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INFRASTRUCTURE OUTLOOK FOR FISCAL 2026

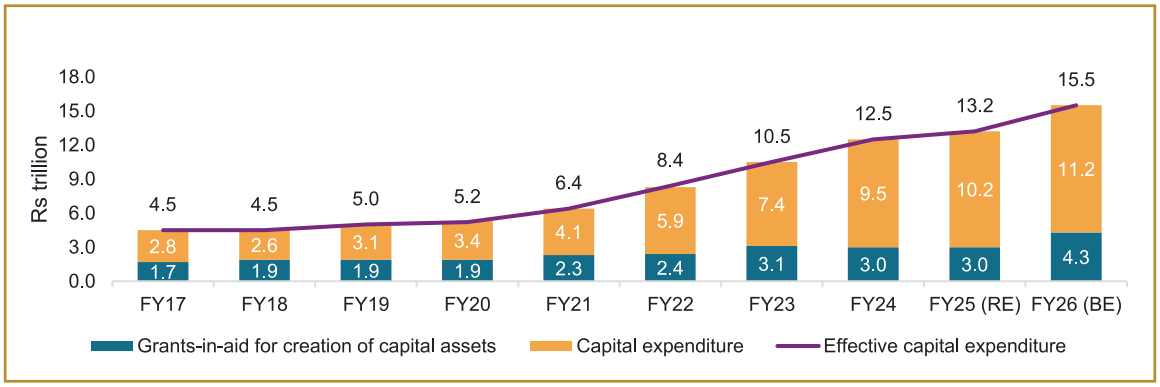
The Centre's investments in infrastructure development rose to Rs 11 trillion in fiscal 2025 from Rs 2.8 trillion in fiscal 2017, reflecting its commitment to long-term economic development and meeting its Viksit Bharat 2047 vision. Indeed, infrastructure investment clocked a compound annual growth rate (CAGR) of 18% between fiscals 2021 and 2024.

In fiscal 2026 (budget estimate or BE), however, capital expenditure (capex) growth is estimated to moderate to 7-8%. By fiscal 2028, total infrastructure investment is projected to reach Rs 18 trillion, with the growth rate maintained at 8% between fiscals 2025 and 2028.

As a proportion of the gross domestic product (GDP), infrastructure investment has increased to 3.1% in fiscal 2026 (BE) from 2.1% in fiscal 2014. Additionally, effective capex as a percentage of GDP has increased to 4.3% in fiscal 2026 (BE) from 3.2% in fiscal 2021.

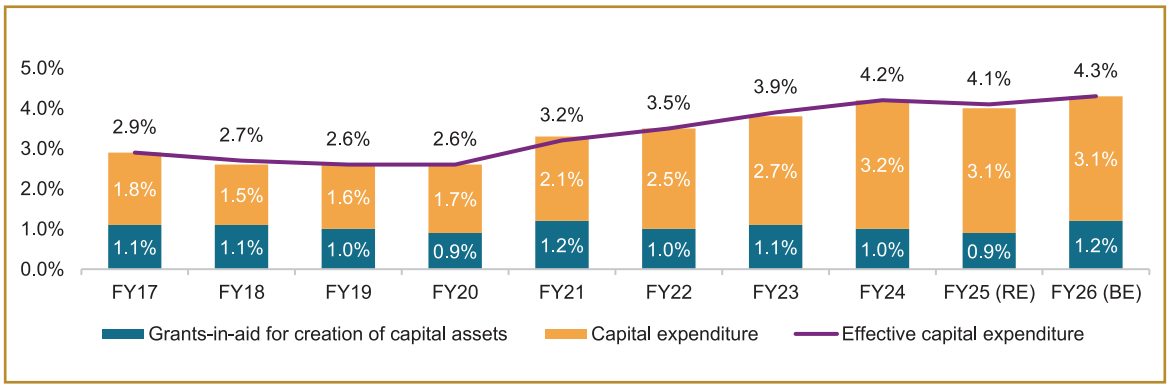
The government has adeptly balanced fiscal prudence with higher infrastructure investment, underpinned by notable enhancements in tax revenue, with both direct and indirect taxes exhibiting substantial growth. For instance, in fiscal 2026 (BE), gross tax revenue increased 11.1%, driven by a 14% and 8% rise in direct and indirect taxes, respectively, compared with the fiscal 2025 actuals.

Grants-in-Aid and Effective Capex



Note: RE – revised estimate, BE – budget estimates
Source: Budget documents; Crisil intelligence

Grants-in-Aid and Effective Capex as a Percentage of GDP



Note: RE – revised estimate, BE – budget estimates
Source: Budget documents; Crisil intelligence

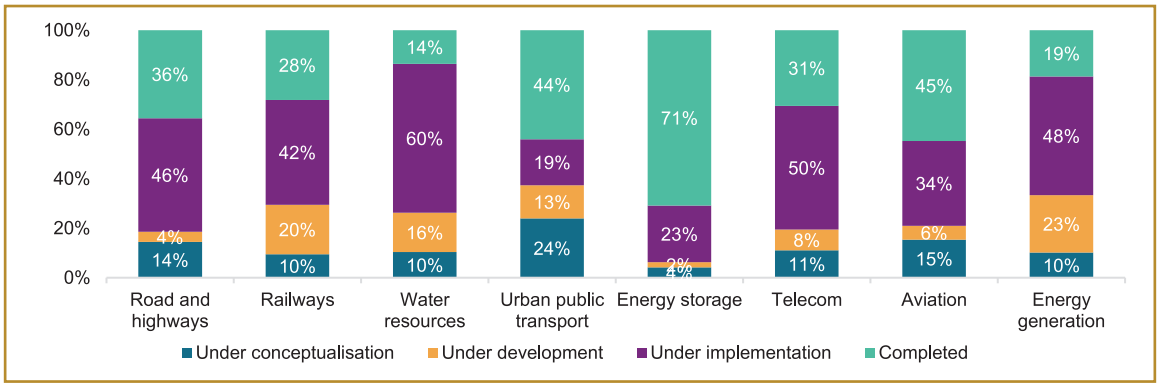
NATIONAL INFRASTRUCTURE PIPELINE

Launched in 2019, the National Infrastructure Pipeline (NIP) is an investment programme aimed at accelerating India's infrastructure build-out and attracting private capital. It reflects India's infrastructure-led growth vision, aligning with objectives of PM Gati Shakti, National Logistics Policy and Viksit Bharat 2047.

The pipeline comprises 14,144 projects worth Rs 200 trillion, spanning 62 sub-sectors across central ministries, central public sector enterprises and state agencies, with 1,178 projects under development.

The road and highways sector accounts for projects worth over Rs 48 trillion, followed by energy and railways. The three sectors constitute nearly half of the project worth under NIP. In terms of execution, energy storage, urban infrastructure and aviation are the best performing sectors with completion rates of 71%, 44% and 45%, respectively.

Sector-wise Status Under NIP



Note: Status as of October 2025
Source: India Investment Grid; Crisil intelligence

NATIONAL MONETISATION PIPELINE

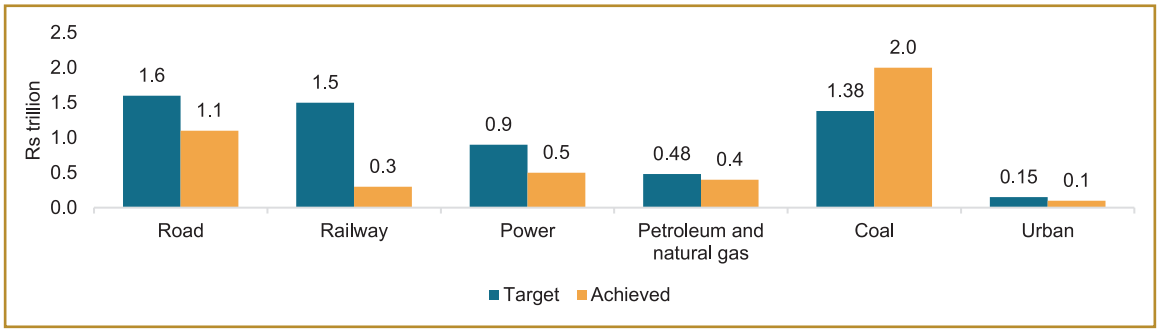
In 2021, the government introduced the National Monetisation Pipeline (NMP) as a strategic initiative to monetise the existing public sector infrastructure assets through private sector participation.

The NMP aims to raise capital for new infrastructure projects by leveraging underutilised or operational public assets across the road, railway, power transmission and telecommunication sectors. The pipeline is designed to promote efficiency in asset utilisation, attract private investments and generate long-term revenue streams for the government. It also seeks to mitigate risks associated with public investment in infrastructure, allowing the government to recycle capital for further infrastructure development.

The NMP included assets with monetisation potential of Rs 6 trillion between fiscals 2022 and 2025, against which ~Rs 5.3 trillion was achieved that comprised Rs 3.87 trillion in the first three fiscals and Rs 1.43 trillion in the fourth fiscal.

Between fiscals 2022 and 2025, 89% of the monetisation targets was achieved, led by the Ministry of Coal monetising 145% of the targeted assets. Roads and highways, petroleum and natural gas, and urban real estate also achieved more than 70% of their targets.

Targets and Achievements in Key Sectors Under NMP



Source: Sansad

The budget for fiscal 2026 announced the launch of NMP 2025-30 to plough back Rs 10 trillion to accelerate infrastructure creation to be met from the infrastructure assets falling under the purview of key ministries/ departments.

VIKSIT BHARAT 2047

The vision focuses on the long-term national objectives to make India one of the most developed economies by the 100th year of its independence. It is a complex transformation model that integrates industrial renewal, digital transformation, infrastructure development, human capital development and environmental stewardship as an integrated growth story and not an individual plan or scheme.

Objectives and Progress Under Viksit Bharat 2047

Zero Poverty: The objective is achievable through a multidimensional approach towards empowering the underprivileged and promoting inclusive development. Meanwhile, food security schemes continue to benefit over 80 crore Indians. The Jan Dhan Yojana, one of the world's largest financial inclusion initiatives, has empowered crores by providing access to banking, ensuring financial empowerment. Special emphasis is placed on fulfilling aspirations, protecting the rights of the weaker sections and empowering the differently abled through specialised support mechanisms. Tribal development is prioritised by providing affordable homes with basic amenities to more than three crore rural poor.

Farmers' Welfare: Several schemes such as the Pradhan Mantri Kisan Samman Nidhi (PM KISAN), Pradhan Mantri Fasal Bima Yojana, and Soil Health Card ensure financial security and protection against the risk of crop loss, benefitting crores of farmers. The government has emphasised the development of irrigation facilities through the PM Krishi Sinchayee Yojana and agricultural infrastructure development with a Rs 1 trillion funding facility between fiscals 2021 and 2026. The Kisan Credit Card, Agriculture Infrastructure Fund and Survey of Villages and Mapping with Improvised Technology in Village Areas schemes are designed to empower farmers with better resources, and enhanced credit availability and titles. The PM Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth (PRANAM) scheme promotes organic farming and sustainable fertiliser use, improving the vision of a prosperous, self reliant agriculture sector.

Women Empowerment: Reservation of 33% of Lok Sabha seats and state assemblies, and the Nari Shakti Vandan Adhiniyam guaranteeing quotas to women among the Scheduled Caste and Scheduled Tribe are promoting their leadership. The criminalisation of triple talaq has increased Muslim women's rights and security. Efforts towards financial inclusion have seen over 28 crore women opening Jan Dhan accounts, while majority beneficiaries of PM Mudra Yojana and Stand-Up India programmes are women. Initiatives such as the Jal Jeevan Mission, Swachh Bharat Mission and increased maternity benefits under Pradhan Mantri Matru Vandana Yojana also promote a culture of increased inclusivity and empowerment of women in India.

Education: PM Schools for Rising India (PM SHRI), a centrally sponsored scheme, aims to develop more than 14,500 schools over fiscals 2023-2027. A disbursement of ~Rs 630 crore has been made as the first instalment for the chosen PM SHRI schools and 12 institutions have been announced as Institutions of Eminence. Initiatives such as Nishtha Teachers' Holistic Education, Vidyanjali Mentoring and Nipun Bharat emphasise foundational literacy, adaptive curricula and credit-based learning.

