels will play a crucial role in propelling India's vision to become a USD 5 trillion economy by 2030. This upward trend in per capita GDP levels will be supported by domestic structural reforms, fiscal prudence, monetary policy stability, input costs, price pressures, political stability, and rapid urbanization.

Expansion of capacity utilisation and productivity across critical sectors such as manufacturing, transport, infrastructure, construction, chemicals, telecom, and financial services will lead to a sustained growth in GDP per capita levels, with positive spillovers being witnessed in India's economic growth.

Increased infrastructural investment inflows, an accelerating green transition, strengthening energy and commodity supply chains, and building multi-industry economies of scale for the digital economy will boost competitiveness, enhance efficiency, and create new job opportunities, thus promoting India's transition to an upper-income country over the coming decade. However, geopolitical tensions, extreme climate events, and international financial sector volatility can present short-term to medium-term challenges to this growth outlook.

Figure 6: GDP per capita, at current prices (US Dollars) and growth, %, India, 2010-2031F



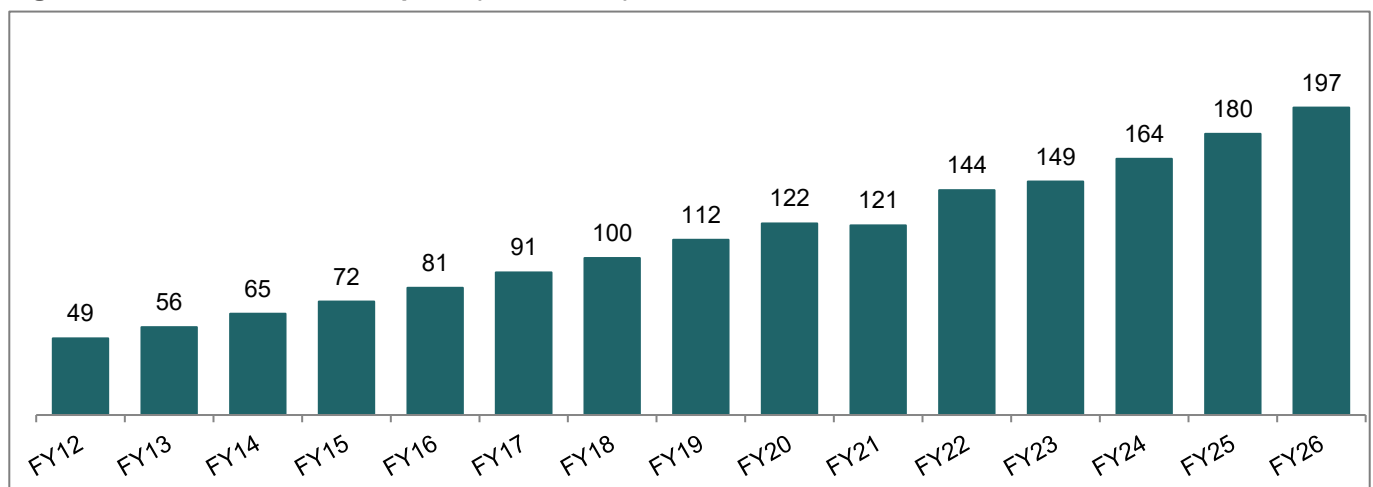
Note: F-Forecast

Source: International Monetary Fund (IMF) World Economic Outlook April 2026

2.5 Private Final Consumption Expenditure

Private Final Consumption Expenditure (PFCE) has remained an important factor in insulating the Indian economy, contributing to over 60.0% of the country's GDP. PFCE picked up steam after a brief plunge in 2020 due to the pandemic. In FY26, PFCE witnessed growth of 9.4% compared to the previous year. A pattern has been emerging in India's demand recovery thus far, by which demand growth for mid-premium products has been stronger, while that for budget and entry-level products has been weaker.

Figure 7: Private Final Consumption (INR 000'Bn) and Growth, %, India, FY12 to FY26



Source: MOSPI

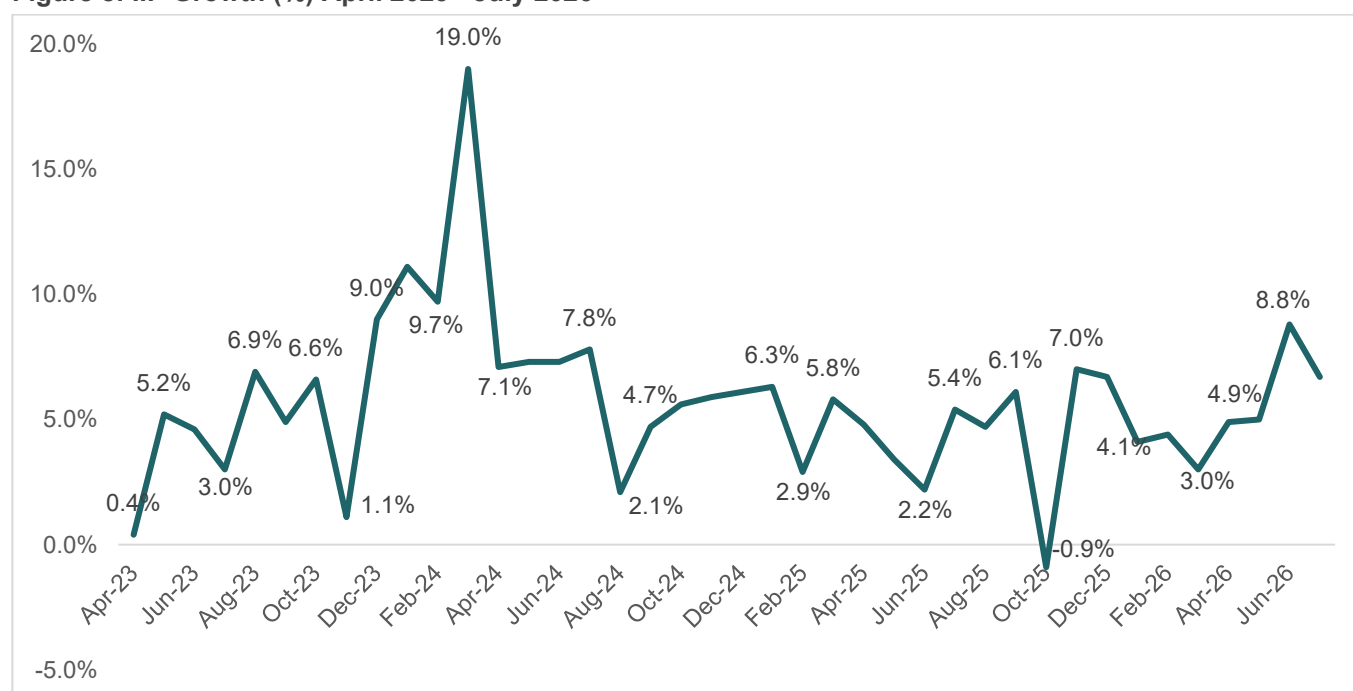
2.6 Index of Industrial Production

Index of Industrial Production (IIP) exhibited a generally positive growth trajectory between April 2023 and July 2026, although the period was marked by notable month-to-month volatility. During most of 2023, industrial growth remained moderate, fluctuating between 0.4% and 6.9%, before gaining significant momentum toward the end of the year. Growth accelerated sharply to 9.0% in December 2023 and 9.7% in January 2024, culminating in an exceptional peak of 19.0% in March 2024, the highest level observed during the entire period. However, this surge proved temporary, with growth moderating to around 7-8% in the subsequent months, indicating a return to more normalized industrial activity levels.

Throughout late 2024 and much of 2025, industrial production maintained a relatively stable expansion, with growth largely ranging between 4% and 6%. While periodic slowdowns were observed, including declines to 2.9% in February 2025 and 2.2% in June 2025, the overall trend remained positive. A notable exception occurred in October 2025, when IIP growth contracted by 0.9%, representing the only negative reading during the period. Nevertheless, the contraction was short-lived, as industrial output rebounded strongly to 7.0% in the following month, reflecting the resilience of the industrial sector and the ability of production activity to recover quickly from temporary disruptions.

Industrial growth remained moderate in early 2026, fluctuating between 3.0% and 4.9%, before showing renewed strength during mid-2026. Growth increased to 8.8% in June 2026, the highest level recorded since the March 2024 peak, before easing slightly thereafter. The rebound in growth during 2026 suggests improving industrial momentum and strengthening production activity across key sectors.

Figure 8: IIP Growth (%) April 2023 - July 2026



Source: MOSPI

3 Polymer Compounding Market

3.1 Polymer Industry

The polymer industry in India stands as one of the most significant sectors in the country's manufacturing landscape, playing a crucial role in economic development. India's polymer industry has demonstrated consistent growth over the years, primarily driven by increasing demand across various sectors. The industry is broadly categorized into two main segments: commodity polymers and engineering polymers. Commodity polymers, including High Density Polyethylene (HDPE), Medium Density Polyethylene (MDPE), Cross Linked Polyethylene (XLPE), Low Density Polyethylene (LDPE), Linear Low Density Polyethylene (LLDPE), Halogen-Free Flame Retardant (HFFR) and Polyvinyl Chloride (PVC), which are commonly known as co-polymers, form the backbone of the industry and find widespread use in everyday applications. Engineering polymers, such as Acrylonitrile Butadiene Styrene (ABS), Nylon, Polycarbonate, and Polyethylene Terephthalate (PET), cater to more specialized and technical applications, commanding higher value in the market.

The applications of polymers in India span across numerous sectors, with packaging emerging as the largest consumer. Other significant application areas include agriculture, automotive, construction, consumer goods, and electronics. This diverse application base has helped the industry maintain steady growth even during economic downturns. The growth is further fueled by several key drivers, including rapid urbanization, rising disposable income levels, increasing industrialization, and supportive government initiatives like the "Make in India" program.

Table 3: India Polymer Imports, Metric Tons, FY-21 to FY-26

HS Code	Products	FY-21	FY-22	FY-23	FY-24	FY-25	FY-26
39011010 & 39014010	LINEAR LOW DENSITY POLYETHYLENE (LLDPE)	355,080	365,489	672,377	662,243	428,123	555,797
39011020	LOW DENSITY POLYETHYLENE (LDPE)	179,987	225,094	209,564	322,966	328,044	347,441
39011090	OTHER (POLYETHYLENE HVNG A SPFC GRVTY < 0.94)	256,287	222,453	278,393	307,910	314,526	326,567
39012000	POLYETHYLENE HVNG A SPCFC GRVTY 0.94 /MORE	645,461	661,698	1,447,574	1,871,846	1,145,729	1,001,884
39013000	ETHYLENE-VINYL ACETATE COPOLYMERS	189,581	182,004	206,182	235,318	297,581	328,691
39019000	OTHER (MIX LLDPE/HDPE)	165,006	165,609	180,954	183,707	160,554	167,537

Source: Ministry of Commerce and Industry

3.2 Polymer Compounding

Polymer compounding is a melt blending process where a thermoplastic resin is combined with additives and reinforcements such as anti-oxidants, UV stabilizers, impact modifiers, colorants, flame retardants, glass fibers, or minerals to create materials with specific properties. The process involves determining the formulation for the compound, pre-blending ingredients or feeding them separately into an extruder, and mixing the resin and additives in a melt state inside the extruder barrel. The molten plastic is then forced through a die plate, cooled in a water bath, and chopped into cylindrical pellets. These additives are incorporated to improve properties such as strength, stiffness, colour, flammability resistance, tribological performance, or electrical and thermal conductivity, with the specific types determined by the desired final properties or end-use application. Polymer compounding enables the creation of custom-tailored materials for various industries, allowing manufacturers to meet specific requirements.

Based on the type of applications, materials used, volumes, polymer compounding can be categorized as commodity polymer compounding and engineering polymer compounding.

Consulting

Commodity Polymer Compounding

Commodity polymer compounding represents a fundamental segment of the polymer processing industry, focusing on the modification of basic, high-volume polymers that are extensively used in everyday applications. This sector primarily deals with materials such as Polyethylene (PE) including HDPE, LDPE, LLDPE, Polypropylene (PP), Polyvinyl Chloride (PVC), and Polystyrene (PS), which are collectively known as co-polymers. These compounds are characterized by their relatively straightforward processing requirements, lower cost structures, and standard performance properties, making them ideal for mass-production applications such as packaging materials, consumer goods, agricultural films, and basic construction materials.

The market dynamics of commodity polymer compounds are characterized by high volumes and lower margins, with competition primarily driven by price considerations. The supply chain tends to be simpler, with multiple suppliers available and standard logistics arrangements sufficient for material handling and distribution. Environmental considerations for commodity compounds typically involve basic recycling capabilities and standard waste management practices, adhering to general environmental compliance requirements.

Table 4: Commodity Polymer Base Materials

Material	Description
Polyethylene (PE)	High-Density Polyethylene (HDPE): Characterized by high strength-to-density ratio, excellent chemical resistance, and good processability. Commonly used in bottles, pipes, and containers. Low-Density Polyethylene (LDPE): Features high flexibility, good clarity, and easy processing. Primary applications include films, bags, and flexible packaging. Linear Low-Density Polyethylene (LLDPE): Combines strength and flexibility with good impact resistance. Widely used in films, stretch wrap, and packaging materials.
Polypropylene (PP)	- Offers excellent chemical resistance, good fatigue resistance, and low density - Features high stiffness and good heat resistance - Common applications include automotive parts, packaging, and household goods - Available in homopolymer and copolymer grades for different applications
Polyvinyl Chloride (PVC)	- Known for durability, fire resistance, and cost-effectiveness - Available in rigid and flexible grades - Excellent chemical resistance and weatherability - Widely used in construction, pipes, profiles, and medical applications
Polystyrene (PS)	- Available in general purpose and high impact grades - Features good clarity, rigidity, and easy processing - Limited heat resistance but excellent dimensional stability - Common in disposable items, packaging, and consumer goods

Engineering Polymer Compounding

Engineering polymer compounding, represents a more specialized and technically demanding segment of the industry, focusing on high-performance polymers designed for applications requiring superior mechanical, thermal, or chemical properties. This sector works with sophisticated materials such as Polyamide (PA/Nylon), Polycarbonate (PC), Polybutylene Terephthalate (PBT), Acrylonitrile Butadiene Styrene (ABS), and various high-performance blends. These compounds are developed for demanding applications in automotive components, electronic parts, industrial machinery, aerospace components, and medical devices, where performance and reliability are crucial.

The market for engineering polymer compounds is characterized by lower volumes but higher margins, with competition based more on technical performance and reliability than price alone. The supply chain is more complex, often involving limited suppliers and requiring specialized logistics for material handling and storage. Environmental

considerations are typically more demanding, with complex recycling requirements and stricter environmental regulations governing both production and disposal.

Table 5: Engineering Polymer Base Materials

Material	Description
Polyamide (PA/Nylon)	- Excellent mechanical strength and wear resistance - Good chemical resistance and thermal stability - Available in various grades (PA6, PA66, PA12, etc.) - Widely used in automotive, electrical, and industrial applications - Superior fatigue resistance and low friction properties
Polycarbonate (PC)	- Outstanding impact strength and optical clarity - High heat resistance and dimensional stability - Excellent electrical properties - Used in automotive glazing, electronics, and medical devices - Good UV resistance when properly stabilized
Polybutylene Terephthalate (PBT)	- High strength and stiffness - Excellent electrical properties and chemical resistance - Good dimensional stability and low moisture absorption - Common in electrical/electronic components and automotive parts - Fast crystallization for efficient processing
Acrylonitrile Butadiene Styrene (ABS)	- Good impact strength and surface appearance - Excellent balance of properties - Easy to process and paint - Used in automotive, appliances, and consumer goods - Available in various grades for specific applications
Polyoxymethylene	- High strength and stiffness - Excellent dimensional stability - Low friction and good wear resistance - Used in precision parts and mechanical components - Good chemical resistance
High-Performance Blends	PC/ABS: Combines strength of PC with processability of ABS PA/PPE: Offers enhanced heat resistance and dimensional stability PC/PBT: Provides good chemical resistance with impact strength - Custom blends for specific application requirements

The distinction between commodity and engineering polymer compounding extends beyond just materials and processes. Engineering compounds require extensive technical support and often involve close collaboration between compounders and end-users to develop custom solutions for specific applications. Innovation in engineering compounds focuses on performance enhancement and new property development, while commodity compound innovation typically centers on cost reduction and process optimization. The storage and handling requirements for engineering compounds are also more demanding, often requiring controlled conditions to maintain material properties.

Polymer compounds are used as an essential raw material for sheathing, jacketing and insulation of wires and cables used in power, telecommunication and railway industries as well as coating of underground oil, gas and water pipelines, in order to provide a protective infrastructure from corrosion and external environmental factors.

HDPE, MDPE and LLDPE compounds are used in the wire and cable industry which offer insulation, sheathing and jacketing based on the indicative requirement of the customer. While, XLPE, HFFR, PVC and CFC compounds add qualities such as strength, high voltage insulation and resistance, fire resistance and moisture resistance, as per the application of the end use product.

In the wire and cable industry, polymers serve crucial functions in electrical insulation, mechanical protection, and overall cable performance. HDPE and adhesive coating compounds are key layers of 3LPE (three layer polyethylene) system ("3LPE Coating" i.e. Pipe Coating) used for coating of oil, gas and water distribution pipelines. 3LPE Coating is an effective solution for protecting high-capital-intensive pipelines from corrosion, chemicals and moisture, thereby ensuring long-term durability.

Polyethylene compounds

PE compounds are widely used in wires and cables for insulation, jacketing and sheathing purposes. The specialised compounds manufactured through these polymers are used in critical industries such as power and telecommunication.

HDPE and adhesive coating compounds

A 3LPE Coating system consists of three layers, viz., a base layer of fusion bonded epoxy, an intermediate adhesive layer, and an outer layer of HDPE. The adhesive used in these pipelines is specially formulated to ensure compatibility between the epoxy and the polyethylene layers, enabling the layers to work as a single, integrated protective system. The final HDPE layer provides mechanical strength and shields the pipeline from soil stress, impact, and moisture. Together, these three layers offer long-lasting corrosion protection and mechanical durability, making 3LPE Coatings ideal for pipelines laid underground or in harsh environments.

Cross-linked polyethylene compounds

XLPE compounds are widely used as insulating materials in power cables due to their thermal, electrical, and mechanical properties. XLPE is produced by chemically cross-linking polyethylene chains, which transforms the thermoplastic polymer into a thermoset material. This cross-linking process significantly enhances the material's ability to withstand high temperatures, electrical stress, and environmental factors such as moisture and chemicals. In power cable applications, XLPE insulation provides superior dielectric strength and thermal resistance, allowing cables to operate safely at elevated temperatures continuously, withstanding short-circuit conditions. Additionally, XLPE offers mechanical toughness, abrasion resistance, and long-term stability, making it ideal for both low-voltage and high-voltage power transmission and distribution systems. Its low dielectric constant and low dissipation factor also contribute to energy efficiency in electrical networks. Overall, XLPE compounds have become the preferred choice for modern cable insulation due to their durability, reliability, and performance under demanding service conditions. In accordance with the end use application, we undertake modifications in the basic polymer structure to modify the effectiveness of the finished product.

Halogen free flame retardant compounds

HFFR compounds are extensively used in cable insulation. In addition to their insulation and flame retardant properties, these compounds reduce the emission of toxic and corrosive gases during combustion. A key benefit is their ability to produce low smoke, critically improving visibility for evacuation during fire incidents. Furthermore, HFFR compounds are characterized by zero or very low halogen acid gas emission, eliminating the release of harmful, corrosive gases, thereby protecting human health and sensitive equipment. Their applications span building and construction, including public buildings, high-rise residential areas, and critical infrastructure.

Polyvinyl chloride compounds

PVC compounds are used in house wires and electrical cables due to their balance of electrical, mechanical, and chemical properties. They serve as both insulation and sheathing material, offering good dielectric strength and resistance to moisture, abrasion, and various chemicals. The inherent flame-retardant nature, enhanced through the use of additives, makes PVC compounds one of the safer choices for domestic wiring applications. These compounds are also flexible and easy to process, allowing for efficient manufacturing and installation in a variety of residential and commercial settings. They can be tailored to meet specific performance requirements by adjusting plasticizers, stabilizers, and fillers in the formulation. While not halogen-free, PVC compounds provide adequate fire performance and cost-effectiveness, which has made it a dominant material in the low-voltage cable segment.

Cable-Filling compounds and other products

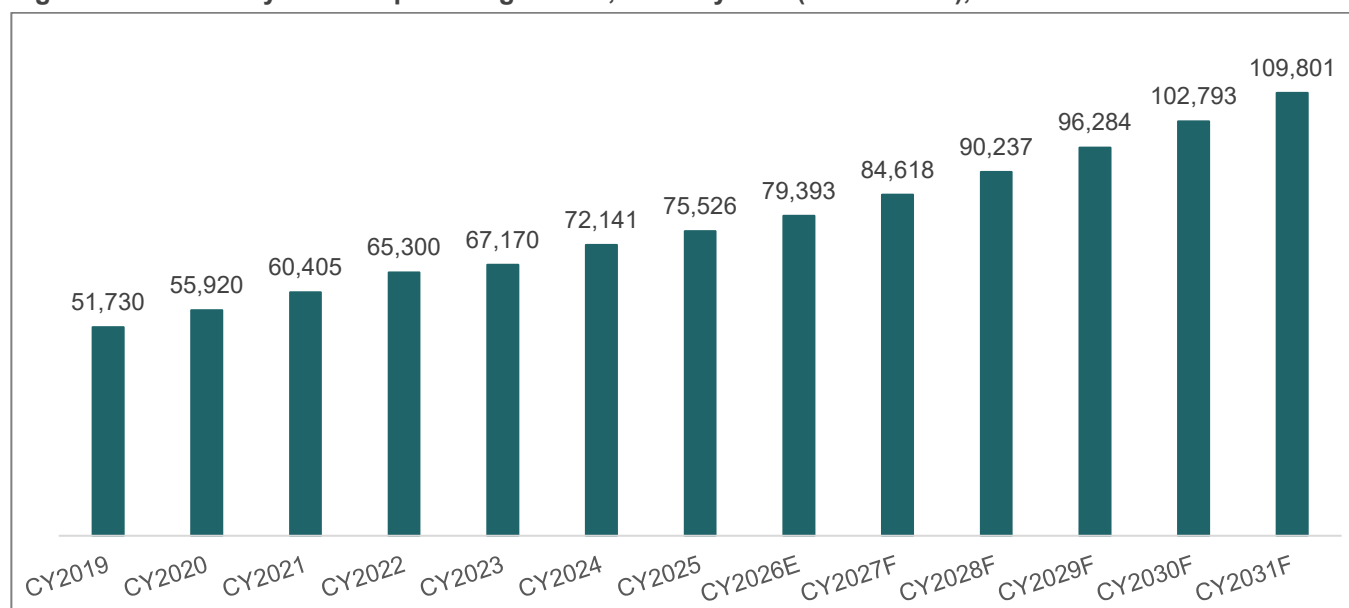
CFC compounds offer water resistance, thermal resistance and dielectric properties, which slow down the deterioration of the cable during its service life. CFC are jacketed on wires and cables for protecting them from extreme weathering situations and various voltage capacities. These compounds are primarily used for sheathing and jacketing of polyethylene insulated jelly filled cables.

Semi-conductive compounds are used in tandem with XLPE compounds to reduce electrical stress for preventing partial discharge and premature electric failure. It also gives uniform electric field distribution, which is crucial for high voltage segments thereby allowing consistent performance.

Peroxide cross linkable compounds are widely used as crosslinking agents in the manufacture of XLPE and ethylene propylene rubber insulation materials for wires and cables. These compounds are used primarily in power cables, control cables, signal and instrumentation cables, renewable energy cables, railways, metro and telecommunication cables.

Cross linked halogen free flame retardant compounds are widely used for manufacturing solar cables. Maleic anhydride grafted polyethylene compounds are used in multilayer films to improve adhesion between different layers. This enhances the strength and durability of the films, making them suitable for applications such as food packaging, medical packaging, and industrial use.

Figure 9: Global Polymer Compounding Market, Industry Size (USD million), 2019-2031F



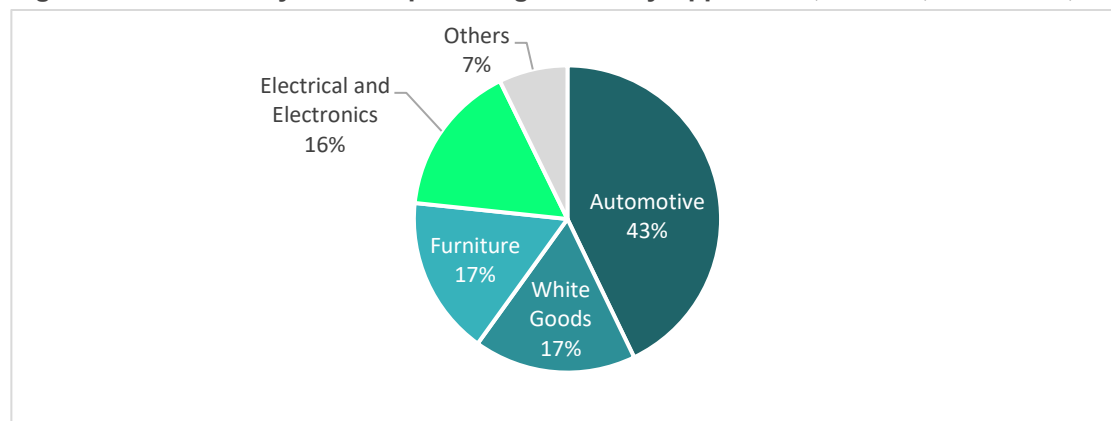
Note: E=Estimate, F-Forecast

Source: CRISIL Intelligence

The global polymer compounding market stood at USD 75,526 million in 2025, growing with a CAGR of 6.5% from 2019. The market is expected to grow with a CAGR of 6.7% till 2031, reaching a value of USD 109,801 million. The growth is driven by technological advancements, rising demand for polymers in key end use sectors including automotive, construction, electrical appliances, wire & cables and electrical & electronics. Because of their great performance, light weight, cost effectiveness, polymers are frequently employed as alternatives to items made of metal and mineral material. Automotive OEMs are increasingly turning to plastics as substitutes for metals like steel and aluminium in vehicle components. This shift is driven by regulatory interventions aimed at reducing vehicle weights to improve fuel efficiency and decrease carbon emissions. Expanding power grids, renewable energy

projects (solar, wind, hydro), and the modernization of existing power transmission networks are major drivers for wire and cable demand, driving the polymer compounding market.

Figure 10: Global Polymer Compounding Market by Application, USD 72,526 million, CY2025



Source: CRISIL Intelligence

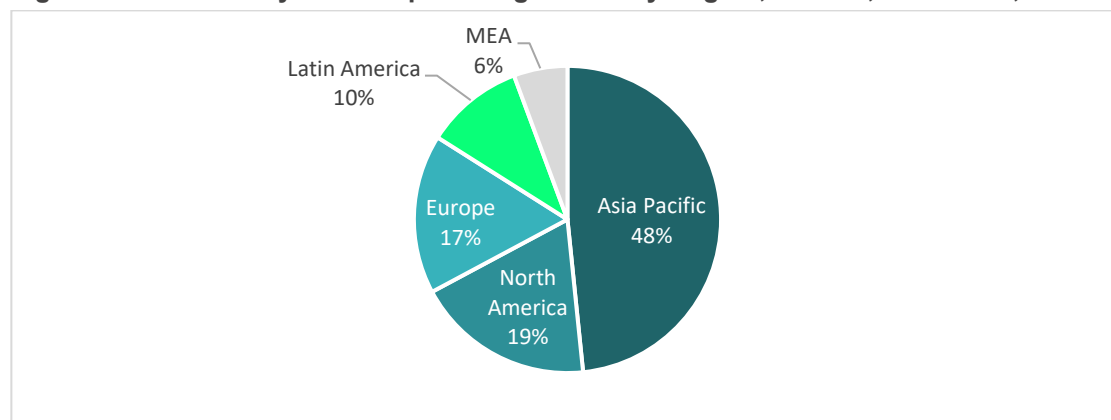
Automotive sector holds the dominant share at ~43% of the overall market, making it the largest consumer of polymer compounds. This dominance is largely due to the increasing demand for lightweight, durable, and high-performance materials in vehicle manufacturing. Polymer compounds are extensively used in interior and exterior automotive components, including dashboards, bumpers, wire harnesses, under-the-hood parts, and protective coatings. The shift towards electric vehicles and the stringent emission regulations across regions are further boosting the demand for advanced polymer materials in this segment.

The white goods and furniture segments, each contributing ~17%, also play a significant role in driving market growth. In the white goods industry—which includes appliances such as refrigerators, washing machines, and air conditioners—polymer compounds like ABS, polypropylene, and polycarbonate are preferred for their moldability, strength, thermal insulation, and electrical resistance. Similarly, in the furniture sector, polymers offer benefits such as design flexibility, surface finish, impact resistance, and longevity, making them suitable for manufacturing modular and ergonomically designed furniture.

The electrical and electronics segment, with a ~16% share, is another crucial contributor to the polymer compounding market. This segment primarily drives the demand for polymer compounds used in wires and cables, which are critical in residential, commercial, and industrial applications. Compounds such as PVC, XLPE, HDPE, LDPE, LLDPE AND HFFR, commonly known as copolymers, are widely used for insulating wires and cables, offering excellent electrical insulation, flame resistance, and environmental durability. The rising demand for power infrastructure, smart grids, broadband networks, and electric mobility is significantly increasing the consumption of such compounds in this sector.

Additionally, the pipe coatings market, falling under the broader Others category (7%) along with packaging, and health care applications, is a niche but rapidly growing application area. Here, polymer compounds are used in protective coatings for steel and plastic pipelines. Materials such as PE and PP based compounds are engineered with additives to provide corrosion resistance, mechanical strength, and thermal stability. These coatings are vital in extending pipeline life and ensuring safety and performance, especially in harsh environments. The growth of gas distribution networks, particularly in emerging markets and urban infrastructure projects, is contributing to the increasing demand for high-performance polymer coatings.

Figure 11: Global Polymer Compounding Market by Region, USD 75,526 million, CY2025



Source: CRISIL Intelligence

Among all the nations the Asia Pacific is the most significant shareholder and is estimated to account for ~48% of the total market share. This significant share is due to the region's strong manufacturing capabilities, rapid industrialization, and increasing demand from key end-use industries such as automotive, electronics, consumer goods, and construction. Countries like China, India, Japan, and South Korea are major contributors due to their cost-effective labor, expanding infrastructure, and growing urbanization. China's position as the world's largest vehicle producer and a rapidly expanding base of new energy vehicle manufacturing. The region benefits from a well-established manufacturing ecosystem spanning automotive, consumer electronics, home appliances, and industrial goods, supported by significant domestic compounding capacity and increasing self-sufficiency in specialty and engineering plastics that were historically imported. Furthermore, favorable government policy has played a meaningful role in sustaining demand, including large-scale equipment renewal and consumer goods trade-in programs that have supported appliance and vehicle replacement cycles, as well as continued industrial policy support for electric vehicle and battery supply chains. The region is also seeing a structural shift in end-use composition, with rising demand from adjacent high-growth categories such as humanoid robotics, consumer electronics, and renewable energy infrastructure, which increasingly require specialty engineering compounds beyond traditional commodity applications.

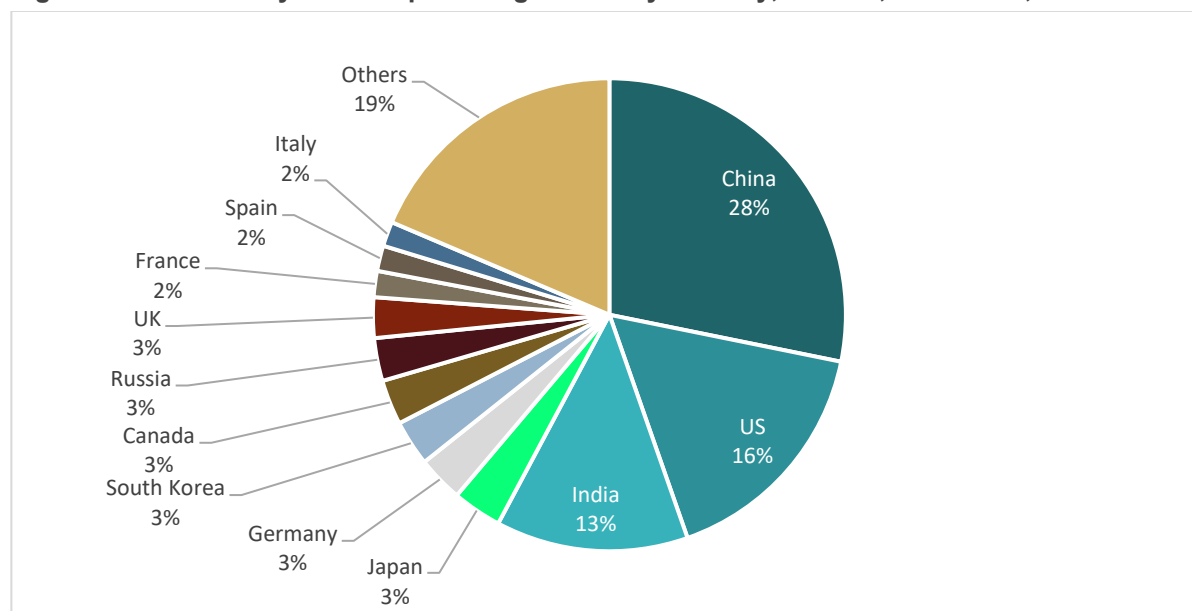
North America and Europe accounts ~19% and ~17% of the market share, respectively. In North America, market growth is primarily driven by technological advancements and rising demand for high-performance polymers in sectors such as automotive, healthcare, aerospace, and electricals. Trade policy has become an increasingly significant variable for the region, with tariffs on vehicles, components, and industrial inputs reshaping sourcing decisions, production location strategy, and cost structures across the automotive and compounding value chain. This has also influenced electric vehicle strategy among North American automakers, with several manufacturers recalibrating EV production plans and shifting toward a broader mix of hybrid and conventional powertrains, which in turn affects the specific mix of specialty compounds in demand. Europe, being a mature market, maintains its position through stringent environmental regulations that encourage the use of recyclable and sustainable polymer compounds. High energy costs, regulatory compliance burdens, slow industrial permitting processes, and intensifying import competition, particularly from lower-cost Asian manufacturers, have weighed on regional chemical and compounding output, with industry associations describing operating conditions as among the most challenging in decades. Geopolitical developments affecting energy prices and supply chains, including conflicts affecting the broader Middle East region, have added a further layer of unpredictability to the near-term outlook, even as they have occasionally provided temporary competitive relief relative to Asian producers facing more direct feedstock disruption.