The Skill India Mission and PM Kaushal Vikas Yojana have upskilled millions and SAMARTH Udyog Centres are getting the workforce industry 4.0-ready. Over 10,000 Atal Tinkering Labs nationwide aim to inculcate innovative skills with activity-based learning. The first National Sports University in Manipur aims to promote sports education. Internationalisation of higher education is also in progress with the setup of IIT campuses in Zanzibar and Abu Dhabi, supported by the Fund of Funds and Start-Up India Fund schemes.

Healthcare: The PM-Ayushman Bharat Health Infrastructure Mission and Ayushman Bharat Digital Mission aim to strengthen public healthcare and digital connectivity, with thousands of health centres and millions of registered health accounts. Initiatives such as e-Sanjeevani OPD and PM Jan Aushadhi Yojana to enhance the accessibility and affordability of quality care and medicines. Steps taken in organ donation and rehabilitation of drug dependents through the Nasha Mukt Bharat Abhiyaan and the Child Health and Nutrition Mission Indradhanush are leading to a sustainable healthcare ecosystem in India.

Sustainability: India has the fourth-largest installed renewable energy capacity in the world, with solar capacity growing exponentially and a record low solar tariff of Rs 1.99 per unit achieved. The Global Biofuel Alliance is leading the way in the use of sustainable biofuels around the world, while India's Galvanising Organic Bio-Agro Resources Dhan scheme is

encouraging waste-to-energy solutions, converting agricultural waste to biogas and compost. Through the Kisan Urja Surakshaevam Utthaan Mahabhiyan Yojana, India is empowering farmers with solar energy solutions. Meanwhile, the One Sun, One World, One Grid initiative plans to develop a global grid for solar energy, encouraging sustainable growth on the world map.

Technology: With the successful launch of Chandrayaan-3, India became the first country to reach the south pole of the moon, showcasing the cost-effective capability of space by India.

India is transforming governance and service delivery through platforms such as UMANG and Kisan Rath, while over 4.6 crore people have been digitally empowered under the PM Gramin Digital Saksharta Abhiyan.

Infrastructure: Infrastructure development is driven by initiatives such as the PM Gati Shakti, which enhances the transport of goods and services and employment generation, improving lives. India has expanded the road, railway, air and waterway network, and achievements such as the Yashobhoomi Convention Centre and Vande Bharat Express have highlighted India's engineering capabilities. The UDAN scheme has also made air travel affordable for the public.

Economic Development: The goods and services tax implementation has united the market and initiatives such as Aadhaar-Direct Benefit Transfer and Unified Payments Interface have revolutionised digital payments. PM MUDRA, Start up India and PM Jan Dhan Yojana reforms in the micro, small and medium enterprises (MSME) sector have facilitated financial inclusion and employment, while the Government e-Marketplace has enhanced efficiency.

Year	Scheme	Beneficiaries	Target/ achievement
2018	PM Kisan	Land holding farmers	Rs 6,000/year for each beneficiary, Rs 3.69 trillion since its launch until August 2025
2022	PM SHRI	Students	Rs 273 billion over fiscals 2023-2027
2017	PM Matru Vandana Yojana	Pregnant women	Rs 6,000/ woman
2014	PM Jan Dhan Yojana	Unbanked population	56 crore bank accounts opened until fiscal 2025
2016	PM Fasal Bima Yojana	Farmers	4.19 crore farmers enrolled, Rs 1.8 trillion worth claims paid until fiscal 2025
2023	PM PRANAM	Farmers	Rs 200 billion reduction in fertiliser spending between fiscals 2023 and 2026
2018	Ayushman Bharat Yojana	Family insurance	Rs 32,500 allocated until fiscal 2025
2015	Skill India Mission	Youth	Rs 88 billion budget from fiscals 2023 to 2026
2019	PM KUSUM	Farmers	Rs 344 billion until fiscal 2026
2015	PM Sinchayee Yojana	Farmers	Outlay of Rs 1 trillion between fiscals 2021 and 2026

The Path to 2047: To achieve the Viksit Bharat 2047 vision, India will need long-term infrastructure investment of 7-8% of GDP per year, an extensive combination of digital and green technologies and good macroeconomic underpinnings. Viksit Bharat will require a national initiative focused on productivity, sustainability and inclusivity involving the governments, business community and citizens. In conclusion, Viksit Bharat 2047 is an ideology of national transformation that is aligned with sustainability, technology and infrastructure. It has made India a responsible world power whose institutional and infrastructural capability can bring prosperity to the 1.4 billion population, not merely as an emerging economy.

Infrastructure Capex of the Government

The capital outlay and effective capex outlay for fiscal 2026 stood at Rs 11.21 trillion and Rs 15.48 trillion, respectively. Budget estimates reiterate that the leading avenues of infrastructure capex in India are roads, railways and defence. They constitute more than two-third of the outlay. In future, the cumulative increase in capex at 6-8% per annum may increase the total to Rs 15 trillion by fiscal 2030 through monetisation of assets, involvement of development finance institutions (DFIs) and co-financing by the states. This is indicative of the government avowing itself to infrastructure-based development through the Viksit Bharat 2047 vision.

Growing Infrastructure Spending Through Fiscal 2030

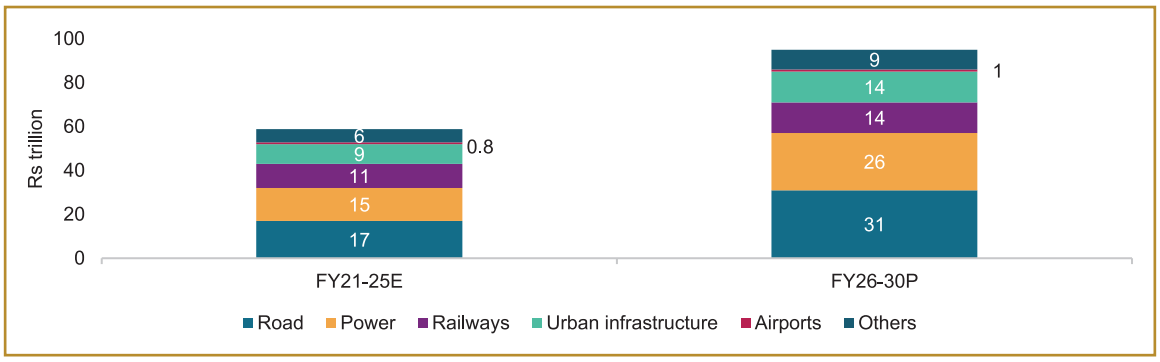
The government of India is the key driver of infrastructure investment over the past five fiscals, using capital expenditure as a lever to sustain long-term economic growth, especially in the post-Covid recovery phase. The government's capex has steadily increased **to 3.1% of GDP budgeted for fiscal 2026 from 1.7% of GDP during fiscals 2016 to 2020,** reflecting a focus on physical connectivity through rural roads, highways, airports and railways. These investments have resulted in gross fixed capital formation improving to 30.1% of GDP in fiscal 2025 from 27.3% of GDP in fiscal 2021.

For fiscal 2026, central capex is budgeted at Rs 11.2 trillion, a 10% rise from the Rs 10.2 trillion revised estimate for fiscal 2025, maintaining expenditure at 3.1% of GDP, with the Ministry of Railways, and the Ministry of Road Transport and Highways receiving the highest allocations.

According to a National Institute of Public Finance and Policy (NIPFP) study, every rupee spent on capex generates Rs 4.8 of economic output, compared with just Rs 0.96 from revenue expenditure.

Flagship initiatives such as Bharatmala, Sagarmala, NIP and PM Gati Shakti have been instrumental in improving execution efficiency. Complementary digital interventions such as the e-way bill system and FASTag-enabled tolling have reduced delays and improved logistics performance.

Sector-wise Infra Capex



Note: Urban infra includes metro, water supply and sanitation, and smart cities; other infra includes ports, irrigation, telecom towers, warehousing
Source: Crisil Intelligence

India's total infrastructure spending (by central and state governments and private) is projected to rise 1.6 times to Rs 90-100 trillion by fiscal 2030, led by the roads and power sectors. Private investment is expected to accelerate, supported by the revival of the build-operate-transfer (BOT) model in roads, expansion of non-fossil fuel energy projects and the NMP, which aims to attract deeper private participation through asset monetisation and recycling.

As of September 2025, India's power generation capacity stood at 500 GW, of which 51% or 256 GW, was through non fossil fuel-based sources, while the rest is fossil fuel-based.

Power generation capex is expected to be led by renewable energy with a target of 500 GW capacity in it by fiscal 30, with 70% of the capex in green investments.

Infrastructure Financing in India

India's infrastructure financing ecosystem is shifting to a multi-source framework from a predominantly budget-led model, driven by institutional capital, market instruments and development finance institutions (DFIs). However, Union and state budgets remain the fiscal anchor, with the Union Budget for fiscal 2026 setting capex at Rs 11.21 trillion.

The investment requirement under the NIP exceeds Rs 223 trillion, encompassing over 14,000 projects across key sectors. To meet this requirement, India's infrastructure financing is expected to rise to ~Rs 51 trillion in fiscal 2030 from ~Rs 34 trillion in fiscal 2025. The growth of DFIs, infrastructure investment trusts (InvITs) and bonds is expected to reduce reliance on direct budgetary spending, with these sources accounting for nearly a third of infrastructure funding flows by fiscal 2030.

Funding source	FY25 (Rs trillion)	FY30P (Rs trillion)	Projected share of total by FY30 (%)
Union and state Budgets	17.5	23.0	45
DFIs (NaBFID, IIFCL, PFC, REC, NABARD)	5.0	8.5	17
Bonds and InvITs	3.2	6.0	12
Multilateral and bilateral	2.0	3.5	7
Private and FDI	6.5	10.0	19

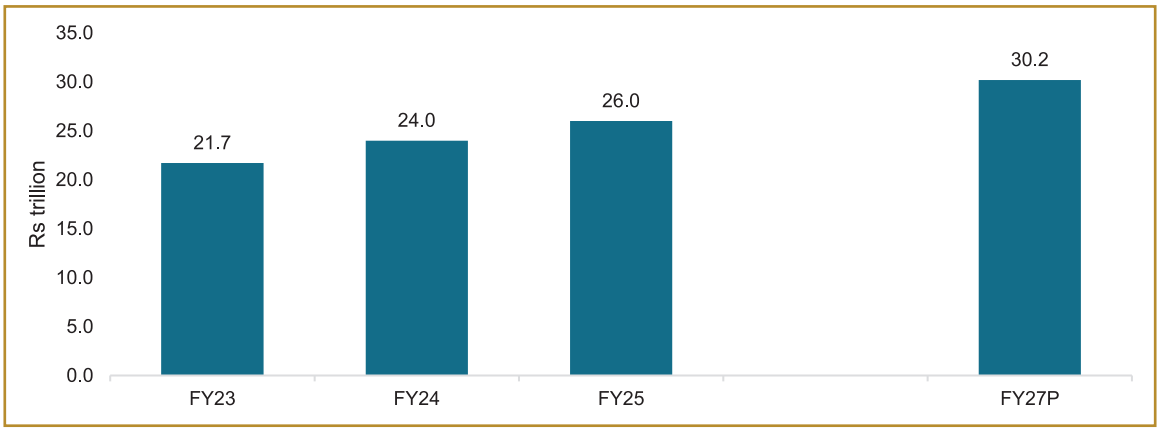
Note: P – projected
Source: Crisil intelligence

The government's medium-term infrastructure financing strategy rests on three pillars: Maintaining high levels of public capex while reducing fiscal risk through asset monetisation, scaling DFIs such as the National Bank for Financing Infrastructure and Development (NaBFID) and India Infrastructure Finance Co Ltd (IIFCL) with stable capital and risk sharing tools, and developing a deep and liquid corporate bond market supported by InvITs, REITs and green instruments. As the government operationalises the NMP 2025-30, the expected proceeds will recycle into new greenfield projects, boosting the government's fiscal headroom.

In terms of policy and market implications, India's infrastructure financing is entering a structurally stronger phase. Budgetary capital will remain the mainstay, but institutional and market mechanisms will increasingly drive growth. The combination of fiscal innovation along with deepening participation by institutions and investors positions India to meet its NIP investment targets sustainably.

PORTFOLIO SPLIT OF INFRASTRUCTURE FINANCING BETWEEN KEY VERTICALS

Overall Infrastructure Financing to Reach Rs 30 Trillion by Fiscal 2027 at a CAGR of 8%

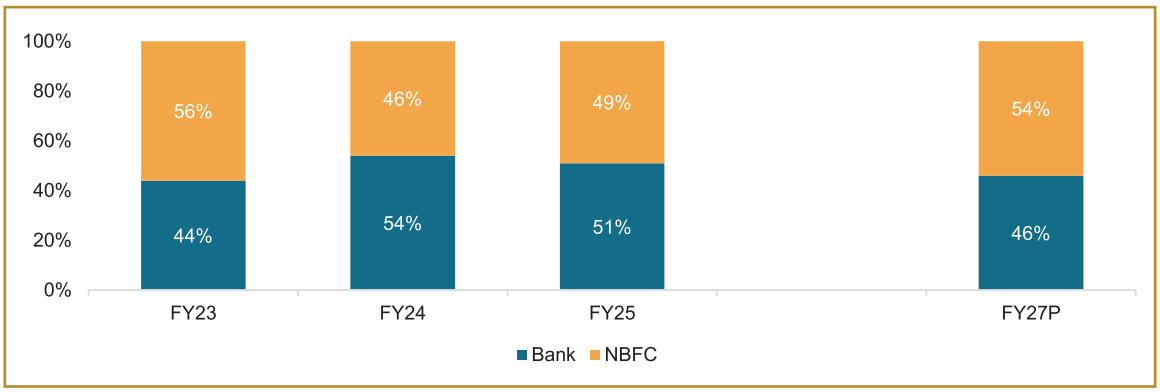


Source: RBI, Company Reports, Crisil Intelligence

Infrastructure financing stood at Rs 26 trillion as of fiscal 2025, logging a CAGR of 9% from fiscal 2023, primarily because of faster growth in infrastructure disbursement by NBFCs, growing at ~16% over the same period. The growth momentum can be traced to investment in renewable power and a pick-up in the transmission and distribution (T&D) sector, amid higher demand for power.

Over the next two fiscals, the momentum in expanding power sector infrastructure is expected to persist, with an expected pick-up in non-power capital expenditure, such as construction, likely to provide an additional boost. But overall infrastructure credit is expected to slow down because of higher repayments and discontinuation of two government schemes, Liquidity Infusion Scheme (LIS) and Late Payment Surcharge (LPS)[1], thereby moderating disbursals.

Strong Growth in Infrastructure Financing by NBFCs to Support in Share Expansion



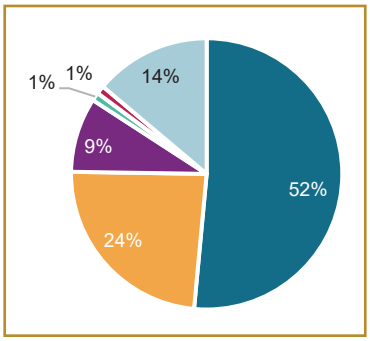
Source: RBI, Company Reports, Crisil Intelligence

STRONG GROWTH IN INFRASTRUCTURE FINANCING BY NBFCS TO SUPPORT SHARE EXPANSION

Major NBFC-infrastructure finance companies, which have historically dominated the power financing space, are now showing a growing appetite to expand into non-power portfolios in the near term. PFC is at the forefront of this trend. Another key player in this space is IIFCL, which has already made significant inroads into non-power infrastructure financing, with an outstanding portfolio growing at a rapid pace.

As the landscape evolves, we forecast that the market share of NBFCs in the total lending space will increase to ~52% by fiscal 2026 and to 54% in fiscal 2027, while banks will account 48% in fiscal 2026 and decline to 46% in fiscal 2027.

Power Sector Accounts for The Highest Share in Banks' Infrastructure Credit Outstanding as of Fiscal 2025



Source: RBI, Crisil Intelligence

Power Sector Tops the Share in Banks' Infrastructure Credit Outstanding as of Fiscal 2025

As of fiscal 2025, power sector financing, which encompasses funding for power generation, transmission and renewable energy projects, accounted for the highest share in bank infrastructure credit with 52%, followed by roads which account for 24%, driven by the National Highway Authority of India (NHAI)'s Bharat Mala Pariyojana, expressway development and other schemes.

The telecom sector accounted for 9% share, primarily on account of ongoing network modernisation in the country, along with 5G rollout by telecom operators. On the other hand, railways, ports and airports together form a very minuscule proportion of bank infrastructure credit as these are primarily financed through government budgetary support or institutional lending.

SUB-SECTORS

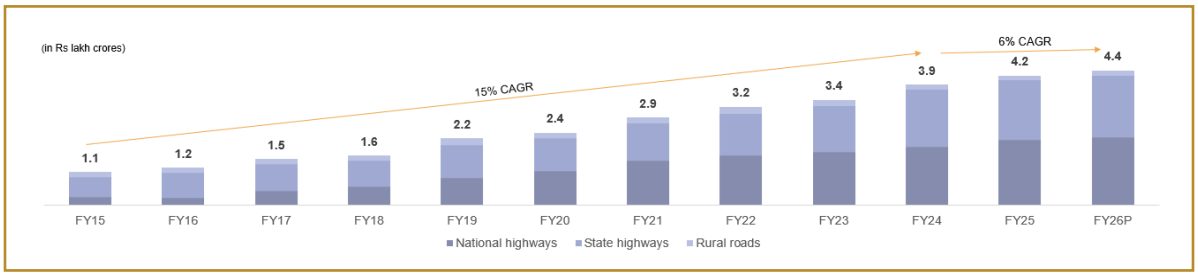
Roads and Highways

As of March 31, 2025, India had more than 63 lakh km of road network, of which national highways was 1,46,204 km, state highways were at 1,79,535 km and other roads at 60,19,723 km.

The progress of national highways in India has been remarkable over the past decade, with significant growth in terms of length and infrastructure development. Notably, the length of national highways has increased 60% to 1,46,204 km as of fiscal 2025, from 91,287 km in 2014. Furthermore, the development national highways with four lanes and above has risen over 2.5-fold to ~48,000 km.

Capex for the roads sector logged a CAGR of 13% between fiscals 2020 and 2024, driven by the Bharatmala Pariyojana2 and increased state spending on roads, despite challenges such as the pandemic and delayed construction due to prolonged monsoons. Between fiscals 2024 and 2026, it is estimated to log 6% CAGR. This slowdown in road capex is attributable to shift in priorities towards other infrastructural segments.

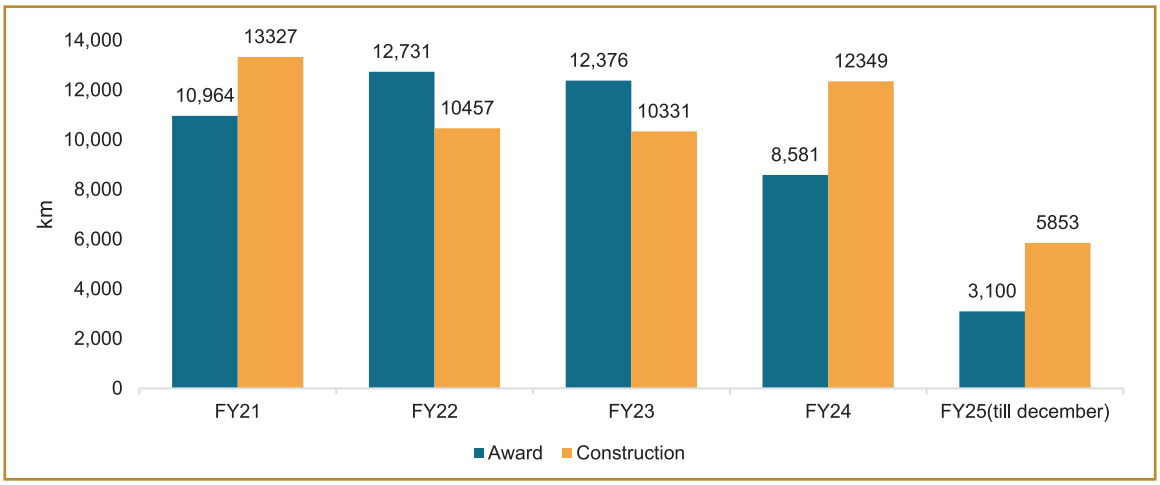
Road Capex Growth to Normalise to 6% CAGR Between Fiscals 2024 and 2026



Note: P – projected
Source: Crisil Intelligence

Since fiscal 2023, the award of highway construction projects has dropped due to multiple strategic, operational and financial reasons. The government has reduced awarding new projects to complete ongoing ones initiated under Bharatmala phase 1. In addition, eligibility norms for new contracts are also stricter to ensure quality delivery which has also contributed to the reductions in new awards. Financial limitations have also forced the government to slow down new awards.

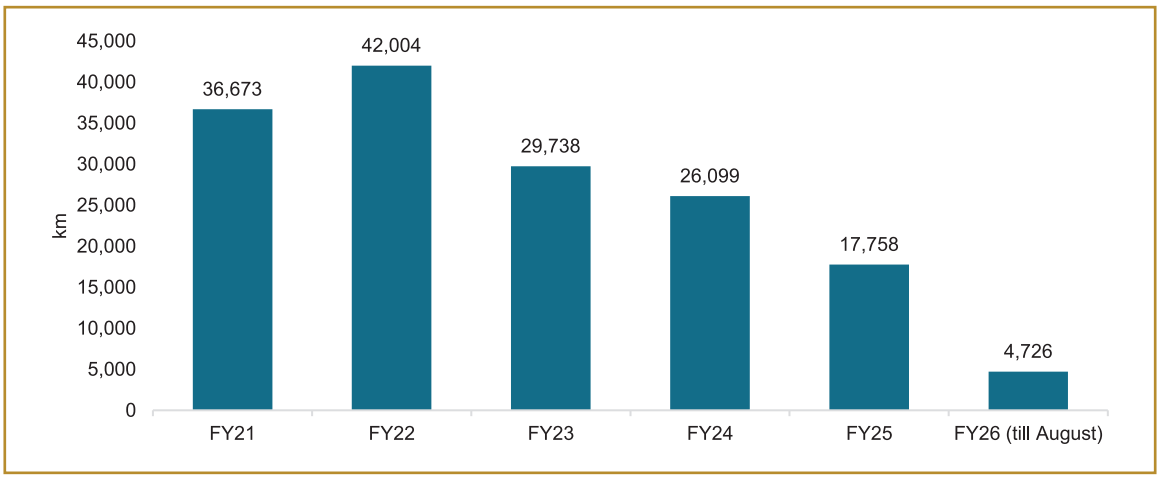
National Highway Award and Construction From FY21 to FY25



Source: PIB, Crisil intelligence

Rural road construction under the Pradhan Mantri Gram Sadak Yoajna (PMGSY) dipped after fiscal 2022, falling to ~18,000 km in fiscal 2025, from 42,000 km, due to completion of targets and overall focus shift of government from road to other infrastructural sectors. Until August this year, the construction remained sluggish, and this year's final figures may be even lower than last year's.

Rural Road Construction Has Remained Sluggish Since Fiscal 2024



Source: PIB, Crisil intelligence

Private Funding: Hybrid Annuity Model

This is new financing model adopted by the government to finance projects, reduce risk and encourage funding from private parties. It is a combination of the engineering, procurement and construction (EPC) and build-operate-transfer (BOT) models.

Salient Features of the Hybrid Annuity Model:

- Bid parameter under this project is the net present value (NPV) of bid project cost + NPV of operations and maintenance (O&M) expenses
- 40% of the project cost is paid by the government in five equal instalments linked to project-completion milestones
- 60% of the project cost is initially born by the concessionaire but is paid back by the government during the operations period in bi-annual instalments along with interest on reducing balance of cost

This model is different from the BOT model, where the project risk is born by private players who had to arrange for funds to build the infrastructure and then rely on toll revenue to recover the investment and generate profit in 25-30 years before transferring the asset back to the government. The hybrid annuity model, on the other hand, ensures that risks are shared between the government and private players and provides partial funds from the beginning of the projects, encouraging more private investment.