Latin America, accounting ~10% to the global market presents a mixed picture across its constituent economies, shaped by currency volatility, uneven macroeconomic conditions, and varying degrees of automotive and industrial manufacturing activity. Brazil and Mexico remain the region's principal compounding markets, supported by

established automotive assembly and parts manufacturing bases, though demand has been affected at different points by weaker domestic vehicle sales and shifting trade dynamics with North America. Government support for industrial development and infrastructure expansion is also playing a vital role in boosting demand for polymer compounds in the region.

Middle East and Africa (MEA) region, currently holds the smallest share at ~6%, comparatively smaller but developing market for polymer compounding, with demand concentrated in construction, infrastructure, packaging, and a gradually expanding consumer durables and automotive assembly base. Regional economic diversification initiatives, particularly in Gulf Cooperation Council countries seeking to reduce dependence on oil revenues, are supporting incremental industrial and manufacturing investment that benefits compounding demand over time. The region carries distinct exposure to energy market and geopolitical developments given its role in global oil and gas supply, with regional conflicts and shipping-route disruptions (including in the Strait of Hormuz) capable of affecting both regional demand sentiment and broader global feedstock costs.

Figure 12: Global Polymer Compounding Market by Country, USD 75,526 million, CY2025



Source: CRISIL Intelligence

China leads the market significantly with a value of USD 21,286 million, representing ~28% of the global share. This dominance is driven by China's expansive manufacturing base, rapid industrialization, and its role as a global hub for electronics, automotive, white goods, and infrastructure development. The country heavily utilizes polymer compounds in electric vehicles (EVs), consumer electronics, and extensive infrastructure networks, particularly in applications like wires and cables, telecommunication cables, and pipe coatings. Demand has been further supported by national policy initiatives promoting large-scale equipment renewal and consumer goods trade-ins, which have particularly benefited the home appliance and consumer electronics segments. Emerging application areas including humanoid robotics, renewable energy infrastructure, and advanced consumer electronics are creating incremental demand for higher-value specialty and engineering compounds beyond traditional automotive and appliance uses.

The United States follows with a market value of USD 12,430 million and share of ~16%. US polymer compounding industry is supported by presence of original equipment manufacturers (OEMs), especially in the automotive and aerospace sectors, and an advanced consumer appliance industry. Trade and tariff policy has emerged as a defining variable for the market, influencing vehicle and component sourcing decisions, production location choices, and cost structures across the value chain in ways that create ongoing forecasting uncertainty for compounders and their customers. Electric vehicle strategy among domestic automakers has also shifted, with several manufacturers scaling

back or delaying EV programs in favour of hybrid and conventional powertrain investment, following changes in federal policy support for electric vehicles. This has altered, rather than eliminated, the mix of specialty compound demand associated with vehicle electrification in the US market.

India, with USD 9,934 million and ~13% share, has emerged as one of the fastest-growing markets due to expanding industrialization, infrastructure growth, and increased manufacturing in automotive and electronics. India stands out as one of the most structurally attractive compounding markets globally, supported by robust and broad-based growth across the domestic automotive sector, rising manufacturing investment under national industrial policy initiatives, and steadily increasing vehicle affordability following recent tax and interest rate reforms. All major vehicle categories such as passenger vehicles, commercial vehicles, two-wheelers, and three-wheelers have recently recorded their strongest sales performance in years, reflecting improving consumer sentiment and policy support. The rising consumption of passenger vehicles and rapid electrification across rural and urban India has significantly increased demand for polymer compounds, particularly in wires and cables, telecommunications, and pipe coatings. Additionally, India's growing middle-class population has led to an increased demand for white goods, which use aesthetic and durable polymer compounds in their outer bodies and internal components.

Japan holds ~3% market share, with its strengths lying in automotive innovation and high-end electronics. The Japanese automotive industry uses polymer compounds for high-performance applications such as interiors, under-the-hood components, and exterior panels. Japanese compounders and material science companies continue to play a significant global role in specialty and high-performance engineering plastics, leveraging deep technical expertise developed over decades of serving demanding automotive and electronics applications. Demand growth in the domestic market is expected to remain modest, reflecting Japan's mature demographic and industrial profile, with incremental opportunities arising from continued vehicle electrification and advanced electronics applications rather than broad-based volume expansion. Moreover, Japan's consumer electronics sector, known for compact and efficient designs, uses miniaturized and flame-retardant compounds in appliances and telecom devices.

Germany, contributing USD 2,368 million, stands out in Europe for its engineering expertise, particularly in the automotive sector.

German automotive giants like BMW, Volkswagen, and Audi use compounded polymers for structural and aesthetic components to improve fuel efficiency and reduce emissions. In 2025, elevated energy costs, regulatory complexity, slow industrial permitting, and intensifying import competition have weighed heavily on domestic chemical and compounding production, with industry representatives describing current operating conditions as among the most difficult in decades. The automotive sector, historically the anchor demand driver for German compounders, has faced a difficult transition period amid evolving emissions and electrification policy, softer domestic and export vehicle demand, and broader macroeconomic uncertainty in the region. A meaningful recovery in German compounding demand is expected to be gradual, contingent on improvements in industrial competitiveness, energy costs, and the pace of automotive sector stabilization.

South Korea, with USD 2,351 million market, sees major use of polymer compounds in electronics, telecom infrastructure, and automotive manufacturing. The country maintains a significant and technologically capable automotive and compounding manufacturing base, with continued investment in electric vehicle production and smart manufacturing capabilities by domestic automakers supporting demand for specialty compounds. The country is at the forefront of 5G deployment, which requires advanced telecom cable materials, and is home to global brands like Hyundai, Kia, Samsung, and LG, all of which rely heavily on high-performance polymers for manufacturing durable and lightweight products.

Canada and Russia, each with a market value of over USD 2,200 million, primarily use polymer compounds in their construction, oil and gas, and infrastructure sectors. Russia, in particular, has strong demand in pipe coatings due to its vast oil and gas pipeline network. The United Kingdom (USD 2,093 million, ~2.8% market share), France (USD 1,351 million, ~1.8% market share), Spain (USD 1,312 million, ~1.7% market share), and Italy (USD 1,273 million,

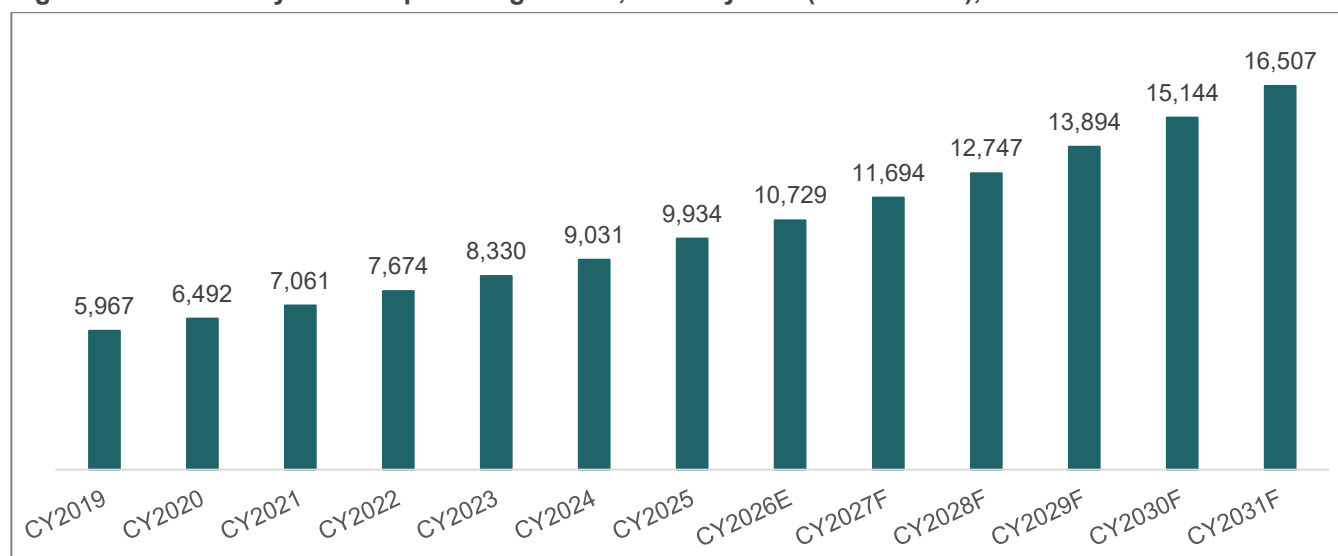
~1.7% market share) all maintain moderate demand, mostly driven by automotive component manufacturing, pipe systems, and production of consumer appliances. These European countries also emphasize sustainability and recyclability in polymer applications, influencing the use of halogen-free and low-emission compounds.

3.3 Indian Polymer Compounding Market

Polymer compounding in India represents a crucial segment of the polymer industry, serving as a vital link between raw polymer manufacturers and end-product manufacturers. This specialized sector involves the process of combining base polymers with additives, fillers, and reinforcements to create customized materials that meet specific performance requirements for various applications. The Indian polymer compounding market has experienced consistent growth over the past few years, driven by increasing demand across various end-use industries. The market expanded from USD 5,967 million in 2019 to USD 9,934 million in 2025. This growth was fueled by rapid industrialization, rising demand from the automotive, construction and infrastructure, packaging, telecommunications, electrical & electronics, wires & cables, and an increasing shift toward lightweight and high-performance polymer materials. Growing domestic compounding capability, including expansion by both domestic players and multinational subsidiaries, is reducing historical reliance on imported engineering compounds while supporting the broader "Make in India" manufacturing push across automotive, appliances, and electronics. Rising electric two- and three-wheeler adoption is also creating incremental demand for specialty compounds in battery and powertrain applications. India's compounding market is expected to sustain strong, broad-based growth over the medium term, supported by continued policy tailwinds, expanding manufacturing capacity, and rising per-capita consumption of automobiles, appliances, and electronics as the domestic economy develops. The market is expected to grow at a CAGR of ~9.0% from 2026 to 2031, reaching a value of USD 16,507 million.

One of the primary drivers of market expansion is the automotive industry, which is witnessing a growing shift toward lightweight materials to enhance fuel efficiency and comply with stricter emission norms. Polymer compounds are increasingly being used as substitutes for traditional materials like metals due to their durability, strength, and cost-effectiveness. Additionally, the market is experiencing robust growth, driven by extensive infrastructure development, power sector expansion, and the government's push for oil and gas network enhancement through initiatives like the National Gas Grid. The wire and cable industry, in particular, has benefited from urban development projects, smart city initiatives, and the renewable energy sector's growth.

Figure 13: Indian Polymer Compounding Market, Industry Size (USD million), 2019-2031F



Note: E-Estimated, F-Forecast

Source: Crisil Intelligence

The Indian wire and cable industry extensively utilizes various polymer compounds, with PVC (Polyvinyl Chloride), XLPE (Cross-linked Polyethylene), PE (Polyethylene), and TPE (Thermoplastic Elastomers) being the primary materials. These polymers serve crucial functions in electrical insulation, mechanical protection, and overall cable performance. PVC remains the most widely used compound due to its cost-effectiveness and versatile properties, while XLPE is preferred for high-voltage applications due to its superior electrical and thermal properties. The industry has seen significant growth in the adoption of specialized compounds like fire-retardant and low smoke zero halogen (LSZH) cables, particularly in response to increasing safety regulations and requirements in commercial and industrial applications.

In the oil and gas pipeline sector, polymer coatings play a vital role in protecting infrastructure from corrosion and environmental factors. The most commonly used coating systems include Fusion Bonded Epoxy (FBE), Polyethylene (PE), and Polypropylene (PP), often applied in multi-layer configurations such as three-layer polyethylene (3LPE) or three-layer polypropylene (3LPP) systems. These coatings provide comprehensive protection against mechanical damage, chemical exposure, and varying temperature conditions, significantly extending pipeline life and reducing maintenance costs. The selection of coating systems depends on various factors including operating temperature, soil conditions, and installation environment.

3.4 Segmentation by Applications

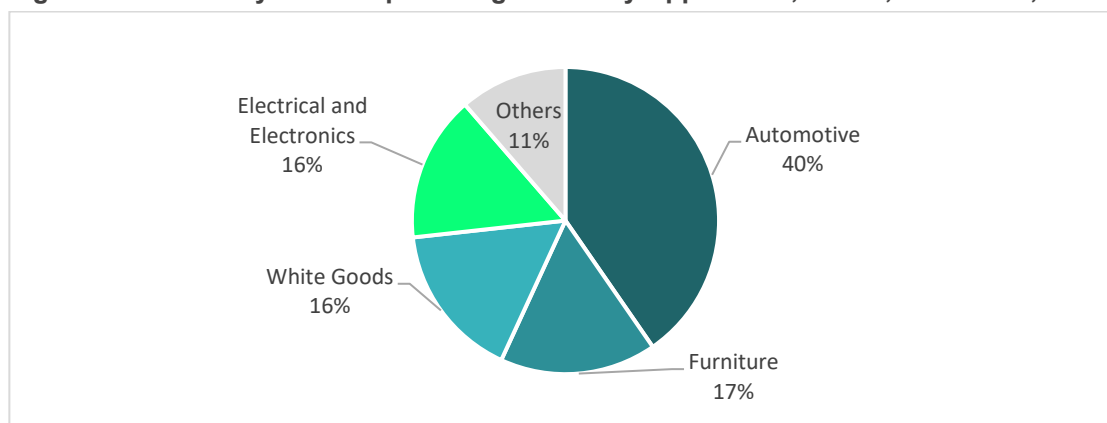
The Indian polymer compounding market serves several key end-use industries, with significant presence in automotive, wire & cable, electronics, and agriculture sectors. The automotive sector utilizes compounds for interior, exterior, and under-hood components, with a growing focus on electric vehicle applications. The wire & cable industry, driven by infrastructure development and electrification initiatives, encompasses power cables, telecom cables, and pipelines for oil, gas, and water distribution. The electronics sector, boosted by the Make in India initiative, demands compounds for consumer electronics, mobile phones, and home appliances. The agricultural sector, crucial to India's economy, uses compounds for irrigation systems, greenhouse films, and storage solutions.

Table 6: Polymer Compounding Applications

End Use Industries	Applications
Automotive	- Interior components - Exterior parts - Under-hood components - Two-wheeler components (significant in Indian market) - Electric vehicle components (emerging segment)
Power Cables	- In insulation layer - Outer sheath/jacket - Semi-conductive layers - Bedding Layer
Telecom Cables	- Buffer tubes/loose tubes - Outer Jacket/Sheath - In Insulation
Oil & Gas Pipeline	- Enhances corrosion protection - Mechanical protection - Impact Resistance - Chemical Resistance
Water Pipeline	- Municipal water supply - Irrigation systems - Industrial water systems - Jal Jeevan Mission projects

Electronics	- Consumer electronics - Mobile phones - Home appliances - IT hardware
Agriculture	- Irrigation systems - Greenhouse films - Mulch films - Storage solutions - Agricultural equipment

Figure 14: India Polymer Compounding Market by Application, USD 9,934 million, CY2025



Source: CRISIL Intelligence

Automotive sector leads the demand at ~40% share of the overall market. The dominance of the automotive industry in this market is largely driven by the sector's ongoing shift toward lightweighting, electric vehicles, and fuel-efficient technologies. Polymer compounds such as polypropylene (PP), acrylonitrile butadiene styrene (ABS), and polyamide (nylon) are being increasingly used in automotive components including dashboards, bumpers, under-the-hood parts, and wiring harnesses. Additionally, the rapid adoption of electric vehicles (EVs) in India has further intensified the need for high-performance polymers capable of withstanding thermal stress, chemical exposure, and providing superior insulation.

The furniture segment accounts for ~17% of the market, reflecting the growing use of polymers in the production of durable, lightweight, and cost-effective furniture solutions. Urbanization, rising middle-class income, and the trend toward modular living spaces have accelerated the adoption of polymer-based furniture materials, particularly in residential and commercial applications. Polyethylene (PE), polyvinyl chloride (PVC), and polypropylene are some of the commonly used compounds in this space.

White goods and electrical & electronics sectors each represent ~16% of the polymer compounding market, highlighting their significant contribution. In white goods such as refrigerators, washing machines, and air conditioners, polymer compounds provide structural strength, aesthetic appeal, and insulation. In the electrical and electronics sector, compounds offer flame retardancy, thermal stability, and enhanced safety—critical for wires & cables, wiring systems, circuit boards, and housings. The growing penetration of appliances and digital devices in Indian households is pushing demand for specialty compounds, especially halogen-free flame retardant (HFFR) grades.

3.5 Key Growth Drivers & Trends

Growth Drivers

The growth drivers for polymer compounding in India are primarily fuelled by rapid industrialization, infrastructure development, and government initiatives like 'Make in India' and 'Smart Cities Mission'. The automotive sector is experiencing significant growth due to increasing vehicle production, electrification trends, and the push for lightweight materials. The electronics industry is driven by domestic manufacturing initiatives, growing consumer electronics demand, and the expansion of telecommunications infrastructure. The wire and cable sector is boosted by power sector expansion, rural electrification programs, and telecommunications network development. Agricultural applications are growing due to modernization of farming practices and government support for irrigation infrastructure. Additional drivers include urbanization, rising disposable incomes, and increasing adoption of advanced materials across industries. The push for sustainability, recycling initiatives, and environmental regulations are also shaping the market. However, challenges include raw material price volatility, import dependence, and the need for technological upgradation. The industry is further supported by various government policies, including PLI schemes and infrastructure development programs, which are creating new opportunities for polymer compounding across different sectors.

Table 7: Polymer Compounding Growth Drivers

Initiatives/Industry	Growth Drivers
Government Initiatives	- Make in India - Smart Cities Mission - Digital India - Automotive Mission Plan 2026 - PLI Scheme for various sectors
Wires & Cables	- Power sector expansion - Telecom infrastructure - Urban development - Rural electrification
Oil & Gas Pipelines	- Expansion of oil & gas networks - New pipeline projects - Replacement of aging pipelines - Technology Advancements in coating systems

Key Trends

The polymer compounding market is significantly influenced by evolving trends across power cables, telecom cables, and oil & gas pipeline coating sectors. These trends collectively impact the polymer compounding market by accelerating material innovation, raising performance requirements, and emphasizing sustainability. Manufacturers are developing new formulations with improved properties, integrating smart features, and focusing on eco-friendly solutions while maintaining cost-effectiveness. The industry is witnessing increased demand for specialized compounds that meet specific application requirements across these sectors. Future implications include greater investment in technology development, digital integration, and advanced processing capabilities. Success in this evolving market depends on maintaining a strong innovation focus, understanding market needs, and developing technical capabilities to meet increasingly sophisticated requirements while ensuring sustainability and cost optimization.

In power cables, key trends include grid modernization, renewable energy integration, and increased underground cabling, driving demand for high-performance compounds with enhanced insulation and fire-resistant properties.

Table 8: Key Trends in Power Cables

Trend	Description
Grid Modernization	- Smart grid development - Grid reliability improvement - Infrastructure upgrades
Renewable Energy Integration	- Solar power installations - Wind energy projects - Grid connectivity
Underground Cabling	- Urban infrastructure - Safety requirements - Reliability improvement

The telecom sector is primarily driven by 5G infrastructure deployment, fiber optic expansion, and data center growth, necessitating compounds that support high-speed transmission, signal integrity, and durability.

Table 9: Key Trends in Telecom Cables

Trend	Description
5G Infrastructure	- Network expansion - Enhanced connectivity - Digital transformation
Fiber Optic Expansion	- FTTH deployment - Network modernization - Data center connectivity - Rural connectivity
Data Center Growth	- Cloud computing - Digital storage - Network infrastructure
Smart Infrastructure	- Smart cities - IoT networks - Connected devices - Digital services - Automation

In oil & gas pipeline coatings, the focus is shifting towards advanced protection systems, environmental compliance, and smart pipeline solutions, leading to the development of innovative coating materials with monitoring capabilities and enhanced durability.

Table 10: Key Trends in Oil & Gas and Water Pipeline

Trend	Description
Advanced Protection Systems	- Corrosion prevention - Enhanced durability - Smart coatings - Monitoring capabilities - Life extension
Smart Pipeline Solutions	- Monitoring systems - Leak detection - Performance tracking - Maintenance prediction - Safety enhancement

Environmental Compliance	- Sustainable materials - Eco-friendly solutions - Regulatory compliance - Carbon reduction - Waste minimization
Cost Optimization	- Lifecycle costs - Maintenance reduction - Performance improvement - Operational efficiency - Value enhancement

3.6 Key Manufacturers

Some of the key manufacturers of polymer compounding in India are:

Table 11: Polymer Compounding Manufacturers

Manufacturers	Manufacturing Location	Production Capacity MTPA	Revenue from Operations FY-26 (INR Millions)	Product Offerings
BLS Polymers	Goa	35,251	3,494	PE compounds, PVC compounds, XLPE compounds, HFFR compounds, Cable Filling compounds, Masterbatches
Kkalpana Industries India Ltd	Parganas, West Bengal	15,000	374	HDPE compounds, LDPE compounds, LLDPE compounds, PPHP granules
Ddev Plastiks Industries Ltd	Kolkata, West Bengal	237,500	29,479	PVC Compounds, PE Compounds, Polymer Blends, PVC Masterbatch, PE Masterbatch, EVA Masterbatch, PP UV Masterbatch, Additives, Engineering Plastics-PBT, HFFR Compounds,
Shakun Polymers Pvt Ltd*	Vadodara, Gujarat	more than 70,000	7,277	HFFR Compound, PVC Compounds, Semi Conductive Thermoplastic, PE Compound, Silicone Compounds
KLJ Polymers & Chemicals Ltd*	Silvassa, India	118,000	20,473	PVC compounds, PP compounds, Engineering Polymer compounds, Zero Halogen Flame Retardant compounds, PE Compounds, masterbatches
Kingfa Science & Technology (India) Limited	Pune, Maharashtra	more than 110,000	19,956	PP Compounds, PBT Compounds, PET Compounds, Polyamides, Respiratory Protection Products, Hand Protection Products, Eye Protection Products, Biodegradable Nitrile Gloves, Biodegradable Protective Coverall
Plastiblends India Limited	Daman, Roorkee & Surat	more than 130,000	7,887	Additive Masterbatches, Black Masterbatches, Colour Masterbatches, Conductive Compounds, Engineering Plastic Compounds, Filler Masterbatches,

				PET Masterbatches, White Masterbatches
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Note: *Revenue figures are for FY-25

Source: Company Filings

3.7 Key Challenges

The Indian Polymer Compounding market faces several significant challenges that can impact its growth and development. Raw material concerns, particularly price volatility and high import dependency for specialty materials, pose a major challenge for manufacturers. The industry also struggles with intense competition, both from low-cost Chinese imports and numerous small-scale local players, which puts pressure on pricing and margins. Technical limitations, including insufficient R&D capabilities and aging infrastructure, hinder innovation and efficiency. Additionally, companies must navigate strict regulatory compliance requirements, especially regarding environmental and quality standards. Market and economic factors such as cyclical demand patterns, currency fluctuations, and working capital requirements further complicate operations. Finally, growing sustainability pressures and demands for eco-friendly solutions are pushing companies to adapt their practices and product offerings.

Table 12: Challenges in Polymer Compounding

Challenges	Description
Raw Material Related Challenges	- Price volatility of base polymers and additives - Heavy dependence on imports for specialty raw materials - Quality inconsistency in locally sourced materials
Competition Related Issues	- Increasing competition from low-cost suppliers - Growing number of small-scale compounders affecting market pricing - Pressure on margins due to intense price competition
Technological & Infrastructure Challenges	- Limited R&D capabilities compared to global players - Aging manufacturing infrastructure in many units - Need for continuous technology upgradation - Skill gaps in technical workforce
Regulatory & Compliance	- Evolving environmental regulations - Stricter quality standards requirements - Plastic waste management rules
Geopolitical Scenario & Economic Factors	- Currency fluctuations affecting import costs - High working capital requirements - Changes in tariffs

3.8 Barriers to Enter for New Players

The polymer compounding industry presents a series of formidable barriers for new players. Economic challenges arise from high capital expenditures and the presence of entrenched competitors with scale advantages. Technological demands necessitate substantial investment in advanced equipment, research, and skilled personnel. Regulatory frameworks impose rigorous and often region-specific compliance obligations that add both operational complexity and cost. Additionally, the volatile nature of raw material prices and the need for strict quality control reinforce the necessity for strategic planning, financial strength, and technical competence. Consequently, entry into the polymer compound industry requires a measured approach, significant resources, and deep expertise to successfully overcome these multifaceted obstacles.

In industries such as power transmission, telecommunications, and coatings, polymer compounders must have their products, manufacturing processes, and standard operating procedures rigorously tested and approved by regulatory bodies or public sector enterprises. This mandatory enlistment ensures:

- **Technical competence verification:** It confirms that the company's products meet strict quality and performance standards essential for critical infrastructure and governmental projects.
- **Regulatory compliance:** The thorough evaluation process requires adherence to complex compliance and certification norms, which can be time-consuming and costly.
- **Trust and credibility:** Being enlisted with reputed high-status government agencies such as Maharatna, Navratna, and Miniratna CPSEs (Central Public Sector Enterprises) provides the company recognized credibility and a verified track record.
- **Limited accessibility for new players:** Achieving similar levels of approval and acceptance can be challenging for new entrants who lack established technical expertise, production quality, and resources, discouraging or delaying market entry

4 Wires & Cables Market Assessment

4.1 Introduction

Wires consists of single conductor and cables are assembly of one or more conductors that are used for the transmission of electricity, data or signals. There are various types and varieties of cables, each designed to perform a specific function. Classification is based on the core structure of the conductor metal (majorly copper and aluminium), number of cores, type of insulation material and arrangement, etc.

The performance and durability of cables depend on the quality of raw materials. Specialised applications require superior chemical, mechanical, thermal and electrical performance from cables, resulting in usage of high-performance materials in cable construction. Additionally, it is seen that in order to achieve properties suited for varying applications, every cable has a distinguished construction. The number of SKUs of cables and wires are very high, with 500-600 fastest selling SKUs, differing in application and offering variation in cross-sectional area (size), number of cores used, core material (mainly copper or aluminium), insulation material used, armoured or unarmoured construction for strength, etc.

Table 13: Type of Wires & Cables

Cables	Description	Applications
Power Cable	A power cable is an assembly of two or more conductors with insulation and a protective jacket. The power cables industry is classified into low voltage (1.1 kV and below), medium voltage (3.3-66.0 kV), and extra high voltage (132 kV and above) cables. These cables are predominantly used in sub-transmission and distribution of power.	Transmission and distribution of electricity in mainly commercial and industrial settings.
Housing Wires	Housing or building wires are usually made up of copper and aluminium. These are majorly used in residential settings and their carrying capacity/ voltage depends on their end use.	Commonly used in everyday household items like for connecting household appliances, power outlets, etc.
Communication Cables	Communication cables are specifically designed to support data transmission across distance at high speed and minimal loss. Examples include, LAN cables, Optic fibre cables, etc.	Used for transmission of data/ voice/ video signals at high speed without major energy loss.
Instrumentation cables	Instrumentation cables are generally used in industrial settings to carry low voltage signals with high accuracy. These cables are properly shielded to ensure no external signal interference and are mainly used to monitor/ control electric systems. The functions of measurement and control are vital in manufacturing and processing applications.	Few of the applications include industrial equipment control, process controls for e.g. in oil and gas or chemical plants, or mass transit systems which require cables to be heat resistance, resistance due harsh environment and chemicals, etc.
Other special cables	This class of cables includes cables that are especially designed for a particular end use/ industry due to particular requirements. These types of cables are usually provided as customized solutions against stringent requirements, including temperature, tensile strength, and chemical resistance. For example, axle counter cables and signalling cables used in railways, solar cables, which are required to have lifetime reliability of up to 30 years, resistance to extreme temperatures (-40°C to 120°C), ozone, and ultraviolet (UV), halogen free, flame and fire retardancy, etc.	Multiple specialized applications including sonar detection, mine sweeping and defence purposes across industries like marine, defence, aerospace, etc.

Power and electrical cables are segmented into the following, based on voltage capacity:

- Low Tension / Voltage (LV) [1.1 kV and below]

- High Tension / Voltage (HV) [above 1.1KV to 33 KV]
- Extra High voltage (EHV) [66 kV and above] cables

Major uses of power cables are in the power sector (central, state and private electricity utilities) and sectors like petrochemicals, mining, steel, non-ferrous, shipbuilding, cement, railway, and defence.

4.2 Industrial and Household Wires & Cables

Industrial and household wires and cables are crucial components in various industries, from residential electrical systems to large-scale industrial applications.

Industrial Wires & Cables

The industrial wires and cables industry plays a crucial role in modern infrastructure and industrial operations, providing essential components for electrical power distribution, control systems, and signal transmission. This sector encompasses a variety of products, including power cables for transmitting electrical energy, control cables for machinery and systems, instrumentation cables for data transmission, and communication cables for network connectivity. These cables are designed with different insulation materials—such as PVC, XLPE, rubber, and FRP—and conductor materials like copper and aluminium to meet diverse application needs. The industry is driven by significant market trends, including increased infrastructure development, technological advancements, and a growing focus on energy transition and sustainability. The different types of wires & cables used at industrial level are:

Table 14: Types of Industrial Wires & Cables

Type of Cables	Particulars	Description
Power Cables	Types	HV Cables, MV Cables, LV Cables & EHV Cables
	Growth Drivers	- Infrastructure Development - Energy Demand - Renewable Energy Integration
Control Cables	Types	Multi-Core Control Cables
	Growth Drivers	- Industrial Automation - Smart Manufacturing - Efficiency Improvement
Instrumentation Cables	Types	Signal Cables, Thermocouple Cables,
	Growth Drivers	- Process Optimization - Technological Advancements - Regulatory Compliance
Communication Cables	Types	Ethernet Cables, Fiber Optic Cables, Coaxial Cables
	Growth Drivers	- Digital Transformation - Telecommunications Expansion - Smart Technologies

Household Wires and Cables

The consumer wires and cables industry is a dynamic sector with a broad range of products and applications. It is influenced by technological advancements, regulatory changes, and growing demands for smart and energy-efficient solutions. These cables are essential for connecting various household and personal electronic devices, from basic power connections to advanced smart home systems. The industry includes several key types of cables: power cables for delivering electricity, data cables for communication and networking, control cables for managing electrical systems, and specialty cables designed for specific applications such as high-temperature environments or hazardous locations. As technology evolves, market trends indicate a significant push towards smart home

technology, renewable energy integration, and innovations in cable materials and design. The different types of wires & cables are:

Table 15: Types of Household Wires & Cables

Type of Cables	Particulars	Description
Power Cables	Types	HV Cables, MV Cables, LV Cables & EHV Cables
	Growth Drivers	- Urbanization and Infrastructure Development - Renewable Energy Integration - Technological Advancements
Data Cables	Types	Ethernet Cables, Coaxial Cables, Fiber Optic Cables
	Growth Drivers	- Increasing Internet Usage - Smart Devices and IoT - Advancements in Technology
Control Cables	Applications	- Industrial Automation - Building Management Systems - Marine and Aerospace
	Growth Drivers	- Automation and Robotics - Smart Building Technologies - Complex Control Systems
Flexible Cables	Applications	- Robotics - Mobile Equipment - Consumer Electronics
	Growth Drivers	- Technological Advancements - Increasing Use of Robotics - Consumer Electronics Growth
Specialty Cables	Types	High-Temperature Cables, Hazardous Location Cables, Underwater Cables
	Growth Drivers	- Energy and Mining Sectors - Technological Innovation - Infrastructure Projects

4.3 Types & Importance of Polymer Compounds

The utilization of polymer compounds in wire and cable applications is integral for ensuring the performance, safety, and durability of electrical systems. Various types of polymers are employed across different wire and cable applications, offering specific benefits tailored to meet industry demands. The different types of co-polymers compounds are:

- **Polyvinyl Chloride (PVC):** Traditionally a popular material due to its safety features, such as being self-flame retardant. PVC offers good insulation properties, but it is gradually being replaced by newer materials due to environmental concerns.
- **Polyethylene (PE):** Currently gaining traction as it is being favoured over PVC for many applications due to its lighter weight and flexibility. However, PE formulations often require significant mineral flame retardant additives to comply with safety regulations.
- **Thermoplastic Polyurethanes (TPU):** These materials are praised for their abrasion resistance, toughness, and weather resistance. TPUs are versatile and can be formulated for both soft and hard compound applications.

- **Ethylene Vinyl Acetate (EVA) & Ethylene Acrylate Copolymers:** These are employed for their flexibility at low temperatures and thermal stability, respectively. Their compatibility with high filler loadings allows them to maintain desirable properties even under heavy mechanical stress.