Asset Monetisation

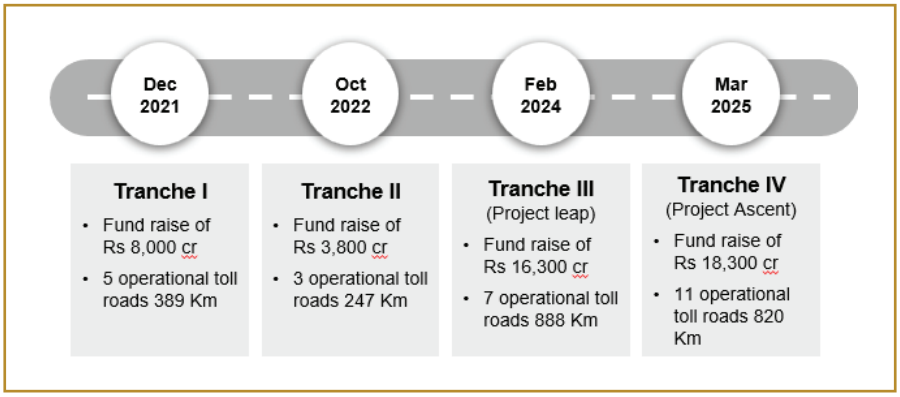
The road sector has emerged as a front runner in asset monetisation. So far, the Ministry of Road Transport and Highways (MoRTH) has raised Rs 1.29 trillion through various modes of asset monetisation, demonstrating the sector's potential to generate revenue through innovative financing models.

The Funds Were Raised as Follows:

1. Toll-operate-transfer (TOT) mode: Rs 423 billion raised through the model, where the toll collection rights is transferred to a private operator for a specified period.
2. InvIT listings of the NHAI: Rs 442 billion raised via this model, which allows investments in a portfolio of infrastructure assets.
3. Project-based financing of the Delhi-Mumbai Expressway: Rs 422 billion raised through the model for one of the most ambitious infrastructure projects in the country.

The success of asset monetisation in the road sector can be attributed to the government's efforts to create a favourable environment for private sector investment and participation. The use of innovative financing models such as TOT and InvITs has helped unlock the value of infrastructure assets and attract new investors to the sector.

NHAI InvIT Has Gained Traction



Source: Industry, Crisil Intelligence

The National Highways Infra Trust (NHIT), an InvIT set up by the NHAI in 2020, concluded its fourth round of fundraising in fiscal 2025. This was the largest monetisation transaction in the domestic road sector and it saw strong demand from existing and new investors, including domestic pension and provident funds, insurance companies, banks and mutual funds. The Employees' Provident Fund Organisation subscribed to units worth Rs 20 billion, its first investment in an InvIT. The NHAI subscribed to its share of 15% of the units at the same price.

The NHIT raised Rs 183 billion from marquee domestic and international investors and Rs 100 billion in debt from domestic lenders. The funds will be used to acquire national highway stretches in Andhra Pradesh, Uttar Pradesh, Uttarakhand, Gujarat and Chhattisgarh at a concession value of Rs 177 billion.

With the completion of this round, the NHIT will hold a diversified portfolio of 25 operating toll roads with an aggregate length of 2,345 km across 12 states, with concession periods ranging from 20 to 30 years.

PORTS

Ports in India handle 90% by volume and 70% by value of the country's external trade. The sector is divided into two segments: Major and non-major ports. As of March 2025, India had 12 major ports and 200 notified minor and intermediate ports. Six new mega ports are to be developed under the Sagarmala Project. Major ports are administered by the central government and non-major ports fall under the jurisdiction of the respective state governments.

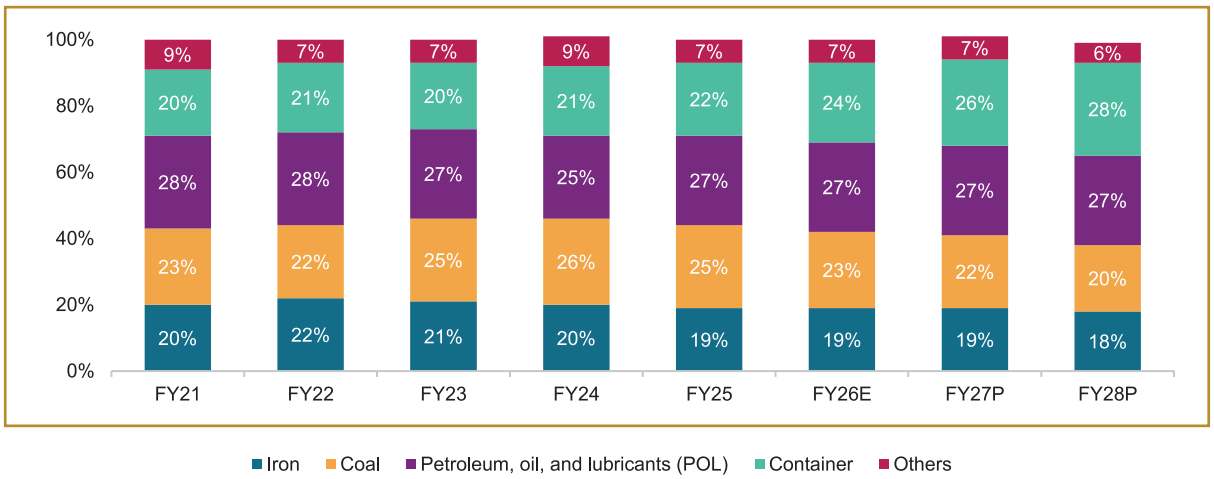
There are Four Important Port Management and Administrative Models:

- Service port model: The port authority (under the state or the Centre) owns the land and all available assets (fixed and mobile). It performs all regulatory functions and employs all the labour for cargo handling at the port
- Tool port model: The port authority and private operators share operational responsibilities. The authority owns, develops and maintains the infrastructure and superstructure (cargo-handling equipment such as quay cranes and forklift trucks). These equipment are usually operated by the labour employed directly by the port authority. Other operations such as stevedoring are performed by private cargo-handling firms or operators
- Landlord port model: The public-private partnership (PPP) model makes the port authority the regulatory body and the landlord. The operations (especially cargo handling) are carried out by private companies. This is the dominant model in larger and medium sized ports
- Private service port: The Centre or the state government concerned does not have any direct involvement in the port activities. The land is owned by the private sector. All regulatory functions and operational activities are performed by private companies

India's port traffic is estimated to grow ~2-4% in fiscal 2026, after a ~4% growth in fiscal 2025. The slight moderation is expected due to a fall in coal and iron ore traffic. Coal import is set to decline due to a rise in indigenous coal production and the government's plan to reduce import dependence. Iron ore export is likely to decline due to low demand from China and increased domestic demand.

Between fiscals 2025 and 2028, the traffic is expected to clock a CAGR of ~3-5% to ~1,760-1,780 million tonne per annum (MTPA). The share of container cargo in overall traffic is expected to increase to ~27-29% by fiscal 2028 from ~22% in fiscal 2025 as major commodities get increasingly containerised.

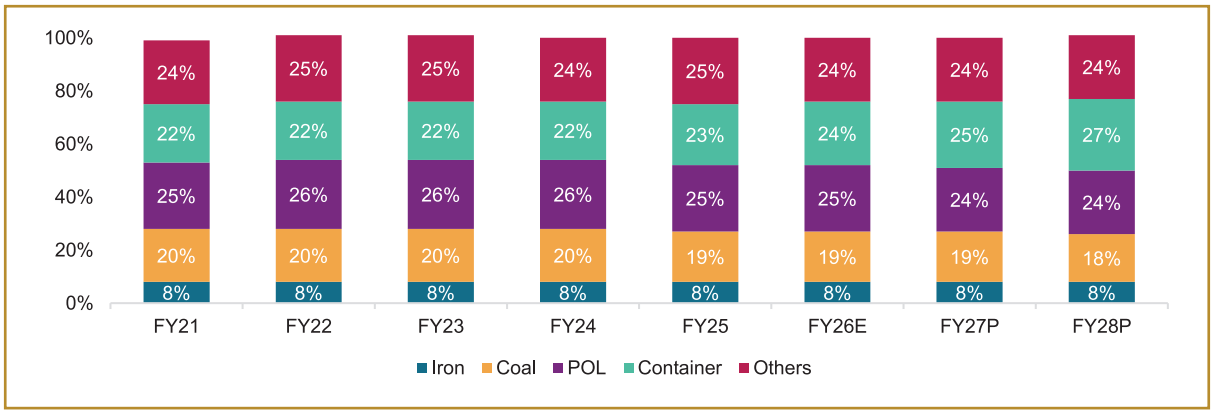
Distribution of Traffic at Port



Note; E - estimated; P - projected
Source: Ministry of Shipping, Indian Ports Association (IPA), Crisil Intelligence

Port capacity is expected to clock a CAGR of ~3-5% between fiscals 2025 and 2028, while utilisation remains stable. Traffic is expected to increase ~2-4% in fiscal 2026 and ~3-5% between fiscals 2025 and 2028, adding ~25-300 MTPA over the next three fiscals. The capacity mix is expected to change in favour of container cargo as its share goes from ~23% in fiscal 2025 to ~26-28% by fiscal 2028. This indicates a container capacity addition of ~210-230 MTPA over the next three fiscals.

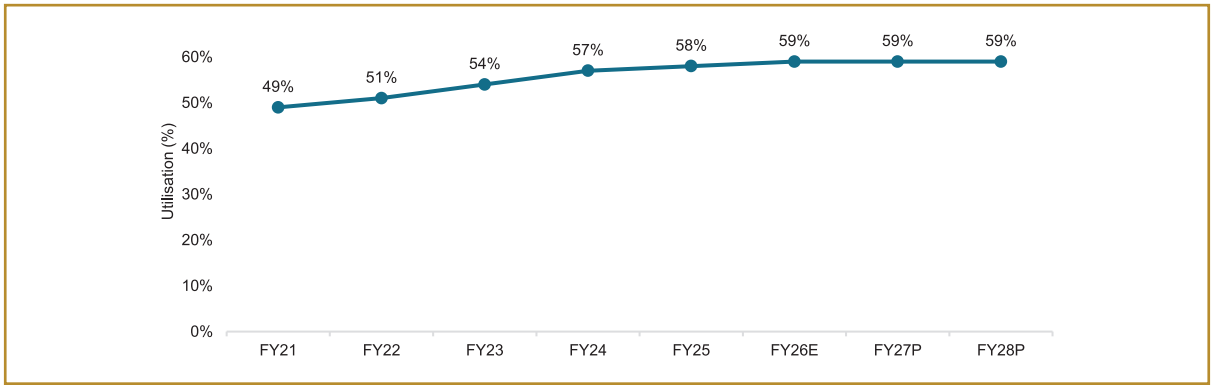
Port Capacity and Component-wise Distribution From Fiscals 2021 to 2028P



Note; E - estimated; P - projected
Source: Ministry of Shipping, Indian Ports Association (IPA), Crisil Intelligence

A similar growth trajectory of traffic and capacities is expected to keep utilisation levels steady at ~58-60% in the medium term unless further mechanisation and automation significantly boost efficiencies.

Capacity Utilisation in Ports From Fiscals 2021 to 2028P



E - estimated; P - projected
Source: Ministry of Shipping, IPA, Crisil Intelligence

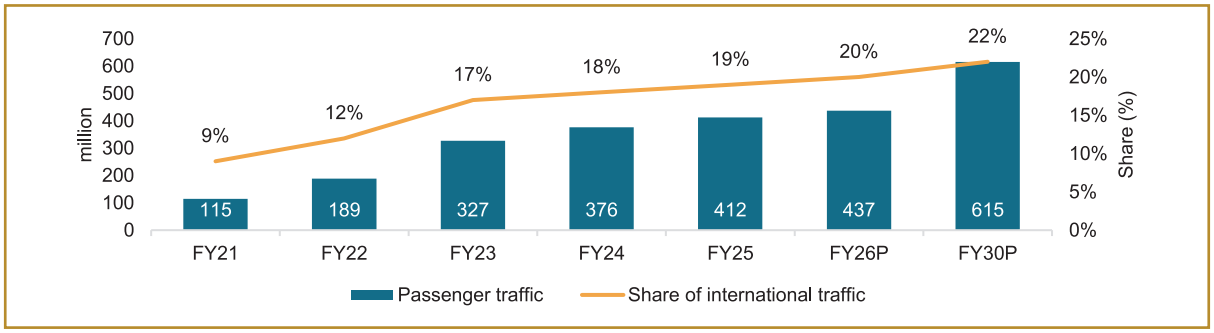
AIRPORTS

Passenger traffic is projected to rise 7-10% on-year in fiscal 2026 to 425-450 million due to strong demand across travel segments—leisure, visiting friends and relatives (VFR); corporate; meetings, incentives, conferences and exhibitions (MICE). There would also be a boost from an increase in airlines' capacity deployment and network, aided by new aircraft deliveries and capacity expansion at major airports such as Delhi, Bengaluru, Hyderabad and Chennai.

In fiscal 2025, airport passenger traffic rose 9.5% on-year to 412 million due to an increase in travel demand, supported by increased capacity deployment by airlines, terminal capacity enhancement at major airports and airlines expanding their network to international markets. The increase was led by domestic passengers, with the share of international passengers at 19%, below the long-period average of 20-22%. In the next few years, leisure and VFR are expected to become dominant due to pent-up demand and revenge tourism.

Passenger traffic is expected to reach 600-630 million by fiscal 2030, indicating a 8-9% CAGR over five years on the back of low travel density per capita, shift from rail to air travel and better air connectivity.

Airport Passenger Traffic and % Share of International Traffic



P - projected
Note: Data for fiscal 2022 includes unscheduled international passenger traffic through the Vande Bharat Mission and air transport bubbles Source: AAI, Crisil Intelligence

Domestic air freight traffic is projected to grow 5-8% on-year to 1,460,000 tonne in fiscal 2026 as airlines add dedicated freighters, e-commerce activity grows, capacity deployment rises and air connectivity to tier II cities improve. Increasing capacity deployment on the passenger side to push up belly cargo capacity will support this growth. In fiscal 2025, domestic freight traffic recorded a 5% on-year rise to 1,375,000 tonne, attributable to growing demand from e-commerce and supply augmentation aided by deployment of dedicated freighter operations.

The National Highways Infra Trust (NHIT), an InvIT set up by the NHAI in 2020, concluded its fourth round of fundraising in fiscal 2025. This was the largest monetisation transaction in the domestic road sector and it saw strong demand from existing and new investors, including domestic pension and provident funds, insurance companies, banks and mutual funds. The Employees' Provident Fund Organisation subscribed to units worth Rs 20 billion, its first investment in an InvIT. The NHAI subscribed to its share of 15% of the units at the same price.

The NHIT raised Rs 183 billion from marquee domestic and international investors and Rs 100 billion in debt from domestic lenders. The funds will be used to acquire national highway stretches in Andhra Pradesh, Uttar Pradesh, Uttarakhand, Gujarat and Chhattisgarh at a concession value of Rs 177 billion.

With the completion of this round, the NHIT will hold a diversified portfolio of 25 operating toll roads with an aggregate length of 2,345 km across 12 states, with concession periods ranging from 20 to 30 years.

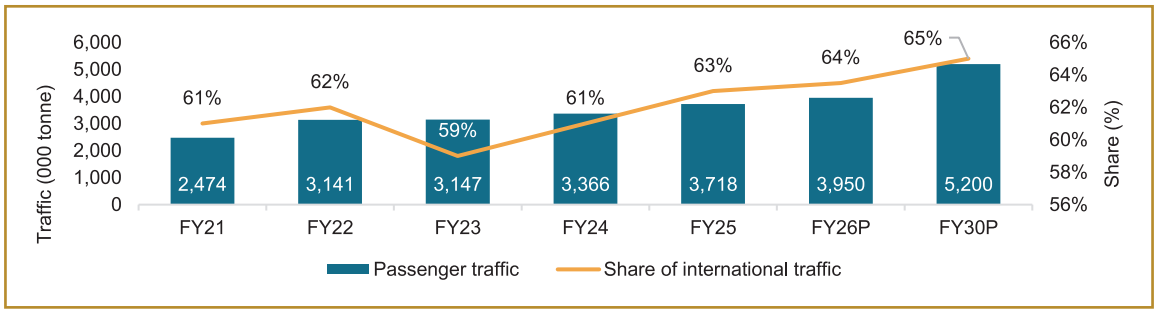
Domestic air freight traffic is expected to reach 1,850,000-1,900,000 tonne by fiscal 2030, led by increased capacity on account of rising focus by airlines on air freight also leading to increased connectivity on domestic routes, and higher GDP growth leading to higher domestic goods transfer.

In fiscal 2026, international freight traffic is projected to grow (-2) to 2% to 2,500,000-2,550,000 tonne, which is relatively flat in the near term due to global trade uncertainty, tariff volatility and weak demand from major export markets. In fiscal 2025, international freight traffic grew 14% on-year to 2,342,000 tonne due to increased competition from sea freight rates cooling to pre-Covid levels, coupled with a global economic slowdown crimping demand.

International freight traffic is expected to reach 3,200,000-3,400,000 tonne by fiscal 2030, as India's share of trade rises. The world and the Indian economy are set for multi-year strong growth as both recover from the pandemic-induced freeze in fiscal 2021.

Freight traffic is projected to reach 5.1-5.3 MT by fiscal 2030 as the country accelerates economic growth after the pandemic and emerges as a prominent player in global supply chains. The supply chain diversification strategy adopted by global players is likely to further boost freight demand, as India positions itself as a preferred alternative. As cargo handling capabilities continue to improve, India is poised to become a transshipment hub.

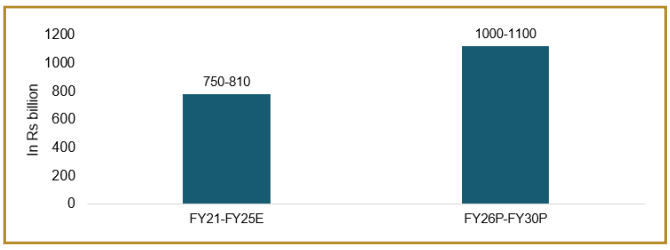
Airport Freight Traffic and % Share of International Freight



P - projected
Note: Data for fiscal 2022 includes unscheduled international passenger traffic through the Vande Bharat Mission and air transport bubbles Source: AAI, Crisil Intelligence

Airport investments are projected to surpass Rs 1 trillion between fiscals 2026 and 2030—significantly higher than Rs 750-810 billion estimated for fiscals 2021-2025. The upcoming capex will be divided between greenfield projects (such as the Navi Mumbai, Jewar and Bhogapuram airports) and major brownfield expansions (such as Mumbai airport's Terminal 1 redevelopment, Hyderabad Phase 3, Ahmedabad and Pune airports). The scheduled new terminal development at Bengaluru, Chennai and Mangaluru would further contribute to the growth in airport infrastructure.

Airport Investments From Fiscals 2021-25E and Fiscals 2026P-30P



E - estimated; P - projected
Source: Crisil Intelligence

DATA CENTRES

The data centre segment in India is grown at a rapid pace, driven by the country's burgeoning digital economy, technological advancements and governmental initiatives. Widespread adoption of smartphones, internet services, e commerce platforms and digital payment systems is leading to an exponential increase in data generation and consumption. Also, the adoption of cloud services has been a significant driver for data centres. Even global cloud providers such as Amazon Web Services, Microsoft Azure and Google Cloud are establishing data centres in India to cater to the growing demand for cloud services as well as to comply with data sovereignty regulations. The Indian government's emphasis on data sovereignty requires data related to Indian citizens and businesses to be stored within the country's borders. Growing trend of co-location and edge computing have also buoyed the domestic data centre market.

Industry Scenario and Outlook

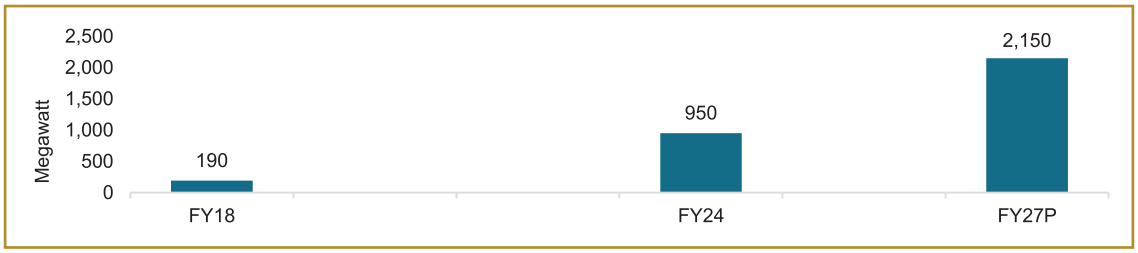
Data centre capacity has increased to 950 MW in fiscal 2025 from 190 MW in fiscal 2018, or over 4x. The demand for data centres is being driven by:

- Enterprises rapidly shifting their businesses to digital platforms, including cloud, a trend that has accelerated post the Covid-19 pandemic
- Increased accessibility of high-speed data leading to a surge in internet usage, including social media, over-the-top platforms and digital payments

Up to fiscal 2027, in addition to the current demand demand drivers, rapid advancement of generative artificial intelligence (GenAI), which requires higher computational power and lower latency vis-à-vis traditional cloud computing functions, will also provide a tailwind to the demamd for data centres in India.

In fiscal 2027, India's data centre industry's capacity is set to more than double on-year to 2.0-2.3 GW. Over the medium term as well, rising penetration of GenAI will drive demand.

Installed IT Load Capacity of Data Centres



P - Projected
Source: Industry, Crisil Intelligence

To meet the growing demand for data centres, investments of Rs 550-650 billion will be required over the next three fiscals, primarily towards land and building, power equipment and cooling solutions. In the case of data centre, land and building accounts for 25-30% of the overall capex. While this approach may expose incremental capacities to utilisation risks, strong demand is expected to support capacity utilisation to reach 80-90% within 1-2 years.

The incremental capex to support the strong demand would see a higher proportion of debt funding, resulting in a moderate increase in debt among segment players. That said, capacity additions will lag demand, keeping offtake risks low. As a result, the industry can expect healthy and stable cash flows, which will keep the credit profile of players steady.

Geographical Presence

Companies are progressively shifting away from onsite data centres, preferring colocation facilities.Third-party data centres will continue to grow over the next decade because of its demand adaptability, scalability and uninterrupted operations, as well as allowing for the managing of IT costs.

But suitable sites to set up data centres hinges on factors such as land availability, robust high-voltage power distribution network, proximity to submarine cable landing stations and extensive fibre connectivity. Because of these considerations and its position as the country's financial hub, Mumbai has emerged as the primary destination for data centres, followed by Chennai, owing to its extensive undersea cable network. Data centre players are also increasingly setting up facilities in Bengaluru, Delhi, Hyderabad and Pune. Still, Mumbai and Chennai will continue to account for nearly 60% of the total IT load supply capacity up to XX.

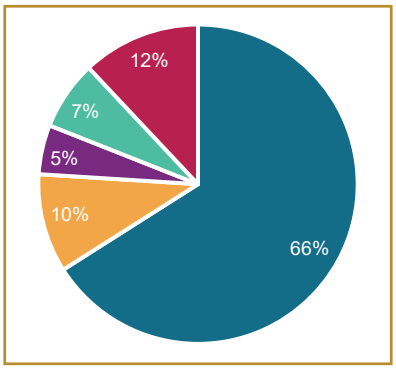
Also, guaging the considerable investments and capacity enhancements announced by major industry players, Mumbai is likely to remain the primary location for data centres in India, followed by Delhi-National Capital Region, Pune, Hyderabad and Chennai, respectively.

Currently, data centres in India operate at small-to-medium scale, with the majority of the capacity concentrated among top players such as NTT-GDC (NetMagic), STT-GDC, Sify, Yotta, Pi Data Centres, Ctrl S, Nxtra Data and Web Werks.

Cost Structure and Operating Expense

The operating cost structure of a data centre business exhibits a significant portion of the expenditure, i.e. ~66%, towards power and fuel, underscoring the substantial energy requirements in maintaining IT equipment. Repair and maintenance expenses account for 10%, reflecting the need for continuing upkeep and ensuring infrastructure reliability. Employee expenses and rental costs make up a further 5% and 7%, respectively. The remaining 12% is miscellaneous expenses. This break-up highlights the critical importance of energy management in data centre operations.

Power and Fuel Accounts for ~2/3rd of The Operating Cost

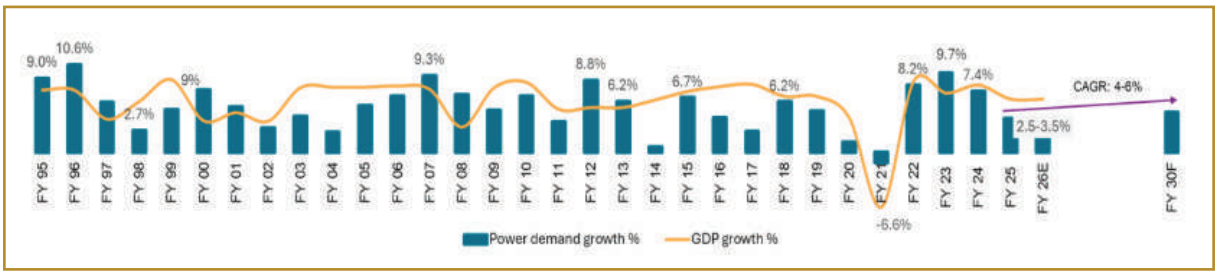


Source: Crisil Intelligence

POWER AND RENEWABLES

Power demand largely follows economic cycles. In fiscal 2026, power demand is expected to rise 2.5-3.5% on-year, to 1,745-1,755 billion units, on the back of a buoyant economy and shifting weather patterns. Between fiscals 2026 and 2030, power demand is projected to grow at a sharper 4-6% CAGR, supported by continuing economic growth and improvement in the reach and quality of power supply.