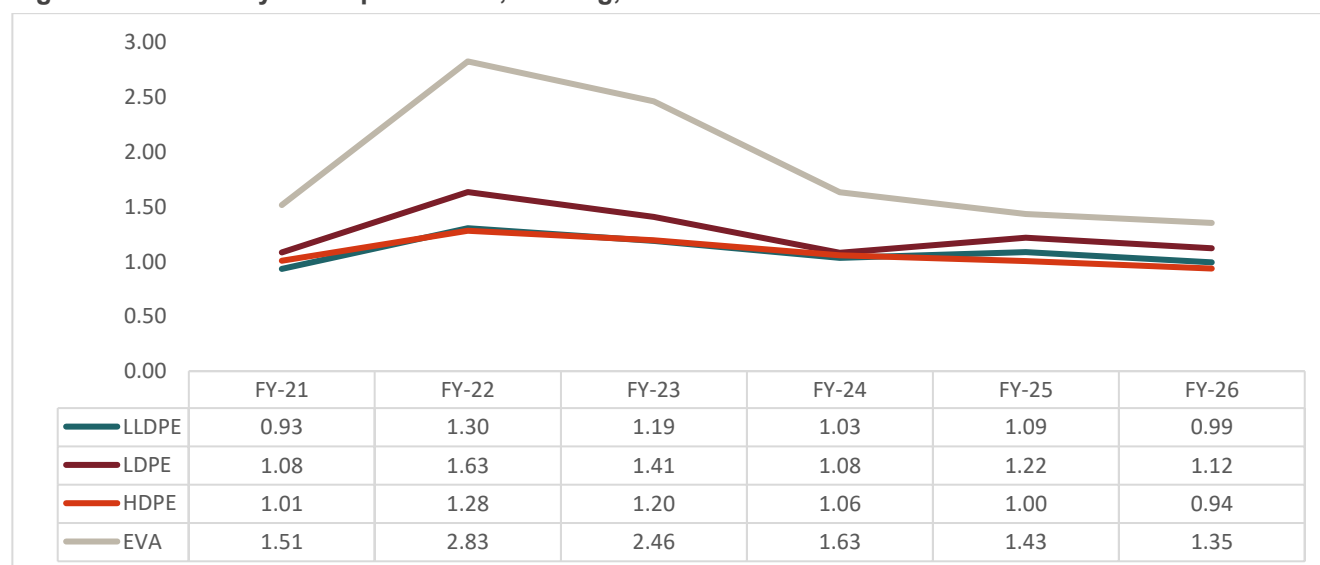
Key Benefits of Co-Polymer Compounds

Polymer compounds deliver several benefits critical to enhancing wire and cable performance:

- **Electrical Insulation:** Polymers like PE and PVC exhibit excellent dielectric properties, providing high electrical resistance and minimizing power losses due to insulation breakdown. They are crucial in preventing electrical shock and short circuits.
- **Flame Retardancy and Safety:** Many modern polymers are formulated to be flame-retardant, meeting stringent regulations that enhance safety in electrical installations. For instance, advancements in halogen-free and flame-retardant compounds are pivotal in improving cable safety.
- **Temperature and Weather Resistance:** Certain polymers, such as high-density polyethylene, maintain performance across a wide temperature range, making them suitable for outdoor applications where environmental factors can cause degradation. This feature is vital for cables exposed to harsh conditions.
- **Processability:** The ability to process polymers into various forms without losing material properties is paramount for manufacturers. Polymers like TPU and PE allow for varied processing methods enabling flexibility in design and application.

In the wire and cable industry, polymers serve crucial functions in electrical insulation, mechanical protection, and overall cable performance. Therefore, the success of polymers is dependent upon the success of the wire and cable industries.

Figure 15: India Polymer Import Prices, USD/Kg, FY-21 to FY-26



Source: Ministry of Commerce and Industry; Crisil Intelligence

In light of the volatile tariff rates and ongoing war like situations in various countries, the import of raw materials could be affected in the future. The most significant determinant is the volatility in global crude oil prices, as polymers are derived from petrochemical feedstocks like ethylene and propylene. Any disruption in oil supply, OPEC+ production

decisions, or geopolitical events could affect raw material costs. Additionally, global supply chain dynamics, such as freight costs and port congestion, will continue to impact import prices. China, being a major producer and exporter of polymers, plays a crucial role in setting global price trends, and any changes in its production output, environmental regulations, or domestic consumption could ripple across global markets. Domestically, India's growing demand in sectors like packaging, automotive, consumer goods, agriculture, and solar energy will put upward pressure on prices, especially if local supply lags behind. Government policies, such as import tariffs, anti-dumping duties, and incentives for local manufacturing under the "Make in India" initiative, will also shape future price movements.

4.4 Wires & Cables Production in India

India's wires and cables industry recorded healthy growth during FY19–FY26, supported by rising investments in power infrastructure, urbanization, real estate development, renewable energy, industrial expansion, and digital connectivity. However, the production trend was not linear, with a temporary slowdown witnessed during FY21–FY22 due to the COVID-19 pandemic and supply chain disruptions. The industry rebounded strongly from FY23 onwards as infrastructure spending accelerated and demand recovered across end-use sectors.

Table 16: Wires & Cables Production in India, FY-19 to FY-26

Cable Type	UOM	FY-19	FY-20	FY-21	FY-22	FY-23	FY-24	FY-25	FY-26	CAGR FY19- FY26
Housing Wires	'000 ckm	7,093	6,859	6,293	7,382	9,309	10,183	10,315	10,639	6.0%
Telephone Cables	'000 ckm	734	637	536	569	662	753	924	560	-3.8%
Power Cables	'000 km	838	729	635	689	843	1,052	1,036	1,160	4.8%
Instrumentation Cables	'000 ckm	105	106	86	86	110	128	124	139	4.0%
Flexible & Other Types	'000 ckm	2,578	2,612	2,521	2,991	3,670	4,851	4,653	4,609	8.7%
Elastomeric Cables	'000 ckm	75	75	78	116	160	353	202	149	10.3%

Note: Elastomeric cables include trailing cables, mining cables, railway loco cables, welding cables and fire survival cables

Source: IEEMA; Crisil Intelligence

Housing wires remained the largest product segment throughout the period, with production increasing from 5,435 thousand ckm in FY19 to 10,315 thousand ckm in FY26, registering a CAGR of 9.6%. The segment accounted for the largest share of overall production, driven by sustained growth in residential construction, commercial buildings, urban infrastructure, and replacement demand. Following a decline during FY21–FY22, production recovered sharply from FY23 onwards, reaching an all-time high in FY26.

Flexible and other cables emerged as one of the fastest-growing categories, expanding from 2,338 thousand ckm in FY19 to 4,653 thousand ckm in FY26, at a CAGR of 10.3%. Growth was supported by increasing demand from industrial machinery, manufacturing facilities, consumer appliances, automation systems, and electrical equipment. The segment experienced robust expansion between FY23 and FY25 before witnessing a marginal correction in FY26.

Power cable production increased from 682 thousand km in FY19 to 1,036 thousand km in FY26, reflecting a CAGR of 6.2%. Demand was primarily driven by investments in transmission and distribution networks, renewable energy integration, industrial electrification, and power infrastructure modernization. Production recovered steadily after the pandemic-induced slowdown and crossed the one-million-kilometre mark in FY25.

Telephone cable production exhibited a different trend, declining during FY20–FY22 before recovering gradually to 924 thousand ckm in FY26. Despite the recovery, the segment recorded a relatively modest CAGR of 1.4% over the analysis period. The subdued growth reflects the continued shift from conventional copper-based telecom networks towards optical fibre infrastructure, which has reduced the long-term demand for traditional telephone cables.

Instrumentation cables remained largely stagnant throughout the period, declining marginally from 130 thousand ckm in FY19 to 124 thousand ckm in FY26, resulting in a negative CAGR of 0.8%. Stable demand from process industries such as oil & gas, chemicals, power plants, and manufacturing was insufficient to offset slower capacity additions and the gradual adoption of alternative digital communication technologies.

Elastomeric cables registered the highest long-term growth among all cable categories, increasing from 71 thousand ckm in FY19 to 202 thousand ckm in FY26, representing a CAGR of 16.1%. Although production declined from FY25 to FY26 after an exceptional surge in FY25, the segment continued to demonstrate strong structural growth owing to rising demand from mining, railways, defence, fire survival applications, welding, and other specialized industrial uses requiring high-performance cable solutions.

Table 17: Wires & Cables Production in India, MT, FY23 to FY26

Cable Type	FY23	FY24	FY25	FY26
Housing Wires	177,711	157,819	162,480	168,054
Telephone Cables	9,105	9,838	13,642	8,102
Power Cables	529,012	680,042	621,810	699,230
Instrumentation Cables	6,815	3,900	3,705	4,734
Flexible & Other Types	131,744	165,390	135,830	136,455
Elastomeric Cables	19,349	20,442	18,557	19,841

Source: IEEMA; Crisil Intelligence

Table 18: Polymer Compound Weight in Wires & Cables, MT, FY23 to FY26

Cable Type	FY23	FY24	FY25	FY26
Housing Wires	71,084	63,128	64,992	67,222
Telephone Cables	3,642	3,935	5,457	3,241
Power Cables	211,605	272,017	248,724	279,692
Instrumentation Cables	2,726	1,560	1,482	1,894
Flexible & Other Types	52,698	66,156	54,332	54,582
Elastomeric Cables	7,740	8,177	7,423	7,936

Note: Average weight of polymer compound is ~40% of the weight of the cable

Source: Crisil Intelligence

The Indian wires and cables industry witnessed healthy production levels during FY23–FY26, driven by sustained investments in power transmission and distribution infrastructure, renewable energy integration, urbanization, industrial expansion, and real estate development. Correspondingly, polymer compound consumption remained closely aligned with cable production, as polymer compounds constitute approximately 40% of the total cable weight.

The analysis indicates that power cables account for the largest share of both cable production and polymer compound consumption, highlighting their significance in India's infrastructure-led growth.

Power cables remained the dominant segment throughout the analysis period, with production increasing from 529,012 MT in FY23 to 699,230 MT in FY26, despite a temporary moderation in FY25. The segment consumed 279,692 MT of polymer compounds in FY26, accounting for the largest share of total polymer demand across all cable categories. Growth was primarily supported by rising investments in transmission and distribution networks, renewable energy evacuation projects, industrial electrification, metro rail projects, and large-scale infrastructure development.

Housing wires represented the second-largest segment by production volume, recording 168,054 MT in FY26 compared with 177,711 MT in FY23. Production witnessed a decline in FY24 before gradually recovering during FY25 and FY26. Polymer compound consumption followed a similar trend, increasing from 63,128 MT in FY24 to 67,222 MT in FY26, reflecting improving demand from residential construction, commercial buildings, and replacement wiring activities.

Flexible and other cable types maintained stable production over the assessment period, reaching 136,455 MT in FY26. Polymer compound consumption also remained relatively steady at 54,582 MT in FY26, highlighting consistent demand from industrial machinery, automation systems, electrical equipment, appliances, and specialized industrial applications.

Telephone cables continued to represent a relatively small portion of overall production. Output increased during FY24 and FY25 before declining sharply to 8,102 MT in FY26, with polymer compound consumption reducing to 3,241 MT. The declining trend reflects the ongoing transition from conventional copper-based telecommunication networks towards optical fibre infrastructure, which has structurally reduced demand for traditional telephone cables.

Instrumentation cables remained a niche segment throughout the period, with production fluctuating between 3,705 MT and 6,815 MT. Polymer compound consumption also remained comparatively low, ranging from 1,482 MT to 2,726 MT, indicating stable but limited demand from process industries such as oil & gas, chemicals, power plants, and manufacturing facilities.

Elastomeric cables maintained relatively stable production between 18,500 MT and 20,500 MT during FY23–FY26. Polymer compound consumption remained close to 8,000 MT annually, reflecting sustained demand from specialized applications including mining, railways, defence, welding, and fire-survival cables that require high-performance insulation materials.

4.4.1 Housing Wires

Housing wires are essential components of the electrical system in residential buildings, responsible for transmitting electrical current from the power source to various appliances and fixtures. Their primary purpose is to ensure a safe and reliable flow of electricity throughout a home, providing the necessary power for lighting, heating, cooling, and other electrical devices.

Various types of housing wires are used in residential construction, each serving specific purposes and featuring different material compositions, insulation types, and voltage ratings. The most common types include:

Table 19: Types of Housing Wires

Type	Description
Non-Metallic (NM) Cable	Also known as Romex, NM cables consist of two or more individual wires wrapped inside a protective plastic sheathing. They are typically used for interior wiring in dry locations and come in various gauges, such as 14-gauge (15 amps) and 12-gauge (20 amps).
Underground Feeder (UF) Cable	UF cables are designed for wet locations and direct burial in the ground. They also contain insulated hot and neutral wires, along with a bare ground wire, making them suitable for powering outdoor fixtures.
THHN/THWN Wires	These are single conductors insulated with thermoplastic, suitable for conduit systems. They are often used in unfinished areas like basements and garages, where additional protection against physical damage is required.
Low-Voltage Wiring	This type is used for circuits that require less than 50 volts, such as landscape lighting and doorbells. Low-voltage wires can range from 22 gauge to 12 gauge and typically pose minimal risk of electric shock.
Coaxial and Data Cables	Used for internet and cable connections, coaxial cables connect TVs to satellite dishes or cable services. Data cables, like Category 5 (Cat 5), are utilized for network connections and are generally affordable compared to traditional wiring methods.

Key Growth Drivers

The housing wire market experiences growth due to several key factors, including

Increasing Urbanization

The continual increase in population density in urban areas drives demand for new housing. As cities expand, there is a growing need for electrical installations in new developments to accommodate the rising number of residents.

Rising Disposable Incomes

Increased disposable income among consumers enables more home renovations and improvements, necessitating the installation of new wiring. Homeowners are more likely to invest in upgrading their electrical systems to meet modern standards and efficiencies.

Government Initiatives for Sustainable Housing

Policymaking at various levels promotes energy-efficient and sustainable housing practices, which often require modern and compliant wiring systems. These initiatives encourage builders to adopt higher standards for electrical installations to reduce overall energy consumption.

Technological Advancements

Innovations in wiring materials and safety features have made modern wiring more efficient and reliable. Enhanced safety standards and code requirements stimulate the demand for compliant wiring installations in both new and existing homes.

4.4.2 Telephone Cables

Telephone cables are essential components used in telecommunications, providing the necessary connections between users and the broader telephone network. Primarily made of copper, these cables consist of several twisted pairs of wires, facilitating the transmission of voice and data signals. Additionally, they play a vital role in connecting landline telephones and computers to the public switched telephone network (PSTN), ensuring reliable communication and internet access.

Table 20: Types of Telephone Cables

Type	Description
Twisted Pair Cables	These are the most common type used for traditional telephone connections. They consist of pairs of wires twisted together to reduce electromagnetic interference. Twisted pair cables come in two forms: unshielded twisted pair (UTP) and shielded twisted pair (STP).
Coaxial Cables	Utilized primarily for cable television, coaxial cables also have applications in telephone services where higher bandwidth is needed. They comprise a central copper core surrounded by insulation and a braided shield, helping to reduce interference.
Fiber Optic Cables	Though primarily associated with high-speed internet and data transfer, fiber optic cables are increasingly used in telecommunications for their ability to transmit data over long distances with minimal loss.
Flat Telephone Cables	Flat cables are used for connecting phones to wall sockets. They are flexible and ideal for routing in tight spaces.
Round Telephone Cables	These are traditional models, consisting of several pairs of copper wires. They are larger and commonly used for long-distance applications.

Key Growth Drivers

Increased Demand for High-Speed Internet

As consumers and businesses increasingly rely on high-speed internet, the necessity for efficient telecommunication infrastructure fuels the demand for advanced telephone cabling systems.

Technological Advancements

Innovations in cable manufacturing, particularly in fiber optic technology, enhance the reliability and speed of telephone services. This trend significantly contributes to the market's growth as businesses and customers seek improved connectivity solutions.

Rising Smartphone Penetration

The global proliferation of smartphones necessitates efficient telecommunications systems, driving demand for various forms of telephone cables to support mobile networks.

Digital Transformation and Urbanization

The transition to digital communication systems and the growth of urban areas contribute to the need for upgraded telecommunication networks. As cities expand, improved cabling solutions are essential to support increased connectivity demands.

4.4.3 Instrumentation Cables

Instrumentation cables are specialized cables designed to transmit low-energy electrical signals and data in various industrial and control applications. Their primary function is to facilitate communication between measurement devices, sensors, and electronic controllers while maintaining signal integrity in challenging environments. These cables ensure accurate data transmission, which is crucial for monitoring and controlling various processes in industries such as manufacturing, oil and gas, and automation.

Table 21: Types of Instrumentation Cables

Type	Description
PVC Instrument Cable	These cables feature an outer layer of Polyvinyl Chloride (PVC), which provides fire resistance, scratch resistance, and waterproof properties. They are popular due to their affordability and compliance with standards like BS-EN-50288 and UL 2250.

XLPE Instrument Cables	Made from cross-linked polyethylene, these cables excel in heat and humidity resistance. They include flexible copper conductors and can function in extreme temperatures and harsh chemical environments.
Armoured Instrument Cables	These cables feature an additional protective armor layer, making them sturdier. They are ideal for outdoor and underground installations, providing extra protection against mechanical damage.
Thermocouple Cables	Used for temperature measurements, these cables comprise specific materials suited for temperature detection and are designed for high accuracy in signal transmission.
LSZH Instrumentation Cables	Low Smoke Zero Halogen (LSZH) cables are designed to minimize smoke and toxic gas emissions during combustion, making them suitable for use in enclosed spaces or public areas.

Key Growth Drivers

Increasing Demand for Automation

The trend towards automation in various industries necessitates the use of reliable and efficient communication systems, driving the demand for instrumentation cables.

Focus on Safety Regulations

Stricter safety regulations concerning the operation of industrial and manufacturing processes have necessitated the adoption of advanced instrumentation and control systems that rely on these cables.

Rapid Urbanization and Industrialization

Growth in infrastructure development and industrial projects in regions like Asia-Pacific, the Middle East, and Africa is driving up the requirement for instrumentation cables in new construction projects.

Expansion of Industries

Industries such as oil and gas, power generation, and manufacturing are increasingly utilizing instrumentation cables for enhanced monitoring and control capabilities, further propelling market growth.

Technological Advancements

Innovations in cable technology have resulted in more durable and efficient cables that meet the rigorous demands of modern industrial applications, positively impacting their adoption rate.

4.4.4 Power Cables

Power cables are used for power transmission and distribution of electricity from power generators (overhead, underground and submarine) to sub-stations and thereon for power supply to end user segments, such as residential, commercial and industrial units.

A power cable is an assembly of two or more conductors with insulation and a protective jacket. The power cables industry is classified into low voltage (1.1 kV and below), high voltage (1.1-33 kV), and extra high voltage (66 kV and above) cables.

Table 22: Types of Power Cables

Type of power cables	Rated voltage	Applications
Low voltage power cable	Up to 1.1 kV	These are suitable for use on AC single phase per three phases (earthed or unearthed) systems for rated voltage up to 1.1 kV. These can also be used on DC systems for rated voltage up to 1.5 kV to earth.
Medium voltage power cable	1.1 kV to 33 kV	Medium voltage power cables of differing types have a variety of applications in instruments, ignition systems, and AC and DC power transmission. Conductors

		are made of copper / aluminium conductor which are screened with extruded semi-conducting compound.
Extra high voltage power cable	66 kV to 220 kV	These are mainly used in expansion of transmission lines owing to its lower transmission loss benefits. XLPE compounds are used for insulation which offers fast curing and superior electrical properties. Extruded insulation should be of high cleanliness with smooth interface and cable core should be free from contamination voids and manufacturing defects. This is achieved by employing a single point triple extrusion dry curing process

Major uses of power cables are in the power sector (central, state and private electricity utilities) and sectors like petrochemicals, mining, steel, non-ferrous, shipbuilding, cement, railway, and defence.

The performance and durability of cables depend on the quality of raw materials. Specialised applications require superior chemical, mechanical, thermal and electrical performance from cables, resulting in usage of high-performance materials in cable construction. Additionally, it is seen that in order to achieve properties suited for varying applications, every cable has a distinguished construction. The number of SKUs of cables and wires are very high, with 500-600 fastest selling SKUs, differing in application and offering variation in cross-sectional area (size), number of cores used, core material (mainly copper or aluminium), insulation material used, armoured or unarmoured construction for strength, etc.

During FY-24, power cable production crossed 1 million km, up from 0.84 million km, registering a y-o-y growth of 24%. The historical growth of power cables was on account of factors such as the electrification of rural villages and households (Power for All) under SAUBHAGYA and DDUGJY scheme; investments in transmission and distribution systems for modernisation and increasing efficiencies; increased demand from renewable power generation, particularly solar and wind energy; infrastructure development initiatives taken by the Indian government such as Smart Cities Mission, and mass transit systems; and improved lifestyle and consumer spending.

Key Growth Drivers

The manufacturing industry and infrastructure development are key drivers of the demand for cables and conductors, with significant growth potential in areas such as power generation, residential and commercial construction. As governments invest in initiatives like power grid expansion, housing development and infrastructure upgrades, the cable market is poised to benefit from these efforts in the coming years. Furthermore, the shift towards renewable energy sources, such as solar and wind power, is creating new opportunities for industry. Some of the key drivers are as follows:

Favourable government power transmission and distribution schemes

The domestic power cables industry is expected to witness moderate growth driven by RDSS, which is aimed at network modernisation and system loss reduction, PGCIL investments in system strengthening, new GEC projects, and state transmission line additions.

Additionally, the power cables industry is expected to draw significant demand from spending on network modernisation and system loss reduction through deployment of armoured cabling, aerial bunched cables, and reconductoring. Moreover, underground cabling, renovation and modernisation of existing transmission lines of 66 kV and below would be required for loss reduction. over fiscal 2023-26.

Entry of private players in Transmission & Distribution space

With the introduction of TBCB and VGF schemes for intra-state projects, the share of private sector players in the power transmission sector is expected to increase gradually over the long term. With increased awarding of projects under TBCB in the future, private participants are expected to play a key role in driving domestic power demand, thereby positively impacting the demand of cables including transmission and power cables.

Capacity Additions in the power generation segment

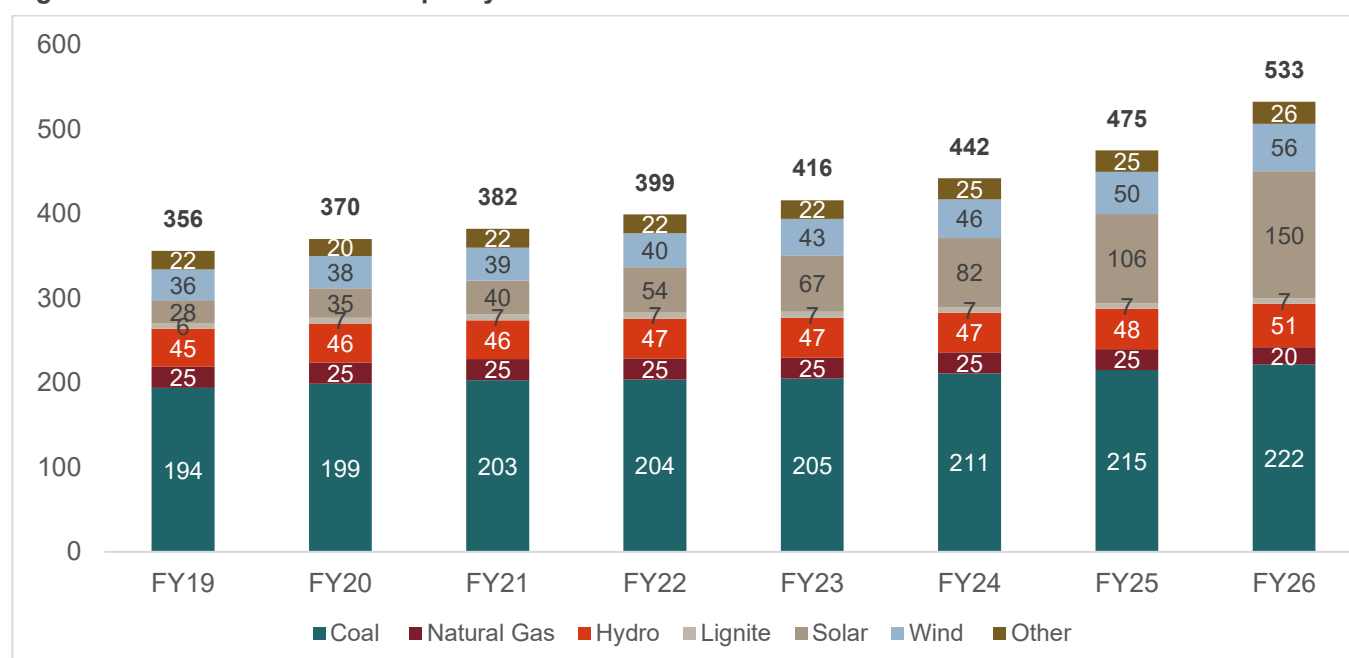
Solar and wind installed capacity in India are expected to grow by 170 GW and 47 GW respectively from FY26 to FY31. Such multifold generation expansion plans also require large-scale development in the transmission sector because grid-connected solar and wind plants are usually located in far-flung areas which have limited transmission infrastructure. Extensive transmission and cable infrastructure transmit power from remote generation.

5 Power & Renewable Sector Assessment

5.1 Review of India's Installed Capacity

The total installed generation capacity at the end of March 2026 was 533 GW. The overall installed generation capacity has grown at a CAGR of 5.9% between FY19 and FY26. Coal and lignite-based installed power generation capacity has maintained its dominant position over the years and accounts for ~42% as of March 2026. However, renewable energy (RE) installations (including large hydroelectric projects), have reached ~275 GW capacity as of March 2026, constituting ~51% of total installed generation capacity. The renewable capacity addition (excl. large hydro) has grown at a CAGR of ~20% from FY 19 and FY 26.

Figure 16: Fuel-wise installed capacity



Note: Others include Nuclear, Diesel, Waste to Energy, BM Power/Cogen

Source: CEA, Crisil Intelligence

5.2 India's Electricity Requirement

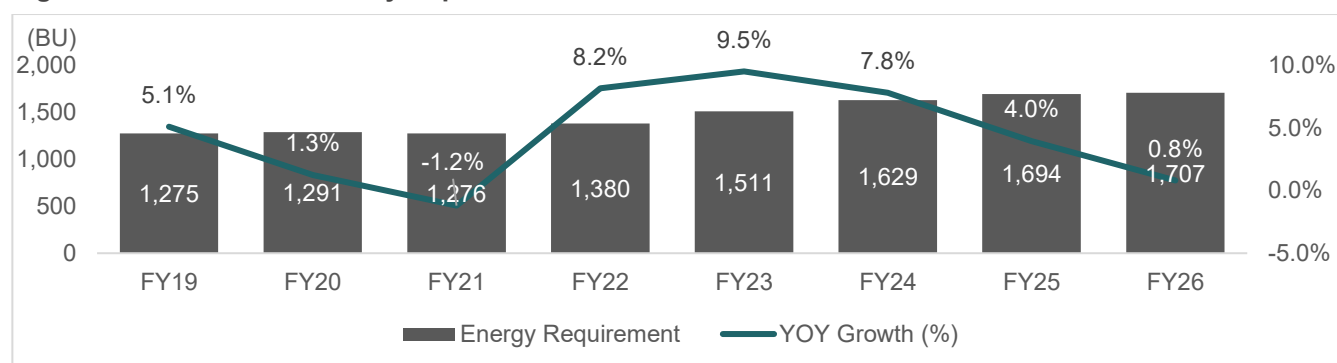
India's electricity requirement exhibited a steady long-term growth trend, increasing from 1,275 BU in FY19 to 1,707 BU in FY26, registering a CAGR of ~4.3% over the period. However, the growth trajectory was influenced by significant economic and external factors. Energy demand increased marginally by 1.3% in FY20, supported by stable economic activity and growth in industrial, commercial and residential electricity consumption. In FY21, electricity requirement declined by 1.2% to 1,276 BU, primarily due to the COVID-19 pandemic and the nationwide lockdown, which significantly reduced industrial production, commercial operations and transportation activities. Although residential electricity consumption increased during this period, it was insufficient to offset the decline in demand from industrial and commercial consumers.

Following the pandemic, electricity requirement witnessed a robust recovery during FY22–FY24, increasing from 1,380 BU in FY22 to 1,629 BU in FY24, with annual growth rates of 8.2%, 9.5% and 7.8%, respectively. The sharp rebound was driven by the revival of economic activity, recovery in manufacturing and infrastructure development, increased industrial production, expansion of commercial establishments, continued rural and urban electrification, and rising cooling demand due to above-normal summer temperatures. Government initiatives aimed at

strengthening infrastructure, expanding electricity access and promoting industrial growth further supported the increase in electricity consumption.

During FY25 and FY26, electricity requirement continued to increase, reaching 1,694 BU and 1,707 BU, respectively; however, the growth rate moderated to 4.0% in FY25 and 0.8% in FY26. The moderation primarily reflects the normalization of electricity demand following the exceptionally high post-pandemic growth witnessed during FY22–FY24, coupled with a higher base effect. Additionally, relatively milder weather conditions and an earlier-than-usual monsoon in parts of FY26 reduced cooling-related electricity consumption compared with the previous year. Despite the slower growth, underlying structural demand drivers—including sustained economic growth, rapid urbanization, increasing electrification, expansion of data centres, railway electrification, rising penetration of electric vehicles, and greater adoption of household electrical appliances—continued to support the overall upward trajectory of electricity requirement in the country.

Figure 17: Historical electricity requirement trend



Source: CEA, Crisil Intelligence

5.3 Key Government Initiatives to Support Growth of Electricity Demand

Government of India launched schemes like Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Integrated Power Development Scheme (IPDS), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) etc., to support States in achieving the objective of providing uninterrupted power supply to all households. Projects worth INR 1.85 trillion were executed for strengthening the distribution system across States which includes works like new/upgradation of substations, new/upgradation of HT & LT lines, agricultural feeder segregation, Aerial Bunched Cable and underground cabling etc. A total of 18,374 villages were electrified under DDUGJY and 2.86 crore households were electrified during SAUBHAGYA.

Further, the Government launched Revamped Distribution Sector Scheme (RDSS) with the objective of improving the quality and reliability of power supply to consumers through a financially sustainable and operationally efficient Distribution Sector. The Scheme has an outlay of INR 3,03,758 crore with a Gross Budgetary Support of INR 97,631 crore from Government of India over a period of five years from FY22 to FY26. The scheme aims to reduce the AT&C losses to pan-India levels of 12-15% and ACS-ARR Gap to zero by FY25. Projects worth INR 2.62 trillion for distribution infrastructure works and smart metering works have been sanctioned under the scheme.

The government has also undertaken several steps to improve transmission congestion in several parts of India. The transmission system has expanded over the years for evacuation of power from generating stations to load centre through Intra State and Inter State Transmission System. Ladakh got interconnected with national electricity grid in January 2019 with the commissioning of 220 kV Srinagar- Leh line. This helped the people of Ladakh to get access to 24x7 quality power from the national Grid. Transmission and distribution (T&D) infrastructure of Northeastern States including Sikkim are strengthened with implementation of two Central Sector Schemes namely, Northeastern Regional Power System Improvement Project (NERPSIP) and Comprehensive Scheme for strengthening of Transmission & Distribution in Arunachal Pradesh and Sikkim. Similarly, for evacuation

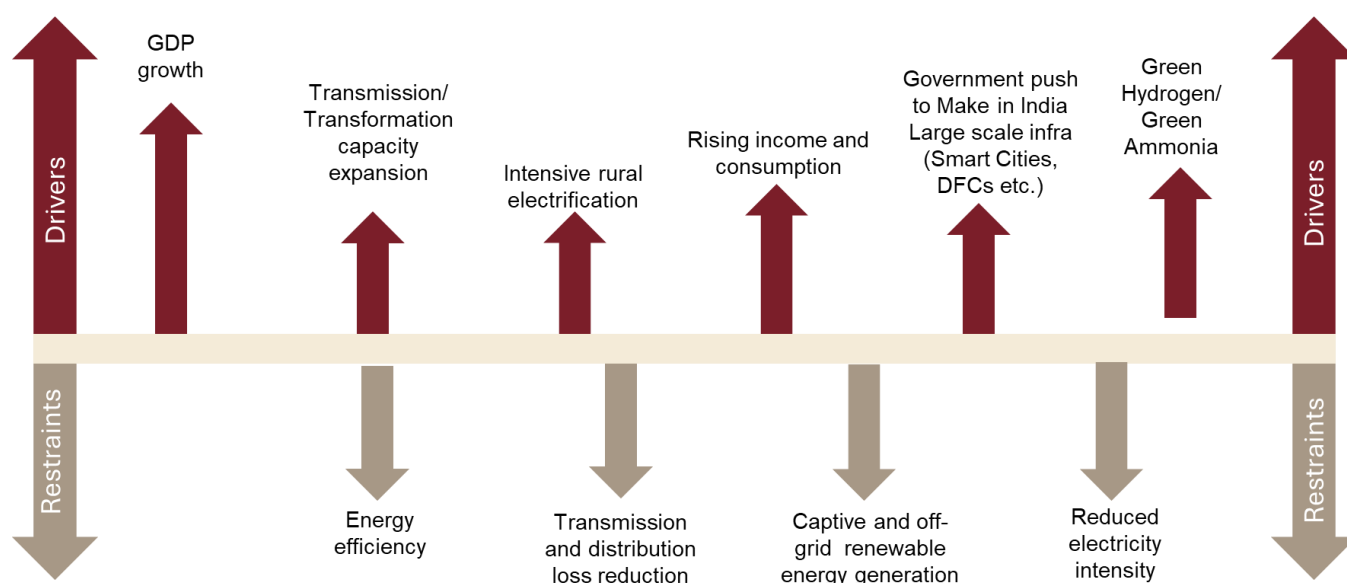
of renewable power from RE parks located at different regions of the country, the government has launched green energy corridor (GEC) scheme for creation new substation and transmission lines.

5.4 Projected Power Demand and Capacity Addition

5.4.1 Long Term Drivers and Constraints for Demand Growth

Power demand is closely associated with a country's GDP. Healthy economic growth leads to growth in power demand. India is already the fastest-growing economy in the world, with an average GDP growth of 6.1% over the past decade. The trickle-down effect of government spending on infrastructure through the National Infrastructure Pipeline, expansion of the services industry, rapid urbanisation, and increased farm income from agriculture-related reforms are key macroeconomic factors that are expected to foster power demand. Significant policy initiatives such as 24x7 power for all, Sahaj Bijli Har Ghar Yojana (SAUBHAGYA) scheme to provide electricity connections to all households, green energy corridor to facilitate evacuation of RE power, green city scheme to promote the development of sustainable and eco-friendly cities, production linked incentive (PLI) scheme and low corporate tax rates among others are expected to further support power demand in the country.