Power Demand vs GDP Trend



E – estimated; F – forecast
Source: CEA, Crisil Intelligence

Central and state sector companies are likely to drive conventional capacity additions, as private capacity addition shifts towards renewable sources.

Coal-Based Generation Capacities Still Key Despite Increase in Renewables

Only 4.52 GW of coal capacities were commissioned in fiscal 2025 against the government's target of 15.3 GW. And as of June 2025, 2.3 GW of coal capacities were commissioned against the full year target of 12.9 GW. Of this, 1.3 GW was by central generation companies such as NTPC.

Still, for the medium term, coal capacity additions will be supported by the need for generation to scale up or down quickly to meet peak demand, as renewable capacities are unable to support this because of their reliance on prevailing environmental factors.

Hence, over fiscals 2026-2030, coal-based power capacities of 25-30 GW are expected to be commissioned, followed by 5-10 GW of hydro capacities and 5-10 GW of nuclear capacities.

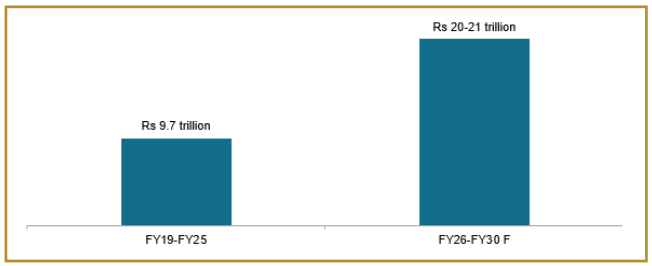
The coal capacity additions are expected to continue to be driven by central and state sector companies, as major private generation companies such as Tata Power Company and JSW Energy have announced ambitious targets to add renewable energy capacities, signalling a decisive shift towards renewables.

Investment in Power Generation

In the case of the power generation segment, investments of Rs 29-30 trillion are projected between fiscals 2026 and 2030. This is an increase from Rs 20-21 trillion in fiscal 2025 and Rs 9.7 trillion in fiscal 2019.

Investments in renewable energy, excluding hydro, pumped storage and battery energy storage system (BESS), are expected to comprise 54% of the investments up to fiscal 2030, as India seeks to make good on its commitment at COP26 of 500 GW of non-fossil energy capacity by fiscal 2030.

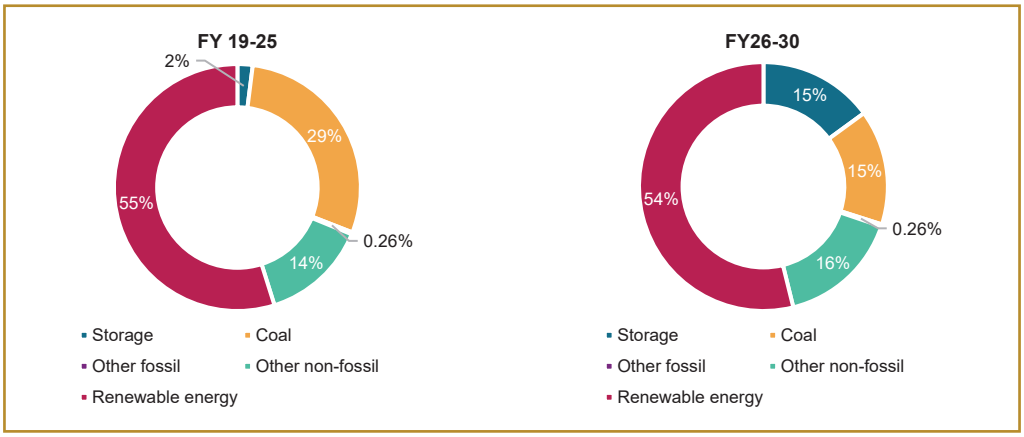
Generation Segment Investment Trend



F – forecast
Source: CEA, Crisil Intelligence

As mentioned, investments in generation over the next five years will be led by renewable energy, excluding hydro and storage, followed by conventional generation, indicating a shift in investment flow towards clean energy supply. Consequently, capacity additions from renewable energy sources are expected at 210-220 GW over fiscals 2026-2030 and 25-30 GW from coal-based sources.

Generation Investment Break-Up

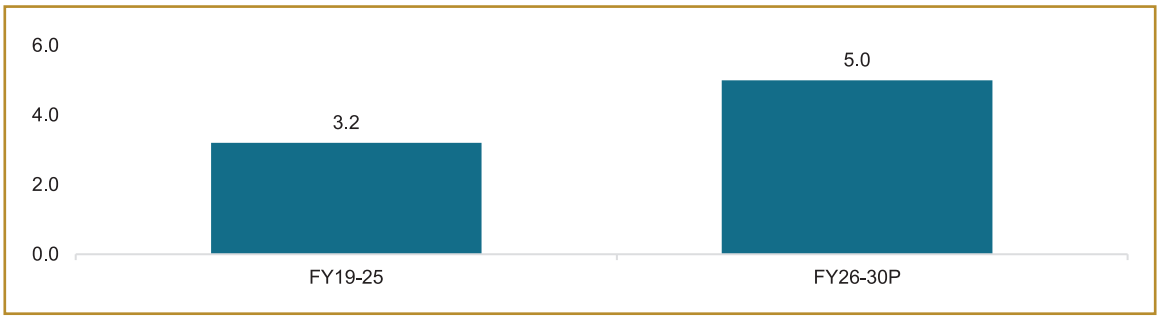


1) Other fossil includes lignite, gas, and diesel; Other non-fossil fuel includes hydro and nuclear
2) Renewable energy includes solar, wind other renewable energy sources; storage includes pumped storage hydropower and battery energy storage systems
Source: CEA, Crisil intelligence

RE evacuation, Inter-State Transmission System (ISTS) Network Expansion and Upgradation to Boost Investment in Transmission

To service a large generation installed base, the estimated investment in the transmission sector is expected to cumulatively reach Rs 4.5-5.5 trillion over fiscals 2026 to 2030. Investments in the sector are expected to be driven by the need for a robust and reliable transmission system to support continued generation additions and the strong push to the renewable energy sector as well as rural electrification.

Outlook on Transmission Segment Investments (Fiscal 2019 to 2025 vs Fiscal 2026 to 2030)



Source: Company reports, State tariff orders, Crisil Intelligence

As capacity additions in the country are not evenly distributed geographically, some regions in the country will be in deficit and others in surplus. To cater to this, there will be a need to import/export from/to regions. Several inter-regional transmission corridors have been planned, and some of these high-capacity transmission corridors are in various stages of implementation. Newly sanctioned projects under the North-Eastern System Strengthening Scheme and system strengthening schemes focused in the Ladakh region are also expected to augment investments in the transmission segment.

Overall, the inter-regional transmission capacity was 120 GW as of June 2025. This number is expected to reach ~143 GW by FY27 as per the National Electricity Plan (Transmission) as the country looks to plug the gap between power deficit regions and power surplus regions

Inter-Connection with Neighbouring Countries to Boost Investment

In order to ensure effective utilisation of regional resources, India is actively planning to inter-connect the national grid with neighbouring countries such as Nepal, Bhutan, Sri Lanka and Bangladesh. Nepal is radially connected with India through 11, 33 and 132 KiloWatt (kV) lines. India and Bhutan have transmission lines of 400 kV, 220 kV and 132 kV to import 2,136 MW of power . Further, for transfer of power from upcoming hydroelectric projects in Bhutan, India is implementing two cross-border inter-connection lines of 400 kV each. Between India and Bangladesh, a 400 kV DC line connecting Baharampur (India) to Bheramara (Bangladesh) and 765 kV DC line connecting Katihar (India) to Parbotipur (Bangladesh) along with 500 MW HVDC back-to-back terminal at Parbotipur are planned. A feasibility study has been carried out for two 500 MW bi-pole lines between Madurai (India) and New Anuradhapura (Sri Lanka), including submarine cable for the stretch that comes under the sea. Implementation of these transmission projects is expected to support investments in the T&D segment over the next five years.

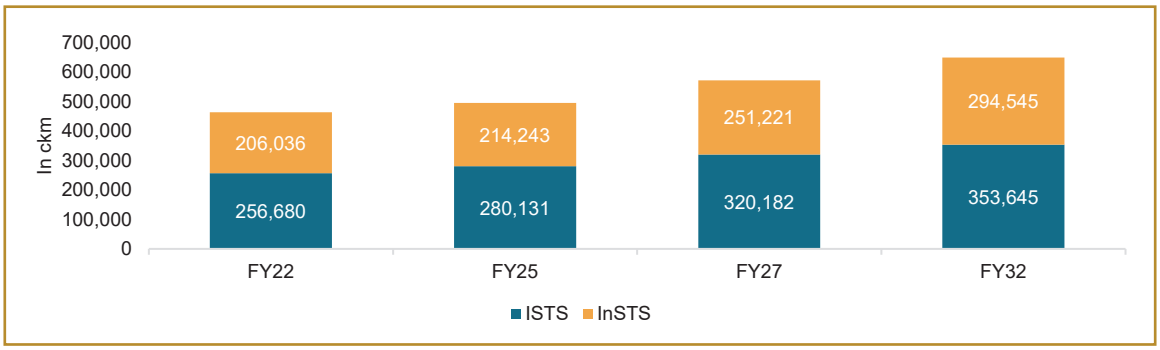
Transmission System Plan Until Fiscal 2032

As per Section 3 of the Electricity Act, 2003, the Central Electricity Authority (CEA) must prepare a National Electricity Plan (Transmission) in accordance with the National Electricity Policy and notify it once in five years. The plan would cover transmission and related aspects.

In October 2024, the CEA released the National Electricity Plan (Volume II: Transmission) covering the review of development of the transmission system during fiscals 2017 to 2022 and detailing the plan for fiscals 2022 to 2027. It also provided some perspective for fiscals 2027 to 2032.

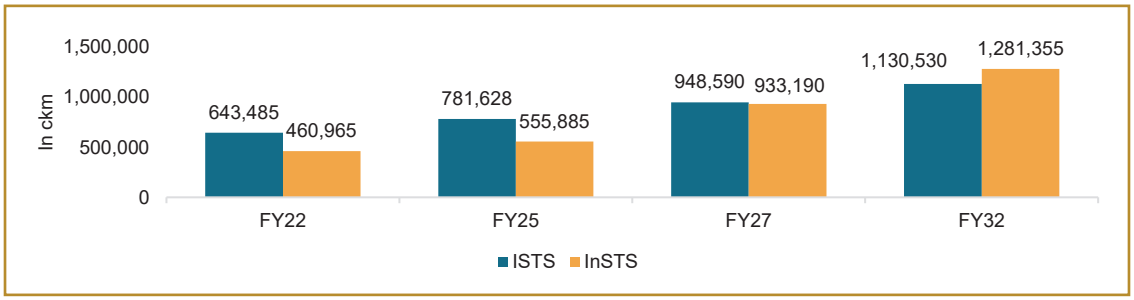
The plans for these periods have been prepared based on peak electricity demand projections and expected generation capacity addition. Based on government estimates, transmission line capacity is expected to increase 1.16x and to 571,403 circuit kilometre (ckm) by fiscal 2027 from 495,374 ckm in fiscal 2025. Similarly, transmission line capacity is expected to increase to 648,190 ckm by fiscal 2032. To aid this growth, substation capacity is expected to rise to 1,881,780 MegaVolt-Ampere (MVA) by fiscal 2027 and by 1.3x to 2,411,885 MVA by fiscal 2032.

Total Transmission Line Capacity Outlined as Per NEP in MVA



Note: ISTS – Inter-State Transmission System; InSTS – Intra-State Transmission System
Source: CEA, Crisil Intelligence

Total Transmission Substation Capacity Outlined as Per NEP in MVA



Note: ISTS – Inter-State Transmission System; InSTS – Intra-State Transmission System
Source: CEA, Crisil Intelligence

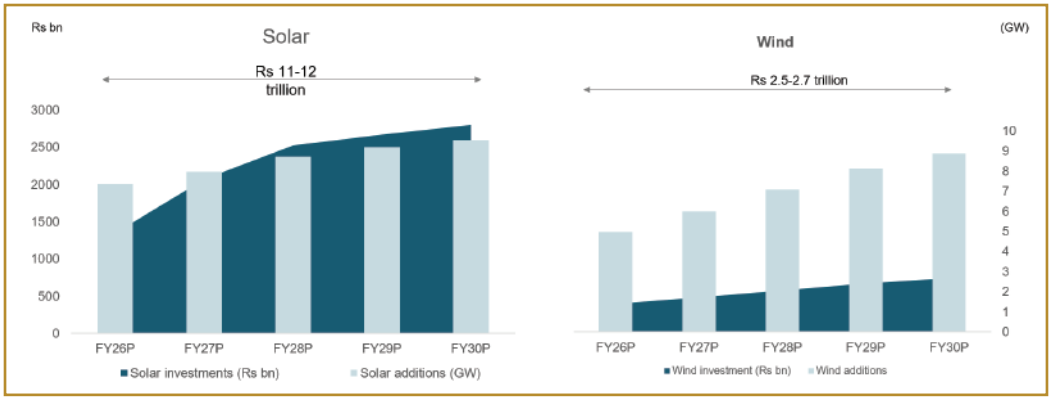
SOLAR

Solar power capacity is expected to surge to 170-180 GW over fiscals 2026 to 2030, significantly surpassing the 77 GW added between fiscals 2020 and 2025. This growth would primarily be spurred by robust government backing, demonstrated through an aggressive tendering strategy. Key catalysts include technological advancements (e.g., floating solar and module efficiency), affordable financing and supportive policies. However, infrastructural challenges such as land and connectivity availability are impacting project momentum as on date.

The momentum of solar additions from previous fiscals did not falter in fiscal 2025, with 24 GW solar capacity added during the year, up 60% on-year. With a robust pipeline of projects and easing supply chain pressures, 28-32 GW is expected to be added in fiscal 2026 and the momentum is expected to continue over fiscals 2026 to 2030, driven by additions under:

- **Other Central Schemes:** Under the Inter-State Transmission System (ISTS) scheme, the Solar Energy Corporation of India (SECI) currently has tendered and allocated capacity of more than 40 GW (including hybrid).
- **State Solar Policies:** ~48 GW of projects are under construction and expected to be commissioned over fiscals 2026 to 2030, based on tendered capacities by states as of June.
- **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 already commissioned over ~3.7 GW of new capacity in fiscal 2025 under various schemes. It has a target of installing ~35 GW of renewable energy capacities by fiscal 2028. 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 NLC, defence organisations, and governmental establishments are also expected to contribute to this addition.

- **Rooftop solar projects:** We expect 30-35 GW of rooftop solar projects to be commissioned by fiscal 2030, led by PM Surya Ghar Yojana and industrial and commercial consumers under the net/gross metering schemes of various states.
- **Open-access solar projects:** We expect 33-37 GW of open-access solar projects (under the capex and opex mode) to be commissioned by fiscal 2030, led by Green Energy Open Access Rules, 2022[3], sustainability initiatives/RE 100 targets of the corporate consumers, better tariff structures and policies of states such as Uttar Pradesh and Karnataka, which are more long term in nature.



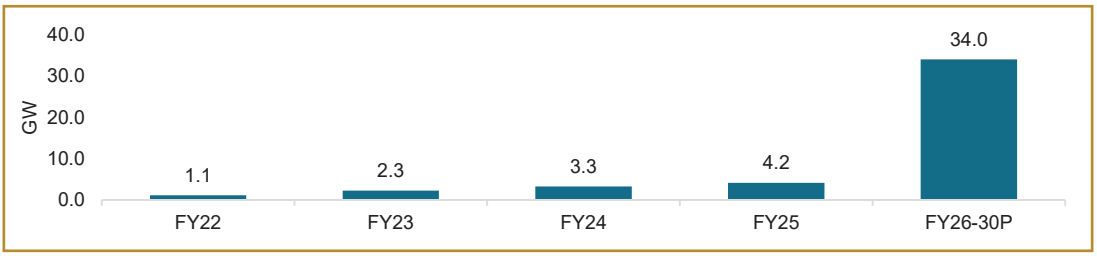
Source: Crisil Intelligence

Developers are expected to opt for solar power owing to lower investment requirement upfront and operating costs as compared to wind. Solar investments are expected to be ~3x over fiscals 2026 and 2030 compared to wind.

WIND POWER

With the addition of 4.15 GW capacity in fiscal 2025, India's total wind energy capacity stands at 50.05GW, reinforcing wind energy's role in India's renewable energy mix. Capacity additions are expected at 21-22 GW over fiscals 2026 to 2030 with addition of 6-6.5 GW from competitively bid standalone wind and 15-15.5 GW from competitively bid mixed resources wind component to be commissioned by fiscal 2030. Additionally, it is estimated that the open access route, being promoted by Green Energy Open Access Rules, will drive the sustainability business by adding additional 13-14 GW through the wind segment. Altogether, wind entails investments of Rs 2.5-2.7 trillion over the next five fiscals.

Capacity Additions in Wind Energy



The solar installed base has grown at 24% CAGR between fiscal 2021 and 2025 as compared to 6% growth for wind energy. This gap in growth is due to 1.5 to 2 times higher capex as well as higher operating and maintenance expenses and higher year-around variability in power generation from wind sources. However with reduction in the cost of key manufacturing components such as concrete and steel and favourable government policies, wind power is expected to show a steady rise.

Due to its long coastline measuring 7,600 km, India has a potential of 140 GW in the offshore wind segment. This emerging segment has witnessed a lot of interest from the government and bidders in an Expression of interest (EoI) released by the Ministry of Renewable energy (MNRE) some fiscals ago. Offshore plants have high plant load factor (50- 55%) as compared to onshore plants (30-35%). However, this comes at a cost of higher additional expenditure with capital cost being almost 3 times and O&M cost being 6 times that of onshore wind in today's scenario. This is mainly due

to enhanced requirements, higher maintenance and specialised infrastructure required. It is expected to moderate as linked supply chain, developer capabilities and infrastructure develop over the remainder of the decade. However, this will be a gradual process. In a move to increase momentum in the space and provide more clarity on the seabed leasing aspect, the government has released seabed leasing guidelines to be adhered to for implementing such projects. Currently, to make offshore wind energy viable, a tariff of 8.5-9 would be required without viability gap funding ((VGF).

The Factors That Will Impact Wind Capacity Additions Over the Long Term are:

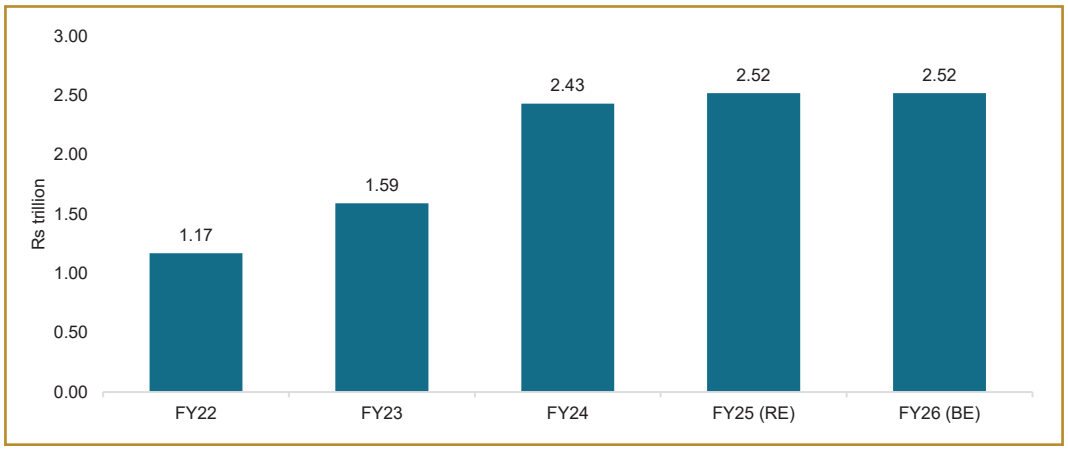
- Increasing acceptance of higher tariff for wind among discoms, leading developers to quote viable tariffs
- Healthy pipeline build-up of ~3.1 GW of standalone wind tenders issued in fiscal 2024 and 2.2 GW in fiscal 2025 can lead to high allocation and commissioning in upcoming years
- Mixed resource segment estimated to see 70% of total additions in competitively bid wind segment, adding 15-15.5 GW over next five fiscals
- Further as per Crisil's estimates, increasing adoption of wind in open access will lead to addition of 13-14 GW over the next five fiscals

RAILWAYS

India has the fourth-largest railway system in the world, after the US, Russia and China, and remains a backbone of national connectivity and logistics. As of fiscal 2025, Indian Railways operated 13,000+ passenger trains and 11,000+ freight trains daily across a route network of 67,000+ kms.

Capital expenditure on railways has increased from Rs 1.17 trillion in fiscal 2022 to Rs 2.52 trillion in fiscal 2026 (BE), logging a robust 21% annual growth rate. High-speed rail projects, comprehensive electrification and huge investments between fiscal 2022 and 2025 have accelerated the modernisation efforts and positioned railways as a critical factor in India's transition towards a high-income economy.

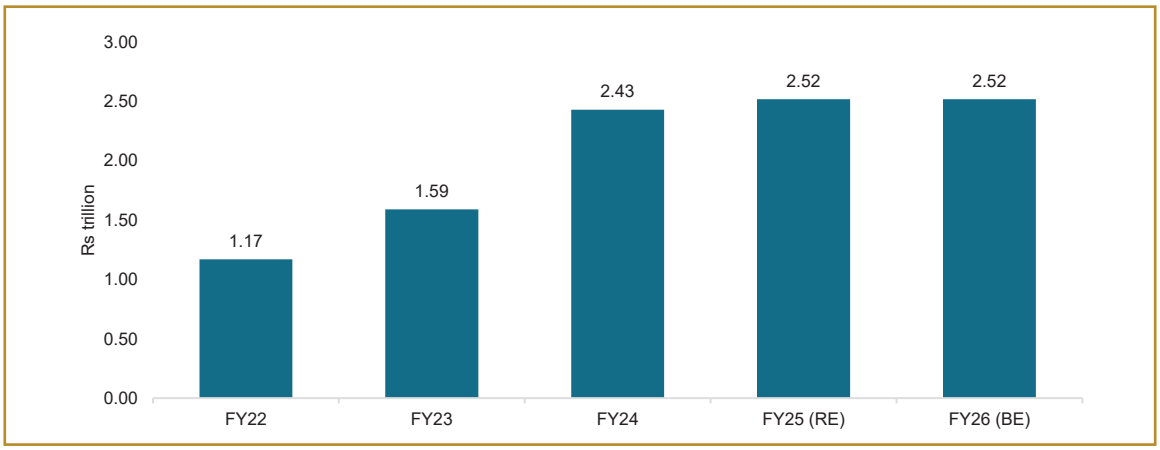
Capex on Railways From Fiscal 2022 to Fiscal 2026 (BE)



Source: Budget documents; Crisil intelligence

The number of passengers travelling in general coaches has increased from 275 crore in fiscal 2022 to 651 crore in fiscal 2025, marking a 2.3 times increase over a period of four years, while the average number of passenger trains running daily has also increased from 13,169 in fiscal 2020 to 13,940 in fiscal 2025.

Passengers Travelling in General/unreserved Coach



Source: Sansad

Indian Railways has undertaken a comprehensive set of initiatives aimed at increasing its modal share in freight transportation. These efforts include the construction of new railway lines and multi-tracking of existing routes. Port connectivity is being strengthened to facilitate seamless multimodal logistics, while the development of Gati-Shakti Multi Modal Cargo Terminal (GCTs) is improving cargo-handling capabilities. A corridor-based approach is being adopted to streamline movement over high-density routes. Modernisation of rolling stock and induction of high horse power (HHP) locomotives are improving hauling capacity and reliability of assets.

Infrastructural Projects Currently Underway

Category	No of projects	Total length (km)	Length commissioned (km)	Total capex up to March 2025 (Rs crore)
New lines	154	16,142	3,036	145,318
Gauge conversion	33	4,180	2,997	22,753
Double multi-tracking	244	15,644	6,736	122,858
Total	**431**	**35,966**	**12,796**	**290,929**

Source: Sansad.