Figure 18: Factors influencing power demand



Source: Crisil Intelligence

Apart from macroeconomic factors, power demand would be further fuelled by railway electrification, upcoming metro rail projects, growing demand for charging infrastructure due to increased adoption of electric vehicles, and higher demand from key infrastructure and manufacturing sectors. However, increasing energy efficiency, a reduction in technical losses over the longer term, and captive as well as off-grid generation from renewables would restrict growth in power demand.

Railway electrification and metro rail projects to drive a majority of incremental power demand

Indian Railways has planned to become a net zero carbon emitter by 2030. As of July 2026, Indian Railways have electrified about 99.6% of broad gauge. Further, Metro rail has seen substantial growth in India in recent years, and the rate of growth is set to double or triple in the coming years with multiple cities seeking metro rail services to meet daily mobility requirements. As of July 2026, around 1,000 km of metro rail is under construction.

Further, EV charging requirements are likely to boost power demand over the medium term, with a gradual increase in the share of EVs in the vehicle population.

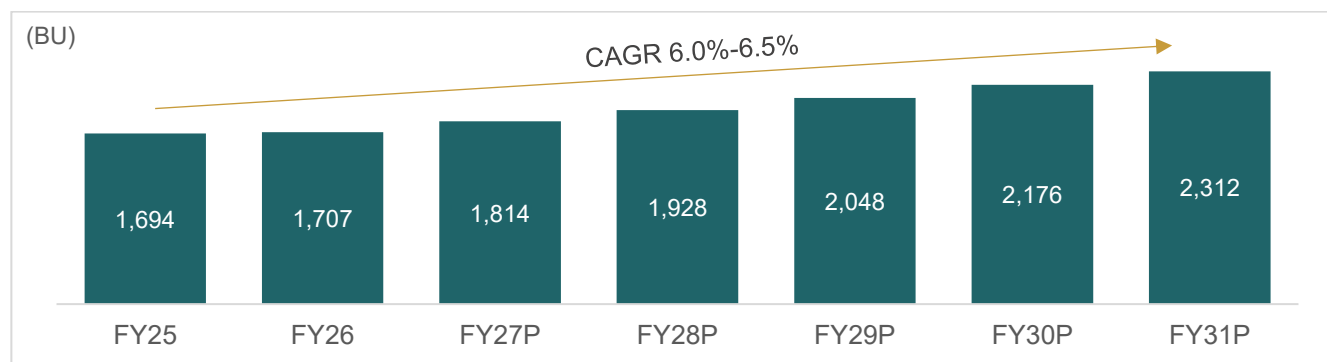
Declining T&D losses, an increase in off-grid/rooftop projects and open access transactions to drive power demand downward

T&D losses have been declining, and the reduction in losses is expected to continue further aided by a slew of government measures, primarily RDSS. Power demand is expected to be reduced by 20-25 BUs on average every year between fiscal FY25 to FY29 owing to lower T&D losses. Further, with a boost to rooftop solar and decentralized distributed generation, a reduction of 2-3% in base demand from the grid is expected with the addition of 32-33 GW of rooftop capacities are expected by FY29. Industries are expected to add ~3-4 GW of captive capacity over the next five years, adding on average 290-300 BUs of demand over the period which may lead to a reduction in demand from the grid.

5.4.2 Electricity Demand Forecast

Electricity demand maintained a steady growth momentum from FY19 to FY26. GDP is expected to grow at 6.4% in FY26 supporting power demand. Despite the high base of preceding three years, CRISIL Intelligence-Consulting expects power demand to grow by 6-6.5% in the next five years which will be supported by infrastructure-linked capex, strong economic fundamentals along with expansion of the power footprint via strengthening of T&D infrastructure, coupled with major reforms initiated by the GoI for improving the overall health of the power sector, particularly that of state distribution utilities, are expected to improve the quality of power supply, thereby propelling power demand.

Figure 19: Energy demand outlook (FY25 – FY31)



Note: F - Forecast

Source: Crisil Intelligence

5.4.3 Expected Capacity Installation by FY31

Capacity additions in the conventional power generation segment are projected to be around 32-35 GW from FY 25 to FY29, driven by higher than decadal average power demand. Fresh project announcements are limited as players are opting for the inorganic route for expansion given the availability of assets at reasonable valuations. In fact, 4.8 GW of stressed power assets are awaiting debt resolution. However, the need for generation capacity equipped for flexible operations to ramp up-down quickly is critical to meet peak demand as generation from renewable capacities is intermittent in nature. Coal capacity additions are expected to be driven entirely by the central and state sectors, as major private gencos continue to focus on expanding RE capacity. 2-3 GW of coal-based capacity is expected to retire as per CEA's National Electricity Plan 2023.

The construction of ten nuclear reactors totalling about 7.3 GW is underway in the states of Gujarat, Rajasthan, Tamil Nadu, Haryana, Karnataka and Madhya Pradesh. Of this, the nuclear power capacity additions of 4.5-5.5 GW are expected during the period as ongoing projects at Kakrapara, Kalpakkam, and Rajasthan is nearing completion.

As per CEA's Long Term National Resource Adequacy Plan (2026-27 to 2035-36), Renewable Energy capacity addition of over 200 GW is expected to be installed by FY31, driven by various government initiatives, favourable policies, competitive tariffs, innovative tenders, development of solar parks and green energy corridors, etc. RE capacity is estimated to account for ~62% of the installed capacity of 811 GW by FY31.

The battery energy storage system (BESS) capacity additions of 28 GW is likely to be added by FY31.

Table 23: All India installed estimated capacity addition by FY31 (in GW)

Year	Coal (including Lignite)	Gas	Nuclear	Large Hydro	Solar	Wind	Other RE	Total
FY27	237	20	10	48	176	63	17	571
FY28	239	20	12	54	214	73	17	629
FY29	245	20	12	55	254	83	18	687
FY30	260	20	13	58	285	93	18	747
FY31	276	20	14	59	320	103	19	811

Notes: Other RE includes Small Hydro, Waste to Energy and Biomass

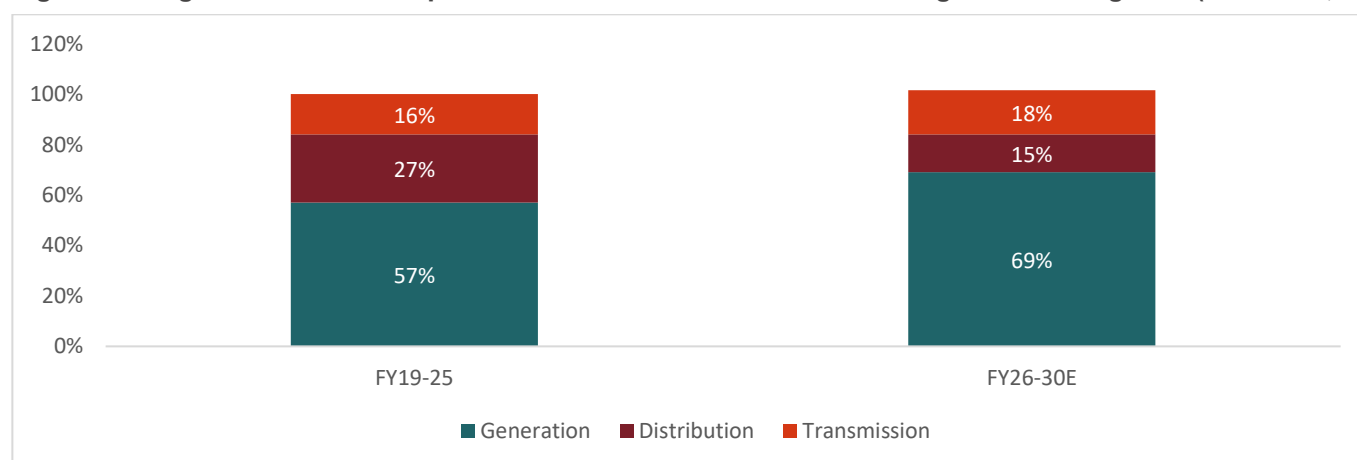
Source: CEA, Crisil Intelligence

5.5 Investments in Power Sector

Total investments in the power sector during FY19 to FY25 were roughly INR 19–21 trillion. Crisil Intelligence estimates that investments will rise to Rs 28–31 trillion in the power sector between FY26 and FY30. Investments in power generation are expected to increase by about 1.5 to 1.6 times—from Rs 19–21 trillion in FY19–25 to the FY26–30 period. Over the same timeframe, investments in renewable energy generation (excluding hydro, pumped storage, and BESS) are expected to make up 68%–70% of total investments, as India works toward its goal of achieving 500 GW of non-fossil energy capacity announced at COP26.

Reaching the renewable energy generation target will require robust transmission infrastructure to integrate large-scale renewable capacity into the grid. In addition, investments in the distribution segment are expected to grow by around 1.6x between FY26 and FY30, supported by upgrades to distribution infrastructure and the rollout of smart meters, as India prioritizes reducing carbon emissions.

Figure 20: Segment-wise break-up of total investments-dominance of the generation segment (Rs trillion, %)



Note: P: Projected, Private sector investments in the distribution are not included

Source: Crisil Intelligence

Over next five years, generation investment is expected to be primarily driven by renewable energy (excluding hydro and storage) capacity additions, followed by spending on conventional generation and FGD installations. This points to a shift in investment flows toward strengthening clean energy supply. From FY26 to FY30, renewable capacity additions are expected to total around 190–200 GW, compared with 25–30 GW from coal-based plants over the same period. Investments in renewable energy capacity are likely to account for approximately 70% of overall generation investments.

Following the introduction of tariff-based competitive bidding (TBCB) in 2006 and the expectation of healthy returns, large private conglomerates invested significantly in generation projects. Capacity additions in the private sector were led by companies such as Tata Power, Adani Power, Sterlite Energy, KSK Mahanadi, and Lanco Infratech. However, limited availability of adequate long-term power purchase agreements, along with financially stretched conditions for some private developers, contributed to slower capacity additions and reduced private participation in generation. Consequently, central and state entities—typically better placed in terms of funding access and having strong execution track records—are expected to lead investments in conventional generation, representing over 68–70% of investments during FY26–30.

Transmission investments are expected to be supported by the need for a robust and dependable transmission network to accommodate continued generation additions and the strong policy push toward renewable energy, as well as rural electrification. Strong execution capabilities, together with healthy financials at PGCIL, are also expected to underpin these investments.

Since capacity additions across India are not evenly distributed geographically, some regions are expected to face power deficits while others remain in surplus. Addressing this will require power import and export between regions. Multiple inter-regional transmission corridors have been planned, and several high-capacity corridors are already at various stages of implementation. Newly sanctioned projects under the North-Eastern System Strengthening Scheme, along with system-strengthening initiatives targeted at the Ladakh region, are also expected to contribute to investment growth in the transmission segment.

State distribution companies (discoms) are under significant financial stress due to collection inefficiencies and increasing receivables owed to power generation companies (gencos). The government's relief package offered temporary liquidity support, but the effect was short-lived and may have further deteriorated discoms' debt situation. International institutions such as JICA and ADB are also providing credit to the distribution sector, with loans approved for modernizing power distribution systems in Assam and Bengaluru.

Table 24: Key projects under execution/planning/partially completed in the power distribution sector

Project name	Promoter	Project cost (INR million)	Description
Power Distribution (Jodhpur) Project - RDSS	Jodhpur Vidyut Vitran Nigam Ltd.	8,903.20	The project will aim to reduces loss by segregation of agricultural/mis feeders, feeder bifurcation, reconductoring works, AB cabling, New 33/11 KV power substation, New 33KV lines and New 11KV lines etc
Power Distribution (Raipur) Project - RDSS	Chhattisgarh State Power Distribution Co. Ltd	2,133.30	Chhattisgarh State Power Distribution Co. is implementing Revamped Distribution Sector Scheme (RDSS) for distribution infra works and system smart metering works in Raipur district of Chhattisgarh

Power Distribution (Kodarma, Ramgarh, Chazribagh & Chatra) Project - RDSS	Jharkhand Bijli Vitran Nigam Ltd.	4,359.20	Jharkhand Bijli Vitran Nigam is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) by development of distribution infrastructure like replacement of LT conductor with AB cable feeder segregation, feeder bifurcation, HVDS works and other works at Electric Supply Area Hazaribagh in Kodarma, Ramgarh, Chazribagh and Chatra districts of Jharkhand on full turnkey basis
Power Distribution (Chittoor) Project - RDSS	Southern Power Distribution Co. of AP Ltd.	19,414.30	Southern Power Distribution Co. of AP is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) by Loss Reduction by Segregation of AGL Feeders and Bifurcation of Over Loaded 33 kV Feeders in Chittoor district of Andhra Pradesh on partial turnkey basis
Power Distribution (Anantapur) Project - RDSS	Southern Power Distribution Co. of AP Ltd.	15,297.70	Southern Power Distribution Co. of AP is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) by Loss Reduction by Segregation of AGL Feeders and Bifurcation of Over Loaded 33 kV Feeders in Anantapur district of Andhra Pradesh on partial turnkey basis
Power Distribution (Bhagalpur & Banka) Project - RDSS	South Bihar Power Distribution Co. Ltd.	2,918.20	South Bihar Power Distribution Co. is developing distribution infrastructure for loss reduction component works at Bhagalpur Electric Supply Circle in Bhagalpur & Banka districts of Bihar under Revamped Reformed-Based and Results-Linked Distribution Sector Scheme (RDSS).
Power Distribution (Jamui & Sheikhpura) Project - RDSS	South Bihar Power Distribution Co. Ltd.	2,487.90	South Bihar Power Distribution Co. is developing distribution infrastructure for loss reduction component works at Jamui Electric Supply Circle in Jamui & Sheikhpura districts of Bihar under Revamped Reformed-Based and Results-Linked Distribution Sector Scheme (RDSS)
Power Distribution (RiBhoi) Project - RDSS	Meghalaya Power Distribution Corporation. Ltd.	1,335.90	Meghalaya Power Distribution Corpn. is implementing Revamped Reforms-based and Results-linked, Distribution Sector Scheme (RDSS) in Ri-Bhoi district of Meghalaya on turnkey basis. The scope of work will include: Reconductoring works, Cabling in natural disaster-prone areas etc

Table 25: Key projects under execution/planning/partially completed in power transmission sector in India

Project name	Promoter	Project cost (INR million)	Description
Transmission Line (Chhattisgarh-Haryana) Project	Power Grid Corpn. of India Ltd.	115,000.00	The project involves laying of 1,365 km transmission line between Chhattisgarh and Haryana. The HVDC (high voltage direct current) link between the two states will be implemented in four phases with a total carrying capacity of 6,000 MW.
Transmission System (Arunachal Pradesh & Sikkim) Project - Strengthening	Power Grid Corpn. of India Ltd.	91,419.70	The project involves strengthening of intra-state transmission and distribution system in Arunachal Pradesh and Sikkim. The project comprises 4,240 km of 220, 132, 66, 33 kV transmission lines as well as 1,304 MVA substation transformation capacity through construction of 115 substations. In the process 134 transmission lines will be constructed to cover 15 districts in Arunachal Pradesh and 4 districts in Sikkim
Transmission Line (Kudus-Aarey Colony) Project	Adani Electricity Mumbai Ltd.	80,000.00	The project involves laying 1,000 MW High Voltage Direct Current (HVDC) Transmission Line of length 80 km between Kudus in Palghar district and in Aarey Colony in Mumbai district of Maharashtra.

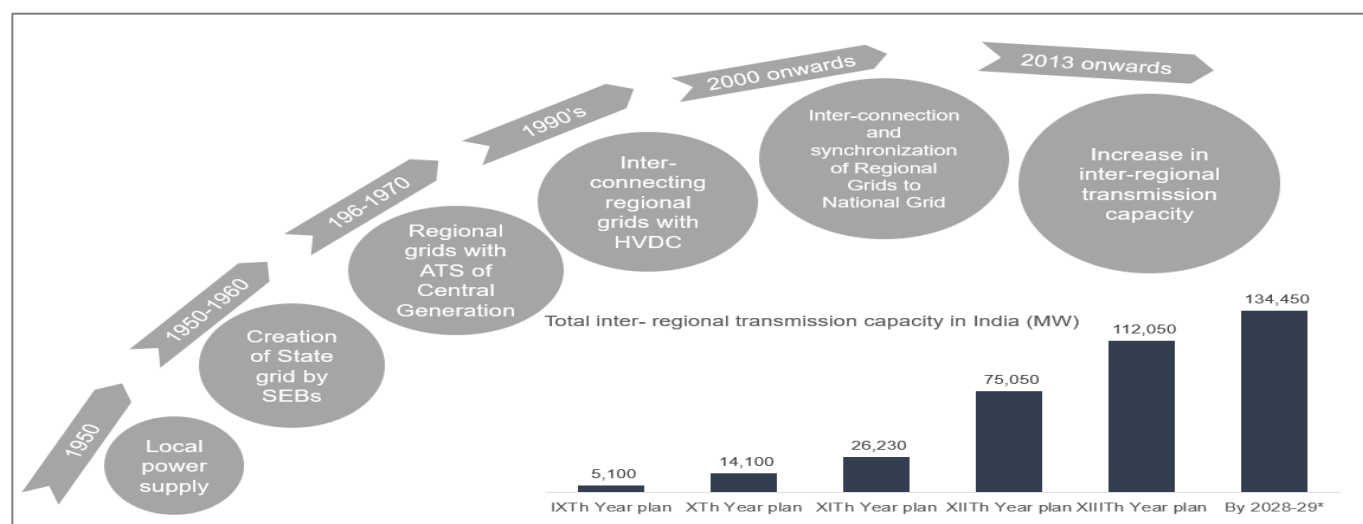
Transmission System (Ananthapuram-II REZ) Project [Phase-II]	REC Power Devp. & Consultancy Ltd.	33,390.00	The project aims to implement Transmission System for integration of Ananthapuram-II REZ - Phase-II (3 GW) in Andhra Pradesh.
HVDC System (Raigarh-Pugalur) Project - Upgradation	Government of India, Ministry of Power	32,000,0	Government of India, Ministry of Power plans upgradation of +800 kV, 6000 MW Raigarh-Pugalur HVDC system for enhancement of reverse power capacity upto 6000 MW from existing 3000 MW in Chhattisgarh and Tamil Nadu.
Transmission Scheme (Khavda RE Park) Project [Phase-III Part A]	Halvad Transmission Ltd	30,000.00	Halvad Transmission is developing Transmission Scheme for evacuation of additional 7 GW of RE Power from Khavda RE Park (Phase-III Part A) in Kachchh district of Gujarat.
Eastern Region Expansion SchemeXXXIV [ERESXXXIV]	Paradeep Transmission Ltd.	25,640.00	The project consists of constructing 2 x 1500 MVA, 765/ 400 kV GIS substation at Paradeep with associated bays at Angul and Paradeep (OPTCL), 190 km of 765 kV double circuit transmission line from existing Angul substation of PGCIL to the proposed 765 kV GIS substation at Paradeep and 12 km of 400 kV line from existing OPTCL substation at Paradeep to the proposed 765 kV GIS substation at Paradeep.

5.6 Projected Capacity Addition in Power Transmission and Distribution Segment

5.6.1 National grid

To facilitate the transfer of power between neighbouring states, state grids are inter-connected through high-voltage transmission links to form a regional grid. There are five regional grids, namely, Northern, Western, Southern, Eastern and North-eastern grids. As peak demand for power does not take place at the same time in all states, it results in a surplus in one state and a deficit in another. Regional or inter-state grids facilitate the transfer of power from a surplus region to the one facing a deficit. Additionally, they also facilitate the optimal scheduling of maintenance outages and better coordination between power plants.

The Indian national grid has evolved over a period of past 60 years all the way from isolated state grids to regional grids and finally with the commissioning of 765 kV transmission line between Raichur and Solapur in December 2013 India achieved one nation one Grid status. The detailed evolution of the grid is as discussed in the section given below:

Figure 21: Integration and growth of transmission network in India


Source: CEA, *CTUIL ISTS Rolling plan 2028-29 Report; Crisil Intelligence

Integration of the regional grid networks into the national grid involves several institutional, technical, and commercial issues. Over the medium term, investments in the transmission sector are expected to focus on forming the national grid, by setting up inter-regional links and strengthening the regional and intra-state grids. Inter-regional power transmission capacity has increased from 14 GW in fiscal 2007 to 120 GW as of June 2026.

5.6.2 Plans to increase grid infrastructure

Report on “Transmission System for Integration of over 500 GW RE Capacity by 2030” published by CEA portrays the broad transmission system roadmap for reliable integration of 501 GW RE capacity by the year FY31.

The length of the transmission lines and sub-station capacity planned under ISTS for integration of additional wind and solar capacity by 2030 has been estimated as 50,890 ckm and 433,575 MVA respectively at an estimated cost of INR 244,200 crores.

The present inter-regional transmission capacity is 120 GW. With the additional inter-regional transmission corridors under implementation/planned, the cumulative inter-regional transmission capacity is likely to be about 168 GW in 2032.

Table 26: Planned Transmission capacity additions by CEA till 2030

Transmission system type/ voltage class	Unit	Capacity additions till 2030
(a) $\pm$ 800 kV	ckm	6,200
(b) $\pm$ 350 kV	ckm	1,920
(c) 765 kV	ckm	25,960
(d) 400 kV	ckm	15,758
(e) 220 kV cable	ckm	1,052
Total transmission lines	ckm	50,890
(a) $\pm$ 800 kV	MVA	20,000
(b) $\pm$ 350 kV	MVA	5,000
(c) 765 kV	MVA	274,500
(d) 400 kV	MVA	134,075
(e) 220 kV cable	MVA	0
Total substations	MVA	433,575

Source: CEA, Crisil Intelligence

Table 27: Inter-regional capacity addition till 2032

Inter-regional capacity	Capacity additions till 2032 (MW)
West – East	22,790
West – North	61,120
West – South	36,520
North – East	28,530
South – East	12,030
East – Northeast	3,550
Northeast – North	3,000
Total	167,540

Source: CEA, Crisil Intelligence

5.6.3 Distribution network addition

The Distribution perspective plan 2030 was prepared by CEA in Feb 2024 for assessment of requirement for development of the distribution sector to provide 24x7 quality power, reduction of AT&C losses, and to provide reliable power to its consumers. The plan has been prepared based on energy requirement and peak demand as forecasted in the 20th EPS of CEA.

The sub-transmission power substation capacity at the end of FY30 has been projected to meet the peak demand of 335 GW forecasted for FY30. During FY23 - FY30, it is planned to add 17,835 no. of 66/33/22 kV feeders in the country with total addition in feeder length of 1,88,690 ckm and 92,920 no. of 11 kV feeders in the country with total addition of feeder length of about 9,68,503 ckm.

In order to reduce the AT&C losses further, utilities need to concentrate on reducing technical losses. Improving the HT/LT ratio can reduce technical losses as well as improve voltage profile at consumer end. HT/LT ratio can be increased either by adopting HVDS system or increasing HT line length. Regarding DT's it is planned to add about 4,657,854 number of DTs with a total added DT capacity of 238,464 MVA in the country during the period. These DT additions are planned for meeting the customer's electricity demand growth & using HVDS to reduce the technical losses by bringing the HT line closer to the load centre.

LT lines of about 9.774,634 ckm (1-phase - 4,99,556 ckm and 3-phase -1,269,774 ckm) would be added by FY30. Out of the total LT lines, about 69% LT lines would be 3 phase lines in the country.

Table 28: Year wise details of infrastructure proposed for distribution sector

	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	Total addition	Cumulative by 2030
No. of S/s	1,173	2,003	2,286	1,870	1,230	1,218	1,155	1,257	12,192	52,157
Capacity of S/s (MVA)	14,523	21,878	24,628	21,889	14,909	14,442	13,232	16,020	141,521	624,332
No. of feeders	1,680	3,307	3,790	2,892	2,047	1,408	1,311	1,400	17,835	54,639
Length of feeders (ckm)	17,674	34,945	40,754	33,188	18,580	15,446	13,905	14,197	188,689	777,994
No. of 11 kV feeders	10,408	19,527	18,142	12,484	8,567	7,553	7,947	8,292	92,920	323,899
Length of 11 kV	111,823	200,772	193,086	130,282	86,527	79,774	81,988	84,252	968,504	5,903,782

	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	Total addition	Cumulative by 2030
feeders (ckm)										
No. of DT	553,242	614,488	620,579	580,657	563,968	559,048	575,458	590,413	4,657,853	19,332,115
Capacity of DT (MVA)	24,621	28,173	31,683	30,610	29,809	31,430	30,869	31,517	238,712	927,656
LT lines (ckm) 400/230V	167,432	241,742	260,456	219,787	199,863	201,542	219,039	319,015	1,828,876	9,774,634

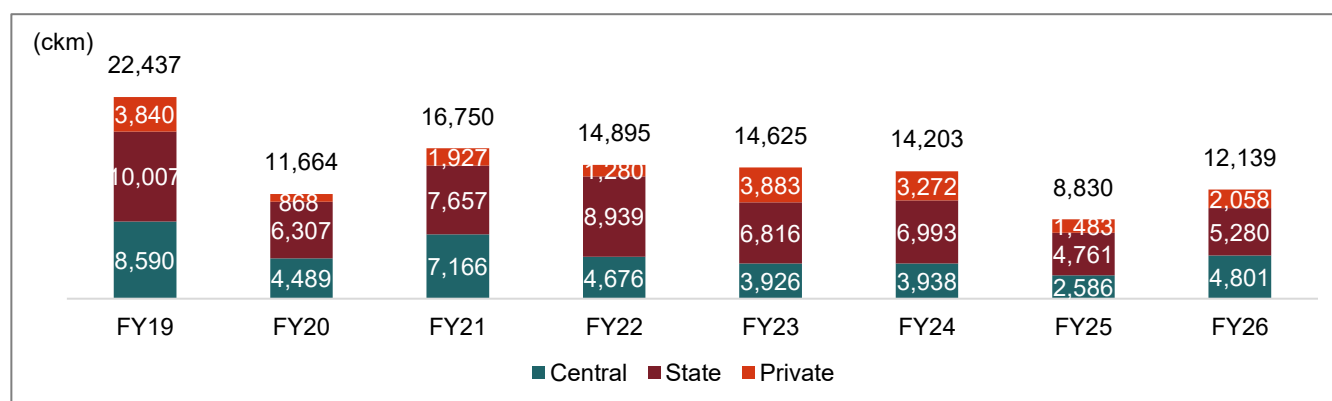
Source: CEA, Crisil Intelligence

5.7 Private Investments in Power Transmission Sector

The transmission sector, a crucial part of the power industry, required more attention to meet the growing demand for electricity and the expanding generation capacity. Existing investments from budgets, internal funds, and PSU loans were insufficient to meet this demand. To address this issue, the Electricity Act allowed private companies to participate in the power transmission sector through a competitive bidding process called tariff-based competitive bidding (TBCB). The National Tariff Policy of 2006 provided guidelines for this process, aiming to promote competition, attract private investment, and increase transparency in constructing transmission infrastructure. India stands out as one of the few countries that have opened its transmission sector to private participation, generating significant interest from private businesses. The Electricity Act, 2003 coupled with TBCB for power procurement, encouraged private participation in the power transmission sector and has supported the growth of transmission lines in India sector.

Investments in transmission line additions continue to be dominated by the central and state sectors. In the 13th five-year plan (2017- 2022), a total of 88,865 ckm was set up in the country, with the central and state sectors contributing to 38% and 50%, respectively.

Figure 22: Sector-Wise share of transmission line additions

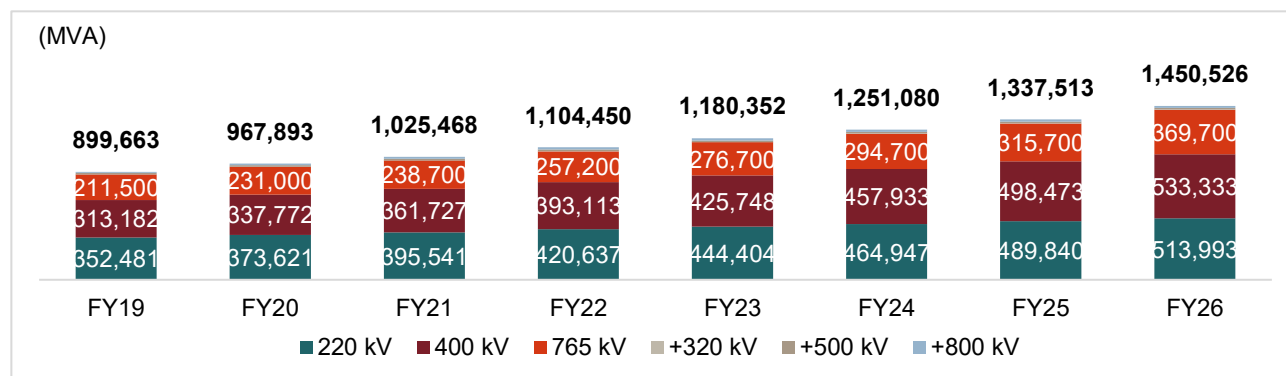


Source: CEA, Crisil Intelligence

Sub-station capacities in the country have grown from 899,663 MVA in FY19 to reach 1,450,526 MVA in FY26, at a CAGR of 7.1%.

The growth in sub-station capacities has majorly seen traction in 220 kV, 400 kV and 765 kV segments. In terms of voltage, the 400kV class had the highest share ~37%.

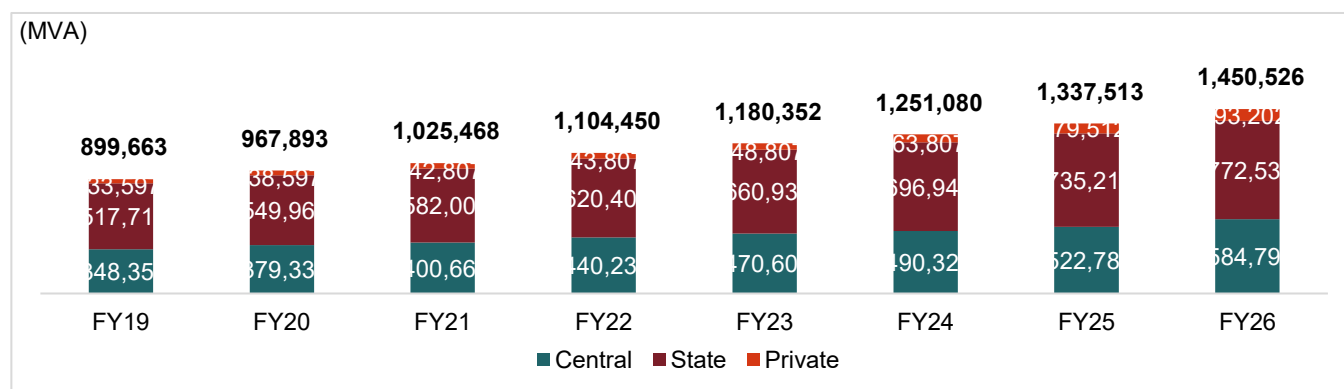
Figure 23: Robust growth in high voltage sub-station transformation capacity (above 220 kV)



Source: CEA, Crisil Intelligence

Substation additions have been dominated by the central sector and state sector, contributing to 40% and 53% of the cumulative capacity as of FY26 respectively.

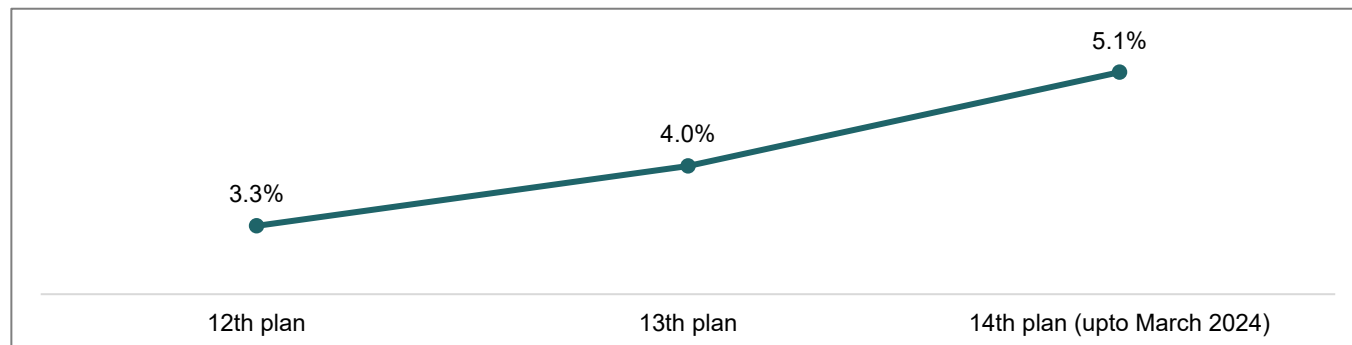
Figure 24: Sector-Wise share of substation additions



Source: CEA, Crisil Intelligence

Of the total substation capacity-additions of 351,417 MVA during the FY19 to FY26, about 46% can be attributed to the state sector, followed by central (43%) and JV/ private sector (11%). Private sector investments continue to be tepid, with the cumulative share reaching 6.4% in FY26.

Figure 25: Share of private sector in substation investments



Source: CEA, Crisil Intelligence

5.8 Market Size for Power Cables for Upgradation of Power Infrastructure

5.8.1 Overview of Power Cables

Power cables are used for power transmission and distribution of electricity from power generators (overhead, underground and submarine) to sub-stations and thereon for power supply to end user segments, such as residential, commercial and industrial units.

A power cable is an assembly of two or more conductors with insulation and a protective jacket. The power cables industry is classified into low voltage (1.1 kV and below), high voltage (1.1-33 kV), and extra high voltage (66 kV and above) cables.