Projects That Will Drive Investment in the Coming Years

Project/Scheme	Total opportunity	Construction opportunity	Expected completion
Rail corridors	Rs 11 trillion	~ 40,000 kms	FY32
High speed rail	Rs 8-10 trillion	~ 3,500 kms	-
Railways station redevelopment	Rs 0.41 trillion	~ 1,300 kms	FY28

Source: Ministry of Railways

The railways sector is set for substantial growth with an extensive pipeline of major projects underway. This includes the development of new rail corridors announced in the Union Budget 2024-25, such as new dedicated freight corridors (DFC) and specialised corridors for energy, minerals, cement, port connectivity and high-traffic routes. These projects are expected to attract investments of Rs11 trillion and add ~40,000 km of new tracks by fiscal 2032. Currently, the eastern DFC is 100% operational, while the western one is 93% completed and is expected to become fully operational by the end of the current fiscal.

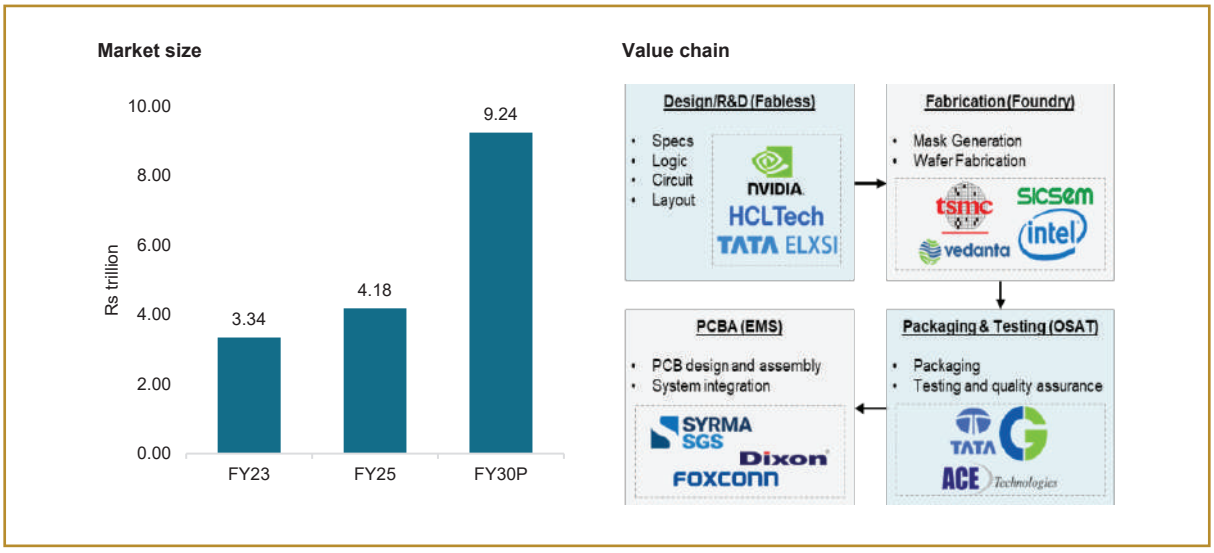
Beyond the Mumbai-Ahmedabad corridor, multiple high-speed rail projects—including Chennai-Mysore-Bengaluru, Delhi Varanasi, Delhi-Amritsar and Mumbai-Nagpur—are in the detailed project report (DPR) stage and are anticipated to progress once the Mumbai-Ahmedabad line becomes operational. The government is also prioritising station redevelopment and passenger security. With these initiatives, the railways sector is positioned for impressive growth in the coming years, playing a key role in India's infrastructure advancement.

Indian Railways is advancing its sustainability and ESG efforts through initiatives focussed on electrification, renewable energy and cleaner operations. The recent introduction of WAG-12B electric locomotives, developed jointly with Alstom, reflects this commitment. These powerful 12,000-horsepower engines, capable of hauling up to 6,000 tonne, will replace diesel engines, thereby improving freight efficiency and reducing emissions. Additionally, over 200 MW of solar power capacity has already been installed, with a target of 3 GW by 2030, while waste-management and water-recycling programmes are operational at various railway stations across India. These actions underscore the dedication of Indian Railways to achieve sustainable, responsible growth.

Source: PIB, Sansad

EMERGING SECTORS

Semiconductor



Source: PIB, Crisil Intelligence

To position India as a global hub for semiconductor innovation, the Union government launched the SEMICON India Programme in 2021 with a total investment of Rs 760 billion, implemented through the India Semiconductor Mission (ISM) under the Ministry of Electronics and Information Technology (MeitY). The initiative focusses on developing a complete value chain—from chip design to fabrication and packaging—to reduce import dependence and strengthen supply-chain resilience.

So far, ~ Rs 650 billion has been committed toward establishing semiconductor fabs, display manufacturing units and compound semiconductor facilities. Complementing the manufacturing push, the Design-Linked Incentive (DLI) scheme [4]promotes domestic semiconductor design capabilities by reimbursing up to 50% of design costs and offering sales-based incentives for successful products. As of 2025, 23 chip design projects have been sanctioned, primarily led by startups and MSMEs working across consumer electronics, electric vehicles (EVs) and defence applications. One such example is Vervesemi Microelectronics, which designs advanced chips for defence, aerospace, EVs and energy systems. Backed by DLI support, the company has developed over 100 IP blocks and aims to begin large-scale production by fiscal 2027.

Capex allocation

Year	Project/facility	Company/promoter	Location	Capex (Rs billion)	Segment
2026	Assembly and test facility	Tata Semiconductor AT	Assam	270	OSAT/packaging
2025	Fab (display driver chips)	HCL-Foxconn JV	Uttar Pradesh	37	Fabrication
2025	SiC compound semi fab	SiCSem Private Limited	Odisha	21	Compound semi
2025	Advanced glass packaging	3D Glass Solutions	Odisha	19	Packaging
2025	ATMP expansion	CDIL	Punjab	1	OSAT/packaging
2025	ATMP facility	ASIP Technologies	Andhra Pradesh	5	OSAT/packaging
2024	Fab facility (semiconductor)	Tata Electronics/PSMC	Gujarat	910	Fabrication
2024	OSAT (assembly and test)	CG Power/Renesas/Stars	Gujarat	76	OSAT/packaging
2024	Compound semi pilot	Kaynes Semicon	Gujarat	33	Compound semi
2024	Fabless chip design startup	Larsen & Toubro	India	26	Design/fabless
2024	Semiconductor fab proposal (under review)	Adani-Tower Semi JV	Maharashtra	704	Fabrication
2023	ATMP facility	Micron Technology	Gujarat	225	OSAT/packaging

Note: ATMP – Assembly, Testing, Marking and Packing; OSAT – Outsourced Semiconductor Assembly and Test
Source: PIB, Crisil Intelligence

Maritime Sector: Developments and Reforms

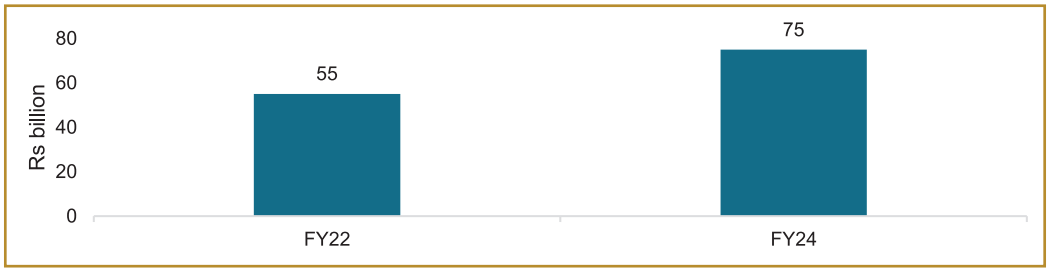
Maritime India Vision 2030 was introduced in 2021 to create a blueprint for the nation's maritime development over the next decade. It envisioned a total investment of Rs 3 trillion for the maritime sector and estimated an annual revenue of Rs 200 billion for all Indian ports.

Goals of Maritime India Vision 2030

- Increase India's total cargo handling capacity to 3,300 MTPA by 2030
- Reduce average turnaround time for container traffic to <20 hours
- Improve the country's global rank in ship building and repairs to <10
- Increase the share of cargo transshipments handled by Indian ports to >75%

Government capex in the maritime sector increased 37% from Rs 55 billion in fiscal 2022 to Rs 75 billion in fiscal 2024. Gross budgetary support also rose to Rs 16 billion from Rs 10.5 billion, during the same period.

Airport Freight Taffic and % Share of International Freight



Sources: PIB, Ministry of Ports, Shipping and Waterways, Crisil Intelligence

Achievements (Fiscals 2022-2024)

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Goals of Maritime India Vision 2030

- Major ports' capacity increased to 1,630 MMTPA in fiscal 2024 from 1,598 MMTPA in fiscal 2022
- Overall vessel turnaround time reduced to 48 hours from 53 hours
- Ship berth day output increased to 18,900 MT from 16,000 MT
- Two ports featured in the global top 30 ports
- Cargo volume handled by National Waterways increased to 133 MMT from 108 MMT
- Coastal tonnage increased to 324 MMT from 260 MMT
- Additionally, India's ranking in World Bank's International Shipment Logistics Performance Index improved to 22 in 2023 from 44 in 2018

Challenges

- Traditionally, India has relied on foreign shipbuilders, due to which its position in the global shipbuilding industry has remained far behind China and South Korea. However, recent budgets have allocated funds to promote innovation in shipbuilding, aimed at making India a leading global player in the industry by 2047
- India currently lacks smart port infrastructure such as AI-driven cargo tracking and predictive analytics-based cargo management systems. To compete globally and improve operational efficiency, the country needs to upgrade its technological capabilities
- In addition, limited connectivity between railways, ports and other modes of communication hampers last-mile delivery and causes delays in the movement of goods. To address this, the country has recently focussed on building multimodal networks to reduce congestion and improve cargo flow
- Unclear regulations in the maritime sector also remain a concern. For e.g. the recent Merchant Shipping Act, 2025—which allows partial foreign ownership of vessels—does not clearly specify the extent of ownership permitted, leaving the decision to the discretion of executives

In 2024, three bills were introduced in the Parliament to reshape the maritime sector, pointing to the country's renewed focus on strengthening the sector's infrastructural and regulatory framework.

1. **Merchant Shipping Act, 2025:** It replaces the earlier 1958 Act and aims to brings Indian laws in-line with the international convention. It expands the definition of vessels and makes registration mandatory for all vessels, while providing scope for temporary registrations. It also aims to reduce the 100% Indian ownership requirements to 51% and aims to reduce pollution, in line with global standards.
2. **Coastal Shipping Act, 2025:** It replaces the earlier Part XIV Merchant Shipping Act, and simplifies compliance for Indian vessels. It also regulates foreign participation and mandates long-term strategic planning. The Act eliminates general trading licence requirement for vessels with an Indian flag, making it easier for Indian entrepreneurs to operate ships, through ownership or chartering. The aim is to strengthen domestic capacity by increasing the number of Indian vessels in coastal trade. Foreign flag vessels, however, would need to obtain a licence from the Director General of Shipping before entering coastal trade.
3. **Indian Ports Act, 2025:** It replaces the outdated provisions of the Indian Ports Act, 1908, with contemporary regulations. The Act designates the government appointed conservator as the port officer, giving him authority over other officers. The conservator retains powers over vessel movement within port limits and fee recovery, along with added responsibilities for disease control, damage assessment and penalty adjudication. The Act formally recognises the state maritime boards established by coastal states and empowers them to manage non-major ports. It also designates the Maritime State Development Council (MSDC) as a statutory consultative body for coordination between the Centre and coastal states.

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Funding the future: The infrastructure imperative

[1] LIS, started in fiscal 2020, provided special long-term transition loans to DISCOMs up to 10 years through PFC and REC to provide liquidity for payments. LPS was started in fiscal 2022 and it allowed DISCOMs to pay their outstanding dues free of interest for up to 48 EMIs to the reduce payment burden on DISCOMs

[2] Bharatmala Pariyojana is a flagship infrastructure development program by the government of India aimed at improving road connectivity through the construction of highways, expressways, and bridges across the country. It focuses on creating an efficient transportation network to boost trade, reduce travel time and foster economic growth.

[3] Green energy open access rules allow certain consumers to demand green energy from discoms.

[4] Design linked scheme was launched in 2021 with an allocation of Rs 10 billion

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