Table 29: Types of Power Cable

Type of power cables	Rated voltage	Applications
Low voltage power cable	Up to 1.1 kV	These are suitable for use on AC single phase per three phases (earthed or unearthed) systems for rated voltage up to 1.1 kV. These can also be used on DC systems for rated voltage up to 1.5 kV to earth.
Medium voltage power cable	1.1 kV to 33 kV	Medium voltage power cables of differing types have a variety of applications in instruments, ignition systems, and AC and DC power transmission. Conductors are made of copper / aluminium conductor which are screened with extruded semi-conducting compound.
Extra high voltage power cable	66 kV to 220 kV	These are mainly used in expansion of transmission lines owing to its lower transmission loss benefits. XLPE compounds are used for insulation which offers fast curing and superior electrical properties. Extruded insulation should be of high cleanliness with smooth interface and cable core should be free from contamination voids and manufacturing defects. This is achieved by employing a single point triple extrusion dry curing process

Source: Crisil Intelligence

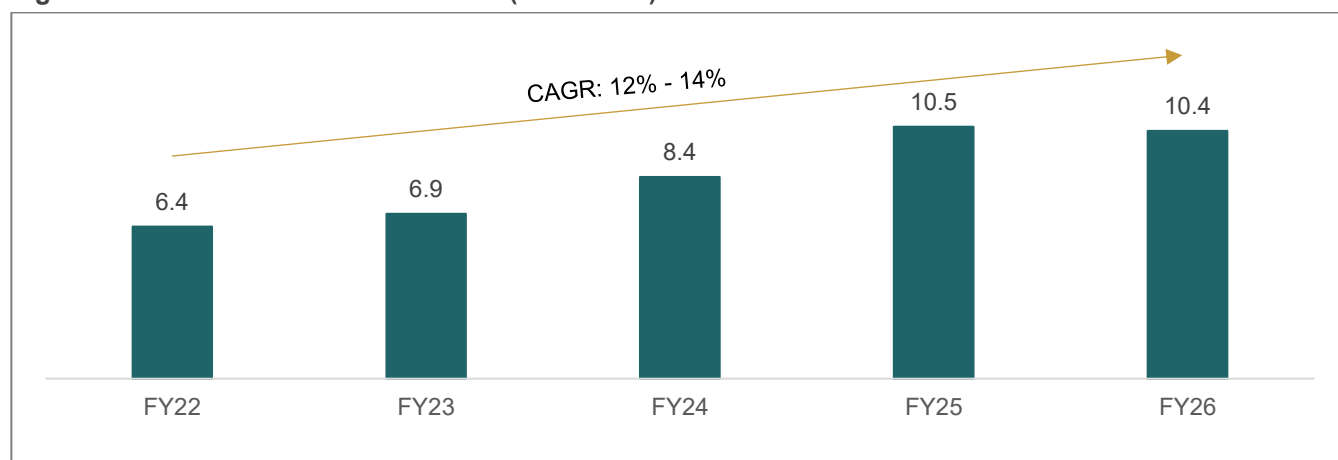
Major uses of power cables are in the power sector (central, state and private electricity utilities) and sectors like petrochemicals, mining, steel, non-ferrous, shipbuilding, cement, railway, and defence.

The performance and durability of cables depend on the quality of raw materials. Specialised applications require superior chemical, mechanical, thermal and electrical performance from cables, resulting in usage of high-performance materials in cable construction. Additionally, it is seen that in order to achieve properties suited for varying applications, every cable has a distinguished construction. The number of SKUs of cables and wires are very high, with 500-600 fastest selling SKUs, differing in application and offering variation in cross-sectional area (size), number of cores used, core material (mainly copper or aluminium), insulation material used, armoured or unarmoured construction for strength, etc.

5.8.2 Existing Trend in Power Cable Production

During FY26, the power cable production was ~1.2 million km. The historical growth of power cables was on account of factors such as the electrification of rural villages and households (Power for All) under SAUBHAGYA and DDUGJY scheme; investments in transmission and distribution systems for modernisation and increasing efficiencies; increased demand from renewable power generation, particularly solar and wind energy; infrastructure development initiatives taken by the Indian government such as Smart Cities Mission, and mass transit systems; and improved lifestyle and consumer spending.

Figure 26: Production of Power Cables (in lakh km)



Source: IEEMA, Crisil Intelligence

5.8.3 Key growth drivers for power cables

The manufacturing industry and infrastructure development are key drivers of the demand for cables and conductors, with significant growth potential in areas such as power generation, residential and commercial construction. As governments invest in initiatives like power grid expansion, housing development and infrastructure upgrades, the cable market is poised to benefit from these efforts in the coming years. Furthermore, the shift towards renewable energy sources, such as solar and wind power, is creating new opportunities for industry. Some of the key drivers are as follows:

Favourable government power transmission and distribution schemes

The domestic power cables industry is expected to witness moderate growth driven by RDSS, which is aimed at network modernisation and system loss reduction, PGCIL investments in system strengthening, new GEC projects, and state transmission line additions.

Additionally, the power cables industry is expected to draw significant demand from spending on network modernisation and system loss reduction through deployment of armoured cabling, aerial bunched cables, and reconductoring. Moreover, underground cabling, renovation and modernisation of existing transmission lines of 66 kV and below would be required for loss reduction.

Entry of private players in Transmission & Distribution space

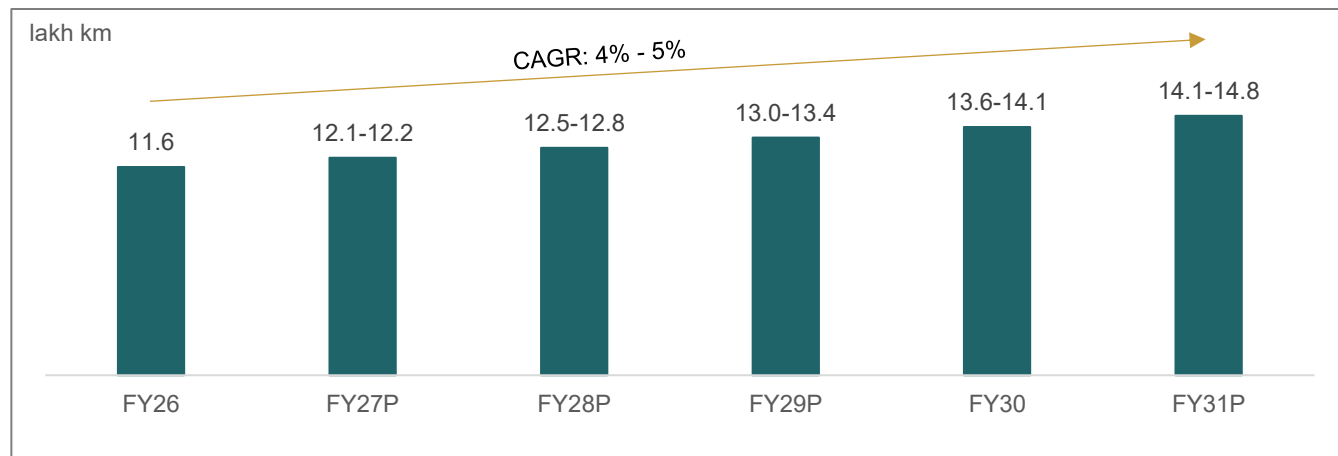
With the introduction of TBCB and VGF schemes for intra-state projects, the share of private sector players in the power transmission sector is expected to increase gradually over the long term. With increased awarding of projects under TBCB in the future, private participants are expected to play a key role in driving domestic power demand, thereby positively impacting the demand of cables including transmission and power cables.

Capacity Additions in the power generation segment

Robust power capacity additions of more than 200 GW are expected by FY31. Solar and wind installed capacity in India are expected to grow by ~170 GW and ~47 GW respectively from FY26 to FY31 as per government targets. Such multifold generation expansion plans also require large-scale development in the transmission sector because grid-connected solar and wind plants are usually located in far-flung areas which have limited transmission infrastructure. Extensive transmission and cable infrastructure transmit power from remote generation sites to consumption centres. This in turn is expected to drive the demand for cables and conductors.

5.8.4 Outlook on Market Size of Power Cables

Figure 27: Projected domestic consumption volume of power cables



Note: P-Projected

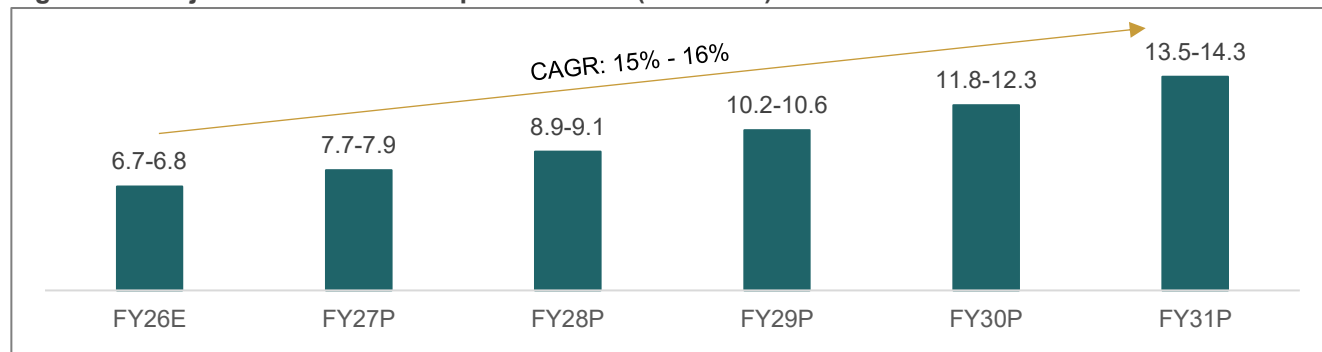
Source: Crisil Intelligence

The projected rise in domestic power cable consumption from ~12 lakh km in FY26 to ~15 lakh km by FY31, at a 4–5% CAGR, reflects the physical expansion of India's electricity grid rather than a purely commercial demand estimate. The volume trajectory is well supported by government infrastructure data. India's national power transmission network has crossed 5 lakh circuit kilometres along with 1,407 GVA of transformation capacity, with the network having grown 71.6% since 2014 through the addition of 2.09 lakh ckm of transmission lines and 876 GVA of transformation capacity.

Looking ahead, the Central Electricity Authority's National Electricity Plan envisages a further 1,91,000 ckm of transmission lines and 1,270 GVA of transformation capacity between FY23 and FY32 for 220 kV and above networks, with inter-regional transmission capacity set to rise to 143 GW by 2027 and 168 GW by 2032, largely to evacuate renewable power toward the government's 500 GW non-fossil capacity target for 2030.

In terms of value, CRISIL Intelligence expects power cables market size to grow at a CAGR of ~15-16% between FY26 – FY31, and reach ~USD 13.5 – 14.3 billion by FY31 due to ongoing infrastructure development projects, feeder segregation, RDSS initiatives, surge in construction activities and robust capacity addition plan.

Figure 28: Projected market size of power cables (FY26-31F)



Note: E-Estimate; P-Projected

Source: Crisil Intelligence

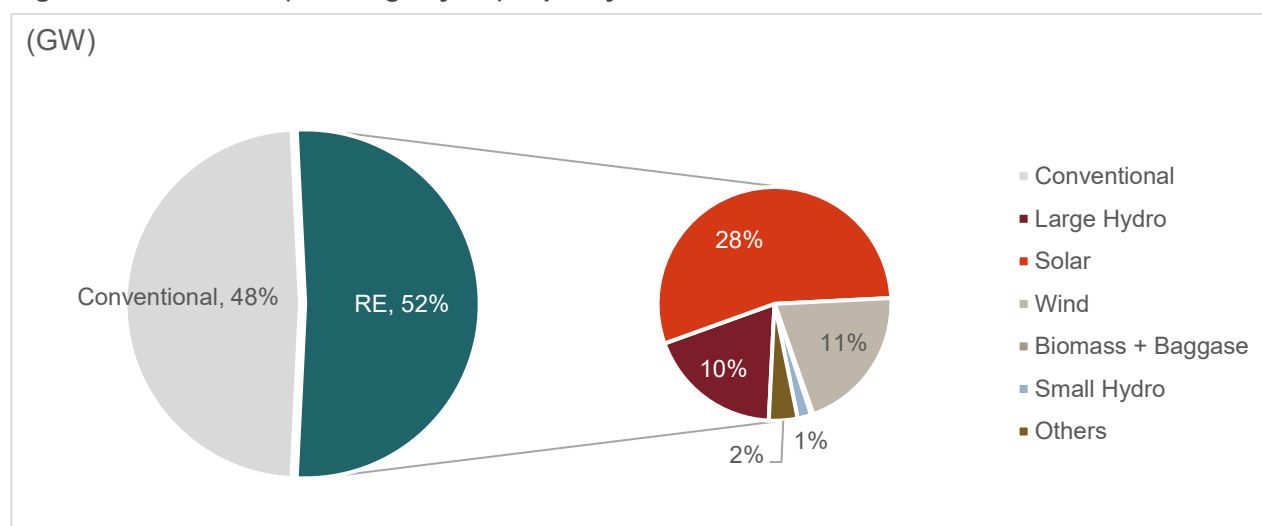
6 Renewable Sector Assessment

6.1 Overview of Different Renewable Energy Sources

Renewable sources are a clean source of energy as they do not burn like fossil fuels, preventing the release of pollutants into the air. Increasing use of RE would help avoid carbon emissions, and thereby, restrict global warming. Further, the wide availability of these resources makes them less susceptible to depletion unlike conventional sources of energy. While there are multiple renewable sources that can be utilised, including solar, wind, small hydro, biomass, and bagasse remain key sources.

Renewable energy installations (incl. large hydro) have increased more than four times to ~275 GW as of March 2026, as compared with ~63 GW as of March 2012, led by various central and state-level incentives. As of March-2026, installed grid connected RE generation capacity (incl. large hydro) in India constituted ~52% of the total installed generation base in India. This growth has been led by solar power, which has grown to ~150 GW from merely ~0.09 GW over the discussed time period (i.e., from March 2012).

Figure 29: India's RE (incl. large hydro) capacity was 52% at the end of March 2026



Note: Conventional: Coal, Gas, Lignite, Diesel and Nuclear

Source: CEA, Crisil Intelligence

6.2 Benefits of Renewable Energy Over Conventional Sources

Sustainable and endless - RE can meet our energy needs indefinitely, reducing reliance on depleting resources and mitigating the risks associated with resource depletion.

Cost-effective - The cost of RE has decreased dramatically over the years from Rs 10-11 per/kWh to Rs 3-4/kWh, making it more competitive with conventional energy sources.

Energy independence and security - RE can reduce dependence on imported fossil fuels, improving energy security and reducing the risks associated with price volatility. By generating energy locally, renewable energy can reduce reliance on distant energy sources, improving energy independence and reducing the risks associated with supply disruptions.

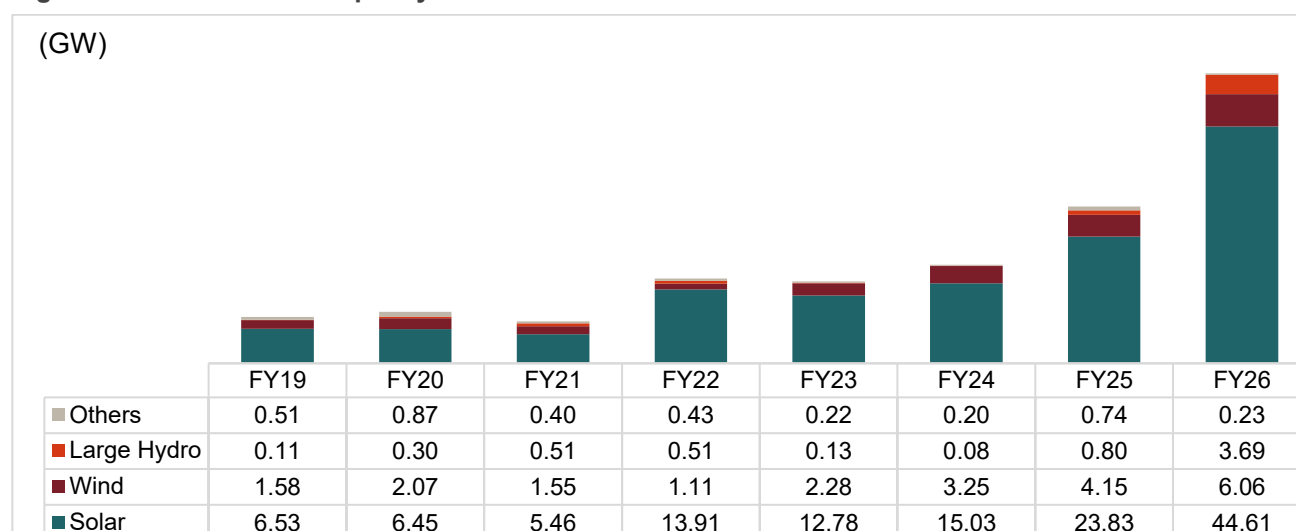
Flexibility and scalability - RE can be deployed at various scales, from small rooftop solar installations to large wind farms or hydroelectric power plants. Renewable energy can be easily integrated into existing energy systems, allowing for a gradual transition to a low-carbon economy.

Technological innovation - Renewable energy has driven innovation in energy technologies, leading to improved efficiency, reduced costs, and increased adoption. Conventional energy sources, have been slow to innovate, relying on traditional technologies and business models that are no longer sustainable or competitive.

6.3 Historical Trend in Segment Wise Installed RE Capacity

With the increased support of the Government and improved economics, the RE sector has become attractive from an investor's perspective. During FY18 to FY26, India added ~160 GW of RE (incl. large hydro) capacities. The installed RE (incl. large hydro) capacity has grown from 114 GW in FY18 to 275 GW in FY26 at a CAGR of 11.6%. Solar segment led the capacity additions with cumulative additions of ~129 GW followed by wind ~22 GW during the same period. The other RE sources added ~4 GW during the same period.

Figure 30: Historical RE Capacity Additions in India



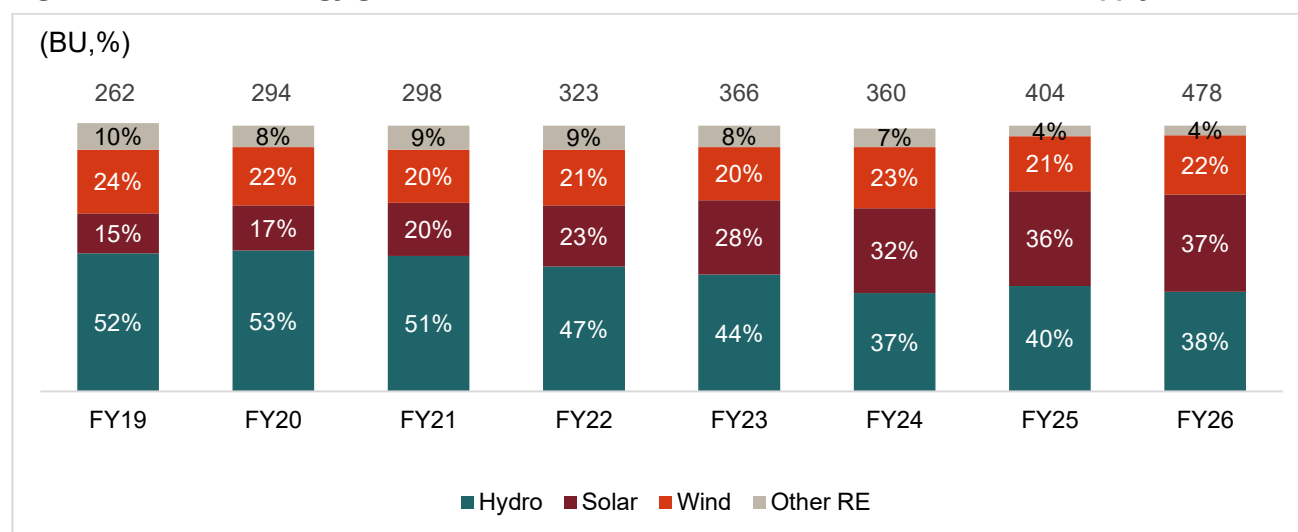
Note: Others include small-hydro, biomass and waste-to-energy

Source: CEA, MNRE, Crisil Intelligence

6.4 Historical Trend in RE Generation

The share of renewable energy (including large hydro) in the total supply mix was ~19% in FY19 which has now increased to 26% in FY24. The share of solar and wind energy was ~15% of the total energy supplied during FY26. The share of large hydro was ~9% and the remaining 2% from other RE sources.

The RE generation has increased by 4.3% from FY19 – FY26. Within the RE generation, the share of large hydro is maximum followed by solar and wind. The solar generation has increased at a CAGR of 31.4% and wind generation has increased by 10.6% over the same period. The share of large hydro has reduced from 52% to 35%, whereas the share of solar generation has doubled from 15% to 37% in FY26.

Figure 31: Share of energy generation of various renewable sources in the total RE supply mix


Source: CEA, Crisil Intelligence

6.5 Renewable Purchase Obligation

As per the Electricity Act, 2003, the State Electricity Regulatory Commissions (SERCs) are required to fix the purchase of a minimum percentage of electricity from renewable energy sources out of total electricity consumption (excluding hydro) for obligated entities – discoms, open access consumers and captive power users – in the state. The renewable purchase obligation (RPO) could be met by purchase of renewable energy or through purchase of renewable energy certificates (RECs). In the event of default by an obligated entity in any fiscal, SERCs may direct the obligated entity to pay a penalty or to deposit an amount determined by the relevant SERC, into a fund to be utilised for, among others, the purchase of RECs.

To promote the installation of solar power systems across various Indian states, the government amended the National Tariff Policy in fiscal 2016, proposing an increase in RPO target to 21.0% by FY22. Consequently, several states set RPO targets based on their respective RE potential.

The Ministry of Power (MoP) in July 2022 had declared hydro power obligation (HPO) and energy storage obligation (ESO) trajectory till fiscal 2030 in addition to RPO. Later in October 2023, the MoP revised its RPO target from fiscal 2025 to 2030 and removed ESO from the RPO category. In this RPO notification, MoP added a category for distributed renewable energy which would be met only from the projects that are less than 10 MW.

Table 30: RPO targets by MoP notified in October 2023

Category	FY25	FY26	FY27	FY28	FY29	FY30
Wind RPO	0.67%	1.45%	1.97%	2.45%	2.95%	3.48%
HPO	0.38%	1.22%	1.34%	1.42%	1.42%	1.33%
Distributed RE	1.50%	2.10%	2.70%	3.30%	3.90%	4.50%
Other RPO	27.35%	28.24%	29.94%	31.64%	33.10%	34.02%
Total	29.91%	33.01%	35.95%	38.81%	41.36%	43.33%

Source: Ministry of Power, CRISIL Intelligence

6.6 India's RE Targets Announced by the Government

In 2014, the government set a target to achieve 175 GW of renewable energy in India- 100 GW of solar energy by December 2022, 60 GW of wind energy by December 2022 and 15 GW via other sources, including small hydro projects, biomass projects and other renewable technologies, by December 2022. As on March 2026, India had

renewable capacity (excl. large hydro) of 223.27 GW of which 150.26 was from solar, 56.09 from wind and balance from small hydro, bio power and waste to energy.

The Paris Agreement was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. Under the Paris Agreement, the Indian government has committed to generating 50% of electricity from non-fossil fuels sources by 2030. The country also has a target of setting up 500 GW of non-fossil fuel-based capacity by 2030 and providing 1.7 million solar pumps to farmers under the Pradhan Mantri-Kusum Yojana.

The 2021 United Nations COP26 was the 26th United Nations Climate Change conference, held at Glasgow, Scotland during Oct-Nov 2021 and a draft agreement was circulated with respect to climate change action. The proposal aims at updating the time frame for revised targets NDCs to next year — much sooner than the requirement of every five years as laid out in the 2015 Paris Climate Accord. India updated its NDCs as follows:

- To reduce Emissions Intensity of its GDP by 45% by 2030, from 2005 level
- To achieve about 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030,
- By the year 2070, India will achieve the target of Net Zero

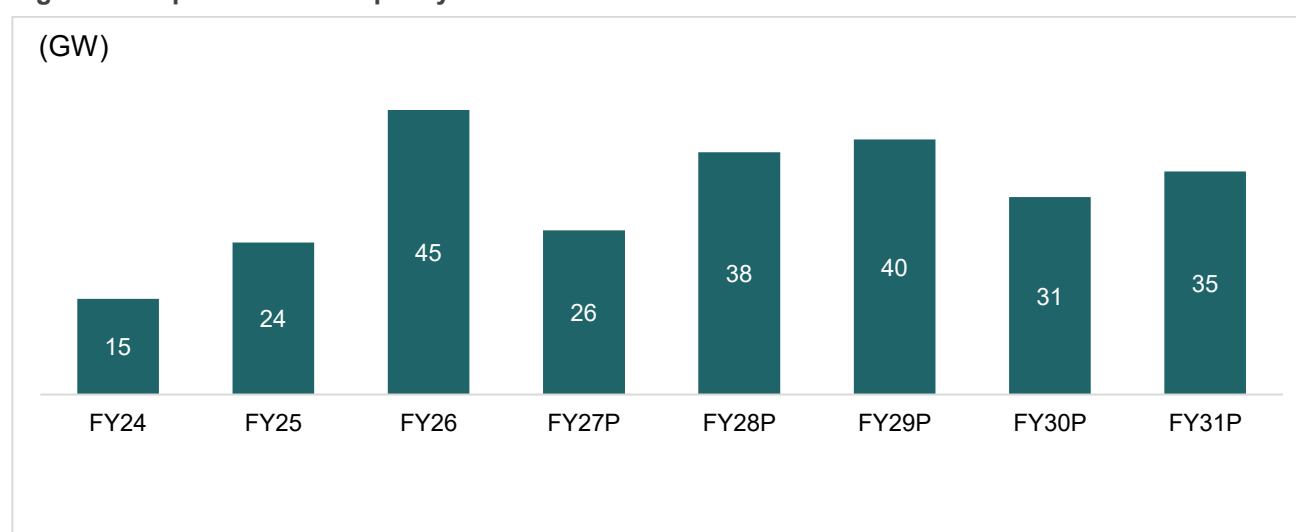
These are more ambitious and are beyond the previous NDCs agreed under the Paris Agreement. These will provide a new thrust to the RE Sector in India and will boost the already accelerating RE Sector. These will also provide guidelines to the Regulators as well as Government Authorities while setting the rules, regulations, and targets.

6.7 Growth of Renewable Energy Sector

6.7.1 Solar

Solar sector growth in India primarily spurred by robust government backing, demonstrated through an aggressive tendering strategy. Some of the key catalysts include technological advancements, affordable financing, supportive policies, thrust on go-green initiatives/sustainability targets, cost optimisation due to increased grid electricity tariffs, subsidy initiative (specially in rooftop solar) and various incentives such as ISTS charge waiver.

Figure 32: Expected Solar Capacity Additions



Note: P-Projected

Source: Crisil Intelligence

Crisil Intelligence foresees solar power capacity additions of ~170 GW over FY27 – FY31. The solar additions momentum continued in FY27, with 11.9 GW solar capacity already added during the first quarter of FY27. Owing to a robust pipeline of projects and favourable government policies, solar capacity additions will be driven by additions under:

- **Public sector undertakings (PSUs):** The Central Public Sector Undertaking (CPSU) programme under Jawaharlal Nehru National Solar Mission (JNNSM) was extended to 12 GW in February 2019. The government is also encouraging cash-rich PSUs to set up renewable energy projects. In particular, NTPC has a target of installing ~35 GW of renewable energy capacities by FY28. Similarly, NHPC had allocated 2 GW of projects in 2020, while the Indian Railways has committed to 20 GW of solar power by 2030. Other PSUs such as Neyveli Lignite Corporation (NLC), defence organisations, and governmental establishments are also expected to contribute to this addition.
- **Rooftop solar projects:** Crisil Intelligence expect 70-80 GW of rooftop solar projects to be commissioned by fiscal 2031, led by PM Surya Ghar Yojana and industrial and commercial consumers under net/gross metering schemes of various states.
- **Open-access solar projects:** Crisil Intelligence expect 35-45 GW of open-access solar projects under the capex and opex modes to be commissioned by fiscal 2031, led by the Green Energy Open Access Rules, 2022, sustainability initiatives and RE100 targets of corporate consumers, and better tariff structures and policies in states such as Uttar Pradesh and Karnataka, which are longer term in nature. The extension of the Approved List of Models and Manufacturers (ALMM) List-II compliance deadline for net-metering and open-access projects until December 2026 is also expected to support near-term execution and reduce supply-side disruption in FY27.

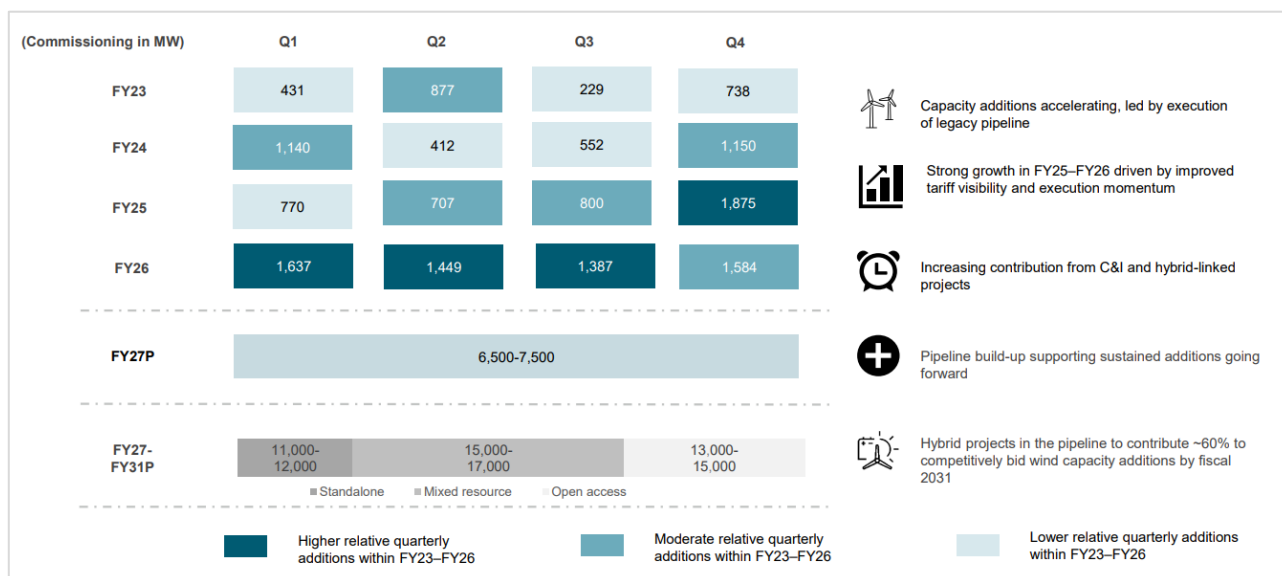
6.7.2 Wind

CRISIL Intelligence expects capacity additions to grow over the next five years led by pipeline build-up under existing schemes and new tendering schemes, improvement in technology, thrust on green hydrogen, renewable generation obligation and mixed resource models (Round-the-clock, hybrid, firm power, etc.). However, incremental challenges pertaining to wind-site/land availability, grid connectivity, and viability at low tariffs due to elevated capital cost pose challenges for the sector. Considering this, CRISIL Intelligence expects wind power capacity additions of ~47 GW over FY27 – FY31.

Crisil Intelligence believes the sector will be driven with the large pipeline under the existing schemes and new tenders likely to be floated in the coming fiscals. The factors that will impact wind capacity additions over the long term are:

- Increasing acceptance of higher tariffs for wind among distribution companies, which enables developers to quote viable tariffs.
- Healthy pipeline buildup of standalone wind tenders issued in FY25 and FY26 can lead to high allocation and commissioning in upcoming years.
- The mixed-resource segment is estimated to account for 60% of total additions in the competitively bid wind segment, adding 15-17 GW from FY27 to FY31.
- Further, as per Crisil's estimates, increasing adoption of wind in open access will lead to additions of 13-15 GW from FY27 to FY31.

Figure 33: Wind Power Capacity Additions

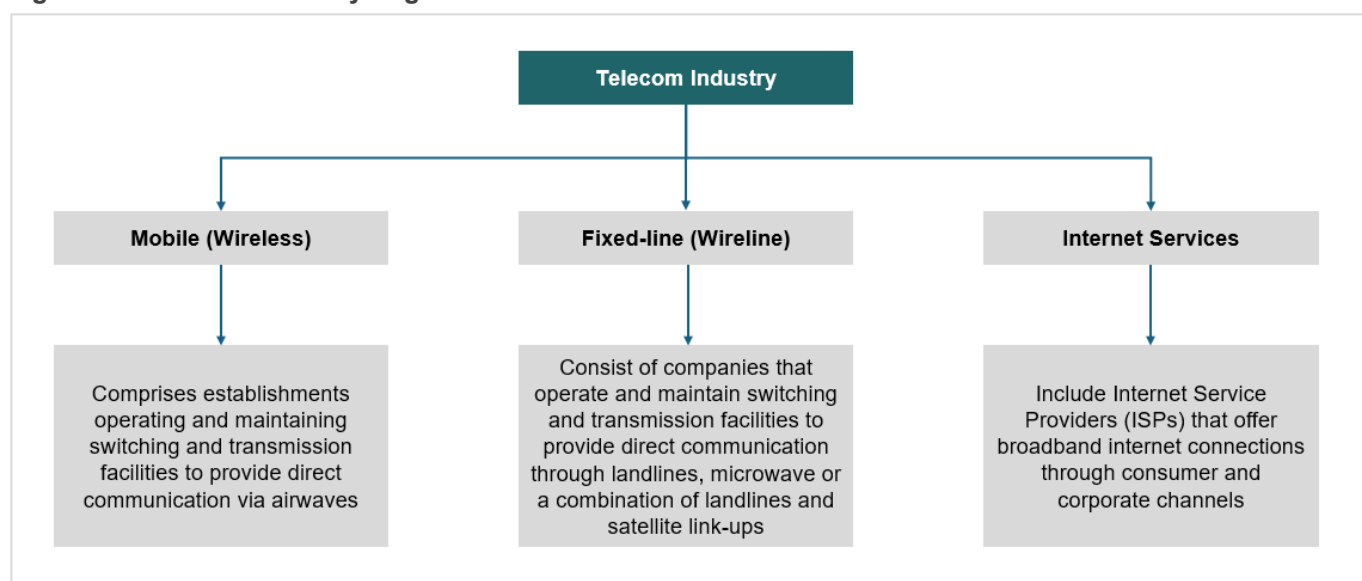


Note: SCOD – scheduled commercial operation date; C&I - commercial and industrial; PPAs – power purchase agreements. Colour coding represents relative quarterly capacity additions within FY23-FY26, with darker shades indicating stronger commissioning activity
Source: MNRE, Crisil Intelligence

7 Telecom Sector Assessment

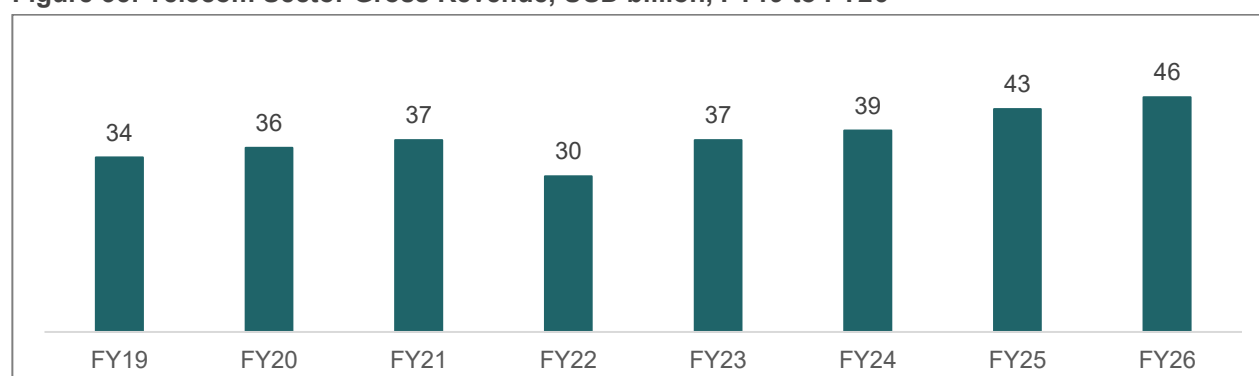
The telecom industry in India is the second largest in the world with a subscriber base of 1.2 billion (wireless & wireline subscribers) as of August-2024 and has registered a strong growth in the last decade. This growth is attributed to the increasing affordability of smartphones, low data costs, and a large young population. The introduction of 4G and 5G technology has spurred significant growth and telecom industry is playing an important role in India's digital transformation, enabling services like e governance, digital payments, and online education. The India telecom market is split into three segments; mobile (wireless), fixed-line (wireline), internet services.

Figure 34: Telecom Industry Segmentation



Source: CRISIL Intelligence

Figure 35: Telecom Sector Gross Revenue, USD billion, FY19 to FY26



Source: IBEF, Telecom Regulatory Authority in India, CRISIL Intelligence

India's telecom sector has demonstrated strong revenue growth over the past few years, reflecting increasing consumption of digital services and sustained investments in network infrastructure. The sector's gross revenue increased from USD 34 billion in FY19 to USD 46 billion in FY26, representing a CAGR of ~4.3%. Revenue grew steadily from USD 34 billion in FY19 to USD 37 billion in FY21, before declining to USD 30 billion in FY22, primarily due to the impact of the COVID-19 pandemic, subscriber rationalization, and financial stress within the telecom industry. However, the sector recovered strongly thereafter, with revenue increasing to USD 37 billion in FY23, USD 39 billion in FY24, and reaching a record USD 46 billion in FY26. The post-pandemic recovery has been supported

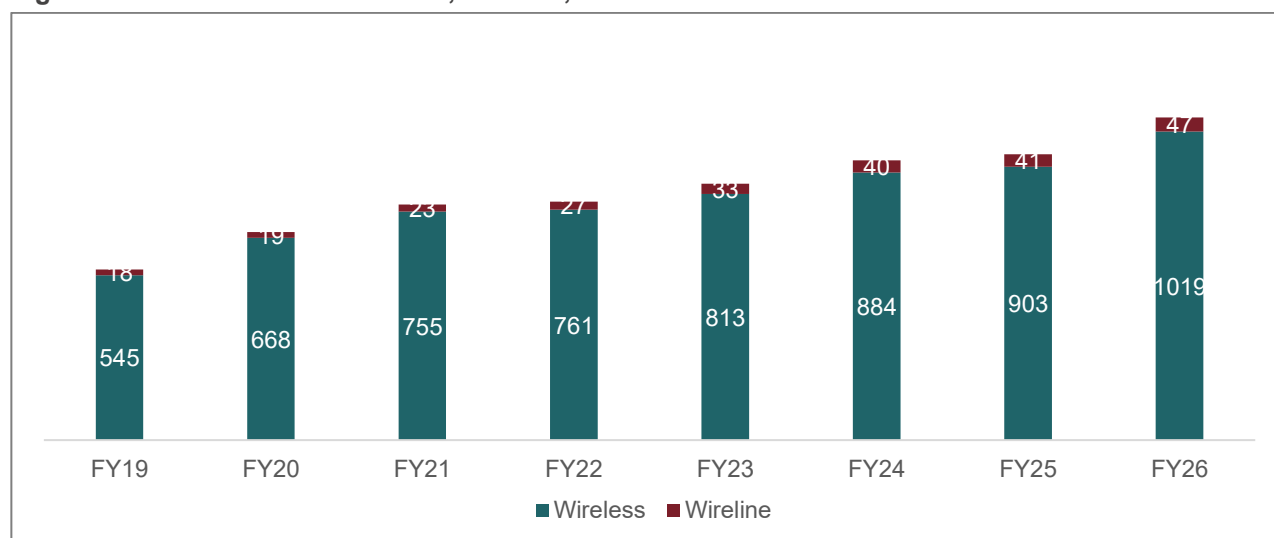
by higher average revenue per user (ARPU), tariff revisions by telecom operators, rapid 4G and 5G adoption, increasing mobile data consumption, expansion of fiber broadband services, and rising enterprise demand for digital connectivity.

The sustained improvement in telecom sector revenues has strengthened the financial position of telecom operators, enabling higher capital expenditure on network expansion and modernization. Increased investments in 5G rollout, fiberization of telecom towers, Fiber-to-the-Home (FTTH) deployment, rural broadband expansion, and data centre connectivity are driving the installation of optical fiber cables, telecom ducts, and communication cables. This, in turn, supports demand for HDPE, LLDPE, XLPE, PVC, and flame-retardant (FR/LSZH) polymer compounds, which are widely used in cable insulation, sheathing, jacketing, and protective duct applications. Consequently, the upward trend in telecom sector revenues serves as a positive indicator for polymer compound manufacturers supplying the telecom cable industry, as stronger operator revenues generally translate into higher infrastructure investments and increased consumption of specialty polymer compounds.

7.1 Growth of telecom sector

Broadband subscriber base

Figure 36: Broadband Subscribers, millions, FY-19 to FY-26



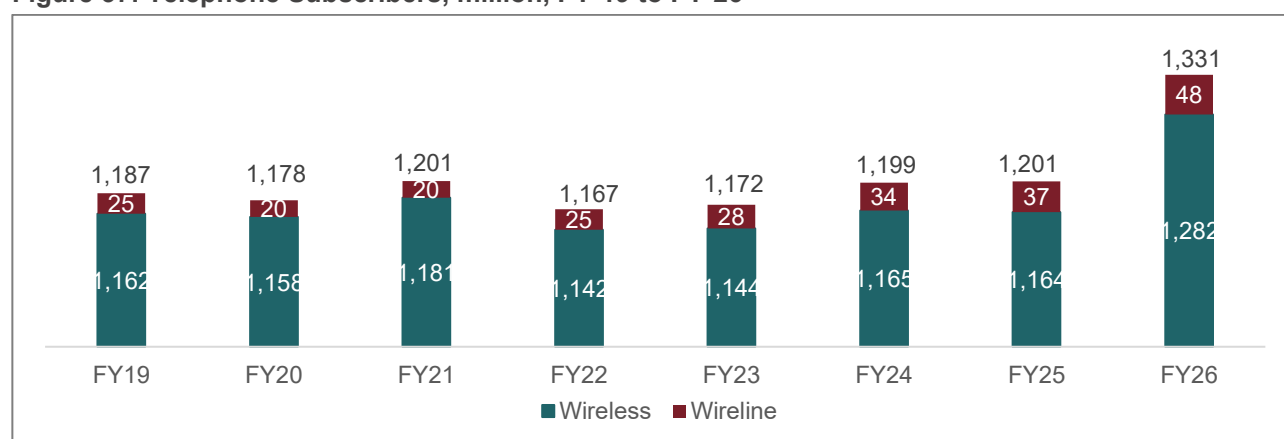
Source: Telecom Regulatory Authority of India, CRISIL Intelligence

India's broadband subscriber base has witnessed robust growth over the past few years, reflecting the country's rapid digital transformation and increasing internet penetration. Total wireless broadband subscribers increased from 545 million in FY19 to 1,019 million in FY26, registering a CAGR of ~9.4%, primarily driven by widespread 4G adoption, rapid 5G rollout, affordable data tariffs, increasing smartphone penetration, and rising consumption of digital services such as OTT platforms, online education, digital payments, cloud computing, and remote working. Meanwhile, wireline broadband subscribers expanded at a significantly faster pace, rising from 18 million in FY19 to 47 million in FY26, corresponding to a CAGR of ~14%, supported by increasing deployment of Fiber-to-the-Home (FTTH) networks, higher demand for high-speed internet, smart home applications, enterprise connectivity, and government-led rural broadband initiatives such as BharatNet.

The sustained growth in broadband subscribers is translating into substantial investments in telecom infrastructure, particularly optical fiber networks. Expansion of FTTH connections requires extensive deployment of optical fiber cables, drop cables, distribution cables, underground ducts, and associated network infrastructure. Similarly, increasing wireless broadband usage is driving telecom operators to expand and fiberize their 4G and 5G tower

networks to support higher data traffic and lower latency. These developments significantly increase the consumption of polymer compounds such as HDPE, LLDPE, XLPE, PVC, and flame-retardant (FR/LSZH) compounds, which are extensively used for cable insulation, jacketing, sheathing, and protective duct applications. Consequently, broadband expansion acts as a key demand driver for polymer compound manufacturers supplying the telecom cable industry. Looking ahead, continued investments in 5G infrastructure, fiber network expansion, data centres, smart cities, and Digital India initiatives are expected to sustain long-term demand for telecom cables and specialty polymer compounds, making the telecom sector an important growth avenue for polymer compound manufacturers.

Figure 37: Telephone Subscribers, million, FY-19 to FY-26



Source: Telecom Regulatory Authority of India, CRISIL Intelligence

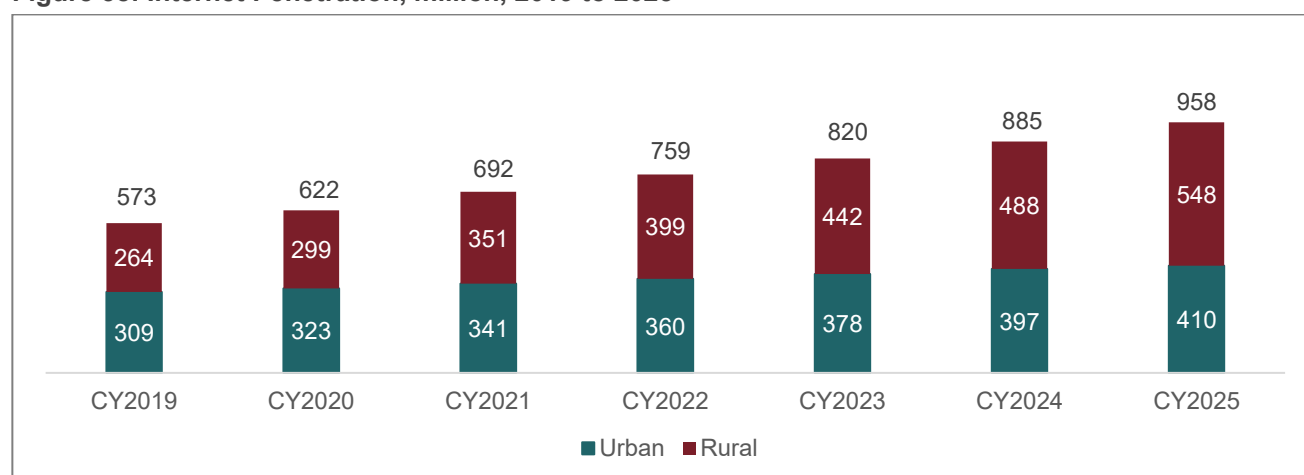
India's telephone subscriber base has remained relatively stable over the past few years, indicating that the market has reached a mature stage with high mobile penetration. Total wireless telephone subscribers increased modestly from 1,162 million in FY19 to 1,282 million in FY27, representing a CAGR of ~1.4%. The slower growth reflects market saturation, as the majority of the population already has access to mobile services, with incremental additions primarily driven by rural connectivity, multiple SIM ownership, and the increasing adoption of machine-to-machine (M2M) and Internet of Things (IoT) devices. In contrast, wireline telephone subscribers nearly doubled, increasing from 25 million in FY19 to 48 million in FY27, supported by the rapid expansion of Fiber-to-the-Home (FTTH) broadband services. Unlike traditional landline growth, this increase is largely attributable to telecom operators bundling voice services with fiber broadband connections for residential and commercial customers.

While the growth in telephone subscribers alone is not a direct indicator of cable demand, it reflects the continued expansion and modernization of telecom infrastructure required to support increasing network capacity and service quality. Rising wireless subscriptions, coupled with growing mobile data consumption, necessitate investments in 4G and 5G networks, tower densification, and fiber backhaul connectivity. Similarly, the growth in wireline telephone connections signifies continued deployment of FTTH infrastructure, which requires extensive optical fiber cables, underground ducts, and last-mile connectivity. These infrastructure developments support demand for HDPE, LLDPE, XLPE, PVC, and flame-retardant (FR/LSZH) polymer compounds used in cable insulation, sheathing, and protective ducting.

7.2 Internet Penetration in India

Internet penetration in India has witnessed remarkable growth over the last 5 years, establishing the country as home to the second-largest internet user base globally, with 958 million users. The internet penetration in users has increased at a CAGR of 8.9% from 2019 to 2025. This substantial growth has been primarily driven by several key factors, including the widespread availability of affordable smartphones, competitive data plans, and the government's ambitious Digital India initiatives aimed at transforming India into a digitally empowered society.

Figure 38: Internet Penetration, million, 2019 to 2025



Source: Internet and Mobile Association of India, CRISIL Intelligence

The growth has been driven by increasing smartphone penetration, affordable mobile data tariffs, expansion of 4G and 5G networks, rising digital literacy, government initiatives under Digital India and BharatNet, and increasing adoption of digital services such as e-commerce, OTT platforms, digital payments, online education, telemedicine, and cloud-based applications. While urban internet users increased steadily from 309 million in 2019 to 410 million in 2025 (CAGR of ~4.8%), rural internet users recorded a much stronger growth from 264 million to 548 million during the same period (CAGR of ~13.0%). Rural users surpassed urban users in 2021 and accounted for nearly 57% of India's internet users by 2025, indicating that the next phase of digital growth is increasingly being driven by rural markets.

The strong expansion in internet penetration, particularly across rural India, is significantly accelerating investments in telecom infrastructure. To support rising internet traffic and improve network coverage, telecom operators are expanding 5G networks, fiberizing telecom towers, deploying Fiber-to-the-Home (FTTH) connections, and extending broadband infrastructure into underserved regions. These investments require extensive deployment of optical fiber cables, telecom ducts, and communication cables, thereby increasing demand for HDPE, LLDPE, XLPE, PVC, and flame-retardant (FR/LSZH) polymer compounds used in cable insulation, sheathing, and protective duct applications. The faster growth of rural internet users also highlights the substantial opportunity for continued network expansion beyond metropolitan areas, suggesting sustained demand for telecom cables and associated polymer compounds over the medium to long term.

Analyzing the urban-rural ratio, we see that in 2019, rural users accounted for ~46% of total internet users, while urban users made up ~54%. However, by 2025, rural users comprised around 57% of the total internet population, reflecting a slightly faster growth rate as compared to urban areas. This shift indicates that while urban penetration is expanding, rural areas are still growing at a strong pace, driven by increased consumption of digital services, high-speed internet, and new technology innovations.

7.3 Telecom Cables

Telecom cables form the backbone of India's telecommunications infrastructure, with various types serving different purposes across the country. Optical Fiber Cables (OFC) have emerged as the primary medium for modern telecommunications, offering high-speed data transmission capabilities. Major initiatives like BharatNet extensively use OFC to connect rural areas, with key players such as Sterlite Technologies, Birla Cables, and Finolex Cables leading the manufacturing sector. These cables are crucial for 4G/5G networks, broadband, and enterprise connectivity.

Consulting

Infrastructure development in India's telecom sector is driven by government initiatives like Digital India, with the BharatNet project aiming to connect all gram panchayats. Private telecom operators are also expanding their fiber networks, though they face challenges related to Right of Way (RoW) in urban areas and must choose between underground and aerial cable deployment methods.

Table 31: Types of Telecom Cables

Cable	Description
Optical Fiber Cables (OFC)	- Made of glass or plastic fibers that transmit data using light signals - Types include Single-mode fiber (for long distances) and Multi-mode fiber (for shorter distances) - Highest bandwidth capacity and data transmission speeds - Minimal signal loss and interference - Used in long-distance communications, high-speed internet, and backbone networks
Coaxial Cables	- Consists of a central conductor surrounded by insulation and a conductive shield - Types include RG-6, RG-11, and RG-59 - Used for cable TV, internet, and some telephone services - Better shielding against electromagnetic interference - Moderate bandwidth capacity
Unshielded Twisted Pair Cables	- Most common in local area networks (LANs) - Categories include Cat5e, Cat6, Cat6a, Cat7, Cat8 - Used in ethernet networks and telephone systems - Cost-effective but susceptible to interference
Shielded Twisted Pair Cables	- Additional shielding for better protection against interference - Used in environments with high electromagnetic interference - More expensive than UTP - Better performance in challenging environments
Submarine Cables	- Specially designed for underwater installation - Heavy armor and water-resistant construction - Used for intercontinental communications - Multiple fiber pairs with repeaters - High capacity for international data transmission
Drop Wire Cables	- Used for last-mile connectivity - Connect main lines to individual premises - Various configurations for different applications - Weather-resistant construction - Common in telephone networks
Aerial Cables	- Designed for overhead installation - Self-supporting or messenger wire supported - Weather and UV resistant - Used in areas where underground installation is difficult - Cost-effective deployment option
Underground Cables	- Designed for direct burial or duct installation - Additional protection against moisture and physical damage - Various armor options available - Used in urban areas and critical infrastructure - Higher installation cost but better protection

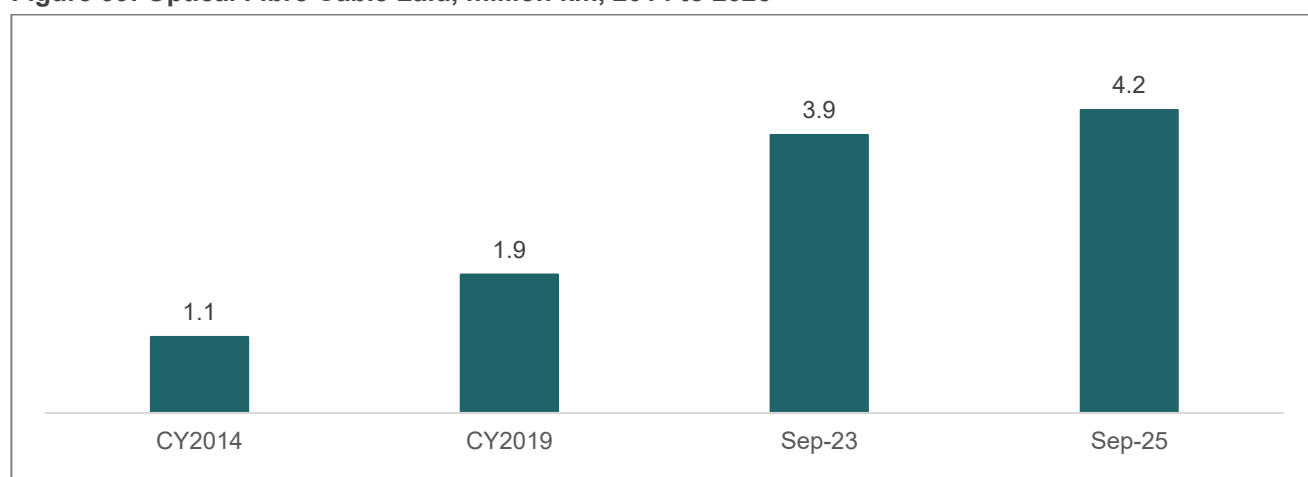
7.4 Optic Fiber Sector

Internet and broadband have changed the world and are ever changing it. High speed telecommunication networks are the assets desired by every nation to bring about higher productivity and prosperity to their vast population. There is an ever-growing importance of the telecommunication system in the current world. The optical fibre has become

the backbone of the present day high speed digital telecommunication network due to very high bandwidth and very low loss offered by it as compared to another physical medium.

The optic fibre sector in India is experiencing significant growth, driven by increasing demand for high-speed connectivity and enabled by technological advancements and government initiatives. The Optical Fibre Cable Connectivity in the country has improved significantly over the last decade. Total Optical Fibre laid increased from 1.1 million km in 2014 to 4.2 million km in December 2025. The rapid surge in data consumption, exacerbated by the widespread adoption of smartphones and data-intensive applications, necessitates efficient and high-speed data transmission networks. Additionally, the adoption of 5G technology requires advanced data transmission capabilities, further amplifying the demand for fibre optic components.

Figure 39: Optical Fibre Cable Laid, million km, 2014 to 2025



Source: Ministry of Communications, CRISIL Intelligence

BharatNet Project, launched in 2011 as the National Optical Fibre Network (NOFN) and rebranded as BharatNet in 2015, is an ambitious initiative aimed at delivering high-speed broadband connectivity to all Gram Panchayats (GPs) in India and plays an important role in the Digital India program by bridging the digital divide in rural regions and ensuring last-mile connectivity. The project is poised to significantly increase the demand for wires and cable products in the telecom industry in India. By expanding broadband connectivity to rural areas, the project generates substantial requirements for optical fiber cables and related infrastructure. This demand is driven by the project's scale, governmental support, and the overarching goal of enhancing digital access across the country.

7.5 Indian IT Services

Indian IT services segments contributing to the Data Centre ecosystem include several key areas such as cloud services, infrastructure management, and security solutions in various industry such as banking, payment services, technology, etc. These services have become pivotal as enterprises increasingly rely on data centres for their digital transformation initiatives. Some of the services are:

1. **Cloud and Infrastructure Services:** This segment involves setting up, managing, and optimizing cloud-based infrastructure (IaaS, PaaS) and data center environments. Some of the key players involved are Infosys, Wipro, TCS, HCL Technologies, Tech Mahindra, etc.
 - **Trends:**
 - Increasing shift towards hybrid cloud and multi-cloud architectures.
 - Rising adoption of software-defined data centers (SDDC) to automate infrastructure.
 - Edge computing is gaining importance to reduce latency for real-time data.

- Use of hyper-converged infrastructure (HCI) for simplified data center management.

2. Managed Services: Managed services include remote management of IT infrastructure, data center operations, and end-user services. HCL Technologies, Wipro, Infosys, Cognizant are a few players involved in managed services.

- **Trends:**

- Increased focus on automation and AI-driven infrastructure management.
- Companies are offering end-to-end data center solutions, including 24/7 support, predictive maintenance, and resource optimization.
- Cybersecurity-as-a-Service (CaaS) integrated into managed data center services.

3. Data Center Security Services: This segment refers to the practices, technologies, and solutions designed to protect data centers from a wide range of threats including cyber-attacks, physical breaches, and operational disruptions. Some of the key players involved in data center security services are Infosys, Tech Mahindra, Wipro, Palo Alto Networks, etc.

- **Trends:**

- Rise of Zero Trust security architecture and AI-powered threat detection.
- Implementation of Data Loss Prevention (DLP) and encryption technologies.
- Increasing demand for compliance management solutions due to growing regulations around data protection.

4. Colocation Services: Colocation services refer to the practice where business rent space within a data center owned and operated by a third party. This space is used to house their IT infrastructure, including servers, storage, and networking equipment. NTT Ltd., STT GDC, Nextra by Airtel, and Web Werks are a few players providing colocation services.

- **Trends:**

- Growing demand for hyper-scale data centers from cloud service providers like AWS, Google, and Microsoft.
- Expansion of Tier-III and Tier-IV data centers to support enterprise digital transformation.
- Rising need for sustainable data centers driven by energy efficiency regulations.

5. Data Analytics and AI: Data Analytics and Artificial Intelligence (AI) are closely interrelated fields that enable organizations to extract valuable insights from data, make informed decisions, automate tasks, and predict future outcomes.

- **Trends:**

- Data centers are increasingly leveraging AI for predictive analytics, workload management, and reducing downtime.
- Green data centers use AI to monitor and optimize energy consumption.
- Deployment of digital twins to simulate data center environments for better planning.

Key Trends in Indian Data Center Market

- **Digital Transformation:** Indian enterprises are investing heavily in digital transformation, which in turn is driving data center demand.
- **5G Deployment:** With 5G rollouts, data traffic will rise, further boosting the need for more robust data centers.
- **Energy Efficiency:** There is a significant focus on building energy-efficient, green data centers to meet sustainability goals.

- **Government Initiatives:** The Indian government's push for Data Localization and initiatives like Digital India are leading to increased investments in the domestic data center ecosystem.
- **Data Sovereignty:** Rising concerns over data privacy and security have led to regulations that promote local data storage, fostering growth in local data center infrastructure.

8 Oil & Natural Gas Pipeline Sector Assessment

India's oil and natural gas pipeline infrastructure plays a crucial role in the country's energy distribution system. Currently, the natural gas pipeline network spans more than 27,000 kilometres, with major operators including GAIL, GSPL, and Reliance Gas Transportation Infrastructure managing key networks such as the Hazira-Vijaipur-Jagdishpur (HVJ) pipeline, East-West pipeline, and Dahej-Uran pipeline. The petroleum pipeline infrastructure is equally significant, comprising more than 10,000 kilometres of petroleum product pipelines, operated primarily by industry giants like Indian Oil Corporation (IOC), Hindustan Petroleum (HPCL), and Bharat Petroleum (BPCL).

The Indian government has embarked on an ambitious expansion plan through the National Gas Grid initiative, which aims to extend the gas pipeline network to 35,750 kilometres. This extensive project seeks to connect all major demand and supply centres across the country while developing regional gas grids to ensure comprehensive coverage. Several major projects are currently underway, including the Pradhan Mantri Urja Ganga Pipeline Project, the Northeast Gas Grid Project, the Jagdishpur-Haldia & Bokaro-Dhamra Pipeline Project, and the Kochi-Mangaluru Natural Gas Pipeline. These initiatives are supported by robust policy frameworks designed to increase the share of natural gas in India's energy mix to 15% by 2030, complemented by unified tariff policies and the granting of infrastructure status to gas pipelines.

However, the expansion of pipeline infrastructure faces several significant challenges. Land acquisition issues continue to be a major hurdle, often causing project delays and cost escalations. Environmental clearances, project financing, right of way challenges, and regulatory complexities also pose substantial obstacles to timely project completion. Despite these challenges, the government remains committed to addressing these issues through policy reforms and streamlined approval processes.

These developments in pipeline infrastructure are expected to have far-reaching implications for India's economic growth, industrial development, and environmental goals. The expansion of the pipeline network will enable better access to cleaner fuels, reduce transportation costs, and contribute to the country's energy security. As India continues to grow and develop, the role of pipeline infrastructure in supporting this growth while facilitating the transition to cleaner energy sources becomes increasingly critical.

8.1 City Gas Distribution

City Gas Distribution in India represents a crucial infrastructure system that delivers natural gas to end-users in urban areas through an intricate network of pipelines. The system primarily focuses on supplying Compressed Natural Gas (CNG) for vehicles and Piped Natural Gas (PNG) for domestic, commercial, and industrial consumers. The sector is regulated by the Petroleum and Natural Gas Regulatory Board (PNGRB), which oversees licensing, monitoring, and safety standards implementation across the country's CGD networks.

The implementation of CGD networks offers numerous benefits to both the economy and environment. It provides an environmentally friendly alternative to conventional fuels, proves cost-effective for consumers, and helps reduce India's dependency on imported oil. The system has demonstrated significant advantages in terms of safety compared to traditional cooking fuels and has contributed substantially to reducing air pollution in urban areas. However, the sector faces several challenges, including high initial infrastructure costs, limited natural gas availability, complications in obtaining pipeline laying permissions in urban areas, competition from alternative fuels, and the need for greater public awareness and acceptance.

The Indian government has shown strong commitment to developing the CGD sector through various initiatives. These include the development of the National Gas Grid, integration with the Smart Cities Mission, and the implementation of the Pradhan Mantri Urja Ganga Project. The government has also provided robust policy support

for natural gas infrastructure development, aiming to increase the share of natural gas from 6% to 15% by 2030 in India's energy mix.

To achieve the target of 15% by 2030 and expand the CGD network to cover 70% of the population with access to cleaner cooking fuel (PNG) and transportation fuel (CNG), the government plan to invest approximately INR 3 trillion in gas infrastructure, which includes the development of pipelines, LNG terminals, and CGD networks over the next five years. As on April 2026, the total number of CNG station and PNG connections were 8,873 and 16.9 million, respectively.

The government is focused on expanding the natural gas pipeline network to improve gas availability throughout India. This expansion includes adding approximately 10,805 km of pipelines to the existing network. As of March 2026, the operational natural gas pipeline network was 27,905 km, with the expansion aiming to complete the National Gas Grid. The "One Nation, One Gas Grid" initiative aims to develop natural gas infrastructure and ensure a unified tariff for natural gas pipelines. An investment of approximately USD 4.95 billion is expected from companies to build natural gas pipeline infrastructure in the northeastern states and the northern territories of Kashmir and Ladakh.

Table 32: CGD Players in India

Players	Establishment	Headquarters	Coverage
GAIL Gas Ltd	2008	Noida, Uttar Pradesh	Operating in 16 geographical areas including Sonipat, Meerut, Mirzapur-Chandauli-Sonbhadra, Dehradun districts
Indraprastha Gas Limited	1998	New Delhi	Operating in Delhi, Noida, Greater Noida, Ghaziabad, Rewari, Gurugram, Karnal
Mahanagar Gas Limited	1995	Mumbai	Operating in Mumbai, Thane, Navi Mumbai, Raigad
Gujarat Gas Limited	1980	Ahmedabad	Largest CGD network in India in terms of sales volume operating in 44 districts in 6 states of Gujarat, Maharashtra, Rajasthan, Haryana, Punjab & Madhya Pradesh and 1 Union territory of Dadra & Nagar Haveli
Adani Total Gas Limited	2005	Ahmedabad	Operating in Ahmedabad and Vadodara in Gujarat, Faridabad in Haryana and Khurja in Uttar Pradesh
Torrent Gas Ltd	2019	Ahmedabad	The company has its presence in 17 Geographical areas spread across 34 districts covering 7 States and 1 union territory in India
Indian Oil-Adani Gas Private Limited	2013	Noida	The company is establishing its CGD business in 19 GAs for which it has received authorizations, of which it has received 10 Gas
Maharashtra Natural Gas Limited	2006	Pune	Operating in Pune, Pimpri-Chinchwad, and nearby areas
Central UP Gas Limited	2005	Kanpur	The company operates in the Geographical Areas (GAs) of Kanpur (including some part of Unnao), Bareilly and Jhansi
Sabarmati Gas Limited	2006	Gandhinagar	Operating in Gandhinagar, Mehsana, Sabarkantha and Aravalli districts in Northern Gujarat

Source: Company Websites, Crisil Intelligence

8.2 Midstream Oil Pipeline Infrastructure

India's midstream oil pipeline infrastructure represents a critical component of the nation's energy transportation system, comprising an extensive network that spans over more than 10,000 kilometers across the country. This vast network serves as the backbone of India's oil and petroleum product distribution, connecting major ports, refineries,

and consumption centers through a sophisticated web of pipelines that ensures efficient and cost-effective transportation of both crude oil and refined products.

The infrastructure is primarily operated by several key state-owned enterprises, with Indian Oil Corporation Limited (IOCL) maintaining the largest pipeline network. Other significant players include Hindustan Petroleum Corporation Limited (HPCL), Bharat Petroleum Corporation Limited (BPCL), Gas Authority of India Limited (GAIL), and Oil and Natural Gas Corporation (ONGC). These organizations manage various strategic pipeline systems, including major crude oil pipelines such as the Salaya-Mathura Pipeline, Paradip-Haldia-Barauni Pipeline, Mumbai-Manmad Pipeline, and the Mundra-Panipat Pipeline. Additionally, crucial product pipelines like the Kandla-Bhatinda Pipeline, Mumbai-Pune-Solapur Pipeline, and Kochi-Coimbatore-Karur Pipeline form essential parts of the distribution network.

However, the sector faces several challenges that require careful attention and strategic planning. These include complications in land acquisition for new projects, obtaining environmental clearances, addressing right of way challenges, maintaining aging infrastructure, and ensuring security across the extensive network.

8.3 Petroleum Products Pipelines

India's pipeline network has been expanding significantly, with 15,198 km of authorized pipelines, of which 10,662 km are operational, and 4,114 km are under construction. This steady growth reflects the government's and industry stakeholders' commitment to enhancing the country's energy logistics and distribution capabilities.

Table 33: Petroleum products pipelines

Details (As on March 2026)	Length (in Km)
Authorized	15,198
Operational	10,662
Partially Commissioned & Under Construction	4,114

Source: PNGRB

Table 34: Partially Commissioned & Underconstruction Petroleum & Petroleum Product Pipelines

S.No	Pipeline	Entity	Authorised Length (km)	Operating length (km)	Under Construction length (km)	Target date of completion*	Passing through states
1	Irugur — Devangonthi	BPCL	355	0	355	Sep-26	Tamil Nadu and Karnataka
2	Kochi — Coimbatore — Erode — Salem	KSPPL	458	203	255	-	Kerala and Tamil Nadu
3	Ennore — Port Manali Industrial Area	IMC/TPCL	21	0	21	-	Tami Nadu
4	Kandla — Gorakhpur	IHB Ltd	2,757	1,020	1737	-	Gujarat, Madhya Pradesh and Uttar Pradesh
5	Navgam — Sardar Vallabhbhai Patel Int.	DBL	50	0	50	Feb-29	Gujarat
6	JNPT to Navi Mumbai Int. Airport (ATF)	IOCL	22	0	22	-	Maharashtra

7	Haldia — Panagarh	HPCL	215	0	215	-	West Bengal
8	Piyala — Jewar	BPCL	34	0	34	-	Uttar Pradesh and ana
9	Devangonthi Chitradur	IOCL	232	0	232	-	Karnataka and Andhra Pradesh
10	Malkapur (Hyderabad) Rajiv Gandhi Int.	BPCL	565	0	565	Sep-27	Telangana
11	Jamnagar — Loni (Capacity Expansion)	GAIL	2,551	1,427	1137	Jul-28	Gujarat, Rajasthan, Haryana, NCT Of Delhi & UP

Note: *Target date of completion is as per the latest authorization issued to the entity or such other date as extended by the Board.

Source: PNGRB

The operational petroleum pipelines, covering 17 key routes (as per PNGRB QPR Report June 2026) demonstrate robust infrastructure already in place, servicing various industrial, residential, and transportation sectors. With over 4,000 km of new pipelines under construction, significant projects like the Kandla–Gorakhpur pipeline (2,757 km) underscore India's push for long-distance connectivity, linking the western industrial corridor to the eastern and northern markets. This pipeline, with a capacity of 8.25 MMTPA, is a critical infrastructure project expected to catalyze industrial growth in states like Gujarat, Madhya Pradesh, and Uttar Pradesh. Additionally, pipelines like Krishnapatnam–Hyderabad and Haldia–Panagarh reflect efforts to strengthen connectivity in southern and eastern regions, supporting regional energy demand growth.

8.4 Natural Gas Transmission Pipelines

As on March 2026, PNGRB has authorized approximately 34,803 km length of Natural Gas Pipeline Network across the country. Out of this, 27,905 km length of natural gas pipelines including spur lines, are operational and a total of 8,551 km length of pipelines is under various stages of construction. The length of operational pipelines has increased from 21,715 kms on March 2022 to 27,905 kms on March 2026. GAIL is the leading player, accounting for >60% of the total pipeline infrastructure. Gujarat State Petronet Ltd (GSPL), which operates mainly in Gujarat, and Brookfield-led India Infrastructure Trust, which operates the East-West gas pipeline connecting Kakinada (Andhra Pradesh) to Bharuch (Gujarat), are the other leading players in the industry.

Table 35: Gas transmission pipelines

Details (As on March 2026)	Type	Length (Km)	Total (Km)
Authorized Natural Gas Pipelines	Common Carrier	33,027	34,803
	Tie-in connectivity	997	
	Dedicated	779	
Operational Natural Gas Pipelines	Common Carrier	26,403	27,905
	Tie-in connectivity	291	
	Dedicated	653	
	Sub-Transmission Pipelines	558	
Under Construction Natural Gas Pipelines	Common Carrier	7,158	8,551
	Tie-in connectivity	713	
	Dedicated	122	
	Sub-Transmission Pipelines	558	

Source: PNGRB

Table 36: Major Upcoming natural gas pipelines

S. No.	Name of Natural Gas Pipelines	Name of Authorized Entity	Authorized Length (KM)	Target date of Completion*	States from which Pipeline passes
1	Ennore — Nellore	GTIL	220	-	Andhra Pradesh, Tamil Nadu
2	Kakinada — Vijayawada — Nellore	IMC	667	-	Andhra Pradesh
3	Kanai — Chhata — Panitar	HPPL	317	-	West Bengal
4	Hazaribagh — Ranchi	IOCL	71	-	Jharkhand
5	Gurdaspur — Jammu	GAIL	160	-	UT of Jammu & Kashmir, Punjab
6	Kochi — Kanyakumari — Thoothukudi	IOCL	425	Mar-29	Kerala, Tamil Nadu

Note: *Indicates that target date of completion is as per the authorization issued to the entity or such other date as extended by the Board.

Source: PNGRB

8.5 Types of coatings for Oil & Natural Gas Pipelines

Pipeline coatings play a crucial role in protecting crude oil and natural gas infrastructure from corrosion, mechanical damage, and environmental factors. The benefits of pipeline coatings extend beyond basic protection. They provide crucial corrosion prevention, mechanical protection against physical damage, chemical resistance against aggressive substances, and thermal insulation for temperature stability. These advantages contribute to extended pipeline life, reduced maintenance costs, and improved operational efficiency. Regular maintenance and inspection protocols, including visual examinations, holiday detection, and adhesion testing, are essential for ensuring the continued effectiveness of the coating system.

The selection of appropriate pipeline coatings involves careful consideration of various factors, including environmental conditions such as soil characteristics, temperature variations, and moisture levels. Operating conditions, including temperature, pressure, and chemical exposure, also significantly influence coating choice. Installation requirements and regulatory compliance further shape the decision-making process, ensuring that the chosen coating system meets both practical and legal requirements.

Table 37: Types of Coatings

Coatings	Description
Fusion Bonded Epoxy (FBE) Coatings	- Most commonly used coating type - Excellent adhesion to steel - Good chemical and temperature resistance - Single-layer or multi-layer applications - Environmentally friendly (no VOCs)
Dual Layer FBE	- Two layers of FBE coating - Enhanced protection - Better temperature resistance - Improved mechanical properties
Three-Layer Polyethylene/Polypropylene Systems	- Consists of FBE primer layer, Adhesive middle layer and Polyethylene/polypropylene top layer - Excellent mechanical protection - Good resistance to soil stress - Superior moisture barrier

Coal Tar Enamel	- Traditional coating material - Good moisture resistance - Excellent adhesion - However, environmental concerns have reduced its use
Liquid Applied Coatings	- Epoxy-based systems - Polyurethane coatings - Used for field joints and repairs - Can be applied in various conditions
Tape Wrap Systems	- Cold-applied tape coatings - Heat-shrinkable sleeves - Used for joints and small sections - Easy field application
Concrete Coatings	- Used for underwater pipelines - Provides mechanical protection - Adds weight for negative buoyancy - Often combined with other coating systems

The evolution of pipeline coating technology continues to be driven by industry needs for more efficient, durable, and environmentally friendly solutions. The selection of appropriate coating systems requires a balanced assessment of multiple factors, including specific project requirements, environmental conditions, and operational parameters. As the industry advances, new coating technologies and application methods are being developed to meet the growing demands for pipeline protection while addressing environmental concerns and regulatory requirements. This ongoing development ensures that pipeline infrastructure remains well-protected and efficient in its critical role of transporting crude oil and natural gas.

8.6 Types of Polymers for Coatings

Pipeline coatings utilize a diverse range of polymers, each serving specific protective functions for oil and gas infrastructure. Thermosetting polymers, including epoxy resins, polyurethanes, and phenolic resins, provide excellent chemical resistance and adhesion properties, with temperature tolerances up to 200°C. Thermoplastic polymers such as polyethylene (PE) and polypropylene (PP) are crucial components in multilayer coating systems, offering superior moisture barriers and mechanical protection. Adhesive polymers, particularly modified polyolefins and butyl rubber, ensure strong bonding in multilayer systems. Specialty polymers like fluoropolymers and polyamides address specific challenging applications, while hybrid systems combining different polymer technologies, such as epoxy-polysiloxane and epoxy-polyurethane, offer enhanced performance characteristics. The industry continues to evolve with the development of smart polymers featuring self-healing capabilities and environmentally sustainable solutions, including bio-based polymers and nanocomposites. The selection of appropriate polymers depends on various factors including operating conditions, environmental considerations, application requirements, and cost constraints, ensuring optimal pipeline protection and longevity.

Table 38: Types of Thermosetting Polymers

Polymers	Description
Epoxy Resins	- Bisphenol A-based epoxies - Novolac epoxies (for high-temperature applications) - Modified epoxy systems - Primary use in FBE coatings - Excellent chemical resistance and adhesion properties - Good temperature resistance (up to 150°C)

Polyurethanes	- Aromatic polyurethanes - Aliphatic polyurethanes - Two-component systems - Used in topcoats and liquid-applied coatings - Excellent UV resistance and flexibility - Good abrasion resistance
Phenolic Resins	- Resole phenolics - Novolac phenolics - Used in high-temperature applications - Excellent chemical resistance - Good thermal stability

Table 39: Types of Thermoplastic Polymers

Polymers	Description
Polyethylene (PE)	- High-Density Polyethylene (HDPE) - Medium-Density Polyethylene (MDPE) - Cross-linked Polyethylene (PEX) - Used in three-layer systems - Excellent moisture barrier - Good mechanical protection
Polypropylene (PP)	- Homopolymer PP - Copolymer PP - Used in high-temperature applications - Better temperature resistance than PE - Good mechanical properties - Excellent chemical resistance
Polyvinyl Chloride (PVC)	- Rigid PVC - Plasticized PVC - Used in tape systems - Good chemical resistance - Cost-effective solution

The pipeline coating industry has undergone significant technological transformation in recent years, marked by several key innovations. Smart coating technologies now offer self-healing properties and real-time monitoring capabilities, while nanotechnology integration has dramatically improved coating performance through enhanced barrier properties and mechanical strength. Automated application methods, including robotic systems and precision spray technologies, have revolutionized coating application processes. Environmental considerations have led to the development of zero-VOC coatings and sustainable materials, while digital integration through IoT-enabled systems and AI-powered inspection methods has enhanced quality control and monitoring capabilities. Multi-functional coatings combining corrosion protection, thermal insulation, and fire protection have emerged, alongside advanced materials like graphene-enhanced coatings and hybrid organic-inorganic compounds. Safety improvements and sophisticated quality control systems have reduced risks and improved reliability. These advancements have resulted in significant operational benefits, including reduced maintenance costs and extended asset life, though challenges remain in implementation and initial investment. The industry continues to evolve with emerging technologies such as quantum dot technology and biomimetic coatings, promising even more innovative solutions for pipeline protection while meeting environmental and regulatory requirements.

Table 40: Technological Advancements in Coatings

Technologies	Description
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Smart Coating Technologies	- Self-healing coatings that automatically repair minor damage - Color-changing indicators for corrosion detection - Embedded sensors for real-time monitoring - Temperature-responsive coating systems - Smart polymers with adaptive properties
Nanotechnology Integration	- Nanoparticle-enhanced coatings for improved barrier properties - Carbon nanotube reinforcement for mechanical strength - Nano-structured surfaces for better adhesion - Anti-microbial nanoparticles for biofouling prevention - Enhanced thermal and electrical conductivity
Advanced Application Methods	- Automated robotic coating systems - Precision spray technologies - Digital quality control systems - Real-time thickness monitoring - Advanced surface preparation techniques
Environmental Innovations	- Zero-VOC coating formulations - Bio-based and sustainable raw materials - Water-based coating systems - Recyclable coating materials - Energy-efficient application processes
Digital Integration	- IoT-enabled coating monitoring - Digital twin technology - Predictive maintenance systems - Data analytics for performance optimization - Cloud-based quality control

8.7 Pipe Coating Manufacturers

Table 41: Some Indian Pipe Coating Manufacturers

Manufacturer	Location	Pipe Coating Products
Grauer & Weil India Ltd	Dadra & Nagar Haveli, India	Buried Pipe coatings, Drinking Water & Irrigation Pipe coatings, Submerged & Jetty Pipe coatings, Oil & Gas Pipe coatings, High Temperature & Insulation Pipe coatings
Meta-Chem Paints & Adhesives Pvt Ltd	Nashik, Maharashtra	Anto corrosive pipe coatings
Cipy Polyurethanes Private Limited	Pune, Maharashtra	DTM Coatings for Pipelines, Internal & External Pipeline Coatings for Wastewater, External Pipeline Coatings for Water and Wastewater, Internal Pipeline Coatings for Potable Water
Berger	Multiple locations in India	Epilux Solvent Free DW Coating, Bergerthane SF HB Coating, BPL High Build QD BITU Black, BPL Waterbased Black Asphaltic Paint, Epilux HSPI Coating
Demech Chemical	Pune, Maharashtra	Internal Pipeline Coating
BLS Polymers	Goa	Coating compound – 3LPE

Source: Crisil Intelligence

Table 42: Some Global Pipe Coating Manufacturers

Manufacturer	Headquarters	Pipe Coating Products	Brand
EIPolymer	Spain	Coating compound – 3LPE	GS SPC-220 & GS SPC-221

3M	United States	Fusion Bonded Epoxy Coating, Liquid Epoxy Coating, Water Base Primer, Liquid Phenolic Primer	Scotchkote
Lyondell Basel	Netherlands	Polyethylene Top Coat, Polypropylene Top Coat	LUPOLLEN PE TOPCOAT MOPLEN COAT PP TOPCOAT
Belzona	United Kingdom	Epoxy based coating	Belzona
Teknos	Finland	Epoxy based coating	Technopox, Infralit EP

Source: Crisil Intelligence

8.8 Government Policies & Initiatives

The Indian government has implemented numerous policies and initiatives to develop and regulate the oil & natural gas pipeline sector. At the forefront is the National Gas Grid initiative, which aims to expand the current pipeline network from 25,429 km to 35,750 km, focusing on connecting major demand and supply centers across the country.

The policy framework includes key measures like the Hydrocarbon Exploration and Licensing Policy (HELP), which provides uniform licensing for exploration and production, along with revenue sharing models and marketing freedom. The Open Acreage Licensing Policy (OALP) complements this by allowing companies to choose blocks for exploration through a transparent bidding process. Infrastructure development is another crucial aspect, with investments in strategic petroleum reserves, gas trading hubs, and LNG terminals.

The regulatory framework is overseen by the Petroleum and Natural Gas Regulatory Board (PNGRB), which implements the common carrier principle for pipeline usage and manages authorizations for laying, building, and operating pipelines. The government also provides financial incentives such as capital grants for pipeline projects in difficult terrains, Viability Gap Funding (VGF), and various tax benefits for infrastructure development.

City Gas Distribution (CGD) has received special attention, with ongoing expansion of networks across cities through bidding rounds for geographical areas and a focus on domestic PNG connections. The Make in India initiative promotes domestic manufacturing of pipeline equipment, technology transfer, and skill development, while also implementing local content requirements.

Environmental policies and digital initiatives have also been integrated into the sector's development. These include emission standards, safety regulations, environmental impact assessments, and the implementation of SCADA systems for real-time monitoring and smart metering. Furthermore, the government has established cross-border cooperation through international pipeline projects and energy cooperation agreements to enhance regional gas grid connectivity.

All these policies and initiatives are designed to achieve multiple objectives: ensuring energy security, increasing the share of natural gas in the energy mix, reducing import dependency, creating robust infrastructure, promoting clean energy, and generating employment opportunities in the sector. This comprehensive approach demonstrates the government's commitment to developing a sustainable and efficient oil and natural gas pipeline network in India.

9 Water Pipeline Sector

India's water pipeline infrastructure has undergone significant transformation since the country's independence, evolving from basic urban-centric networks to an extensive system serving both urban and rural areas. The initial development focused primarily on urban centres and agricultural irrigation, with substantial expansion occurring during the Green Revolution of the 1960s and 1970s, which revolutionized India's agricultural landscape and necessitated comprehensive water distribution systems.

Major metropolitan areas have developed complex distribution networks, though they continue to grapple with challenges such as aging infrastructure and significant water losses through leakages. The rural water supply scenario has seen remarkable improvement under the ambitious Jal Jeevan Mission, which aims to provide tap water connections to every rural household. As of February 2025, the Jal Jeevan Mission (JJM) has successfully provided tap water connections to 12.20 crore additional rural households, bringing the total coverage to over 15.44 crore households, which accounts for ~80%% of all rural households in India.

Several major projects are reshaping India's water pipeline landscape. The National Water Grid project represents an ambitious endeavour to interconnect major rivers, facilitating water transfer from surplus to deficit regions. Various state-level initiatives have also made significant contributions, including Karnataka's Cauvery Water Supply Scheme, Gujarat's extensive Narmada Canal Network, and Maharashtra's Jal Yukt Shivar Abhiyan, each addressing region-specific water distribution challenges.

9.1 Types of Coatings in Water Pipeline

Pipeline coatings play a crucial role in protecting water infrastructure, with several types available for different applications. When selecting a coating system, several factors must be considered, including environmental conditions, operating temperature, installation method, maintenance requirements, cost constraints, and expected service life. Local regulations and surface preparation requirements also play crucial roles in the decision-making process. Each coating type has its specific advantages and limitations, and the choice ultimately depends on the particular requirements of the pipeline project, including its location, operating conditions, and budget constraints.

The effectiveness of any coating system also relies heavily on proper application and maintenance procedures. Regular inspection and maintenance programs are essential to ensure the coating continues to provide adequate protection throughout the pipeline's service life. As technology advances, new coating solutions continue to emerge, offering improved protection and longer service life for water pipeline infrastructure.

Table 43: Types of Coatings

Coatings	Description
Metallic Coatings	These are applied through hot-dip or electroplating processes, offer excellent corrosion resistance and mechanical protection, making them ideal for underground pipelines and marine environments
Cement Based Coatings	These types of coating consist of cement, sand, and water mixtures, providing a cost-effective solution with good chemical resistance, particularly suitable for municipal water systems and large-diameter pipes
Fusion Bonded Epoxy (FBE)	It is a thermosetting powder coating known for its superior adhesion and corrosion protection, commonly used in oil, gas, and water transmission lines
Polyurethane Coatings	These coatings offer high flexibility and impact resistance, making them perfect for above-ground pipelines and installations in harsh environments

Tape Coating Systems	These are primarily used for field joints, repairs, and smaller diameter pipes. These types of coatings are simple to apply and cost effective
Polyolefin Coatings	These are typically applied as a three-layer system and combine excellent mechanical protection with chemical resistance, making them suitable for deep-water pipelines and high-temperature operations
Coal tar and bituminous coatings	These are traditional coatings which continue to provide good water resistance and cost-effective protection for underground pipelines and low-temperature systems

9.2 Demand Drivers for Water Pipeline Network

Population Growth and Urbanization

India's rapidly growing population, particularly in urban areas, is a primary driver for water pipeline network expansion. As cities expand and new urban centres emerge, the demand for reliable water infrastructure intensifies. Migration from rural to urban areas further strains existing water supply systems, necessitating the development of new pipeline networks and the enhancement of current infrastructure to meet the growing needs of urban populations.

Infrastructure Development

The ongoing infrastructure development across India, including Smart City initiatives and industrial corridors, creates a substantial demand for water pipeline networks. New residential complexes, townships, and commercial developments require comprehensive water supply systems. Government focus on infrastructure improvement has led to increased investments in water pipeline projects, making them an integral part of modern urban development plans.

Water Scarcity and Quality Issues

Depleting groundwater levels and deteriorating water quality are critical concerns driving the need for efficient water pipeline networks. Many regions face severe water scarcity, while others struggle with contaminated water sources. This situation necessitates the development of robust pipeline systems that can transport water from distant sources and ensure proper treatment and distribution, making water scarcity management a key driver for pipeline network expansion.

Government Initiatives

Various government programs, such as the Jal Jeevan Mission and AMRUT, significantly drive the demand for water pipeline networks. These initiatives aim to provide universal access to clean water and improve urban infrastructure. State and central government policies focusing on water supply enhancement create a favourable environment for pipeline network development, supported by substantial funding allocations.

Industrial Growth

The expanding industrial sector, including manufacturing units and Special Economic Zones, generates significant demand for water pipeline networks. Industries require reliable water supply for their operations, leading to the development of dedicated industrial water supply infrastructure. This growth necessitates both new pipeline networks and upgrades to existing systems to meet industrial water demands.

Agricultural Requirements

Agricultural needs significantly influence water pipeline network development, especially in regions dependent on irrigation. Modern farming techniques and crop diversification require reliable water supply systems. The agricultural sector's water demands drive the development of pipeline networks that can efficiently transport water to farming areas while minimizing losses during distribution.

9.3 Key Players

Some players involved in water pipeline infrastructure are mentioned below:

Table 44: Players involved in Water Pipeline Infrastructure

Players	Establishment	Headquarters	Coverage
L&T	1938	Mumbai, Maharashtra	Water supply projects and Pan-India presence with projects in multiple states, including Gujarat, Maharashtra, Karnataka, and various other states
SMPL Infra Ltd	1981	Kolkata, West Bengal	The company operates across multiple Indian states, it has executed more than 700 projects. The company has laid over 10,000 km of water pipelines across various projects
GKC Projects Ltd	1996	Hyderabad, Telangana	The company has completed various water supply projects in urban and rural areas across several states in India. Some of the major projects are Kolhapur Water Supply Project, KUWSDB Water Supply works, Phalodi Water Supply Project
Jindal SAW Ltd	1984	New Delhi	Manufactures large diameter water pipes and major supplier for water and sewerage projects across India
Welspun Corp Limited	1995	Mumbai, Maharashtra	Global presence with significant operations in India
Indian Hume Pipe Company	1926	Mumbai, Maharashtra	Specializes in concrete pipes and water supply systems with PAN India operations

Source: Company Websites, Crisil Intelligence

9.4 Government Policies & Initiatives

The Indian Government has implemented a comprehensive suite of policies and initiatives aimed at revolutionizing the country's water pipeline network. At the forefront is the Jal Jeevan Mission (JJM), launched in 2019 with an ambitious budget allocation of approximately INR 3.60 lakh crores. This flagship program aims to provide Functional Household Tap Connection (FHTC) to every rural household by 2024, emphasizing sustainable water supply through community participation and incorporating robust water quality monitoring systems. The mission particularly focuses on addressing the needs of water-scarce and quality-affected areas, marking a significant step toward universal water access in rural India.

In urban areas, the government has launched the AMRUT (Atal Mission for Rejuvenation and Urban Transformation) and Smart Cities Mission, which work in tandem to modernize urban water infrastructure. AMRUT specifically targets 500 cities, aiming to ensure comprehensive water supply coverage while promoting crucial reforms in urban water management. The Smart Cities Mission complements these efforts by incorporating advanced technologies such as SCADA systems, smart metering, and IoT-based monitoring solutions, pushing towards the goal of 24x7 water supply in selected smart cities. These urban initiatives are further strengthened by the National Water Policy, which provides a comprehensive framework for water resource management and sustainable infrastructure development.

State-specific initiatives and the National Rural Drinking Water Programme (NRDWP) form another crucial layer of the government's approach. States have implemented various programs tailored to their specific needs, often utilizing Public-Private Partnership (PPP) models and engaging local bodies in water management. The NRDWP specifically focuses on sustainable drinking water supply in rural areas, emphasizing community participation in maintenance and providing special provisions for tribal and backward areas. These programs are supported by robust financial initiatives that combine central and state government funding, external agency support, and private sector participation through mechanisms like municipal bonds.

Consulting

10 Strategic Positioning of BLS Polymers

10.1 BLS Polymers: Introduction

BLS Polymers is a polymer compounding firm in India with over two decades of market experience, specializing in a wide range of high-performance compounds tailored for various industrial applications. The company is manufacturer of multiple grades of custom formulated polymer compounds, catering to diversified critical industries such as telecommunication, power, railways, water, oil and gas distribution, among others. With expertise in producing co-polymers such as HDPE, LDPE, MDPE, XLPE, PVC, Cable Filling Compounds, and Masterbatches, the company demonstrates technical excellence, operational efficiency, and innovation-driven growth. The company was established in 1991 and has grown to become one of India's largest polymer compounders. BLS Polymers has a head office in Delhi and manufacturing facilities in Goa, with more than 35,000 MTPA installed capacity.

Company's product portfolio is well diversified to offer varied solutions in the wire and cables and infrastructure industry, and included products such as, HDPE, MDPE, LLDPE, XLPE, HFFR, PVC, CFC and adhesive coating compounds which are utilized in power, control, data, instrumentation, and telecom cables and advanced pipeline coating systems widely used in water and oil & gas pipelines for corrosion protection and mechanical damage resistance. They also produce specialty additive masterbatches, as well as black and white masterbatches to meet diverse client requirements. The company offers a range of additives designed to enhance the surface and bulk properties of polymers, such as scratch resistance, surface smoothness, and flame retardancy. These compounds and masterbatches are classified based on different functionalities and end-uses.

Table 45: Product wise sales, INR Millions, FY23-FY26

Products	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY24 - FY26)
PE (HDPE/MDPE/LLDPE/CFC/HFFR/MB/PP)	1,993.55	1,864.11	1,841.74	726.54	-3.9%
XLPE	501.36	528.77	489.10	136.92	-1.2%
PVC	46.41	43.49	51.20	17.10	5.0%
Others	422.27	847.99	1,112.24	189.70	62.3%
Total	2,963.58	3,284.33	3,494.28	1,070.26	8.6%

Source: Company Filings

Between FY24 and FY26, the company recorded steady growth in its overall sales, with revenue increasing from INR 2,963.58 million in FY24 to INR 3,494.28 million in FY26, reflecting an overall growth of 8.6%. The growth trajectory was supported by a significant change in the product mix, as strong expansion in emerging product categories more than offset the decline in some of the company's traditional product segments. Further, Q1 FY27 sales stood at INR 1,070.26 million, indicating a healthy start to the fiscal year and suggesting continued demand momentum across the portfolio.

From a product-wise perspective, PE remained the largest contributor to sales throughout the period, generating INR 1,993.55 million in FY24 and INR 1,841.74 million in FY26. However, the segment experienced a 3.9% decline, resulting in its share of total revenue falling from ~67% in FY24 to ~53% in FY26. Despite this decline, PE continues to form the backbone of the company's revenue base, contributing INR 726.54 million in Q1 FY27 alone. Similarly, XLPE sales remained relatively stable, fluctuating between INR 489-529 million during the period and ultimately declining marginally by 1.2% between FY24 and FY26. This indicates that the segment is largely mature, with limited growth compared to other product categories.

In contrast, PVC registered modest growth, with sales increasing from INR 46.41 million in FY24 to INR 51.20 million in FY26, reflecting a 5.0% growth rate. While the segment's contribution to overall sales remains limited, the positive trend indicates stable demand. The most notable performance, however, came from the "Others" category, where sales surged from INR 422.27 million in FY24 to INR 1,112.24 million in FY26, representing an impressive 62.3% growth. As a result, the segment's share in total revenue more than doubled, increasing from ~14% in FY24 to ~32% in FY26. This segment alone contributed almost INR 690 million of incremental revenue, accounting for the majority of the company's overall sales growth during the period.

The product wise sales highlights important strategic insights. The company's growth has been driven primarily by portfolio diversification rather than expansion in its core PE and XLPE product lines. While traditional products witnessed stagnant or declining sales, the rapid growth of the "Others" segment substantially altered the revenue composition and reduced dependence on the PE business. The combined contribution of PE and XLPE declined significantly over the review period, indicating that the company is successfully broadening its product portfolio and reducing concentration risk. Nevertheless, PE continues to account for more than half of total revenue, making its performance a critical determinant of future growth.

10.2 Competency in Manufacturing

BLS Polymers has in-plant manufacturing, testing, and formulation development facilities spreading across plant area of 260,000 square feet. The company manufactures high-density polyethylene (HDPE), low-density polyethylene (LDPE), linear low-density polyethylene (LLDPE), and medium-density polyethylene (MDPE) compounds. These compounds are used as insulation and sheathing in the telecom industry for communication and optic fiber cables, as well as in the power industry for extra high voltage, high voltage, and aerial bunched power cables. PVC compounds are utilized in power, data, signalling, and automotive cables, as well as in house wires. Their XLPE compounds are widely used in the manufacturing of power aerial bunched cables.

BLS Polymers Limited is known for its technological expertise, innovative product development, and commitment to quality. The company's manufacturing capabilities are defined by the following core competencies:

1. Advanced Polymer Processing Technology

- BLS Polymers utilizes cutting-edge machinery and automated production lines incorporating advanced extrusion, compounding, and blending technologies to manufacture high-quality polymer compounds.
- Expertise in precision formulation and quality control ensures consistency and durability in all products.
- Investments in high-performance manufacturing infrastructure enhance production efficiency and minimize material waste.

2. Diverse Product Range & Customization

The company specializes in manufacturing polymer compounds, masterbatches, and speciality polymer materials tailored to different industrial needs. Extensive Product Portfolio Covering Multiple Applications given below:

- High-Density Polyethylene (HDPE)
 - BLS 8888 OFC, 8888 OFC UV, 888 ABC, 5555, 5555 CATV, HDPE PC 5555, HDPE PC 5575, ADHESIVE 1009
 - Designed for telecom, cable sheathing, gas, and water pipeline applications.
- Low-Density Polyethylene (LDPE)
 - LDPE Sheathing Compound BLS 2222
 - Provides flexibility, durability, and superior insulation properties.
- Medium-Density Polyethylene (MDPE):
 - BLS 3333
 - Engineered for pressure piping systems, gas distribution, and specialized cable applications.

- Cross-Linked Polyethylene (XLPE)
 - BLS XL/1101, XL/1102, XL/1103, XL/1105, XL/1110, HT 3301
 - Used for high-voltage insulation, power cables, and heat-resistant applications.
- Polyvinyl Chloride (PVC) Compounds
 - TYPE A, B, C, ST1, ST2, FRLS (Flame Retardant Low Smoke), Low Temperature, High Temperature, Zero Halogen Compounds
 - Suitable for house wiring, industrial cabling, and fire-resistant applications.
- Cable Filling Compounds
 - BLS CFC 201
 - Provides moisture resistance and insulation for telecom cables.
- Masterbatches in All Colours
 - Custom formulations designed to enhance the aesthetic, mechanical, and thermal properties of polymer products.

3. Industry – Leading Quality & Compliance Standard

- BLS Polymers ensures strict quality control measures across all production processes.
- Adheres to international industry standards (ISO, RoHS, REACH) to deliver high-performance materials.
- Commitment to fire resistance, electrical insulation, and mechanical durability.
- Maintains a well-equipped testing and quality control laboratory for real-time monitoring and validation of product properties.

4. Innovation & R&D Excellence

- Continuous research in advanced polymer blends, eco-friendly formulations, and enhanced thermal/electrical properties.
- Development of low-smoke, halogen-free, flame-retardant compounds to meet modern safety standards.
- Customization capabilities to cater to specific industry requirements.
- BLS Polymers has a dedicated Research & Development (R&D) team focused on developing new polymer solutions and improving existing formulations.
- Engages in sustainable innovation, creating eco-friendly and recyclable polymer products to meet environmental regulations.
- Works closely with customers to co-develop solutions that enhance product performance and reduce costs.

5. Scalable & Efficient Manufacturing Operations

- High-capacity production facilities ensure bulk manufacturing with consistent quality.
- Process optimization and automation enhance efficiency and reduce waste.
- Strong supply chain management ensures timely delivery and cost-effectiveness.
- Ensures consistent production output without compromising on quality, even for bulk orders.

6. Sustainability & Environmental Commitment

- Focus on low-emission, recyclable polymer formulations.
- Development of eco-friendly alternatives for sustainable infrastructure.
- Compliance with environmental regulations to minimize carbon footprint.

7. Customer-Centric Approach

- Provides technical support and consultation to help clients select the right polymer solutions for their applications.

- Maintains strong customer relationships by offering flexible manufacturing options, quick turnaround times, and post-sales support.
- Focuses on continuous improvement to enhance customer satisfaction and stay ahead of industry trends.

The company is focused on leveraging long-standing relations with our existing domestic customers to increase the wallet share, amongst its existing customers across our products. As of March 31, 2026, 2025 and 2024, customers who have been associated with for more than five years contributed 39.52%, 45.67.% and 61.34% to the revenues from sale of products during the period. Over the years the company have developed longstanding relationships with its customers in various geographies, thus offering credibility and stability to the customer base. The company intends to continue focussing on increasing the share of business from the existing customers by broadening the portfolio of products it offer, higher engagement with the existing customers, investment in manufacturing infrastructure, and to continue to engage with such customers while undergoing capacity and product related transitions. Further, the company strive to consolidate its relationship by continuing to provide quality products at competitive prices and focus on developing its products in line with the changing customer requirements.

Table 46: Production Capacity, FY26

Products	Production Capacity	
	MT/Day	MT/Month
PE (7 M/cs)@	89	2,310
XLPE (7 M/cs)	21	630
PVC (1 M/c)	18	540
Total (10 M/cs)*	128	3,840
	AF Factor	90%
Total Production Capacity MT/Month		3,456
	PF Factor	85%
Net Monthly Production Capacity MT/Month		2,938
Net Annual Production Capacity MT/Month		35,251

Note: * One machine for Masterbatch for internal consumption only – used as & when required.

@ Including 2 PC Adhesive M/cs

Availability Factor(AF) takes into consideration like M/c breakdowns, Raw Material Shortages, Power Failures, Setup Changeover time, etc
Performance Efficiency (PE) factor takes into considerations like M/c operating speed, capacity while running, etc

Source: Company Filings, Crisil Intelligence

10.3 R&D Capabilities

BLS Polymers is dedicated to innovation and research and development. The company has a modern R&D facility that enables it to continually develop new formulations to meet specific client needs. The R&D facility has a team of experts with more than 6 senior scientists, across various disciplines including engineering, design, materials science, and technology to drive innovation and problem-solving. This commitment to R&D allows them to offer specialized services ensuring the required quality and stay at the forefront of the polymer compounding industry.

Apart from quality, product development team is the driving force behind sustainable growth and differentiation in the polymer compounding industry. By investing in research and development, the company has developed eco-friendly materials and improved product functionality and aesthetics, reduced production costs and environmental footprint. By prioritizing quality and innovation, BLS polymers has delivered exceptional value to customers, stay competitive in the market, and contribute to a more sustainable future.

Consulting

The company has following certifications:

- 1) ISO 9001: 2015
- 2) EIL (Engineers India Ltd) for Pipe Coating Compounds
- 3) BSNL (Bharat Sanchar Nigam Limited) for Telecom Cable Compounds

10.4 Exports

BLS Polymers is exporting its products to countries in Asia, Middle East and Africa such as Bangladesh, Egypt, Oman, United Arab Emirates, Saudi Arabia and Turkey. The company generated INR 191 million of revenue from exports in FY-26.

Table 47: BLS Polymers Exports, FY23 to FY26

Parameters	UOM	FY-23	FY-24	FY-25	FY-26
Exports	INR Millions	151	121	281	191
Revenue from Operations	INR Millions	3,146	2,964	3,284	3,494
Exports (as % Revenue from Operations)	%	4.8%	4.1%	8.5%	5.5%

Source: Company Filings, Crisil Intelligence

The company aims to leverage the increasing demand from international markets to enhance the exports. The company's expansion into new geographies exposes it to operational, regulatory and market-entry risks. Export markets may introduce changes in import duties, customs procedures, technical standards, certification requirements, localisation policies or other trade regulations that could affect its ability to compete, increase compliance costs, delay market entry or require local partnerships. Such regulatory changes may materially impact the access to these markets.

10.5 Strategic Location

- **Direct Port Facility:** The factory's close proximity to the Goa sea port, merely 15 kms away, offers cost benefits in contrast to manufacturers situated farther inland
- **Location Advantage:** The location is strategically advantageous for both exports and imports, with the port location enabling the most cost-effective procurement.
- **Highly Competitive In Procurement:** Transportation costs for raw materials are eliminated due to the strategic positioning of the port.

10.6 PESTLE Analysis

Table 48: PESTLE Analysis

Parameter	Description
Political	Government initiatives such as Revamped Distribution Sector Scheme, National Infrastructure Pipeline, Jal Jeevan Mission in power infrastructure, transmission networks, water supply and oil & gas pipeline projects support demand for polymer compounds used in cables and pipeline coatings.
Economic	Demand is closely linked to infrastructure spending and industrial activity, while profitability remains sensitive to fluctuations in crude oil-derived polymer resin prices and foreign exchange movements.
Social	Rising urbanization, electrification, digital connectivity and emphasis on fire safety are driving demand for high-performance cable compounds.

Technological	Continuous product innovation, stringent quality requirements and development of specialty compounds are essential to remain competitive.
Legal	Compliance with domestic and international product standards is critical for supplying to cable manufacturers and export markets.
Environmental	Increasing environmental regulations encourage adoption of sustainable manufacturing practices and recyclable polymer formulations while increasing compliance costs.

Source: Crisil Intelligence

11 Competition Landscape and Benchmarking

11.1 Kkalpana Industries India Ltd

Kkalpana Industries (India) Limited is a manufacturer of polymer compounds and recycled plastic materials with over four decades of experience in the plastics industry. The company commenced operations in 1977 as a PVC compounding manufacturer and has since expanded its capabilities to include polyethylene compounds, recycled polyolefin compounds, reprocessed plastic granules, and value-added plastic materials catering to industries such as power cables, packaging, pipes, automotive, consumer goods, and infrastructure.

In 2022, pursuant to a Scheme of Arrangement approved by the National Company Law Tribunal (NCLT), the company's polymer compounding business was demerged into Ddev Plastiks Industries Limited, while Kkalpana Industries retained its plastic recycling and reprocessing operations. Today, the company is primarily focused on the circular economy by converting post-industrial and post-consumer plastic waste into high-quality recycled polymer compounds through its manufacturing facilities in West Bengal, serving both domestic and export markets.

Table 49: Kkalpana Industries India Ltd Financials

Parameters	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
Revenue from operations	INR Millions	401.62	2,722.06	620.89	404.99	373.55	40.65	-2%
Gross Profit	INR Millions	146.34	108.12	125.75	98.26	67.67	9.46	-18%
Gross Profit Margin	%	36.44%	3.97%	20.25%	24.26%	18.11%	23.26%	-
EBITDA	INR Millions	-1.53	104.47	88.60	64.82	34.23	6.55	-31%
EBITDA Margin	%	-0.38%	3.84%	14.27%	16.01%	9.16%	16.11%	-
EBIT (Operating Profit)	INR Millions	-30.99	79.91	59.53	40.74	10.37	0.95	-
EBIT Margin/ Operating Profit Margin	%	-7.72%	2.94%	9.59%	10.06%	2.78%	2.33%	-
PAT	INR Millions	52.99	19.01	2.19	6.87	7.94	0.20	-38%
PAT Margin	%	13.19%	0.70%	0.35%	1.70%	2.13%	0.49%	-
ROE	%	2.64%	5.48%	0.61%	1.90%	2.14%	-	-
ROCE	%	-1.11%	11.06%	7.08%	5.57%	1.98%	-	-
Working Capital Cycle	days	699	24	145	235	158	-	-

Note: Financials are on consolidated basis, CAGR for EBITDA is from FY23 to FY26

Source: Company Filings, Crisil Intelligence

Table 50: Kkalpana Industries Business Segment wise Revenue, FY-22 to FY-26

Polymer Compound / Business Segment	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Growth (FY22-26)
Polyethylene	INR Millions	397.86	2,113.25	386.14	172.88	51.12	-40%
Poly Vinyl Chloride	INR Millions	0	0	9.72	0.00		-
Others	INR Millions	3.76	608.82	225.03	232.11	322.43	204%
Total	INR Millions	401.62	2,722.06	620.89	404.99	373.55	-2%

Source: Company Filings, Crisil Intelligence

11.2 Ddev Plastiks Industries Ltd

Ddev Plastiks Industries Limited is manufacturer of specialty polymer compounds, with an operating legacy dating back to 1977 through the Ddev Group. The company became an independent listed entity in 2022 following the demerger of the polymer compounding business from Kkalpana Industries (India) Limited. The company manufactures a diversified portfolio of customized polymer compounds, including polyethylene (PE), polyvinyl chloride (PVC), cross-linked polyethylene (XLPE), halogen-free flame retardant (HFFR), engineering plastic, semiconductive, peroxide, and mineral-filled compounds, catering to end-use industries such as wire and cable, power infrastructure, automotive, consumer durables, electrical equipment, packaging, footwear, and renewable energy.

The company has an installed production capacity of 233,400 MTPA across five strategically located manufacturing facilities at Daman (Daman & Diu), Surangi (Dadra & Nagar Haveli), Silvassa (Dadra & Nagar Haveli), and Dhulagarh (West Bengal), enabling efficient access to both the eastern and western coasts of India. Backed by advanced manufacturing infrastructure, in-house research and development capabilities, and exports to more than 55 countries, DPIL has established itself as India's largest manufacturer of specialty polymer compounds with a strong presence in both domestic and international markets.

Table 51: Ddev Plastik Industries Ltd Financials

Parameters	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
Revenue from operations	INR Millions	22,269.03	25,037.47	24,312.44	26,033.24	29,478.73	9,894.53	7%
Gross Profit	INR Millions	2,906.44	3,546.18	4,753.77	4,762.18	5,262.41	1,566.64	16%
Gross Profit Margin	%	13.05%	14.16%	19.55%	18.29%	17.85%	15.83%	-
EBITDA	INR Millions	1,278.91	1,856.99	2,819.02	2,869.66	3,202.69	1,008.94	26%
EBITDA Margin	%	5.74%	7.42%	11.59%	11.02%	10.86%	10.20%	-
EBIT (Operating Profit)	INR Millions	1,163.62	1,736.01	2,677.05	2,719.36	3,024.73	961.04	-
EBIT Margin/ Operating Profit Margin	%	5.23%	6.93%	11.01%	10.45%	10.26%	9.71%	-
PAT	INR Millions	547.81	1,040.96	1,816.69	1,854.97	2,018.16	637.93	39%
PAT Margin	%	2.46%	4.16%	7.47%	7.13%	6.85%	6.45%	-
ROE	%	27.96%	23.49%	31.48%	24.82%	21.84%	-	-
ROCE	%	42.67%	31.01%	40.46%	32.86%	30.18%	-	-
Working Capital Cycle	days	21	39	53	66	74	-	-

Note: Financials are on consolidated basis

Source: Company Filings, Crisil Intelligence

Table 52: Ddev Plastik Business Segment wise Revenue, FY-22 to FY-26

Polymer Compound / Business Segment	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Growth (FY22-26)
Polyethylene	INR Millions	16,888.40	20,925.14	20,529.21	22,293.20	25,532.88	9%
Poly Vinyl Chloride	INR Millions	3,660.76	2,911.83	2,983.22	3,061.79	3,311.75	-2%
Others	INR Millions	1,719.87	1,200.51	800.01	678.254	634.104	-18%
Total	INR Millions	22,269.03	25,037.47	24,312.44	26,033.24	29,478.73	6%

Source: Company Filings, Crisil Intelligence

11.3 Shakun Polymers Pvt Ltd

Shakun Polymers Private Limited, acquired by of Alphagary in 2021, is a prominent manufacturer of compounds for the wire and cable market, in India. The company was established in 1991 and has grown into a diversified entity with a product portfolio exceeding 200 grades. The company's products cater to a wide array of applications within the wire and cable industry, including power cables, building wires, telecommunication & fibre optic, instrumentation cables, and photovoltaic cables.

The company provides plastic products, including specialty compounds for the wire and cable industry. These compounds include halogen-free flame-resistant compounds, polyvinyl chloride-based chemical compounds, polyethylene compounds and semiconductive thermoplastic, and silicone compounds. The company has four major brands: ECOTEK, ESCONTEK, FRTEK, and VINYLTEK, catering to a wide range of applications in the wire and cable industry.

The company has manufacturing facilities located at Halol and Daman in Gujarat, India with a total installed capacity of more than 70,000 MTPA . The plants are equipped with modern compounding lines that provide flexibility in addressing the market. The company export its products to over 50 countries and generated ~48% of the revenue from exports in FY-25.

Table 53: Shakun Polymers Pvt Ltd Financials

Parameters	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Growth (FY22-26)
Revenue from operations	INR Millions	5,848.21	6,686.70	6,597.72	7,276.99	8,170.27	9%
Gross Profit	INR Millions	1,664.66	1,612.22	1,981.93	2,438.58	2,796.24	14%
Gross Profit Margin	%	28.46%	24.11%	30.04%	33.51%	34.22%	-
EBITDA	INR Millions	1,122.45	972.47	1,314.24	1,538.58	1,823.97	13%
EBITDA Margin	%	19.19%	14.54%	19.92%	21.14%	22.32%	-
EBIT (Operating Profit)	INR Millions	1,035.78	884.26	1,211.71	1,370.79	1,593.94	11%
EBIT Margin/ Operating Profit Margin	%	17.71%	13.22%	18.37%	18.84%	19.51%	-
PAT	INR Millions	745.65	637.24	879.25	990.02	1,159.96	12%
PAT Margin	%	12.75%	9.53%	13.33%	13.60%	14.20%	-
ROE	%	32.92%	20.32%	22.58%	20.52%	19.66%	-
ROCE	%	37.88%	26.17%	29.94%	27.96%	25.65%	-
Working Capital Cycle	days	115	112	117	119	131	-

Note: Financials are on standalone basis

Source: Company Filings, Crisil Intelligence

Table 54: Shakun Polymers Business Segment wise Revenue, FY-22 to FY-24

Polymer Compound / Business Segment	UOM	FY-22	FY-23	FY-24	Growth (FY22-24)
Specialty Polymer Compounds	INR Millions	5,727.02	6,580.24	6,411.64	6%
Cables	INR Millions	90.52		73.11	-10%
Others	INR Millions	30.67		112.97	92%
Total	INR Millions	5,848.21	6,686.70	6,597.72	6%

Source: Company Filings, Crisil Intelligence

11.4 KLJ Polymers & Chemicals Ltd

KLJ Polymers & Chemicals Limited, part of KLJ Group, was incorporated in 1990 and manufacturers of polymer compounds. The company offers PVC compounds, PP compounds, Engineering Polymer compounds, Zero Halogen Flame Retardant compounds, PE Compounds, masterbatches to wires & cable, footwear, automotive industries.

The company has a production capacity of 118,000 MTPA with manufacturing facility located at Silvassa. KLJ Group has a significant market presence both domestically and internationally. The company exports its products to over 90 countries worldwide and generated ~7% of the revenues from exports in FY-25.

Table 55: KLJ Polymers & Chemicals Ltd Financials

Parameters	UOM	FY-22	FY-23	FY-24	FY-25	Growth (FY22-25)
Revenue from operations	INR Millions	12,318.39	16,763.81	18,961.78	20,473.44	18%
Gross Profit	INR Millions	1,760.99	2,051.47	2,894.62	3,359.30	24%
Gross Profit Margin	%	14.30%	12.24%	15.27%	16.41%	-
EBITDA	INR Millions	794.02	652.82	1,345.62	1,537.13	25%
EBITDA Margin	%	6.45%	3.89%	7.10%	7.51%	-
EBIT (Operating Profit)	INR Millions	672.90	480.94	1,155.77	1,344.84	-
EBIT Margin/ Operating Profit Margin	%	5.46%	2.87%	6.10%	6.57%	-
PAT	INR Millions	399.31	151.24	649.96	730.86	22%
PAT Margin	%	3.24%	0.90%	3.43%	3.57%	-
ROE	%	13.05%	4.53%	17.39%	16.42%	-
ROCE	%	12.95%	7.00%	15.20%	16.96%	-
Working Capital Cycle	days	99	98	105	99	-

Source: Company Filings, Crisil Intelligence

Table 56: KLJ Polymers & Chemicals Business Segment wise Revenue, FY-22 to FY-25

Polymer Compound / Business Segment	UOM	FY-22	FY-23	FY-24	FY-25	Growth (FY22-24)
Polymer compound	INR Millions	9,654.26	12,407.37	13,510.57	16,335.93	19%
Consignment sales	INR Millions	402.33	1,282.13	1,474.86	1,257.26	46%
Polymer others	INR Millions	2,253.54	2,938.57	3,749.94	2,776.31	7%
Other goods & services	INR Millions	8.25	135.75	226.41	103.93	133%
Total	INR Millions	12,318.39	16,763.81	18,961.78	20,473.44	18%

Source: Company Filings, Crisil Intelligence

11.5 Kingfa Science & Technology India Ltd

Kingfa Science & Technology Ltd is a prominent player in the global plastics and polymer manufacturing industry, specializing in research, development, production, and sales of advanced materials. Founded in 1993 and headquartered in Guangzhou, China, with nearly three decades of experience the company has solidified its position as one of the world's leading plastics compounders and has established a reputation for its innovative technologies and commitment to sustainable practices. The company operates primarily in the plastics and chemical sectors, focusing on producing high-performance modified plastics and other advanced materials.

The company has a robust geographical footprint, with operations in various regions including Asia, North America, and Europe. The company has collaborations and networks across more than 500 recyclers in China, promoting recycling initiatives and supply chain enhancement.

Table 57: Kingfa Science & Technology India Ltd Financials

Parameters	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
Revenue from operations	INR Millions	10,478.97	14,037.03	14,877.16	17,446.91	19,955.52	6,885.74	17%
Gross Profit	INR Millions	1,852.12	2,863.83	3,322.28	3,969.96	4,777.70	1,703.00	27%
Gross Profit Margin	%	17.67%	20.40%	22.33%	22.75%	23.94%	24.73%	-
EBITDA	INR Millions	703.08	1,302.63	1,881.88	2,344.49	2,820.41	1,161.55	42%
EBITDA Margin	%	6.71%	9.28%	12.65%	13.44%	14.13%	16.87%	-
EBIT (Operating Profit)	INR Millions	573.43	1,161.22	1,698.06	2,127.35	2,536.60	1,082.29	-
EBIT Margin/ Operating Profit Margin	%	5.47%	8.27%	11.41%	12.19%	12.71%	15.72%	-
PAT	INR Millions	306.33	814.10	1,225.23	1,528.55	1,852.59	802.08	57%
PAT Margin	%	2.92%	5.80%	8.24%	8.76%	9.28%	11.65%	-
ROE	%	8.30%	19.14%	23.24%	23.21%	17.41%	-	-
ROCE	%	13.31%	24.65%	30.01%	30.49%	23.16%	-	-
Working Capital Cycle	days	35	26	48	68	85	-	-

Source: Company Filings, Crisil Intelligence

11.6 Plastiblends India Ltd

Plastiblends India Ltd. is a key player in the manufacturing of masterbatches and additive compounds for the plastic processing industry, operating with a well-defined business segment. The company specializes in the production and sale of various types of masterbatches, including additive, white, black, colour, and filler masterbatches, alongside thermoplastic and engineered plastic compounds. These products are crucial for numerous applications across diverse sectors such as flexible packaging, consumer durables, healthcare, agriculture, and automotive industries.

The company has a production capacity of 130,000 MTPA with manufacturing facility located at Daman, Roorkee, and Surat. The company has a significant market presence both domestically and internationally. The company exports its products to Asian, African and Latin American countries.

Table 58: Plastiblends India Ltd Financials

Parameters	UOM	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
Revenue from operations	INR Millions	7,176.33	7,685.15	8,021.62	7,804.54	7,886.58	2,216.09	2%
Gross Profit	INR Millions	1,775.73	1,754.79	1,953.35	1,986.40	2,007.92	591.77	3%
Gross Profit Margin	%	24.74%	22.83%	24.35%	25.45%	25.46%	26.70%	-
EBITDA	INR Millions	681.68	550.37	627.28	614.09	660.52	243.43	-1%
EBITDA Margin	%	9.50%	7.16%	7.82%	7.87%	8.38%	10.98%	-

EBIT (Operating Profit)	INR Millions	520.76	386.03	473.29	461.85	509.59	206.24	-1%
EBIT Margin/ Operating Profit Margin	%	7.26%	5.02%	5.90%	5.92%	6.46%	9.31%	-
PAT	INR Millions	366.99	268.51	345.25	334.42	366.88	149.51	0%
PAT Margin	%	5.11%	3.49%	4.30%	4.28%	4.65%	6.75%	-
ROE	%	10.31%	6.92%	8.63%	8.03%	8.37%	-	-
ROCE	%	12.74%	8.95%	11.21%	10.61%	11.00%	-	-
Working Capital Cycle	days	125	98	85	114	128	-	-

Note: Financials are on standalone basis

Source: Company Filings, Crisil Intelligence

11.7 Operational Performance Benchmarking

Table 59: Operational Performance of Peers

Manufacturers	Production Capacity MTPA	Revenue from Operations FY-26 (INR Millions)	Product Offerings	Market Coverage
BLS Polymers	35,251	3,494	PE compounds, PVC compounds, XLPE compounds, HFFR compounds, Cable Filling compounds, Masterbatches	Exporting to countries such as Bangladesh, Qatar, Dubai, Saudi Arabia and Turkey. Generated ~6% of the revenue from exports in FY-26
Kkalpana Industries India Ltd	15,000	374	HDPE compounds, LDPE compounds, LLDPE compounds, PPHP granules	Generated ~2% of the revenues from exports in FY-25
Ddev Plastiks Industries Ltd	237,500	29,479	PVC Compounds, PE Compounds, Polymer Blends, PVC Masterbatch, PE Masterbatch, EVA Masterbatch, PP UV Masterbatch, Additives, Engineering Plastics-PBT, HFFR Compounds,	Selling the products in 26 states of India and over 55 countries internationally, generated ~25% of revenue from exports in FY-24
Shakun Polymers Pvt Ltd*	more than 70,000	7,277	HFFR Compound, PVC Compounds, Semi Conductive Thermoplastic, PE Compound, Silicone Compounds	Export to over 50 countries
KLJ Polymers & Chemicals Ltd*	118,000	20,473	PVC compounds, PP compounds, Engineering Polymer compounds, Zero Halogen Flame Retardant compounds, PE Compounds, masterbatches	Exporting the products to 90 countries and generated ~7% of revenues from exports in FY-25
Kingfa Science & Technology (India) Limited	more than 110000	19,956	PP Compounds, PBT Compounds, PET Compounds, Polyamides, Respiratory Protection Products, Hand Protection Products, Eye Protection Products, Biodegradable Nitrile Gloves, Biodegradable Protective Coverall	Exporting to 9 countries including South Africa, USA, China and Thailand. Exports contributed ~6% to the overall revenue in FY-25

Plastiblends India Limited	more than 130000	7,887	Additive Masterbatches, Black Masterbatches, Colour Masterbatches, Conductive Compounds, Engineering Plastic Compounds, Filler Masterbatches, PET Masterbatches, White Masterbatches	Exporting to Asian, African, and Latin American Countries.
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Note: *Revenue figures are for FY-25.

Source: Company Website, Company Filings, Crisil Intelligence

11.8 Financial Benchmarking with Peers

11.8.1 Revenue & Growth

Table 60: Revenue Benchmarking

Manufacturers	Revenue from Operations (INR Millions)						
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
BLS Polymers	2,295.39	3,146.16	2,963.58	3,284.36	3,494.28	1,070.26	11%
Kkalpana Industries India Ltd	401.62	2,722.06	620.89	404.99	373.55	40.65	-2%
Ddev Plastiks Industries Ltd	22,269.03	25,037.47	24,312.44	26,033.24	29,478.73	9,894.53	7%
Shakun Polymers Pvt Ltd ^{\$}	5,848.21	6,686.70	6,597.72	7,276.99	8,170.27	-	9%
KLJ Polymers & Chemicals Ltd*	12,318.39	16,763.81	18,961.78	20,473.44	-	-	18%
Kingfa Science & Technology (India) Limited	10,478.97	14,037.03	14,877.16	17,446.91	19,955.52	6,885.74	17%
Plastiblends India Limited	7,176.33	7,685.15	8,021.62	7,804.54	7,886.58	2,216.09	2%

Note: ^{\$}Financials are on standalone basis

*Financials for FY26 not available on MCA. CAGR is from FY22 to FY25.

Source: Company Filings, Crisil Intelligence

11.8.2 Gross Profit & Margins

Table 61: Gross Profit Benchmarking

Manufacturers	Gross Profit (INR Millions)						
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
BLS Polymers	363.21	470.75	477.13	628.99	764.08	250.18	20%
Kkalpana Industries India Ltd	146.34	108.12	125.75	98.26	67.67	9.46	-18%
Ddev Plastiks Industries Ltd	2,906.44	3,546.18	4,753.77	4,762.18	5,262.41	1,566.64	16%
Shakun Polymers Pvt Ltd ^{\$}	1,664.66	1,612.22	1,981.93	2,438.58	2,796.24	-	14%
KLJ Polymers & Chemicals Ltd*	1,760.99	2,051.47	2,894.62	3,359.30	-	-	24%
Kingfa Science & Technology (India) Limited	1,852.12	2,863.83	3,322.28	3,969.96	4,777.70	1,703.00	27%
Plastiblends India Limited	1,775.73	1,754.79	1,953.35	1,986.40	2,007.92	591.77	3%

Note: ^{\$}Financials are on standalone basis

*Financials for FY26 not available on MCA. CAGR is from FY22 to FY25.

Formula used for Gross Profit calculation is as follows:

Gross Profit: Revenue from Operations – Cost of Goods Sold

Source: Company Filings, Crisil Intelligence

Table 62: Gross Profit Margins Benchmarking

Manufacturers	Gross Profit Margin					
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27
BLS Polymers	15.82%	14.96%	16.10%	19.15%	21.87%	23.38%
Kkalpana Industries India Ltd	36.44%	3.97%	20.25%	24.26%	18.11%	23.26%
Ddev Plastiks Industries Ltd	13.05%	14.16%	19.55%	18.29%	17.85%	15.83%
Shakun Polymers Pvt Ltd ^{\$}	28.46%	24.11%	30.04%	33.51%	34.22%	-
KLJ Polymers & Chemicals Ltd*	14.30%	12.24%	15.27%	16.41%	-	-
Kingfa Science & Technology (India) Limited	17.67%	20.40%	22.33%	22.75%	23.94%	24.73%
Plastiblends India Limited	24.74%	22.83%	24.35%	25.45%	25.46%	26.70%

Note: ^{\$}Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula used for Gross Profit Margin calculation is as follows:

Gross Profit Margin: Gross Profit / Revenue from Operations

Source: Company Filings, Crisil Intelligence

11.8.3 EBITDA & Margins

Table 63: EBITDA Benchmarking

Manufacturers	EBITDA (INR Millions)						
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
BLS Polymers	112.52	195.12	210.49	380.75	468.84	162.58	43%
Kkalpana Industries India Ltd [#]	-1.53	104.47	88.60	64.82	34.23	6.55	-31%
Ddev Plastiks Industries Ltd	1,278.91	1,856.99	2,819.02	2,869.66	3,202.69	1,008.94	26%
Shakun Polymers Pvt Ltd ^{\$}	1,122.45	972.47	1,314.24	1,538.58	1,823.97	-	13%
KLJ Polymers & Chemicals Ltd*	794.02	652.82	1,345.62	1,537.13	-	-	25%
Kingfa Science & Technology (India) Limited	703.08	1,302.63	1,881.88	2,344.49	2,820.41	1,161.55	42%
Plastiblends India Limited	681.68	550.37	627.28	614.09	660.52	243.43	-1%

Note: ^{\$}Financials are on standalone basis

[#]CAGR is from FY23 to FY26.

*Financials for FY26 not available on MCA. CAGR is from FY22 to FY25.

Formula used for EBITDA is as follows:

EBITDA: PAT + Finance Cost + Tax + Depreciation and Amortization

Source: Company Filings, Crisil Intelligence

Table 64: EBITDA Margins Benchmarking

Manufacturers	EBITDA Margin					
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27
BLS Polymers	4.90%	6.20%	7.10%	11.59%	13.42%	15.19%
Kkalpana Industries India Ltd	-0.38%	3.84%	14.27%	16.01%	9.16%	16.11%
Ddev Plastiks Industries Ltd	5.74%	7.42%	11.59%	11.02%	10.86%	10.20%
Shakun Polymers Pvt Ltd ^{\$}	19.19%	14.54%	19.92%	21.14%	22.32%	-
KLJ Polymers & Chemicals Ltd*	6.45%	3.89%	7.10%	7.51%	-	-

Kingfa Science & Technology (India) Limited	6.71%	9.28%	12.65%	13.44%	14.13%	16.87%
Plastiblends India Limited	9.50%	7.16%	7.82%	7.87%	8.38%	10.98%

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA

Formula used for EBITDA Margin is as follows:

EBITDA Margin: EBITDA / Revenue from Operations

Source: Company Filings, Crisil Intelligence

11.8.4 PAT & Margins

Table 65: PAT Benchmarking

Manufacturers	PAT (INR Millions)						
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27	Growth (FY22-26)
BLS Polymers	42.18	62.50	75.22	211.36	270.09	102.30	59%
Kkalpana Industries India Ltd	52.99	19.01	2.19	6.87	7.94	0.20	-38%
Ddev Plastiks Industries Ltd	547.81	1,040.96	1,816.69	1,854.97	2,018.16	637.93	39%
Shakun Polymers Pvt Ltd [§]	745.65	637.24	879.25	990.02	1,159.96	-	12%
KLJ Polymers & Chemicals Ltd*	399.31	151.24	649.96	730.86	-	-	22%
Kingfa Science & Technology (India) Limited	306.33	814.10	1,225.23	1,528.55	1,852.59	802.08	57%
Plastiblends India Limited	366.99	268.51	345.25	334.42	366.88	149.51	0%

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA. CAGR is from FY22 to FY25.

Source: Company Filings, Crisil Intelligence

Table 66: PAT Margins Benchmarking

Manufacturers	PAT Margin					
	FY-22	FY-23	FY-24	FY-25	FY-26	Q1 FY-27
BLS Polymers	1.84%	1.99%	2.54%	6.44%	7.73%	9.56%
Kkalpana Industries India Ltd	13.19%	0.70%	0.35%	1.70%	2.13%	0.49%
Ddev Plastiks Industries Ltd	2.46%	4.16%	7.47%	7.13%	6.85%	6.45%
Shakun Polymers Pvt Ltd [§]	12.75%	9.53%	13.33%	13.60%	14.20%	-
KLJ Polymers & Chemicals Ltd*	3.24%	0.90%	3.43%	3.57%	-	-
Kingfa Science & Technology (India) Limited	2.92%	5.80%	8.24%	8.76%	9.28%	11.65%
Plastiblends India Limited	5.11%	3.49%	4.30%	4.28%	4.65%	6.75%

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula used for PAT is as follows:

PAT Margin: PAT / Revenue from Operations

Source: Company Filings, Crisil Intelligence

11.8.5 ROE & ROCE

Table 67: ROE Benchmarking

Manufacturers	ROE				
	FY-22	FY-23	FY-24	FY-25	FY-26
BLS Polymers	12.67%	16.74%	17.48%	36.83%	33.16%
Kkalpana Industries India Ltd	2.64%	5.48%	0.61%	1.90%	2.14%
Ddev Plastiks Industries Ltd	27.96%	23.49%	31.48%	24.82%	21.84%
Shakun Polymers Pvt Ltd [§]	32.92%	20.32%	22.58%	20.52%	19.66%
KLJ Polymers & Chemicals Ltd*	13.05%	4.53%	17.39%	16.42%	-
Kingfa Science & Technology (India) Limited	8.30%	19.14%	23.24%	23.21%	17.41%
Plastiblends India Limited	10.31%	6.92%	8.63%	8.03%	8.37%

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula used for ROE is as follows:

ROE: PAT / Average Shareholder's Equity

Source: Company Filings, Crisil Intelligence

Table 68: ROCE Benchmarking

Manufacturers	ROCE				
	FY-22	FY-23	FY-24	FY-25	FY-26
BLS Polymers	13.92%	14.36%	13.68%	25.49%	29.88%
Kkalpana Industries India Ltd	-1.36%	10.50%	6.84%	5.42%	1.94%
Ddev Plastiks Industries Ltd	42.63%	30.98%	40.44%	32.77%	30.04%
Shakun Polymers Pvt Ltd [§]	43.02%	26.17%	29.69%	27.00%	25.65%
KLJ Polymers & Chemicals Ltd*	14.37%	6.85%	14.93%	16.72%	-
Kingfa Science & Technology (India) Limited	14.34%	24.41%	29.83%	30.34%	22.96%
Plastiblends India Limited	13.04%	8.73%	11.00%	10.47%	10.92%

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula used for ROCE is as follows:

ROCE: EBIT / Average Capital Employed

Source: Company Filings, Crisil Intelligence

11.8.6 Working Capital Cycle

Table 69: Working Capital Cycle Benchmarking

Manufacturers	ROCE				
	FY-22	FY-23	FY-24	FY-25	FY-26
BLS Polymers	125	113	136	124	110
Kkalpana Industries India Ltd	699	24	145	235	158
Ddev Plastiks Industries Ltd	21	39	53	66	74
Shakun Polymers Pvt Ltd [§]	115	112	117	119	131
KLJ Polymers & Chemicals Ltd*	99	98	106	99	-

Kingfa Science & Technology (India) Limited	35	26	48	68	85
Plastiblends India Limited	125	98	85	114	128

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula for Working Capital Cycle is as follows:

Working Capital Cycle: Inventory Days + Receivable Days – Payable Days

Source: Company Filings, Crisil Intelligence

11.8.7 Current Ratio

Table 70: Current Ratio Benchmarking

Manufacturers	current ratio				
	FY-22	FY-23	FY-24	FY-25	FY-26
BLS Polymers	1.29	1.25	1.26	1.44	1.66
Kkalpana Industries India Ltd	1.65	4.04	8.05	3.81	1.06
Ddev Plastiks Industries Ltd	1.39	1.72	2.42	3.01	2.70
Shakun Polymers Pvt Ltd [§]	3.34	5.10	3.22	3.95	5.30
KLJ Polymers & Chemicals Ltd*	1.36	1.29	1.38	1.48	-
Kingfa Science & Technology (India) Limited	1.30	1.37	1.80	2.02	4.06
Plastiblends India Limited	3.02	4.81	5.87	6.02	4.23

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula for Current Ratio is as follows:

Current Ratio: (Current Assets + Assets Held for Sale) / Current Liabilities

Source: Company Filings, Crisil Intelligence

11.8.8 Debt to Equity

Table 71: Debt to Equity Benchmarking

Manufacturers	debt to equity				
	FY-22	FY-23	FY-24	FY-25	FY-26
BLS Polymers	1.99	2.30	2.05	1.11	0.56
Kkalpana Industries India Ltd	0.69	1.39	1.23	0.72	0.02
Ddev Plastiks Industries Ltd	0.33	0.11	0.10	0.06	0.06
Shakun Polymers Pvt Ltd [§]	0.09	0.06	0.02	0.04	0.02
KLJ Polymers & Chemicals Ltd*	0.86	1.20	0.87	0.68	-
Kingfa Science & Technology (India) Limited	0.12	0.09	0.06	0.06	0.01
Plastiblends India Limited	0.12	0.02	0.02	0.01	0.05

Note: [§]Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula for Debt to Equity is as follows:

Debt to Equity: Total Debt / Shareholder's Equity

Source: Company Filings, Crisil Intelligence

11.8.9 Return on Total Assets

Table 72: Return on Total Assets Benchmarking

Manufacturers	Return on Total Assets				
	FY-22	FY-23	FY-24	FY-25	FY-26
BLS Polymers	3.11%	3.88%	4.46%	11.80%	13.10%
Kkalpana Industries India Ltd	7.33%	1.96%	0.25%	0.95%	1.27%
Ddev Plastiks Industries Ltd	5.90%	11.41%	18.26%	16.07%	13.98%
Shakun Polymers Pvt Ltd ^{\$}	20.57%	15.57%	16.46%	15.38%	15.38%
KLJ Polymers & Chemicals Ltd*	4.40%	1.46%	6.12%	6.42%	-
Kingfa Science & Technology (India) Limited	3.48%	8.06%	12.32%	13.23%	10.56%
Plastiblends India Limited	7.09%	5.54%	7.16%	6.60%	6.58%

Note: ^{\$}Financials are on standalone basis

*Financials for FY26 not available on MCA.

Formula for Return on Total Assets is as follows:

Return on Total Assets: PAT / Total Assets

Source: Company Filings, Crisil Intelligence



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